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## DOMESTIC TOURISTS' PERCEPTIONS OF THE INTENTION TO USE DIGITAL MARKETING TOOLS AND PLATFORMS

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**Abstract:** This study built its premise upon the notion that digital technologies have created new bridges for communication between tourists and marketers. The study aims to determine the influence of domestic tourists' perceptions on the intention to use digital marketing tools and platforms. Based on the Technology Acceptance Model and the updated DeLone and McLean Information Systems, regression analyses were used to test the hypotheses based on 401 surveys conducted with tourists using self-administered questionnaires. Surveys were selected following a non-probability, convenience procedure and stratified proportional sampling technique. The study findings highlight that perceived usefulness, information quality, system quality, service quality and user satisfaction are significantly related to the intention to use digital marketing tools and platforms. The success of digital marketing strategies employed by tourism marketers depends on tourists' use and adoption of tourism digital marketing tools and platforms. The study findings have policy and practical implications for policymakers, managers and marketers in developing effective and efficient digital marketing strategies that meet tourists' needs and expectations.

**Key words:** tourism, digital marketing, Technology Acceptance Model (TAM), DeLone and McLean Information Systems (D and M IS) success model

\* \* \* \* \*

### INTRODUCTION AND BACKGROUND TO THE STUDY

Within the tourism industry, the increased use of the internet and technological developments have revolutionized communication, the gathering of information and the dissemination of information (Jansson, 2022). The rapid growth of technology has digitally empowered tourists through the proliferation of smartphones and mobile digital devices (Buhalis and Sinarta, 2019), fostered gratification (Zollo et al., 2022) and has also increased tourists' access to information (Kotoua and Ilkan, 2017). Technology has disrupted the status quo of businesses and levelled the marketing field by giving birth to digital marketing - a marketing strategy leveraging business success on tourists' prolific touchpoints, the internet and smartphones.

Digital marketing allows businesses to adapt to technological innovations such as websites, social media and travel applications, which are easily accessed by tourists. Digital marketing strategies aim to attract prospective consumers and maintain existing customers to continue using the services provided by the seller (Yel et al., 2020) thereby creating buyer-seller relationships (Ababneh, 2022). The technological mediatization in digital marketing has disrupted the traditional marketing and buying bubble by providing dynamic online marketing channels which allow tourism products to be purchased virtually. Tourists are therefore no longer passive receivers of marketing information or isolated when they travel. They now play a role in content creation, sharing, and communication (Fan et al., 2019; Villamediana et al., 2019). Furthermore, while travelling, tourists now interact and engage digitally with other people such as family, friends, co-workers, service providers and other travellers using different platforms such as social networks. Thus, online social contact has become a norm for tourists to share their travel experiences and provide reviews for service providers (Fan et al., 2019; Yusuf and Tanvir, 2022).

Tourism is a highly experiential product. Tourists cannot perceive the quality of tourism products in advance by relying on online information from marketers and other travellers who have experienced the tourism products (Narangajavana Kaosiri et al., 2019). That said, tourists do make use of the different digital marketing tools and platforms available to them in order to access information on tourism (from the initial trip-planning stage, during the trip and after the trip) and tourists have the autonomy to decide when, how, which or whether to use digital marketing tools and platforms. Tourism businesses can only survive when tourists use their services, meet customer needs and exceed customers' satisfaction when using digital marketing tools and platforms (Singh, 2017; Sotiriadis, 2021). Previous studies have been conducted to try and understand users' behavioural intentions to use technology in different contexts (Singh and Srivastava, 2019; Kim and Hall, 2020; Al-Rahmi et al., 2021). Singh and Srivastava (2019) explored the acceptance and usage of social media for travel

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purposes by outbound leisure travellers. Kim and Hall (2020) and Al-Rahmi, et al. (2021) findings highlight that perceptions influence behavioural intentions. Despite previous studies on users' behavioural intentions, several omissions persist in the literature. Many studies focused on demographics as determinants of user intentions (see Hudson et al., 2019; Acheampong and Siiba, 2020). Attention has been placed on the young generation (see Matikiti-Manyeverve and Hattingh, 2020). Singh and Srivastava (2019) limited their study to outbound tourists. Hence, less attention has been placed on the diverse range of tourists. Secondly, attention has often been afforded to the impact of technologies on the behaviour of tourists (see Harb et al., 2019; Alghizzawi et al., 2020; Chamboko-Mpotaringa and Tichaawa, 2021; Ababneh, 2022). Harb et al. (2019); Yusuf and Tanvir (2022) focused on social media as a marketing tool while Alghizzawi et al. (2020) focussed from a Facebook perspective. In their paper, Chamboko-Mpotaringa and Tichaawa (2021) highlighted the impacts of digital marketing tools. Ababneh (2022) focussed on the impact of electronic word of mouth on marketing tourism services. The studies neglect the influence of factors that affect users' intentions to use technology. The study aims to close these gaps. Moreover, since technology adoption in the tourism industry is constantly growing, it is paramount to understand tourists' perceptions of the intention to use digital marketing tools and platforms for tourism purposes.

Using ICT in globally competitive markets gives organizations a significant competitive advantage (Ababneh, 2022; Zollo et al., 2022). The study used Technology Acceptance Model (TAM) and the updated DeLone and McLean Information Systems (D and M IS) success model to determine the influence of domestic tourists' perceptions on the use and intended use of digital marketing tools and platforms. Combining constructs from TAM and the updated D and M IS success model offers new perspectives for explaining technology adoption and usage. Thus, the combined model aids in a more comprehensive model that can more explicitly offer an understanding of technology adoption behaviour by tourists in digital marketing, with particular reference to the context of developing nations. It is crucial for tourism marketers, managers and policymakers to have an insight into tourists' perceptions regarding digital marketing. Taking advantage of digital marketing enables tourism destinations to enhance their competitiveness.

## **THEORETICAL FRAMEWORK**

### **Technology Acceptance Model (TAM)**

In the extant technology adoption literature, there appears to be an agreement that TAM offers a basis for understanding user usage and adoption (Cross, 2019; Mathew and Soliman, 2021; Chou et al., 2022). Moreover, TAM has gained popularity because of its adaptability, simplicity and soundness (Al-Qaysi et al., 2020). The use of TAM in different contexts has also enhanced its explanatory ability and validity in technology usage and adoption studies. Davis (1989) posits that when any new technology is introduced, 'perceived usefulness' (PU) and 'perceived ease of use' (PEOU) of the new technology lead to acceptance by the targeted users. TAM reflects that the actual usage of new technology depends upon the user's perceived usefulness or benefits derived from using the new technology and the perceived ease of use. The use of the TAM alone has received criticism and has led to scholars modifying the original theory to improve its validity, applicability and understanding of user acceptance behaviour (Huang et al., 2019; Singh and Srivastava, 2019). Moreover, within the context of technology adoption studies, scholars have of late been blending different theoretical models to strengthen the applicability of the study findings (Matikiti et al., 2018; Al-Rahmi et al., 2021). Following suit, this study thus adopts the use of TAM in conjunction with the updated DeLone and McLean Information Systems (D and M IS) success model.

### **Updated DeLone and McLean Information Systems (D and M IS) success model**

Several scholars have advocated for the updated D and M IS success model in order to identify success factors of e-platforms (see Nugroho and Prasetyo, 2018; Isaac et al., 2019; Yel et al., 2020). The D and M IS success model was adopted after the original D and M IS (1992) success model received criticism from different scholars (Shannon and Weaver, 1949; Mason, 1978). The original model suggests that user beliefs about the quality of the information and system precede technology's actual use (or intention) and overall satisfaction. Actual usage is influenced by satisfaction, and satisfaction is generated through actual technology usage, which ultimately produces individual and organizational impact (Hung-Joubert, 2017). Following the critique received as well as rapid technological changes, DeLone and McLean proposed an updated D and M IS success model, which considered 'service quality' and 'net benefits' (DeLone and McLean, 2003). Thus, the updated D and M IS success model has five factors: information quality, system quality, service quality, use/intention, user satisfaction and net benefit. These factors help to better understand consumer intentions and the success of the technology. The benefits of new digital marketing technology can only be realized if and when the new technology is broadly acknowledged, accepted and used (Alkawsu et al., 2018). The success of digital marketing strategies employed by tourism marketers depends on tourists' use and adoption of tourism digital marketing tools and platforms. Understanding the different variables that may determine a person's eagerness to use new technology is vital in improving the success of digital marketing strategies.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Perceived usefulness (PU) and perceived ease of use (PEOU)**

From the TAM, the study adopts the variables, usefulness and ease of use in order to explain tourists' motivation for using and intention to use technology (Estriegana et al., 2019). PU refers to the possibility that one is convinced that adopting new technology would be useful and PEOU refers to the extent to which individuals perceive how easy it is to use the new technology (Davis, 1989). In the study context, PU refers to the possibility that digital marketing tools and platforms that marketers use in their digital marketing strategies would be useful in trip planning, during and after engaging

in the trip for tourism purposes. According to Alkawsu et al. (2018), technology users are likely to accept new technology that they can benefit from and which do not require prior familiarisation. Matikiti-Manyeveru and Hattingh (2020) argue that technology users are willing to learn new features if the new technology is easy to understand and use and if it will be useful to them. Thus, with the help of digital marketing tools and platforms, tourists can ascertain which holidays will satisfy them. Moreover, tourism marketers can modify their digital marketing strategies so that their digital marketing tools and platforms are easy to use. For example, by providing customers with the option to select the language in which they most comfortable reading and conversing. Thus, the study proposes that PU and PEOU affect tourists' intention to use digital marketing tools and platforms, which in turn affect usage:

**H<sub>1</sub>:** PU of digital marketing tools and platforms is significantly related to the use of/intention to use digital marketing tools and platforms.

**H<sub>2</sub>:** PEOU of digital marketing tools and platforms is significantly related to the use of/intention to use digital marketing tools and platforms.

### Information quality

Quality information evokes emotions, creating memorable experiences and is associated with usage intention. In today's world, customers worldwide are aware of truthful information owing to the help provided by technology and the internet. As a result, tourism businesses have little or no choice but to move towards providing quality information effectively and efficiently (Cross, 2019). Information quality is multidimensional as it encompasses format, accuracy, comprehensiveness, reliability and appropriateness. Li et al. (2017) highlight that digital marketing tools and platforms are virtual gateways to destinations which mainly provide information to minimize the perceived risks of visitation. In support, Jiménez-Barreto et al. (2020) state that official destination websites provide official destination information. Chamboko-Mpotaringa and Tichaawa (2021) concur that users of destination websites perceive content marketed on destination websites to be credible. Thus, informative value positively influence trust which affects users' intentions (Wengel et al., 2022). Based on the above discussion, we hypothesized the following:

**H<sub>3</sub>:** Information quality of digital marketing tools and platforms significantly affects the use of/intention to use digital marketing tools and platforms.

**H<sub>4</sub>:** Information quality significantly affects tourists' overall travel satisfaction.

### System quality

In the current study, the system refers to digital marketing tools and platforms such as websites, social network sites, travel applications and online review sites. The definition of system quality is contested as it differs among scholars. According to Dedeke (2016), system quality includes navigability, interface design, graphics and user interface. DeLone and McLean (2003) believe system quality encompasses technical aspects such as navigability, aesthetics, and functionality. This study adopts the position of DeLone and McLean (2003). The system's design is an essential foundation of persuasion in digital marketing. The updated D and M IS success model postulates that digital tourism destination marketing strategies are venues wherein potential tourists access destination information and generate their first impression of the destination. If, for example, the system's quality is low, it is anticipated that the potential tourists would leave the low-quality system, seek another source of information, or even change their travel destination. Consumers' perceptions of a visually attractive website create pleasant feelings that may increase their search behaviours (Busca and Bertrandias, 2020). According to Li et al. (2017), one of the aims of Destination Management Organizations (DMOs) is to feed traffic to local tourism businesses and their websites instead of maximizing DMOs business benefit. Hence, in this study, we propose:

**H<sub>5</sub>:** System quality of digital marketing tools and platforms significantly affects the use of/intention to use digital marketing tools and platforms.

**H<sub>6</sub>:** System quality significantly affects tourists' overall satisfaction

### Service quality

In today's world, how customers perceive service delivery is important for the business's success since it influences customer loyalty. As Li et al. (2017) point out, the 'tech savvy' who are the new generation of tourists, publicize their experiences in the virtual world. These tourists represent a paradigm shift whereby users proactively use eWOM (electronic word of mouth) to communicate their perceived customer service. Furthermore, technology has brought about additional new determinants in order to measure excellent customer service which did not emerge in the traditional service delivery platforms and changed the conceptual view of service quality (Nugroho and Prasetyo, 2018). These determinants include speed, high interactivity, navigation and 24/7 availability of service providers. Service quality is perceived as high if a prompt service is provided, if customers feel involved when using the interactive digital marketing tools, if the information provided is trustworthy and if businesses respond to customer enquiries. Perceived service quality reflects the judgments tourists make about product and service quality based on their needs Tavitiyaman et al (2022), which consequently affects tourists' usage intentions (Kim and Niehm, 2009). Based on the above views, we propose the following hypotheses:

**H<sub>7</sub>:** Service quality of digital marketing tools and platforms significantly affects the use of/intention to use digital marketing tools and platforms.

**H<sub>8</sub>:** Service quality significantly affects tourists' overall travel satisfaction.

**H<sub>9</sub>:** Information quality significantly affects service quality

**H<sub>10</sub>:** System quality significantly affects service quality

**Satisfaction**

Digital marketing tools and platforms offer users many benefits. These include providing personalized information that suits individual needs, interfaces that allow customers to use either their mobile devices or their desktops and permits users to be involved in content creation. Tourists can freely post reviews of their travel experiences in a user-friendly setting and comment, like or share content made available to them in their news feeds (du Plessis, 2017; An et al., 2020). Research has indicated that technology users engage most with platforms when they are consistent, interactive and vivid (Buhalis and Sinarta, 2019; Jiménez-Barreto et al., 2020). For instance, a study by Kuhzady et al. (2020) revealed that involvement results in familiarity. Tourists already have specific needs and expectations that they assume digital marketing channels will meet and satisfy. For this study, expectations are a reflection of the net benefits that customers expect to receive from digital marketing tools and platforms. The concept of customer satisfaction can be referred to as consumer fulfilment, whereby consumers experience contentment with the tourism destinations visited. If the tourism destination, products and services meet customer expectations then the customer is said to be satisfied. Quality is important for technology users who have favourable, vivid and familiar images about destinations as it leads to higher satisfaction and the more robust behavioural usage and intentions of digital marketing tools and platforms for tourism. Overall, satisfaction positively correlates to use (Pai et al., 2020). Consequently, in this study, we hypothesized that:

**H<sub>11</sub>**- Tourist satisfaction is significantly related to the use and intention to use digital marketing tools and platforms.

**H<sub>12</sub>**: Tourists, overall satisfaction is significantly related to benefits.

**H<sub>13</sub>**: The use of/intention to use digital marketing tools and platforms is significantly related to net benefits

Based on the above literature, the study

proposed a model (Figure 1) which indicates the different constructs and the relationships thereof. The proposed model made use of TAM variables as well as the updated D and M IS success model. The model proposed that perceived usefulness, ease of use, information quality, service quality, system quality, and tourist overall satisfaction significantly affect the use of and intention to use digital marketing tools and platforms. Similarly, the study argues that information, service, and system quality also significantly affect tourists' overall satisfaction. The study further argues that tourists' overall satisfaction and use of/intention to use digital marketing tools and platforms are significantly related to net benefits.

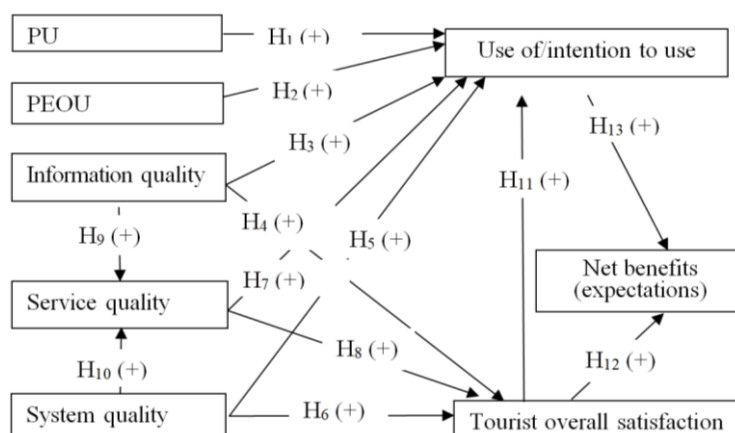


Figure 1. Proposed model (Source: Authors)

**METHODOLOGY**

The current study adopted a quantitative research design. Data were collected from domestic leisure tourists visiting the Free State province in South Africa. To qualify, the participants had to be travelling

for recreation, holidays and/or leisure purposes either as day visitors or overnight visitors but not exceeding a period of sixty nights, given that with such extended stays, the tourists tend to experience life in the same way as the locals (Stats SA, 2020). Respondents whose province of permanent residence was the Free State province were only included in the study if they were travelling outside of their permanent municipal area. Non-probability, convenience, and stratified proportional sampling techniques were employed. Respondents were selected based on their availability, ease of access, convenience and willingness to participate. The Free State province is well known for its Big five wildlife, geographically spread throughout the province's municipalities (Mangaung - the district's metropolitan municipality, and the four district municipalities: Fezile Dabi, Lejweleputswa, Xhariep and Thabo Mofutsanyana). Thus, the study area was stratified into five statums based on each stratum's tourism features and geographical location, which acts as the province's municipal boundaries, to ensure statistical representation of the whole province. The domestic tourists were targeted at popular tourist attractions in each stratum. The study made use of the latest statistics available during fieldwork in order to determine the study population as well as the sample size. The study population was informed by the fact that 410 000 domestic tourists visited the Free State province (Stats SA, 2020). Analyzing the province's domestic tourist arrivals revealed an uneven spread whereby Mangaung received 41%, Thabo Mofutsanyane 25%, Xhariep 15%, Fezile Dabi 11% and Lejweletutswa 9%. The study mirrored the domestic arrivals on completed surveys. Table 1 shows the distribution of the completed surveys.

Based on an in-depth literature review, items were adapted to suit the study, and a questionnaire was developed to measure the study constructs. The first section of the questionnaire solicited the demographic characteristics of the respondents. The following sections contained questions related to the constructs of the study. A five-point Likert scale questionnaire was utilized in the study. The variables of the research and indicators are presented in Table 2. The questionnaire used for this research was pilot tested on a sample of twenty domestic leisure tourists in order to check the ease

Table 1. Distribution of surveys (Source: Authors)

| Municipality                               | Completed surveys | % of completed surveys |
|--|-------------------|------------------------|
| Mangaung Metropolitan Municipality         | 165               | 41.2                   |
| Fezile Dabi District Municipalities        | 102               | 25.4                   |
| Xhariep District Municipalities            | 55                | 13.7                   |
| Lejweleputswa District Municipalities      | 44                | 11.0                   |
| Thabo Mofutsanyana District Municipalities | 35                | 8.7                    |

of administering the questionnaire, its appropriateness, its reliability and its validity before the full-scale study (see Alkawsii et al., 2018). Taking into account the effects of missing information when analysing data, the questionnaires were self-administered (Babagana and Ibrahim, 2019). The pilot study was useful as it allowed for the validation of the survey instrument. No major issues were uncovered. The researchers therefore proceeded with the primary data collection with the assistance of trained fieldworkers. Since the questionnaire had a self-administrate design, some of the respondents decided to complete it at their own convenience and hand it to the fieldworkers since they were available at the tourist sites. To ensure quality responses, the researcher explained the requirements of the questionnaire (Matikiti-Manyever and Hattingh, 2020). In total, 420 questionnaires were distributed at the different tourist attractions between September and October 2021. The researcher made attempts to leave with the completed questionnaires from a destination. After the data collection was completed, 401 completed surveys were considered usable and informed the results. Since 19 of the questionnaires were incomplete, they were deemed unusable and were therefore removed from the analysis (Mahmoud et al., 2018).

Table 2. Variable of research (Source: Adapted from Davis, 1989; Jeng et al., 2017; Breda et al., 2019; Flavián et al., 2019; González-Reverté and Liviano-Solís, 2020; Singh and Srivastava, 2019; Dyk et al., 2020)

| Variables                     | Indicators  |
|-------------------------------|---|
| PU                            | useful on trips, enhances the quality of trips, enables convenient trips, allows for instant feedback, gives ideas about possible next trips  |
| PEOU                          | part of lifestyle, user-friendly, familiarity, content is readily and easily available, flexibility   |
| Information quality           | easy to understand, updated, comprehensive, accurate and reliable, recommendations based on personal interests  |
| System quality                | available 24 hours a day, accessibility, high level of creativity, easy to learn  |
| Service quality               | involvement, trustworthy, high chance of getting a response   |
| Use of/Intent                 | tourism destination websites and tourism businesses websites, specialized search engines, blogs, consumer review sites, online sharing economy platforms, social network sites, travel applications |
| Net benefits (Expectations)   | user-friendly interface, personalized information, high interactivity, helpful service personnel, personal information safe   |
| Tourists overall satisfaction | satisfied with the trip, satisfied with the enhancement of the travel experience, visit exceeded expectations   |

Descriptive and inferential statistics were performed on the collected data. Statistical Package for Social Sciences (SPSS) software, version 27, was used to capture and analyze data. To summarise the variables, descriptive analysis of the data was performed. Regression analyses were also performed to test hypotheses in the study.

### Sample description

Out of the 401 completed questionnaires, as shown in Table 3, findings reveal that most respondents were young (68.6%), aged between 18 and 40. In terms of income, most respondents earned more than R20 000. In terms of gender, the study found that most of the respondents (55.3%) were female. Findings also showed that most of the respondents (66.8%) were from provinces other than the Free State, with Gauteng representing the region from which a significant share of the respondents originated (43.3%).

Table 3. Respondents' profile (Source: Authors)

| Variables                               | Data                           |
|---|--------------------------------|
| Age (n=401)                             | 18-30 (N=144; 35.9%)           |
|   | 31-40 (N=131; 32.7%)           |
|   | 41-50 (N=67; 16.7%)            |
|   | 51-60 (N=31; 7.7%)             |
|   | ≥61 (N=28; 7%)                 |
| Monthly income (n=365)                  | ≤R1000 (N=85; 23.3%)           |
|   | R1001-R5000 (N=56; 15.3%)      |
|   | R5001-10000 (N=39; 10.7%)      |
|   | R10001-R15000 (N=50; 13.7%)    |
|   | R15001-R20000 (N=47; 12.9%)    |
|   | ≥R20001 (N=88; 24.1%)          |
| Gender (n=401)                          | Female (N=222; 55.3%)          |
|   | Male (N=179; 44.7%)            |
| Province of permanent residence (n=401) | Free State (N=133; 33.2%)      |
|   | Other provinces (N=268; 66.8%) |
| Distribution of other provinces (n=268) | Eastern Cape (N=22; 8.2%)      |
|   | Gauteng (N=116; 43.3%)         |
|   | KwaZulu Natal (N=11; 4.1%)     |
|   | Limpopo (N=25; 9.3%)           |
|   | Mpumalanga (N=4; 1.5%)         |
|   | North West (N=18; 6.7%)        |
|   | Northern Cape (N=61; 22.8%)    |

Table 4. Reliability results (Source: Authors)

| Constructs                    | No. of items | Cronbach's Alpha |
|-------------------------------|--------------|------------------|
| Perceived usefulness          | 5            | 0.932            |
| Perceived ease of use         | 5            | 0.949            |
| Information quality           | 5            | 0.923            |
| System quality                | 4            | 0.906            |
| Service quality               | 3            | 0.889            |
| Use of/Intention              | 9            | 0.846            |
| Net benefits (Expectations)   | 5            | 0.917            |
| Tourists overall satisfaction | 3            | 0.865            |

Table 5. KMO and Bartlett's test (Source: Authors)

|                                  |                        |       |
|----------------------------------|------------------------|-------|
| KMO measure of sampling adequacy | 0.922                  |       |
| Bartlett's test of sphericity    | Approximate Chi-square | 4822. |
|                                  | Df                     | 171   |
|                                  | Sig.                   | 0.000 |

### Reliability of the constructs

The constructs' reliability was measured using Cronbach's Alpha test - a technique well known for testing studies with several Likert scales (Kim and Hall, 2020). Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were performed to assess sampling adequacy. The Cronbach's Alpha reliability results showed satisfactory internal consistency and reliability levels with a minimum score of 0.84, indicating that the constructs are reliable. These results are shown in Table 4. As illustrated in Table 5, the obtained KMO for the scale items was 0.922 - higher than the recommended level of 0.6 (Hair et al., 1998). Bartlett's test of sphericity measured Chi-Square = 4822.737,  $p < 0.000$ , indicating that it is significant, thus validating the study sample size of 401.



Regression analyses were performed to test the statistical significance of the variables. Following the work of Wang (2017) and Matikiti-Manyevere and Hattingh (2020), the variables were examined for multicollinearity by checking collinearity statistics, specifically Variance Inflation Factor (VIF) and tolerance.

As shown in Table 6, the obtained tolerance values ranged from 0.237 to 0.607. Tolerance values of less than 0.7 are deemed acceptable since they infer no evidence of multicollinearity issues (Balachandran and Tan, 2015). The Variance Inflation Factor (VIF) value was below five, indicating no collinearity problems (Sohil et al., 2022).

The study identified four dependent variables. As such, four different models were tested. Table 7 shows the results of model 1. In model 1, multiple regression analyses were conducted in order to assess the influence of the six perceptions variables on tourists' use of/intention to use digital marketing tools and platforms for tourism.

Table 6. Multicollinearity and Correlation analysis (Source: Authors)

| Independent variables | Direction of path | Dependent variables         | Correlations | Collinearity statistics |       |
|-----------------------|-------------------|-----------------------------|--------------|-------------------------|-------|
|                       |                   |                             |              | Tolerance               | VIF   |
| PU                    | ⇒                 | Use of/intention            | 0.578        | 0.262                   | 3.787 |
| PEOU                  | ⇒                 | Use of/intention            | 0.494        | 0.261                   | 3.833 |
| Information quality   | ⇒                 | Use of/intention            | 0.602        | 0.237                   | 4.212 |
| System quality        | ⇒                 | Use of/intention            | 0.443        | 0.288                   | 3.380 |
| Service quality       | ⇒                 | Use of/intention            | 0.541        | 0.321                   | 3.082 |
| Overall satisfaction  | ⇒                 | Use of/intention            | 0.562        | 0.296                   | 3.80  |
| Information quality   | ⇒                 | Overall satisfaction        | 0.602        | 0.280                   | 3.577 |
| System quality        | ⇒                 | Overall satisfaction        | 0.563        | 0.347                   | 2.879 |
| Service quality       | ⇒                 | Overall satisfaction        | 0.463        | 0.335                   | 2.982 |
| Information quality   | ⇒                 | Service quality             | 0.795        | 0.381                   | 2.624 |
| System quality        | ⇒                 | Service quality             | 0.737        | 0.381                   | 2.624 |
| Use of/intention      | ⇒                 | Net benefits (Expectations) | 0.521        | 0.607                   | 1.103 |
| Overall satisfaction  | ⇒                 | Net benefits (Expectations) | 0.450        | 0.607                   | 1.103 |

Table 7. Model 1 results of hypothesis testing H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>5</sub>, H<sub>7</sub> and H<sub>11</sub> (Source: Authors)

| Dependent variable: Use of/Intention   |                       |                             |                |                               |         |             |                       |
|--|-----------------------|-----------------------------|----------------|-------------------------------|---------|-------------|-----------------------|
| Goodness of fit: R=0.615, R <sup>2</sup> =0.378, Adjusted R <sup>2</sup> =0.368, Standard error of estimate= 0.723 |                       |                             |                |                               |         |             |                       |
| Analysis of variance   |                       | Df                          |                | Sum of squares                |         | Mean square |                       |
| Regression   |                       | 6                           |                | 123.801                       |         | 20.634      |                       |
| Residual   |                       | 390                         |                | 203.732                       |         | 0.522       |                       |
| F static=39.498  |                       |                             |                |                               |         |             |                       |
| Significant F=.000   |                       |                             |                |                               |         |             |                       |
| Hypotheses   | Independent variables | Unstandardized coefficients |                | Standardized coefficient Beta | t-Value | Sig.        | Hypothesis supported? |
|  |                       | B                           | Standard error |                               |         |             |                       |
| Constant: Use of/ Intention  |                       | 1.398                       | 0.159          |                               | 8.794   | .000        |                       |
| H <sub>1</sub>   | PU                    | 0.376                       | 0.067          | 0.438                         | 5.617   | .000        | Yes                   |
| H <sub>2</sub>   | PEOU                  | 0.022                       | 0.063          | 0.027                         | 0.344   | .731        | No                    |
| H <sub>3</sub>   | Information quality   | 0.482                       | 0.088          | 0.444                         | 5.498   | .000        | Yes                   |
| H <sub>5</sub>   | System quality        | 0.123                       | 0.061          | 0.149                         | 2.003   | .046        | Yes                   |
| H <sub>7</sub>   | Service quality       | 0.222                       | 0.058          | 0.269                         | 3.820   | .000        | Yes                   |
| H <sub>11</sub>  | Overall satisfaction  | 0.240                       | 0.074          | 0.234                         | 3.242   | .001        | Yes                   |

Table 8. Model 2 results of hypothesis testing H<sub>4</sub>, H<sub>6</sub>, and H<sub>8</sub> (Source: Authors)

| Dependent variable: Overall satisfaction  |                       |                             |                |                               |         |             |                       |
|---|-----------------------|-----------------------------|----------------|-------------------------------|---------|-------------|-----------------------|
| Goodness of fit: R=0.623, R <sup>2</sup> =0.388, Adjusted R <sup>2</sup> =0.383, Standard error of estimate= 0.88 |                       |                             |                |                               |         |             |                       |
| Analysis of variance  |                       | Df                          |                | Sum of squares                |         | Mean square |                       |
| Regression  |                       | 3                           |                | 194.580                       |         | 64.860      |                       |
| Residual  |                       | 394                         |                | 306.790                       |         | 0.779       |                       |
| F static=83.297   |                       |                             |                |                               |         |             |                       |
| Significant F=.000  |                       |                             |                |                               |         |             |                       |
| Hypotheses  | Independent variables | Unstandardized coefficients |                | Standardized coefficient Beta | t-Value | Sig.        | Hypothesis supported? |
|   |                       | B                           | Standard error |                               |         |             |                       |
| Constant: Overall satisfaction  |                       | 1.175                       | 0.182          |                               | 6.449   | .000        |                       |
| H <sub>4</sub>  | Information quality   | 0.529                       | 0.081          | 0.488                         | 6.546   | .000        | Yes                   |
| H <sub>6</sub>  | System quality        | 0.276                       | 0.068          | 0.271                         | 4.046   | .000        | Yes                   |
| H <sub>8</sub>  | Service quality       | 0.254                       | 0.069          | 0.250                         | 3.660   | .000        | Yes                   |

The model explains 38% (R<sup>2</sup>=.38) of the variance in tourists' use of/intention to use digital marketing tools and platforms for tourism purposes. Model 1 is statistically significant (p<0.01), with five of the six perception variables significantly related to tourists' use of/intention to use digital marketing tools and platforms for tourism purposes: PU (β=.438; t=5.617; p=.000); Information quality (β=0.444; t=5.498; p=.000); System quality (β=.149; t=2.003; p=.046); Service quality (β=0.269; t=3.820; p<.000) and overall satisfaction (β=.235; t=3.242; p=.001). Information quality surfaces

as the greatest influence ( $\beta=0.444$ ) on the use of/intention, followed by perceived usefulness ( $\beta=.438$ ). Based on the results (Table 7), hypotheses  $H_1$ ,  $H_3$ ,  $H_5$ ,  $H_7$  and  $H_8$  were supported, and  $H_2$  was rejected. In model 2 (as shown in Table 8), three perceived quality variables were regressed in order to determine their influence on overall tourist satisfaction.

Model 2 explains that 39% ( $R^2=.39$ ) of the variance in tourists' overall satisfaction after using digital marketing tools and platforms for tourism purposes can be explained by tourists' perceptions of the quality of the information, system and service. The model is statistically significant ( $p<0.01$ ), with the three perception variables related to quality being statistically significant: Information quality ( $\beta=0.488$ ;  $t=6.546$ ;  $p=.000$ ), System quality ( $\beta=-0.271$ ;  $t=-4.046$ ;  $p=.000$ ), and Service quality ( $\beta=0.250$ ;  $t=3.660$ ;  $p=.000$ ). Similar to the first model, it was found that Information quality has the most significant influence ( $\beta=0.488$ ) on overall satisfaction. Based on the findings (Table 8),  $H_4$ ,  $H_6$  and  $H_8$  were confirmed.

Model 3 was developed and tested in order to assess the impact of perceived system quality and information quality on service quality. Results are illustrated in Table 9 below. Model 3 is statistically significant ( $p<0.01$ ). The high multiple  $R^2$  static of 0.67 indicates a good model fit. In as much as Information quality ( $\beta=0.565$ ;  $t=11.975$ ;  $p=.000$ ) and System quality ( $\beta=0.292$ ;  $t=6.188$ ;  $p=.000$ ) significantly impact service quality, system quality ( $\beta=0.292$ ) appears to have a lower impact than information quality ( $\beta=0.565$ ). The results (Table 9) reveal that  $H_9$  and  $H_{10}$  are both accepted.

Model 4 assessed the importance of use/intention to use digital marketing tools and platforms and overall satisfaction on net benefits (expectations). Results are depicted in Table 10. Model 4 is statistically significant ( $p<0.01$ ), with the variables tourist overall satisfaction ( $\beta=0.423$ ;  $t=10.058$ ;  $p=.000$ ) and use of or intention to use significant ( $\beta=0.321$ ;  $t=7.623$ ;  $p=.000$ ) significantly related to net benefits or expectations. The results prove that tourists' overall satisfaction ( $\beta=0.423$ ) has more predictive power on expectations than use/intention ( $\beta=0.321$ ). Based on the results (Table 10),  $H_{12}$  and  $H_{13}$  were supported. By assessing the structural relationships between the different constructs, twelve out of the thirteen hypothetical relationships were found to be empirically supported (Tables 7-10 and Figure 2). The paths had positive associations.

Table 9. Model 3 results of hypothesis testing  $H_9$  and  $H_{10}$  (Source: Authors)

| Dependent variable: Service quality  |                       |                             |                |                               |            |      |                       |
|--|-----------------------|-----------------------------|----------------|-------------------------------|------------|------|-----------------------|
| Goodness of fit: $R=0.815$ , $R^2=0.665$ , Adjusted $R^2=0.663$ , Standard error of estimate=0.641 |                       |                             |                |                               |            |      |                       |
| Analysis of variance   |                       | Df                          | Sum of squares | Mean square                   |            |      |                       |
| Regression   |                       | 2                           | 321.593        | 160.797                       |            |      |                       |
| Residual   |                       | 395                         | 162.292        | 0.411                         |            |      |                       |
| $F$ static=391.360   |                       |                             |                |                               |            |      |                       |
| Significant $F=.000$   |                       |                             |                |                               |            |      |                       |
| Hypotheses   | Independent variables | Unstandardized coefficients |                | Standardized coefficient Beta | $t$ -Value | Sig. | Hypothesis supported? |
|  |                       | B                           | Standard error |                               |            |      |                       |
| Constant:Service quality   |                       | 0.280                       | 0.073          |                               | 3.861      | .000 |                       |
| $H_9$  | Information quality   | 0.602                       | 0.050          | 0.565                         | 11.975     | .000 | Yes                   |
| $H_{10}$   | System quality        | 0.293                       | 0.047          | 0.292                         | 6.188      | .000 | Yes                   |

Table 10. Model 4 results of hypothesis testing  $H_{12}$  and  $H_{13}$  (Source: Authors)

| Dependent variable: Net benefits (Expectations)   |                       |                             |                |                               |            |      |                       |
|---|-----------------------|-----------------------------|----------------|-------------------------------|------------|------|-----------------------|
| Goodness of fit: $R=0.604$ , $R^2=0.365$ , Adjusted $R^2=0.362$ , Standard error of estimate=0.82 |                       |                             |                |                               |            |      |                       |
| Analysis of variance  |                       | Df                          | Sum of squares | Mean square                   |            |      |                       |
| Regression  |                       | 2                           | 152.741        | 76.370                        |            |      |                       |
| Residual  |                       | 396                         | 266.033        | 0.672                         |            |      |                       |
| $F$ static=113.680  |                       |                             |                |                               |            |      |                       |
| Significant $F=.000$  |                       |                             |                |                               |            |      |                       |
| Hypotheses  | Independent variables | Unstandardized coefficients |                | Standardized coefficient Beta | $t$ -Value | Sig. | Hypothesis supported? |
|   |                       | B                           | Standard error |                               |            |      |                       |
| Constant: Net benefits (Expectations)   |                       | 0.038                       | 0.128          |                               | 0.295      | .000 |                       |
| $H_{12}$  | Overall satisfaction  | 0.477                       | 0.047          | 0.423                         | 10.058     | .000 | Yes                   |
| $H_{13}$  | Use of/Intention      | 0.293                       | 0.038          | 0.321                         | 7.623      | .000 | Yes                   |

## DISCUSSION

The study's main aim was to assess the influence of domestic tourists' perceptions on the use of and intention to use digital marketing tools and platforms for tourism purposes. In order to achieve this, the study adopted a multidimensional theoretical framework by adopting TAM variables and the updated D and M IS success model. The results confirmed that combining widely acceptable models as reflected in literature offers an all-embracing model which can assist in effectively understanding technology usage and the adoption of digital tourism marketing by tourists.

The study findings confirmed that tourists' perceptions of digital marketing influence the use of and intention to use digital marketing tools and platforms for tourism. Perceived usefulness, information quality, system quality, service quality and tourists' overall satisfaction were found to be significant predictors of the use of and intention to use digital marketing tools and platforms for tourism purposes. Information quality and perceived usefulness were found to be the most significant perceptions influencing tourists' use of and intention for future use of digital marketing tools and platforms for tourism purposes. As Davis (1989) highlighted, people tend to use and adopt new technology they view as useful. The

existence of digital platforms, such as social networks and online sharing economy platforms like Airbnb and Uber, that are related to leisure tourism can influence tourists' digital usage and adoption behaviour (Díaz-Meneses, 2019). It can be inferred from the findings that tourists use tools and platforms that they view as relevant and with complete information that is useful to them. These findings are consistent with the results of studies conducted by Im and Hancer (2017), Dayour et al. (2019) and Tavitiyaman et al. (2022) which highlight the importance of perceptions in adopting new technology.

The study could not establish a relationship between perceived ease of use and use of/intention to use digital marketing tools and platforms. This is consistent with scholars such as Musina and Gao (2016). The authors argue that factors related to ease of use become less critical once users have learnt how to use the system and become less influential in predicting the use of/intention to use the technology. In support, Díaz-Meneses (2019) suggested the notion that the use of digital technologies is a consequence of the frequent use of technological devices and not how easy it is to use them.

Another important discovery of the study was the influence of perceived quality in terms of information quality, system quality and service quality on tourists' overall satisfaction. Satisfaction is subjective, technical and based on tourists' individual exposure to information at their disposal. This implies that even the most high-quality digital tools and platforms can only be satisfactory if they meet users' needs and avoid user dissatisfaction (Díaz-Meneses, 2019). Interestingly, information quality-related factors strongly influenced tourists' overall satisfaction among the three factors. Thus, information quality was a stronger predictor than the other variables. These findings correlate with other scholars (Kim and Niehm, 2009; Nugroho and Prasetyo, 2018) who argue that information is a response to fulfilling user needs. In tourism, quality information is an important predictor of use, considering that the tourism industry is information-intensive.

The study confirms that information, system, and service quality affect overall satisfaction. Tourists assess the quality of the information provided to them by digital marketing tools and on platforms as a service rendered to them (Nugroho and Prasetyo, 2018). The study confirmed that information quality and system quality affects service quality. Assuming the information provided in digital marketing is poor, tourists will therefore judge the service as poor and vice-versa. In this technologically enabled world, tourists already have expectations and net benefits to fulfil when they use digital tools and platforms. The study established a link between the use of or future intention to use digital marketing tools and platforms and the net benefits of tourists' expectations. Previous studies confirmed that tourists' overall satisfaction has a positive correlation with intention to use and fulfilment of expectations (Pai et al., 2020).

**CONCLUSIONS AND RECOMMENDATIONS**

The study established the influence of perceptions as a psychological mechanism behind tourists' intention to use digital marketing tools and platforms and further extended the utility of the TAM and the updated D and M IS success model in the digital marketing context. The study confirms that perceptions influence tourists' intentions to use digital marketing tools and platforms. The study explained how perceived usefulness, information quality, system quality, service quality and tourists' overall satisfaction act as important variables for using and adopting digital marketing technology.

The study further argues that how tourists view the quality of information, service quality, and system quality significantly affects tourists' overall satisfaction and tourists' use of or future intention to use digital marketing tools and platforms. In addition, the study confirms that tourists' overall satisfaction and use of or future intention to use digital marketing tools and platforms is significantly related to net benefits and the expectations of tourists.

The study has advanced the literature on digital marketing tools and platforms' usage and adoption in tourism. Technology innovation is constantly advancing such that there is a need for the constant updating of information. The study offers a comprehensive understanding of the influence of perceptions on tourists' intention to use tourism digital marketing tools and platforms. Additionally, the study contributes towards the body of literature through the developed, tested and statistically validated model. The developed model was found to be statistically robust regarding the measurement quality criteria such as reliability, validity, multicollinearity, and goodness of fit. The study adopted the current trend in research of combining different models to explain technology usage and adoption as a strategy to strengthen the predictive power and applicability of the research study. The developed model proved constructs that are useful in explaining tourists' behavioural intention in technology usage. The study has some practical implications. Lately, the improvement of new technological advancements has energized businesses to adjust their marketing strategies to new forms of marketing.

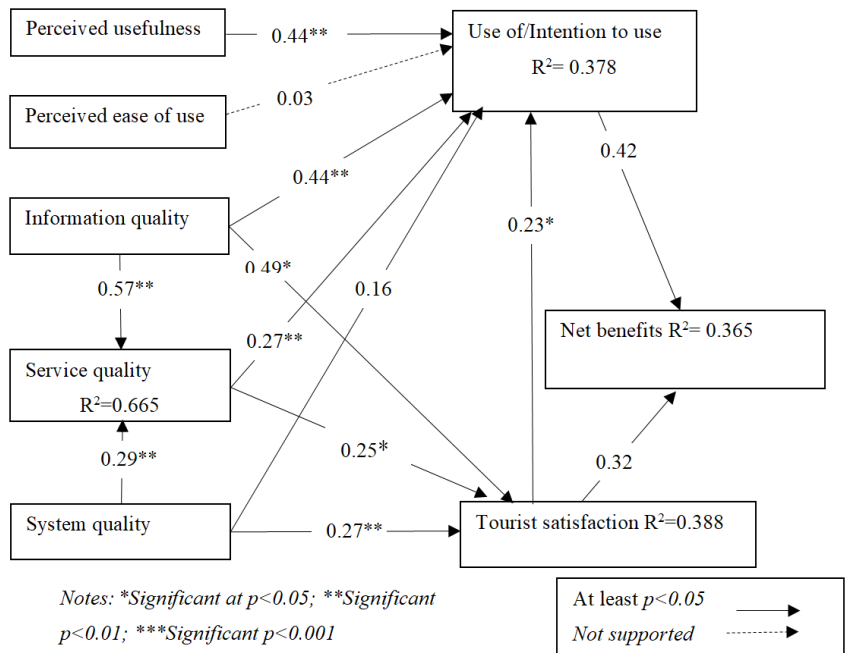


Figure 2. Results of empirical model testing (Source: Authors)

Understanding the influence of perceptions on technology usage, intention and satisfaction in the 21<sup>st</sup> century is the cornerstone for policy development and intervention. The study identified factors that offer managers and marketers insights into areas they need to consider in order to effectively harness their digital marketing efforts and influence behavioural intention. When tourism businesses understand modified tourists' perceptions, expectations and preferences, they can exceed customer satisfaction. Tourists are likely to use services that exceed their satisfaction and travel, resulting in job creation and an improved way of life for local communities. In managerial terms, the study advocates for managers to use marketing strategies that make use of digital tools and platforms on which tourists have a favourable view.

Although the researchers tried to be precise, the study has some limitations. Due to the pandemic's impacts, the study was only limited to domestic tourists. The research participants were only limited to the Free State province in South Africa. The limitation was minimized by conducting the research in different municipalities, towns and tourist attractions within the province. Despite its limitations, the study paves the way for future studies in digital marketing adoption which can focus on disruptive technologies within the context of developing nations.

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## DEVELOPMENT OF INTEGRATED AND SUSTAINABLE COMMUNITY BASED ECO-TOURISM ON SIPELOT BEACH, INDONESIA

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**Abstract:** Tourism is one of the most important industries because it can create jobs and economic development. Malang is one of the districts in Indonesia that has the potential to be developed as a beach tourism, one of which is Sipelot Beach. This study aims to identify the potential of Sipelot Beach as a sustainable and community-based ecotourism. This study uses a descriptive method with qualitative analysis techniques. Primary data were collected through interviews and observations as well as field measurements. There are two data analyzes used in this study, namely the tourism suitability index and SWOT. The results show that based on the tourism suitability index, the physical condition of Sipelot Beach has potential, while the results of the SWOT analysis show that Sipelot Beach has considerable potential to be developed as community-based ecotourism. Community-based and integrated sustainable ecotourism development can be implemented through improved management and human resources.

**Key words:** Development, Community-Based Eco-tourism, Tourism Suitability Index, SWOT, integrated, Sustainable

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### INTRODUCTION

Tourism is one of the most substantial industries around the world because they represent one of the primary sources of job creation and economic development in coastal regions worldwide (Caparrós-Martínez et al., 2022). The tourism sector contributed 10.3% to the world's gross domestic product in 2019, which decreased to 5.3% due to the mobility restriction during the COVID-19 pandemic in 2020 and bounced back by 6.1% in 2021 (Philipp, 2022). When the attractiveness of the coastal landscape and seascape is attractive, there is an increase in economic activity in the area (Cabrera and Lee, 2022).

Rapid urbanization and expansion of cities into the coastal zone has been associated with the degradation of coastal ecosystems (Cabrera and Lee, 2022). The main human activities affecting coastal zones include large-scale waste disposal which can bring contaminants to coastal waters (Bajt et al., 2019), pollution (Cochard, 2017), overfishing (Sumaila and Tai, 2020), deforestation (Ury et al., 2021), reclamation (Li and Zhang, 2021), sand and oil mining, tourism, trade, energy production (Cabrera and Lee, 2022) and construction of seawalls and other structures. In addition, engineering activities, such as diversion of waterways and coastal structures, alter circulation patterns and alter the natural means of sediment transport (Cabrera and Lee, 2022). Indonesia is one of the countries with the most significant coastal potential. Indonesia is an archipelago state that has immense coastal and shore areas, with 81.000 km of coastline (Suleman and Rachman, 2018). Its relatively long coastline results in great coastal and beach potential. Therefore, Indonesia has wide opportunities to establish significant coastal tourism (Koroy et al., 2017). Linearly, Malang Regency also develops its coastal potential.

Malang is one of the regencies in Indonesia that has coastal tourism potential. One of its coastal tourisms is Sipelot Beach. This beach presents peculiarities in its sandy and bay morphology. A sandy beach can be regulated into an eco-tourism site using integrated environmental management that combines physical, biological, socio-cultural, and economic values (Román et al., 2022). An eco-tourism site that is developed using conventional mass tourism may harm the tourism destination (Mondino and Beery, 2019; Rybchenko et al., 2022). Ecotourism is a tourism development approach aiming for conservation and sustainable development (Baloch et al., 2022; Jamaliah and Powell, 2018; Jurkus et al., 2022). Essentially, eco-tourist's purpose is to preserve the environment, maintain society's well-being, and teach tourists (Bricker, 2017). Research related to community-based tourism development, such as research (Rocca and Zielinski, 2022), shows that community-based tourism development hardly benefits communities when social capital is insufficient and unstructured governance due to low government presence. According research from (Untari and Devi, 2022), Onrust Island is one of the cultural heritage-

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based ecotourism destinations that has a fairly high historical value. In its current management, Onrust Island has not been maximized so it needs a tourism marketing development program, direct promotion activities in potential markets, Onrust Island tourism exhibition activities, Onrust Island tourism image development program, and building a brand image of Onrust Island Tourism through analysis of internal and external factors. According research from (Kurniawati et al., 2022), the development of marine tourism will be successful if it is supported by various parties.

The community, in this case the youth and members of MSMEs, becomes a supporter in the development process. A tourist attraction at Bangsring Beach, Banyuwangi, was established and developed with the help of youth. Research related to ecotourism is also available from (Iswandi, 2017), Mandeh Beach which is located in Pesisir Selatan Regency with natural panoramas and beautiful beaches that develop into ecotourism by protecting the environment. Meanwhile, other research examines the development of Lovina Beach into ecotourism through coral reef cultivation, involving the community and environmental awareness training for the surrounding community (Purwita and Suryawan, 2018).

In contrast to previous research, this study begins by evaluating the coast for structuring tourism locations by taking into account internal and external factors and then formulating a development strategy. In addition, Sipelot Beach which is unique as a tourist spot and a place for fish auctions causes this location to be very potential for tourism development, so this study aims to examine the management of Sipelot Beach into an integrated community-based sustainable ecotourism.

**METHOD**

This study used the descriptive method and quantitative analysis technique (Sumarmi et al., 2020). The data relating to the beach potential developed in the last five years were obtained through interviews and observation. Meanwhile, the secondary data of the local government regulations pertaining to tourism development were obtained from government institutions. Our research participants were 21 people from Pujiharto village who were involved in tourism activities on Sipelot Beach. All of our participants were involved in tourism activities and lived in surrounding areas for at least years after Sipelot Beach was used as a tourism site. Through an interview with these participants, we garnered the community’s opinion on the selection of priorities site in the Sipelot Beach development. The data analysis was carried out through two stages, namely 1) data analysis using the scoring technique to determine the indicators of Sipelot Beach’s land suitability and 2) SWOT analysis to determine the beach’s potential and development strategy.

Table 1. Indicators for Assessing the Physical Condition of Sipelot Beach for Ecotourism Suitability (Source: Researcher, 2022)

| No | Indicators  | Descriptor  | Score | Data Collection Technique | Description   |
|----|---|---|-------|---------------------------|---|
| 1  | Coastline Width   | >75 m   | 4     | Observation               | The scoring was modified. A suitable beach tourism site should obtain a score higher than four. |
|    |   | 50-74 m   | 3     |                           |   |
|    |   | 25-49 m   | 2     |                           |   |
|    |   | <25 m   | 1     |                           |   |
| 2  | Types of Beach  | Sandy   | 4     | Observation               |   |
|    |   | Sandy but has rocks                               | 3     |                           |   |
|    |   | Rocky   | 2     |                           |   |
|    |   | Muddy   | 1     |                           |   |
| 3  | Morphology of Beach   | Sloping beach                                     | 4     | Observation               |   |
|    |   | Sandy and hilly beach                             | 3     |                           |   |
|    |   | Rocky beach                                       | 2     |                           |   |
|    |   | Rocky steep beach                                 | 1     |                           |   |
| 4  | Slope of Beach  | < 10%   | 4     | Observation               |   |
|    |   | 10-25%  | 3     |                           |   |
|    |   | 26-45%  | 2     |                           |   |
|    |   | > 45%   | 1     |                           |   |
| 5  | Distance to fresh water, in the form of springs, from nearshore beach | < 500 m   | 4     | Observation               |   |
|    |   | 500-1000 m  | 3     |                           |   |
|    |   | 1001-1500 m                                       | 2     |                           |   |
|    |   | > 1500 m  | 1     |                           |   |
| 6  | Cover of beach land   | Coconut trees, open land                          | 4     | Observation               |   |
|    |   | Shrubs, savanna                                   | 3     |                           |   |
|    |   | High scrub  | 2     |                           |   |
|    |   | Mangrove forest                                   | 1     |                           |   |
| 7  | Dangerous Biota   | None  | 4     | Interviews                |   |
|    |   | Sea urchins, jellyfish                            | 3     |                           |   |
|    |   | Sea urchins, jellyfish, stingray                  | 2     |                           |   |
|    |   | Sea urchins, jellyfish, stingray, lionfish, shark | 1     |                           |   |

Assessment of physical indicators is used to map the strategic location of Sipelot Beach for ecotourism development. The assessment of this physical indicator by (Yulianda, 2007) where the parameter is appearing in 100% which is then changed by the author to the Linkert scale. Likert scale, is a very flexible and intuitive tool to measure the level of individual agreement (Vonk, 2022). The indicators of physical assessment are shown in Table 1. Following the indicators of physical conditions, the scoring and classification were carried out to identify the physical condition conformity as a tourism object, with a lower score of 7 and the maximum score of 28. The total score from all of the variables was added up and classified to identify Sipelot Beach’s suitability as a tourist object. The score classification is presented in Table 2. The second stage of data analysis was carried out using SWOT analysis. SWOT analysis was selected to bolster strategic



planning in various management applications (Amirshenava and Osanloo, 2022; Helms and Nixon, 2010; Sumarmi et al., 2020), including tourism management (Zhang et al., 2011). A SWOT analysis consists of a comparison of positive and negative factors that influence a particular project. It was divided into internal and external strengths, as shown in Table 4. In this study, the internal strength consisted of the beach’s quality and attraction, while its external power was the community support and threat of disaster. However, the implementation of SWOT faced a number of challenges. First, for the analysis process, SWOT provides no strategic instruction. Therefore, the SWOT analysis in this study followed a number of experts’ opinions (Helms and Nixon, 2010; Sumarmi et al., 2020). Further, the results of the SWOT analysis were analyzed using Analysis Hierarchy Process (AHP) to determine the prioritized potential to be developed. These analyses were carried out to prioritize the management and development design suitable for the Sipelot beach’s potential, as mapped in Table 3. The research flowchart is shown in Figure 1.

Table 2. Classification of Physical Condition Scoring (Source: Researcher, 2022)

| Class | character     | Score |
|-------|---------------|-------|
| I     | Very suitable | ≥ 27  |
| II    | Suitable      | 21-27 |
| III   | Less suitable | 14-20 |
| IV    | Not suitable  | 7-13  |

Table 3. Matrix of SWOT (Source: Sumarmi et al., 2020)

| SWOT Analysis  |                |           |          |
|----------------|----------------|-----------|----------|
| External Audit | Internal Audit |           |          |
|                | Opportunities  | Strengths | Weakness |
|                | Threats        | SO        | WO       |
|                |                | ST        | WT       |

**RESULTS AND DISCUSSION**

**Illustration of Sipelot Beach Area**

Sipelot Beach is located at Pujiharo Village, Tirtoyudo District, Malang Regency, Indonesia, with a 1,132 m coastline. Sipelot is a sandy beach that has mangrove, Casuarina equisetifolia, and coral reef ecosystems (Khourouh and Pamungkasih, 2019).

Sipelot Beach also has fish poison trees and coast cottonwood, making the Sipelot coastal areas become convenient. The trees in the coastal regions enhance the convenience of the areas (McCreanor et al., 2006).

The convenience offered by a tourist site allows the tourists to relax and play with sand, sea, and sun (Dodds and Holmes, 2019). In addition, Sipelot Beach carries relatively great fishery potential.

According to data from the Badan Pusat Statistik Kabupaten Malang [Central Bureau of Statistics, Malang Regency], in 2022, Sipelot Beach is reported to have relatively high fish production between 2014 – 2020, as illustrated in Figure 2. The caught fish are gathered in the fish auction on Sipelot Beach (Khourouh and Pamungkasih, 2019).

The fish were gathered and distributed to other small and medium industries to be processed, as well as to merchants to be marketed. The Sipelot fishery area is a center of primary and secondary product distribution, as well as the input for

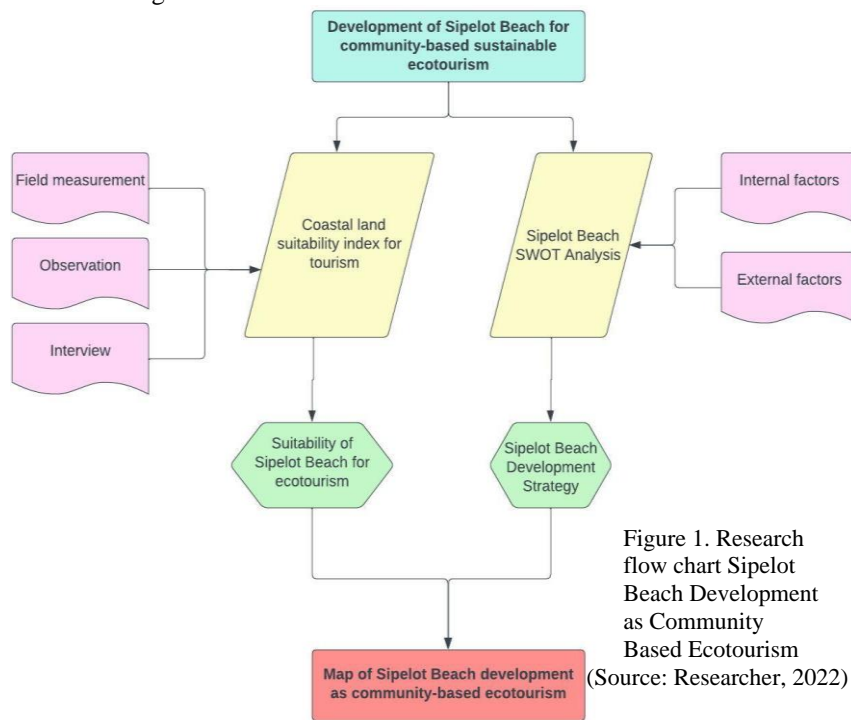


Figure 1. Research flow chart Sipelot Beach Development as Community Based Ecotourism (Source: Researcher, 2022)

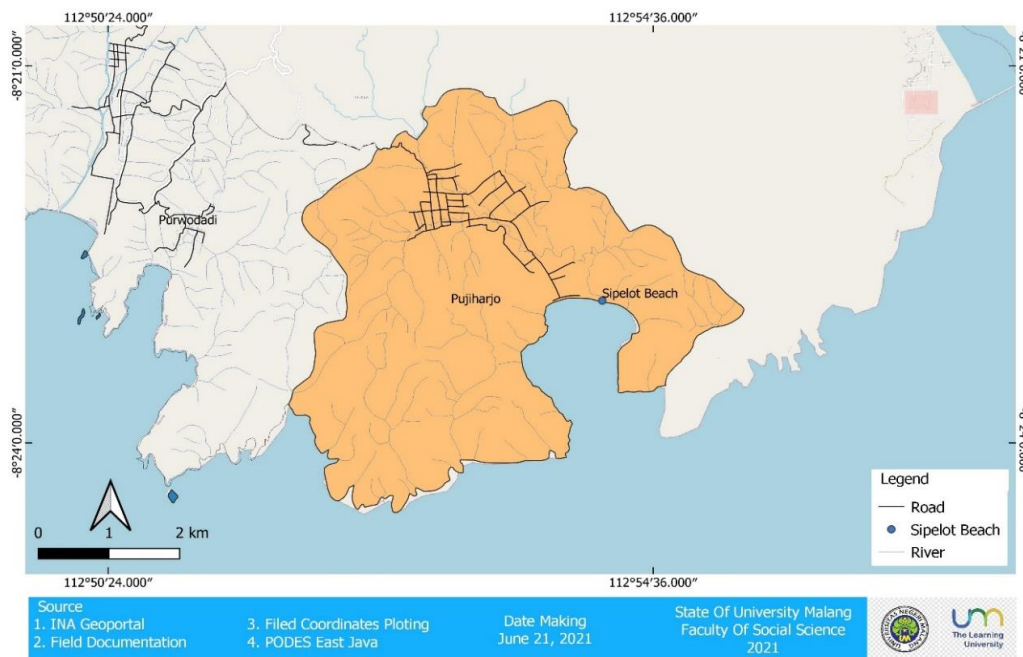


Figure 2. Map of Sipelot Beach, Located at Tirtoyudo District, Malang Regency (Source: Researcher, 2021)



the tourism sector development (Khourh and Pamungkasih, 2019).

The following is a graph related to fishery production at Sipelot Beach (Figure 3). Sipelot Beach presents a number of exciting tourist attractions, such as swimming, boating, fishing, beach, playing with sand, taking pictures, and beach sport. These attractions can be used as Sipelot Beach's central tourist attractions (Fandeli, 2000). Meanwhile, for the facilities, this beach provides gazebos, a campsite, a fish auction, stalls, toilets, parking, and a camp area. Sufficient and excellent tourism facilities are the most influential factors for the success of a tourism object. Recently, infrastructure development has been the featured program of the Indonesian government. Excellent infrastructure can enhance tourism and other sectors supporting tourism (Khourh and Pamungkasih, 2019). Excellent infrastructure eases the tourists' accessibility.

Infrastructure is one of the essential elements that enhance the number of tourist visits (Rebelo et al., 2022).

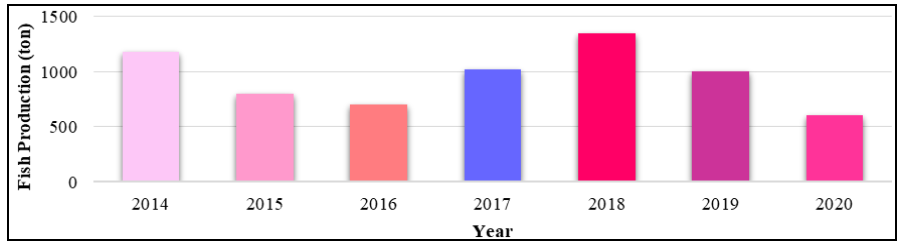


Figure 3. Fish Production Year 2014-2020 (Source: Badan Pusat Statistik Kabupaten Malang Central Bureau of Statistics, Malang Regency, 2022)



Figure 4. Fish Auction in Sipelot Beach (Source: Researcher, 2022)



Figure 5. Landscape of Sipelot Beach (Source: Researcher, 2022)



Figure 6. Landscape of Lagoon in Sipelot Beach (from the Center) (Source: Researcher, 2022)

### Physical Condition of Sipelot Beach Tourism to support ecotourism development

An examination of Sipelot Beach's physical condition aims to determine its suitability for a tourism site. The physical circumstance of an area is one of the influential factors for sustainable tourism (Akliyah and Umar, 2013). The physical condition includes coastline tilt, coastline width, distance to available freshwater, wind velocity, type, morphology, wavelength, type of wave, biota, and the beach land cover. The physical condition of Sipelot Beach is shown in Table 4.

The results of our field observation showed that the physical condition of Sipelot Beach is highly suitable for tourism objects, as illustrated in Figure 6. The coastal regions highly rely on beach tourism, resulting in a wide socio-economic implication (de Sousa et al., 2017). The beach's morphology is one of the influential factors of beach tourism (de Sousa et al., 2018). Morphologically, Sipelot Beach is sloping, so it is suitable as a tourism site. Beach with a flat slope helps the tourists to feel safe (Arinta and Sumarmi, 2022; Sumarmi et al., 2020; Yulianda, 2007). The beach's morphology, slope, and width determine the type of beach relevant to the ideal beach location, where the tourists can enjoy sunbath, exercise, or play games (Yulianda, 2007). As Sipelot Beach is sandy, it is very suitable as a tourist site.

Table 4. Physical condition of Sipelot Beach (Source: Researcher, 2022)

| No              | Indicator                              | Measurement Results                             | Description   | Score                |
|-----------------|--|---|---------------|----------------------|
| 1               | Beach Slope                            | 12.13 <sup>0</sup>                              | Very suitable | 4                    |
| 2               | Width beach                            | 52 meters                                       | Suitable      | 3                    |
| 3               | Type of Beach                          | Sandy   | Very suitable | 4                    |
| 4               | Beach Morphology                       | Slopy beach                                     | Very suitable | 4                    |
| 5               | Distance from fresh water availability | 210   | Very suitable | 4                    |
| 6               | Beach land cover                       | Coconut trees, cluster vegetation and open area | Very suitable | 4                    |
| 7               | Dangerous biota                        | None  | Very suitable | 4                    |
| <b>Total</b>    |  |   |               | <b>27</b>            |
| <b>Category</b> |  |   |               | <b>Very Suitable</b> |

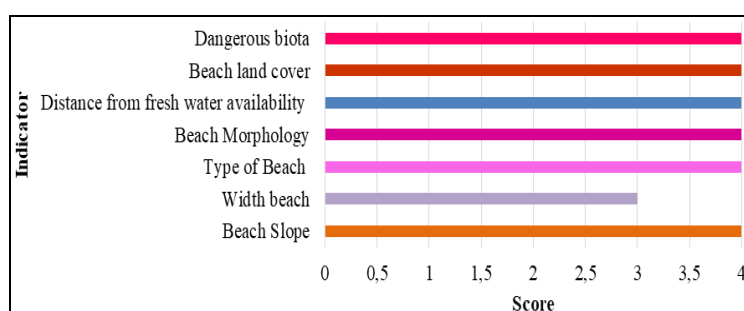


Figure 7. Physical condition of Sipelot Beach for Ecotourism (Source: Researcher, 2022)



Figure 8. Quadrant position of Sipelot Beach (Source: Researcher, 2022)

In addition, the other influential factor is the beach area cover. On the east side of Sipelot Beach, the land area is covered by coconut trees and clusters, while the west side is used by tourists to take shelter. Besides, the distance to fresh water is 210 meters. A beach suitable for tourist destinations should have <0.5 Km distance to fresh water (Akliyah and Umar, 2013). Also, Sipelot Beach has no dangerous biota. The absence of dangerous biotas, such as Sea urchins, jellyfish, lionfish, and sharks, places a beach to be a safe beach (Akliyah and Umar, 2013).

### SWOT Analysis on Tourism Potentials of Sipelot Beach

To identify its tourism potential, we analyzed the eco-tourism development in Sipelot Beach. In this analysis, we used SWOT analysis as it measured the strength, weaknesses, opportunities, and threats of tourism potential. The results of the SWOT analysis are shown in Table 5. The IFAS and EFAs matrixes were scored following the criteria presented in Table 1. Subsequently, the quadrant of the Sipelot Beach tourism site was established through the x and y value. The 0.70 x value was obtained through the internal factor by subtracting the weakness (W) from the strength (S) scores. Meanwhile, the y value of 0.40 was attained from the external factor by subtracting the threat (T) from the opportunity (O) value. Therefore, quadrant I was illustrated based on the 0.70 x and 0.40 y values, indicating that Sipelot Beach tourism is still developing, as presented in Figure 8. Sipelot Beach is at quadrant I, SO (Strength-Opportunity), or white area, signifying that the beach carries excellent potential that can be further developed. Thus, the beach should adopt a growth-oriented strategy. Therefore, it determined suitable community-based tourism strategies. Examples of those strategies are improvement of road access, an increase of tourism facilities, and improvement of infrastructure, enhancing tourist access to Sipelot Beach. The road in Sipelot Beach. In addition, the W-O policy includes the improvement of Sipelot Beach's layout to help the tourists know its two parts, the fish auction, and tourism areas. Meanwhile, the S-T policy addresses the tourists' limited awareness of maintaining hygiene. Lastly, for the W-T policy, the community increases the tourism attractions to enhance its promotion. The results of the SWOT analysis showed that Sipelot Beach carries the substantial potential to be developed as a community-based eco-tourism. The development of community-based eco-tourism is an essential part of a country's revenue as it potentially offers wide opportunities for the local people (Keerin et al., 2022). Besides, community-based eco-tourism also brings benefits for environment preservation and enhancement of people's well-being and socio-economy status (Keerin et al., 2022). The establishment of eco-tourism relies on a number of factors, consisting of (1) eco-tourism potential, (2) the participation of local people in the tourism planning, (3) the local people's involvement in the tourism implementation, and (4) environment preservation (Keerin et al., 2022). The implementation strategies based on the SWOT analysis results are shown in Figure 9. The implementation strategy consists of improving tourism management and human resources.

Tourism management subsists of four key elements, namely offering destination (tourists' experience, image of destination, and tourism attraction); a group of tourists (market research); marketing communication (awareness and promotion), and organization responsibility (leadership and partnership) (Morrison, 2013). For the attraction offering, Sipelot Beach has great scenery, but its accessibility is challenging. Great and easy accessibility is one of the influential factors in increasing the number of tourists visiting.

Accessibility covers every aspect that promotes easy access to the tourism destination (Herat et al., 2015). The accessibility to a tourist place should be ensured, such as through the broadening of roads and procurement of public transportation to Sipelot Beach. The accessibility and availability of facilities in a tourist site are one of its attractiveness (Herat et al., 2015).

As accessibility to beach locations is only observed as a tourist aspect, public transportation remains limited (French and Craig-Smith, 1995; Priskin, 2001), while it is essential to ensure the fulfillment of tourists' needs during their stay in the tourism areas (Herat et al., 2015). The provision of excellent facilities is the fundamental element to realizing great service for tourists. In addition, the Sipelot Beach administrators should also improve their tourism promotion. The promotion through printed and digital media can increase the visit from local and international tourists (Wenas, 2021). Advertisement is substantial for Sipelot Beach since it has a great distance to the city center. Besides, all of the tourism destination elements in Sipelot Beach have to be coordinated and planned.

| Management   |
|--|
| <ul style="list-style-type: none"> <li>• The tourism administrators should collaborate with the village to improve the accessibility.</li> <li>• They should develop the facilities, such as the guest house, toilet, mosque, restaurant, and boat tour.</li> <li>• They should construct a community-based ecotourism with a theme of being Sipelot Beach people.</li> <li>• They should collaborate with tourism agents in promoting the Sipelot Beach tourism.</li> <li>• They should increase the promotion through website and social media, such as Facebook and Instagram.</li> <li>• They should enhance the number of public transportation to ease the access to Sipelot Beach.</li> </ul> |
| Human Resources  |
| <ul style="list-style-type: none"> <li>• Encouraging the community participation through the group that promote the tourism awareness.</li> <li>• Increasing the local society involvement in developing the beach tourism, such as in the boat tour around the lagoon tourism activities.</li> <li>• Providing training for the local community to develop businesses supporting the tourism activities.</li> </ul>   |

Figure 9. Strategy of Sipelot Beach development (central position) (Source: Researcher, 2022)

Table 5. IFAS and EFAS Matrixes of Sipelot Beach (Source: Research data 2022)

| <b>Internal Factors (IFAS)</b>            |   |  |  |               |               |              |
|---|---|--|--|---------------|---------------|--------------|
| <b>Strength (S)</b>                       |   |  |  | <b>Weight</b> | <b>Rating</b> | <b>Score</b> |
| 1   | Coastline length of 2 km and sloping  |  |  | 0.3           | 5             | 1.5          |
| 2   | White sand panorama separating the sea and lagoon   |  |  | 0.1           | 3             | 0.3          |
| 3   | Relatively wide lagoon, suitable for a boat tour  |  |  | 0.2           | 5             | 1            |
| 4   | Beautiful cliff panorama  |  |  | 0.2           | 4             | 0.8          |
| 5   | A beautiful row of pine trees located between the lagoon and sea  |  |  | 0.2           | 3             | 0.6          |
| 6   | A row of coast cottonwood along the coastline suitable for the tourists' shelter  |  |  | 0.15          | 4             | 0.6          |
| 7   | Beautiful palm and mangrove trees on the edge of the lagoon   |  |  | 0.3           | 3             | 0.9          |
| 8   | There are many food stalls, a mosque, and a homestay  |  |  | 0.1           | 3             | 0.3          |
| 9   | A wide parking area and sufficient number of toilets  |  |  | 0.1           | 3             | 0.3          |
| <b>Total</b>                              |   |  |  |               |               | <b>6.3</b>   |
| <b>Weakness (W)</b>                       |   |  |  |               |               |              |
| 1   | Relative far from the city center and can be accessed through a narrow road   |  |  | 0.2           | 4             | 0.8          |
| 2   | There has not been a clear border between the areas of the fish auction, boat park, and tourism   |  |  | 0.3           | 4             | 1.2          |
| 3   | The surrounding community has not been trained to maintain the hygiene and environmental preservation   |  |  | 0.25          | 3             | 0.75         |
| 4   | There is no clear tourism management  |  |  | 0.25          | 3             | 0.75         |
| 5   | Limited tourism infrastructure  |  |  | 0.2           | 3             | 0.6          |
| 6   | Non-maximum tourism governance  |  |  | 0.2           | 3             | 0.6          |
| 7   | Non-maximum communication network   |  |  | 0.1           | 3             | 0.3          |
| 8   | There is no systemic promotion  |  |  | 0.2           | 3             | 0.6          |
| <b>Total</b>                              |   |  |  |               |               | <b>5.6</b>   |
| <b>X = Strength - weakness = 0.70</b>     |   |  |  |               |               |              |
| <b>External Factors (EFAS)</b>            |   |  |  |               |               |              |
| <b>Opportunities (O)</b>                  |   |  |  |               |               |              |
| 1   | Away from the city and its bustle, offering a serene and relaxed atmosphere   |  |  | 0.3           | 4             | 1.2          |
| 2   | It has established disaster resilient villages  |  |  | 0.2           | 4             | 0.8          |
| 3   | Relatively low cost   |  |  | 0.25          | 3             | 0.75         |
| 4   | It has full support from its surrounding communities  |  |  | 0.1           | 3             | 0.3          |
| 5   | It has a relatively close distance to agricultural potentials (coffee bean, snake fruit, and other fruits), supporting the provision of souvenirs |  |  | 0.1           | 3             | 0.3          |
| 6   | It has abundant of fishes at a relatively low price, supporting the establishment of restaurants  |  |  | 0.2           | 4             | 0.8          |
| <b>Total</b>                              |   |  |  |               |               | <b>4.15</b>  |
| <b>Threat</b>                             |   |  |  |               |               |              |
| 1   | High threat of tidal waves and tsunami  |  |  | 0.2           | 3             | 0.6          |
| 2   | The accesses to the beach are prone to landslide  |  |  | 0.1           | 4             | 0.4          |
| 3   | There are other similar beaches at the close distance   |  |  | 0.35          | 4             | 1.4          |
| 4   | The tourists' minimum awareness to maintain the beach's hygiene and sustainability  |  |  | 0.3           | 3             | 0.9          |
| 5   | It has relatively high waves that can be dangerous for children   |  |  | 0.15          | 3             | 0.45         |
| <b>Total</b>                              |   |  |  |               |               | <b>3.75</b>  |
| <b>Y = Opportunities - threats = 0.40</b> |   |  |  |               |               |              |



Meanwhile, the provision of public transportation should primarily involve the local people so that the government should only monitor the facilities and service provision. The government's role in monitoring tourism activities results in people's positive perception of tourism management. Further, (Caber et al., 2012; Zhang and Lei, 2012) explained that the participation of local people carries an essential role in the management of eco-tourism, as their experience can significantly help the administration. Notably, their participants and opinions on eco-tourism management are highly substantial. In the end, we suggest that tourism management be improved and the facilities and infrastructure at Sipelot Beach should be improved. The proposed Sipelot Beach development strategy is illustrated in Figure 9. The development plan is prepared based on physical conditions and a SWOT analysis which is planned to be built over the next 5 years because this is in accordance with the Malang Regency tourism planning document. The development of planning for the next five years is expected to be able to improve infrastructure and facilities, such as the development of fish auction areas and docks that facilitate large fish production, construction of resorts, and bridges that can be used as jogging tracks.

## CONCLUSION

The results of our analysis show that Sipelot Beach has tremendous potential to be developed into community-based ecotourism. This is evidenced by:

a. The physical condition of Sipelot Beach is very suitable for ecotourism development

b. The SWOT analysis shows that Sipelot Beach has great potential but needs improvement in increasing management capacity and human resources.

c. The development of planning for the next five years is expected to be able to improve infrastructure and facilities, such as the development of fish auction areas, resort construction, and bridges that can be used as jogging tracks.

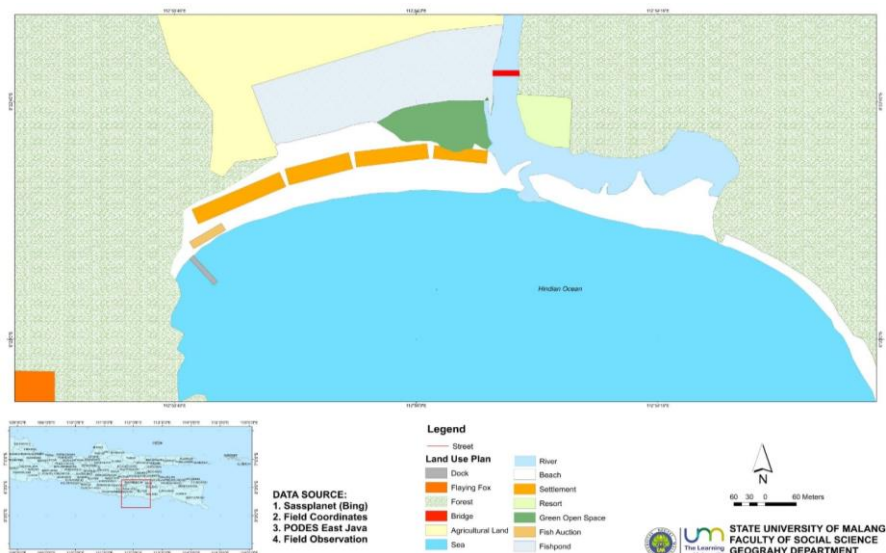


Figure 9. Map of Sipelot Beach development plan 2022-2027 (Source: Researchers, 2022)

## Acknowledgments

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## SUSTAINABILITY OF GREEN TOURISM BY INTERNATIONAL TOURISTS AND ITS IMPACT ON GREEN ENVIRONMENTAL ACHIEVEMENT: PETRA HERITAGE, JORDAN

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**Abstract :** The environmental advantages of green tourism are attracting the attention of a wider range of stakeholders. The behavior of travelers toward green tourism sustainability and its impact on the accomplishment of a green environment has not been well studied empirically, particularly in Petra. In this research, we use an expanded framework of the theory of planned behavior to explore the behavioral features of foreign visitors toward the sustainability of green tourism (TPB). Descriptive analysis of the explanatory survey was the method of choice for the research project at hand. A large number of respondents were tourists. Office administrators are responsible for the formulation of a company's corporate strategy. 400 tourists took part in our survey for this research. According to our results, travelers' views toward green tourism were highly influenced by their opinions of the sustainability of green tourism and their environmental concerns. In addition, our findings show that visitors' intentions to engage in the sustainability of green tourism are negatively influenced by subjective norms, whereas tourists' attitudes are positively influenced by these norms. Both environmental concerns and the desire of visitors to engage in green tourism have a substantial influence on ecologically responsible tourism behavior, according to our findings.

**Key words:** sustainability, environmental concern, Green tourism, Theory of Planned Behavior (TPB), Petra, Jordan

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### INTRODUCTION

The tourism sector is a rapidly growing business which will become the world's largest source of greenhouse gas emissions (GHG). Its development can also be visualized as a dual-edged weapon, since tourism is, on the one side, an important source of economic growth and an enriching cultural base for communities and entails high energy absorption, massive contribution to waste production, CO<sub>2</sub> emissions and numerous functions and activities. The notion of green tourism has morphed into many separate concepts in recent years. The key aim of this one is to keep environment protection while enjoying the fun. Green tourism is used interchangeably with such terms as sustainable tourism, nature tourism, and rural tourism (Botha and Engelbrecht, 2016; Giddy et al., 2022). Green tourism is widely characterized as tourism that operates in an environmentally sustainable manner (Megeirhi et al., 2020).

This approach is encouraged by not just environmental considerations, but also economic resources. A broad range of visitor events can also be understood as green tourism.(Jafari et al., 2000; Jamhawi et al., 2021). Petra: a Nabatean rock town, is one of the New Seven Wonders of the World, enchanting travelers from all over the world. Petra, where ancient Eastern customs meet Hellenistic architecture, is one of three UNESCO World Heritage Sites in Jordan. It is one of the most renowned archeological sites in the world, half-built, half-carved into the granite and surrounded by mountain-lined tunnels and gorges (Lajçi et al., 2022; Mohammad et al., 2017). Petra was listed on the UNESCO World Heritage List in 1985 because of the extraordinary rock structure and excellent water distribution and storage systems, which are testaments to the undemanding Nabataean civilisation. The project "Mainstreaming Biodiversity Conservation in Tourism Development in Jordan," launched in 2014 by UN-Habitat and the United Nations Development Program, aims to increase regional awareness and planning capacity; improve participation in and strengthen community relations at the level of nature reserves; and find ways to integrate ecotourism and biodiversity with the tourism sector in general. Petra is one of three areas chosen for the effort, which involves the development of a Biodiversity Database (BIMS).

Jordan's total economic growth decreased until 2020, representing just a portion of the COVID-19 pandemic's effect. Meanwhile, labor market data for the second quarter of 2020 revealed the COVID-19 crisis's major disruptions. The unemployment rate has grown to 23% in 2020, up from 19.3% in 2021. Concurrently subdued tourism and commerce (affected by the global downturn) have prompted the IMF to alter Jordan's GDP growth prediction for 2020 from 2.4 percent to 3.7 percent. According to the Jordan Department of Statistics, economic growth in 2020 was down by 2.2 percent

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compared to the same time in 2019, with hotels and restaurants among the most impacted sectors, down 9.1 percent. Preserving Petra should be the primary concern of all visitors. The erosive quality of sandstone ensures that Petra is continuously under pressure from the elements (Jawabreh et al., 2021). The relentless strain of footfall accelerates the mechanism of natural erosion. Jordan sits at the crossroads of the continents of Asia, Africa and Europe. The desert kingdom tells mesmerizing stories of a legendary rose city chiseled out of rock canyons (Petra) and Crusader castles. The Dead Sea is more than eight times saltier than any ocean, and its shores are the lowest dry land found on earth.

Jordan's tourism industry has been rising steadily in recent years and has become a significant sector of jobs and revenue for the region. Jordan's World Heritage Sites, including Petra and Wadi Rum, helped render Jordan a famous holiday spot that is enjoyed by visitors from around the world. The launch of low-cost airlines led towards this rise in customer spending. Thanks to this latest idea, a variety of tourism firms rely mainly on the needs of visitors and its achievement. In addition, it has a huge influence on tourism as Jordan is renowned for its stunning tourist attractions. Many hoped that 2021 will be another fantastic year for the Jordanian tourism industry. The global COVID-19 pandemic and subsequent foreign and local travel bans had an immediate and serious impact on the tourism industry of Jordan. In March 2019, Jordan declared that, as a result of the widespread dissemination of the respiratory virus around the nation, its boundaries and airports will be sealed. Since the lifting of the curfew in Westgate, police instituted a curfew for three months among other steps. Due to the significant contribution of tourism to economic development, research on tourism sustainability has been increasing over several years, especially in small countries with steady, recent growth. Small destinations also have natural environments and foster environmental consciousness through a broad range of hotels and modified, ecological hospitality activities that boost their green profile (Hejazeen, 2007; Pucako and Ratz, 2000). Environmental development was thus important in order to mitigate the deterioration of the environment of visitors attributable to the natural attraction (Gutierrez et al., 2021). Structured tourism practices are also important, and there is a strong interest in calling for the evaluation of tourism sustainability to advance. This field is gradually dedicated to numerous sectors after the UN announcement of the International Year of Sustainable Tourism in 2017. Sustainable tourism as the tourism that has the current and future economic, environmental and social effect on industrial needs has been described by the United Nations World Tourism Organization (UNWTO), visitors, host and environmental communities. "Green" and "sustainable" tourism thus promotes minimum adverse environmental impacts and change.

Encouraging the region's cultural advantages for local people (Jawabreh, 2021). In addition to mitigating the influence of climate change, it aims to respond to the urgent call to global environmental crisis, as well as to minimize the effects of many environmental problems including Pollution, greenhouse gas emission and CO<sub>2</sub>, which are critical in this sense for debate, understanding that green tourism aims to reduce unfavorable local impacts. Climate and its global scope applicability. Primarily, the encouraged green tourism industry stresses recycling programmers, and gives promotional encouragement to display the green picture of the destination that impacts the pro-environmental actions of visitors. This describes the pragmatic perspective of tourism by citizens who have a deep dedication to the destination and a strategic affinity towards environmental greening and enhancement of the lives of people as the bulk of the visitor and hospitality industries determine that their practices and management be backed up by steps that are environmentally-friendly (Al Dein, 2021).

The majority of tourists come on scheduled tours, with individual and family visitors accounting for 20%. As a consequence, tourists are concentrated in the Siq and Khazneh, and decrease as one gets closer to the site/center. Organized excursions are less likely to visit the isolated areas, such as the altar mountain and the monastery, which are accessible via difficult routes (Kusumawati et al., 2022; Morgan et al., 2021). Peak-hour traffic congestion, particularly with a rising number of tourists, has concerns for the site's carrying capacity. Numerous studies on capacity have been undertaken, with various estimates of 400-600 people per hour, 2,000 to 3,500 guests per day, and 60,000 to 90,000 visits per month. All of these boundaries were breached during periods of heavy visitor traffic. It is predicted that with the inauguration of the new back road, tourist flow patterns from the Turkmen Valley would be better organized, and traffic congestion in the Siq will be decreased (Jawabreh, 2017). The carrying capacity of the site must still be evaluated in order to maintain its cultural and ecological qualities, including acceptable degrees of change. For many years, Europeans were the main segment of tourists, but this is changing due to an increase in visits from the Gulf nations and the Far East.

Arrivals on organized tours account for over 80% of visitors, and although group tourists are older and wealthier, individual visitors spend more time at the monument and in the surrounding region. Arrivals aboard cruise ships in the port of Aqaba represent a growing market. These expatriates often create traffic congestion during peak hours and contribute nothing to the local economy due to their brief stay in Petra, (Alazaizeh et al., 2019). Green tourism is now concerned with tourist goods that strive to prevent or minimize harmful environmental consequences. According to the World Tourism Organization, tourism is unique in that it includes. Given that environmental economics considers sustainable deterioration to be a market failure, green tourism might help to encourage sustainable development and set an example for other businesses. An open mindset might be fostered to allow for the development of new methods and creative techniques.

Ecotourism is one of the most rapidly expanding types of tourism. Natural components such as national and municipal parks, woods, streams, and others continue to be popular tourist attractions. As tourism to natural regions, especially ecotourism, grows, so does the need for travel specialists to serve these visitors. Eco-visitors are tourists that seek nature-based learning experiences while also acting in an ecologically and socioculturally sustainable way. Many places attempt to integrate eco-activities in their tourist offerings in order to boost their desirability. In other words, travelers may be unable to participate in green tourism since they must deal with public transportation, suffer more difficulty, and spend higher travel expenditures. Waterwheel's home districts of Haenertsburg and Tzaneen provide a variety of events that make extra activities at Waterwheel unnecessary and encourage participation in community activities. This reduces the impact on the environment.

## LITERATURE REVIEW

Tourism sustainability has grown dramatically in the modern times for a variety of factors. In last year's, the theoretical development, but minimal experience has been seen in the range of studies on sustainable tourism (Alazaizeh et al., 2016). Tourism sustainability conceptualizes the facets of tourism by preserving the atmosphere against several environmental issues such as mitigating air, water and soil emissions as well as reducing travelers and practitioners' waste. It emphasizes protecting landscape, ecosystems, wind plants and animals' environmentally sustainable characteristics. Secondly, social development relates to the standard of life of the urban community and describes the protection of the quality, past, culture and diversity of destination areas (Astina et al., 2021; Cobbinah et al., 2013; Kebete, 2021; Marlina et al., 2021). The economic foundation leads to local economic growth through comparative advantages and enhanced sales through local and global animation of more sustainable and affordable destinations. Submitted that adopting effective waste management strategies such as recycling and composting could reduce the emission of greenhouse gases. Previous research on the use of green hotels have shown a clear positive correlation between green confidence and green practices, which entail efficient communication of sustainability (Jahmani et al., 2020; Kauppila et al., 2009; Lórinicz et al., 2022; Myers et al., 2011).

Sustainability and the measurement of environmental performance have become standard within most major tourism companies. It is believed that there are strong connections between creativity and entrepreneurship. Entrepreneurs are more likely to be embarked onto green creativity, while well-established companies are more akin to innovate thinking. Today's utilities' suppliers are venturing into digital transaction, with smart moves to improve efficiency and expand their customer base. The smart metres and smart grid merely are an example. These innovations constitute the foundation of the digital utility, supplying the massive volumes of data that are its lifeblood. Tourist now prefer to buy energy efficient goods to better manage their energy consumption. There are numerous articles on agricultural activities and environmentally responsible use by consumers. While the results are encouraging to help the prediction, few researchers attempted to identify aspects that affected international tourists' behaviors. There are only several surveys that actually consider green visitors. Small islands have the value to protect vulnerable and threatened animals. Tourism and climate of Hawaiian Islands will be significantly influenced by climate change, so it is critical for tourists to be involved in environmental protection steps. To meet the missed gaps in hospitality marketing literature, we proposed two variables leveraging an enlarged environmental interest" and green tourism understanding. Our study finds that there are vast quantities of people living on the Petra. In our study, we are concerned with facets of green growth. This research is relevant to a range of approaches that can be employed in solving environmental problems and economic progress. These are used by environmental experts to attract tourists whose motivations for pursuing an environmentally friendly way of life are genuine and comparable. Our review demonstrates significant importance and powerful administrative implication. The key aim of green tourism is exchanging knowledge and encouraging protection of the ecosystem. What is most important regarding green tourism is that it minimizes the environmental damage generated by traditional tourism and strengthens the cultural identification of citizens. Apart from assessing the climate, green tourism is also a part of developing sustainable sustainability. Green tourism has helped foster environmental protection, history, and societies which are visited on tourist sites. A green tourism is eco tourism because it protects money as earth's resources (Azam and Sarker, 2011). Green tourism is a type of eco-tourism growth. According to Veronika Fandeli, author of Ecotourism, ecotourism initiated by organization of The Ecotourism Society in 1990, is a mode of travel to natural areas that is done with the intention of conserving the ecosystem and preserves the well-being of local people.

### Theory of Planned Behavior (TPB)

The theory of planned behavior (Ajzen, 1991) posits that a person's behavioral intentions usually predict their behavior. Ajzen suggests three key predictors of these intentions. One's attitudes toward a behavior reflect their positive or negative evaluation of the activity itself. Attitudes to actions reflect their favorable or negative view of the action itself. Subjective standards relate to the existence of external coercion to partake in or withdraw from actions. Perceived behavioral management is a belief that one has the means and the ability to participate in the appropriate behavior. Put momentarily, if people have a favorable outlook towards behavior, if they are motivated by the subjective standards of a society, and if the conduct is under the influence of the participant, a person is far more likely to be able to participate in behavior than if one or more of these variables are absent (David and Rundle-Thiele, 2018; Sommestad et al., 2015; Yuzhanin and Fisher, 2016). It also proposes the likelihood of external variables that could predict the development of purpose, like one's past behaviour. TPB, as established by Ajzen (1991), has long been employed by academics to explain human behavior in a variety of areas, including education, online shopping, health, and green consumerism (Ulker-Demirel and Ciftci, 2020). Individual conduct is impacted by attitudes, subjective norms, and perceived self-control, according to his thesis.

According to some experts, TPB is a fundamental theoretical framework that may be used to explain individual behavior in a pandemic situation, such as the desire to avoid immunizations. Although does not consider certain factors to be part of the original model, in fact, several studies have used previous behavior in theoretical experiments, which have shown to increase the researcher's capacity to predict behavioral intentions (Agarwal, 2014; Rahmafritria et al., 2021). To the best of the authors' knowledge, no such study has expanded the TPB by include the components of knowledge uncertainty, infection risk perceptions, and societal concern. TPB has very certainly never been used to explain the link between pandemic uncertainty, reasons pushing individuals to adhere to the physical distancing guideline, and the influence of widespread illness on people's willingness to travel. This creates a gap, which prompted the expansion of the TPB framework to analyze the aforementioned effects and components using variables linked to uncertainty and risks. Following (Wen et al., 2020). Foreign visitors are searching for international tourism destinations where the natural and the natural amenities are appealing. Cultural tools occur, accompanied by a broad range of facets and important heritage. As a consequence, Petra



provides the experience desired by foreign visitors (Jawabreh et al., 2022). As a consequence, environmentally friendly tourism actions seemed to explore the assumptions of foreign visitors regarding the viability of green tourism and to improve their enjoyment without damaging Petra's environmental sensitivities. Therefore, we used the principle of expected actions to make more predictions (Alshawagfih et al., 2015; Apostolakis and Jaffry, 2005; Byrd, 2007). Environmentally conscious actions by foreign visitors. The principle of expected actions is an extensible theorem of psychology that has been proposed. It is a study instrument that forecasts the behavioral intentions of individuals and their real activities. This hypothesis is one of the main studied hypotheses that understand human actions. It involves logical predictors and assigns self-interest.

Motives and even pro-social motives. Several researchers have found out the need to contribute to this. The pro-social factors. A paradigm that has been popular and generally pragmatic in a variety of ways, Studies to describe different facets of environmental behaviour, such as sustainable health care. Eco accommodation, tourism research, house rentals, agricultural development, litter collecting in protected areas, urban cycle sharing for holiday riding, sustainable agriculture, sustainable schooling, sustainable heritage tourism, sustainable use, energy saving, water management, e-waste recycling and sustainable transport, the expanded model has been found to be better. Findings in a study in India indicated that the expanded model was more suitable to forecast the intention of the customers of electric vehicles to follow it.

This theory suggests that conduct derives from an individual desire that is defined as a cognitive representation of a person's motivation to attempt or execute behavior, which in turn depends on three global latent predictors: subjective standards, behaviors, and perceived behavioral influence (Nguyen, 2020; Nguyen, 2022; Park and Blenkinsopp, 2009).

### **Attitude**

Attitude is psychological propensity to an individual that a person has had direct or indirect learning experience. Psychological measurement has been a big topic of psychology for over 80 years and since then theories and methods have grown (Gursoy et al., 2010). Conceptually, there are two forms of attitudes: particular attitudes and general attitudes. Whereas a personal attitude is a comparatively good indicator of a single action concerning a particular topic of attitude, a general attitude is useful in understanding the general propensity to indulge in relevant actions involving an object of attitude type. Attitude is characterized as favorable or unfavorable emotions associated with a specific behavioral activity. In addition, the attitude is indicated as a favorable or negative appraisal of the results of that action. Previous experiments have shown that there are two forms of attitudes: a particular form and a general type (Harrill, 2004). While the general form of attitude describes the attitude towards environmental issues, the particular type of attitude, on the other side, shows the attitude towards a specific green commodity.

### **Environmental Concern**

Environmental issues, one is customer concern for the environment while the other is legislative concern for the environment. For example, a survey conducted by Nielsen in 2015 found that 51% of customers were willing to pay more for green goods (Joseph et al., 2021; Hafezi and Zolfagharinia, 2018). In fact, sustainable customers are not only worried with green commodity change (e.g. enhancing energy efficiency), they are still able to pay higher premiums for low-carbon changes in output (Meyers et al., 2010; Deltas et al., 2013; Khan et al., 2022). It is evident that the existence of environmentally concerned customers focused on carbon pollution from their consumption of goods impacts the launch of products and the viability of companies. Moreover, policymakers who implicitly set the standard of environmental interest advise companies to incorporate improved goods aggressively to optimize social welfare. Indeed, there appears to be a lack of awareness of how the environmental interests of customers and regulators influence the launch of goods. In addition, governmental action is more universal than customer environmental issues when it comes to shaping carbon emissions. In comparison, customers have large variations in carbon pollution between the processing of goods and the consumption of products. Moreover, the environmental issues of customers are relatively more difficult to measure specifically. In light of this debate, persuading and educating customers to be more environmentally concerned might not be the subject of discussion. From a theoretical point of view, few researches have investigated the fundamental relationship between product launch, carbon pollution legislation and product carbon emission characteristics. Green tourism is currently dealing with tourism products that seek to avoid or minimise environmentally negative impacts. World Tourism Organization, points out that tourism is unique in that it comprises. Given that sustainable degradation is considered a market failure by environmental economics, green tourism could contribute to boost sustainable development and set an example for other industries. An open mind-set could be developed to give an opportunity for new strategies and innovative practices (Eylla et al., 2021; Huda et al., 2020). Ecotourism is one of the fastest growing type of tourism. Demand for destinations that include natural elements such as national parks and local parks, forests, waterways and others continues to increase. As visitation to natural areas increases, including ecotourism visitation, so does the demand for travel professionals to accommodate these tourists. Eco-tourists could be defined as tourists seeking nature-based learning experiences and behaving in an environmentally and socio-culturally sustainable manner. Many destinations try to include some kind of eco-activities in their tourism offer in order to increase the attractiveness. In other terms, visitors can be unable to engage in green tourism because they have to contend with public transit, experience more hassle and incur more costly travel costs (Pintassilgom, 2016). This minimizes the effect on the climate. As Waterwheel aims to be an eco-tourism destination, some sort of operation is needed to add to the experience of the guests; green tourism is, after all, well-educated and expects information-rich experiences (Al Fahmawee and Jawabre, 2022; Jurdana, 2009).

### **MATERIAL AND METHODS**

The study approach used was a descriptive analysis of the explanatory survey that was conducted. Travelers were among those who answered the survey questions. Administrators of corporate development who work in various offices.

Our poll for this study had 400 participants, which was considered a good turnout. Because this constraint was anticipated, data for this study was acquired through the use of a questionnaire. Our investigation yielded evidence of citizens in the Jordanian city of Petra. To achieve this, we conducted a study to investigate the market behavioral elements of green growth in the tourism industry. The data was analyzed with the help of the SPSS and aMOS programs, because the unit of analysis is the individual who answers the questions and provides the answers. The validity of the data, as well as the quality of the data and their fit to the employed path model, were determined using statistical measures, and then the hypotheses linked to the direct effect were assessed using Maximum Likelihood Estimates, with a significance level of 0.05. This study is also necessary in order to be actively incorporated into green marketing initiatives for environmental benefits, community development, and long-term business sustainability. A professional will employ these tactics in order to target visitors whose identification is authentic and comparable to the level of protection provided by the environment. As previously noted our study contribution is not only valid in the literature, but it also demonstrates management repercussions and provides hope for future outcomes for practitioners in a variety of fields.

Petra, the capital of the Arab Nabateans, is one of the world's most recognized ancient sites and Jordan's most prominent tourist destination. Tourists from all over the globe come here in large numbers. It is 262 kilometers south of Amman. It is a mash-up of historical structures from numerous civilizations, as well as a full city carved out of pink rock. The study of Nabataean monumental architecture deals with two categories of monuments: a homogenous group of rock-cut tombs, geographically linked to Petra and Hegra (Medain Saleh) and a number of buildings, mainly religious, distributed over a large territory (Tholbecq, 2007). Petra is a one-of-a-kind example of the oldest Arab civilization (the Nabataean civilization), as the Nabataean Arabs carved it from the rock more than 2000 years ago, and it is one of the New Seven Wonders of the World, as well as a witness to one of the most rich and creative ancient Arab civilizations. Johann Ludwig Burckhardt led an expedition for the British Royal Geographical Society to the Levant, Egypt, and Arabia. As a result of the delay in revealing Petra to the world, many academics and orientalists refer to it as the "lost city," and the English poet Bergen characterized it as the marvelous eastern metropolis.

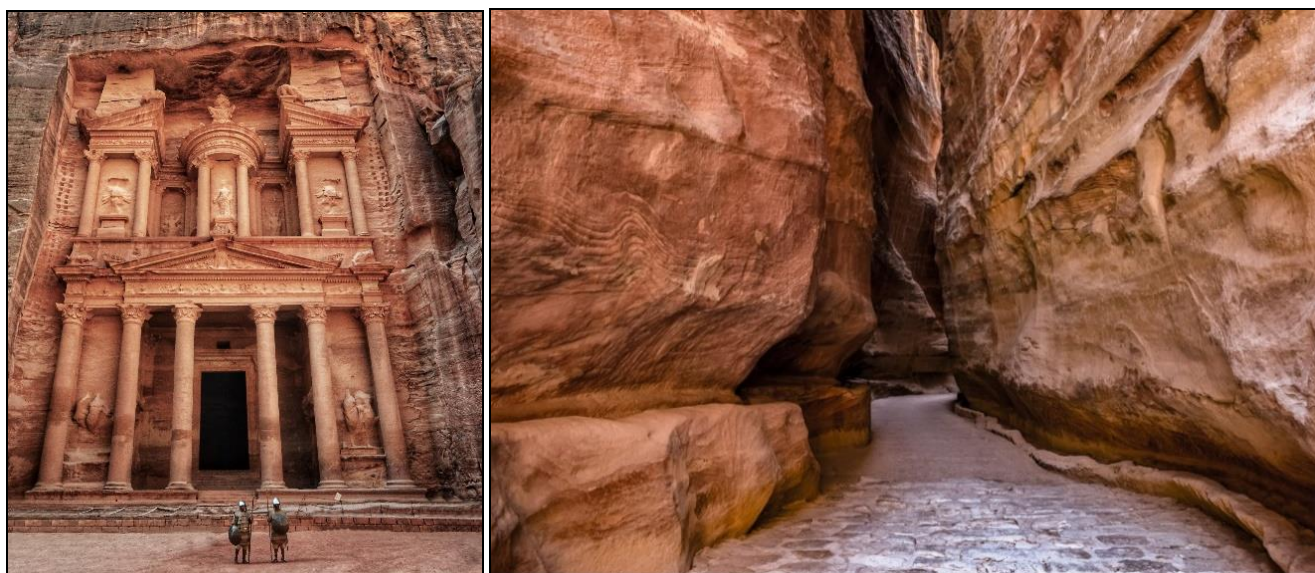


Figure 1. (left) Petra's most famous structure is Al Khazneh (Arabic for Treasury, a temple with an ornate, Greek-style facade (Right) The siq, the narrow slot-canyon (by authors, 2021)

The Nabataean kingdom developed, and its frontiers expanded south to the Arabian Peninsula's northwest, where the city of Mada'in Saleh is situated. The Nabataeans expanded their authority to include the Red Sea coast, the eastern Sinai Peninsula, and the Hauran Plain region of Syria, all the way up to Damascus. The Nabataean monarchy and its capital, Petra, were bordered by several kingdoms. And civilizations, including the Pharaonic civilization in the west, the Palmyra civilization in the north, and the Mesopotamian civilization in the east, so the Nabataean Kingdom was in the middle of the ancient world's civilizations, and constituted a focal point of convergence and continuity of various global civilizations. The Nabataeans were famed for their water engineering and water collecting skills, and they had owned the notion from ancient times. Irrigation systems, rainfall collecting, and springs were all established by the Nabataeans. They perfected the building of dams and reservoirs carved into the rock (Figure 2). They also constructed canals across great distances, as well as agricultural terraces on hills to use the land for cultivation. Visitors should prioritize the preservation of Petra, a site that has been a source of pride for more than two centuries, and by following a few basic principles, you will be assisting in the preservation of the site for future generations. The erosive nature of sandstone ensures that Petra is constantly under attack from the elements – and that's even before the 600,000 people who come each year arrive in Petra. In addition, the wind and rain worsen the location's vulnerability, while the constant pressure of footfall accelerates the natural erosion process. By the beginning of December 2019, the number of visitors to Petra had topped 1.42 million, it has a total of 34 recognized hotels and 12 unclassified hotels, totaling 2,346 rooms and 3,930 seating capacity. Petra is one of the cities with the highest concentration of tourism-related workers in Jordan with (1,572 employees) , as shown in Table 1.





Figure 2. Map of the city center of Petra, Jordan (with modification of the authors, Kanellopoulos and Akasheh, 2001)

Table 1. Tourist Accommodation Indicators in Petra (OMTA, 2022)

| Petra               | No.of Hotel | SUITE      | Room         | Bed          | Jordanian  |           | Non Jordanian |          | Total      |
|---------------------|-------------|------------|--------------|--------------|------------|-----------|---------------|----------|------------|
|                     |             |            |              |              | M          | F         | M             | F        |            |
| Five Stars          | 6           | 65         | 816          | 998          | 422        | 5         | 10            | 0        | 437        |
| Four Stars          | 4           | 7          | 416          | 760          | 88         | 2         | 2             | 0        | 92         |
| Three Stars         | 11          | 32         | 595          | 1,205        | 149        | 5         | 17            | 0        | 171        |
| One Stars           | 9           | 13         | 209          | 411          | 33         | 4         | 6             | 0        | 43         |
| camping             | 4           | 2          | 125          | 195          | 7          | 0         | 1             | 0        | 8          |
| <b>TOTAL</b>        | <b>34</b>   | <b>119</b> | <b>2,161</b> | <b>3,569</b> | <b>699</b> | <b>16</b> | <b>36</b>     | <b>0</b> | <b>751</b> |
| Unclassified Hotels | 12          | 5          | 185          | 361          | 27         | 3         | 5             | 0        | 35         |
| <b>Total Petra</b>  | <b>46</b>   | <b>124</b> | <b>2,346</b> | <b>3,930</b> | <b>726</b> | <b>19</b> | <b>41</b>     | <b>0</b> | <b>786</b> |

Table 2. Descriptive statistics: Mean and standard deviation

| Constructs                                   | Mean | Standard Deviation |
|--|------|--------------------|
| The view of green tourism                    | 3.01 | 1.25               |
| Environmental issues                         | 3.07 | 1.02               |
| Attitudes towards Green tourism              | 3.16 | 1.34               |
| Actions of environmentally friendly tourists | 4.17 | 0.96               |
| Intention of Participation in Green Tourism  | 3.43 | 1.02               |

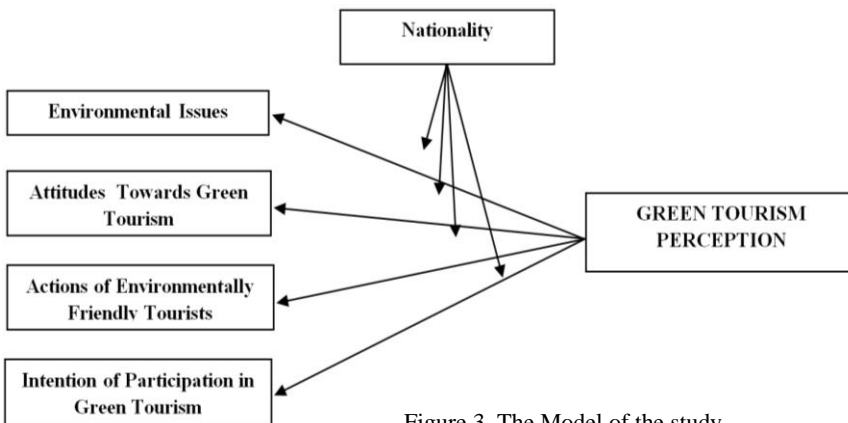


Figure 3. The Model of the study

**Hypothesis**

**H1:** There is a positive correlation between environmental concerns and tourist perceptions of green tourism.

**H2:** There is an upward trend in eco-tourist attitudes and views of green tourism.

**H3:** There is a positive correlation between eco-tourist conduct and visitor perceptions of green tourism.

**H4:** Tourists' attitudes about green tourism are positively influenced by their desire to engage in it.

**H5:** The relationship between environmental issues and perceptiongreen tourismis moderated positively by nationality.

**H6:** The relationship between Attitudes Towards Green Tourism and perceptiongreen tourismis moderated positively by nationality

**H7:** The relationship between Actions of Environmentally Friendly Tourists and perceptiongreen tourismis moderated positively by nationality

**H8:** The relationship between Intention of Participation in Green Tourism and perceptiongreen tourismis moderated positively by nationality.

**Descriptive Analysis**

Employing a five-point Likert scale that ranged from 1 (very weak agree) to 5 (very strongly agree), we found that the mean and standard deviation scores of all the variables we used to measure international tourists in this study varied from 3.01 to 4.17 (and 0.96 to 1.34), as shown in Table 2. In general, we found that all variables being used in our study obtained meanscores higher than The mean of the questionnaire which equal (3.00).

**Convergent Validity and Discriminant Validity**

We exhibited the factor loading, and composite reliability (CR); we also presented the Cronbach’s alpha for each construct, as seen in Table 3. In addition, Table 4 shows the measurement of model discriminant validity, which can be used to test for the reliability and convergent discriminant validities. We followed the suggestions of Hair et al., 2013. To set the conditions that all loadings must be higher than 0.40; and these requirements were satisfied for all constructs, as shown in Table 3. Further results, as displayed in Table 4, showed that the value of the discriminant validity was satisfied for each construct. Table 3 and Figure 4 shows the factor loading and composite reliability (CR), as well as the Cronbach's alpha for each construct. Table 4 also provides the model discriminant validity measurement, which may be used to assess for dependability and convergent discriminant validity. We specified the criterion that all loadings must be more than 0.40, as suggested by Hair et al. 2013 and these requirements were met for all constructions, as shown in Table 3.

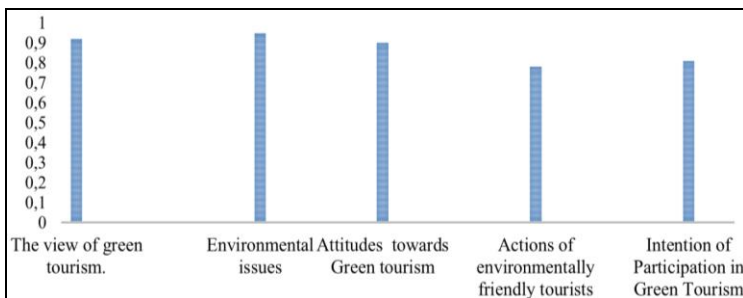


Figure 4. The Composite Reliability (CR)of the study

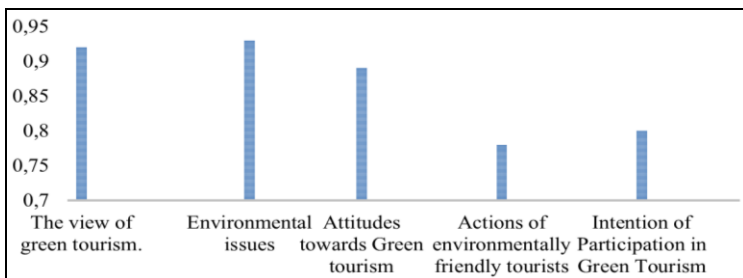


Figure 5. The Cronbach’s Alpha of the study

Table 4. Model Testing, Path Coefficient, and Level of Significance

| Construct   | 1     | 2    | 3    | 4    | 5    |
|---|-------|------|------|------|------|
| <b>The view of green tourism.</b>                   | 0.68  |      |      |      |      |
| <b>Environmental issues</b>                         | 0.41  | 0.78 |      |      |      |
| <b>Attitudes towards Green tourism</b>              | 0.05  | 0.02 | 0.64 |      |      |
| <b>Actions of environmentally friendly tourists</b> | 0.004 | 0.13 | 0.11 | 0.42 |      |
| <b>Intention of Participation in Green Tourism</b>  | 0.50  | 0.39 | 0.23 | 0.16 | 0.52 |

Table 3. Convergent validity and discriminant validity

| Construct   | Factor Loading | Composite Reliability (CR) | Cronbach’s Alpha |
|---|----------------|----------------------------|------------------|
| <b>The view of green tourism</b>                    | 0.50           | 0.92                       | 0.92             |
|   | 0.83           |                            |                  |
|   | 0.91           |                            |                  |
|   | 0.90           |                            |                  |
|   | 0.89           |                            |                  |
| 0.85  |                |                            |                  |
| <b>Environmental issues</b>                         | 0.93           | 0.95                       | 0.93             |
|   | 0.91           |                            |                  |
|   | 0.92           |                            |                  |
|   | 0.77           |                            |                  |
| <b>Attitudes towards Green tourism</b>              | 0.80           | 0.90                       | 0.89             |
|   | 0.73           |                            |                  |
|   | 0.86           |                            |                  |
|   | 0.83           |                            |                  |
|   | 0.77           |                            |                  |
| <b>Actions of environmentally friendly tourists</b> | 0.59           | 0.78                       | 0.78             |
|   | 0.73           |                            |                  |
|   | 0.77           |                            |                  |
|   | 0.58           |                            |                  |
|   | 0.56           |                            |                  |
| <b>Intention of Participation in Green Tourism</b>  | 0.74           | 0.81                       | 0.80             |
|   | 0.69           |                            |                  |
|   | 0.71           |                            |                  |
|   | 0.75           |                            |                  |

Table 5. Model fit statistics

| $\chi^2 / df$ | IFI  | TLI  | CFI  | GFI  | RMSEA | SRMR  |
|---------------|------|------|------|------|-------|-------|
| 2.78          | 0.94 | 0.93 | 0.94 | 0.90 | 0.061 | 0.057 |

Further findings, as shown in Table 4, revealed that the value of discriminant validity was met for each construct. According to Henseler et al, 2016 the measurement model, structural model, and model fit estimates—goodness of fit index (GFI), normed fit index (NFI), comparative fit index (CFI), Tucker–Lewis Index (TLI), and rootmean square error of approximation (RMSEA)—must be well above the recommended values by Henseler et al, 2016 and in this study, the CFA presented an acceptable model fit ( $X^2 = 688.10$ , and  $df = 242$ ,  $X^2/d$ ). Following model testing, the initial coefficients and p-values of the structural model were computed in the second stage. This was done to determine if any particular conceptual framework suited the model. As a consequence, for variance-based structural equation modeling and model fit assessment, this work employed structural equation modeling using Jeffreys' Amazing Statistics Program (JASP 10.0.2.0). As demonstrated in Table 5, one of the variables was the link between environmental concerns and perception green tourism (= 0.536, p 0.01), Attitudes Towards Green Tourism (= 0.211, p 0.01), Environmentally Friendly Tourists' Actions and perception green tourism (= 0.292, p 0.01), Intention to Participate in Green Tourism (= 0.155, p 0.016) were all positive and significant pathways. As a consequence, all routes except H1, H2, H3, and H4 were supported. The measurement model, structural model, and model fit - goodness of fit index (GFI), normed fit index (NFI), comparative fit index (CFI), Tucker–Lewis Index (TLI), (Henseler et al., 2016) and rootmean square error of approximation (RMSEA) - estimates must be well above the recommended values by Henseler et al, 2016, and in this study the CFA presented an acceptable model fit ( $X^2 = 688.10$ , and  $df = 242$ ,  $X^2 / ($  Table 5). The initial coefficients ( $\beta$ ) and p-values of the structural model were estimated

as the second step after model testing. This was done to see if any particular conceptual framework fit the model. As a result, this study used structural equation modeling with Jeffreys' Amazing Statistics Program (JASP 10.0.2.0) for variance-based structural equation modeling and model fit testing. The association between environmental issues was one of the determinants, as shown in Table 5. And perception green tourism ( $= 0.536$ ,  $p 0.01$ ), Attitudes Towards Green Tourism ( $= 0.211$ ,  $p 0.01$ ), Environmentally Friendly Tourists' Actions and perception green tourism ( $= 0.292$ ,  $p 0.01$ ), Intention of Participation in Green Tourism and perception green tourism ( $= 0.155$ ,  $p 0.016$ ) were all positive and significant paths. As a result, all pathways were supported except H1, H2, H3, and H4. As stated in Table 6, the results revealed that.

Table 6. Path coefficients and level of significance

| Effects | Original Coefficient | t-Value | p-Value | Paths     |
|---------|----------------------|---------|---------|-----------|
| EI→GTP  | 0.536                | 9.23*** | <0.001  | Supported |
| ATT→GTP | 0.211                | 4.47*** | <0.001  | Supported |
| AEF→GTP | 0.292                | 5.10*** | <0.001  | Supported |
| IPG→GTP | 0.155                | 2.41**  | 0.016   | Supported |

Table 7. Moderation estimates— Nationality

| Effects | Estimate | SE    | Z       | P      |
|---------|----------|-------|---------|--------|
| EI→GTP  | 0.051    | 0.010 | 5.04*** | <0.001 |
| ATT→GTP | 0.033    | 0.009 | 3.78*** | <0.001 |
| AEF→GTP | 0.001    | 0.008 | 0.11    | 0.91   |
| IPG→GTP | 0.028    | 0.011 | 2.90**  | 0.004  |

### Nationality Moderation Effects of Control Variables

The impacts of age on green tourism perception and attitude, as well as gender on green tourism perception and attitudes, were investigated in this study to see how the nationality variable mitigated the relationship between the four categories. Furthermore, the moderating effects of age on environmental worries and attitudes, as well as the moderating impacts of gender on environmental concerns and attitudes, were investigated.

The results of the moderating effects in Table 7 showed that nationality was moderating the interrelationship effect between environmental issues, attitudes toward green tourism, intention to participate in green tourism, and perceptions of green tourism ( $= 0.051$ ,  $0.033$ ,  $0.028$ ,  $z = 5.04$ ,  $3.78$ ,  $2.90$ ,  $p (0.001, 0.001, 0.004)$ ). However, the construct of nationality moderated the interaction effect Environmentally Friendly Tourist Actions and Green Tourism Perception ( $= 0.001$ ,  $z = 0.11$ ,  $p = 0.004$ ). As a result, H5, H6, and H7 were approved. As indicated in Table7, H7 is not supported.

### CONCLUSION

Our research aims to shed light on the motivations of eco-conscious travelers through the development of a framework. We also urge that tourists' perceptions on the sustainability of green tourism and their environmental concern might be taken into account in the design of green tourism destinations. be incorporated into the theory of planned behavior in order to gain additional insight into foreign travelers'. A 2007 "Tourism" study estimated that 70 percent of the region's population has become dependent on the tourism sector. For the village of Umm Sayhoun, their income mostly comes from donkeys and camels, but the local ability to make a living outside of tourism informally is up to s. The historical competition for land and resources between tribes extended to obtain the benefits of tourism. In addition, women are underrepresented in the tourism economy, and are often limited to craft production for cultural/traditional reasons. Recent community initiatives, including the Umm Sayhoun Community Development Center and the Petra Sponsorship Campaign, also directly address some of the key issues related to the local community (Farajat, 2012). Since 2005, the Petra and Wadi Rum Bedouin Cultural Space has been included in the Representative List of the Intangible Cultural Heritage of Humanity in line with the 2003 UNESCO Convention for the Conservation of the Intangible Cultural Heritage.

The traditional and societal values of the various communities and tribes inhabiting the site are thus recognized, and they undoubtedly derive inspiration and meaning for some of their cultural output from the site. Environmental and biodiversity values are an integral part of the site's cultural landscape and natural surroundings. The larger protected area comprises an area of a portion of indigenous forest cover as well as an area rich in flora and fauna, including endemic species, which has been defined in such a way that the area may be called a nature reserve and will be expanded for consideration under Criterion 8 of the Heritage Convention. more defining global, particularly in the formulation of the connections between nature and culture and the interconnections of the site (Rebert and O'Halloran, 2014). There have been a number of initiatives to break up the crowds of visitors, including the creation of designated administrative areas and pathways.

For example, a USAID study developed options with nine targeted pathways. In addition to the main visitor path through the site, the most common paths are the altar mountain path, the monastery path, and the al-Khabha path. The paths of the local community are dangerous for visitors and may also lead to archaeologically sensitive areas, which means they must be completely closed to tourists. The most recent excavations and related initiatives since 2014 include the "Winged Lions Temple Cultural Resources Management Initiative" launched by the American Center for Oriental Research; erosion control and conservation research and work on the Abbey Plateau by Brigham Young University; and a French project led by IFPO (French Institute for the Near East) at Qasr al-Bint and has been going on since the 1980s with a current focus on conservation, site excavation and excavations in the temple garden, led by Les Anne Bedale, Professor at Penn State University. Implemented by the German Jordanian University to rehabilitate old water management systems with funding from the US Ambassadors Fund for the Preservation of Cultural Heritage in Jordan and the German Cooperation Agency, it is now in its second phase of implementation. The first tourist center on the site was created in the 1960s, when a modest museum and cafeteria were established (Nazzal Camp). A guest house was erected on top of the Khan's tomb during the time, and plans were made for a hotel at the site's entrance. In 1982, the World Bank funded the Crowne Plaza Hotel as well as additional amenities such as the restaurant Basin and the Nabataean tent. The visitor center at the site's entrance has also been refurbished numerous times, with the most recent renovation, which featured a new courtyard and entry gate, finished in 2009. Nationality moderated the interrelationship impact between environmental concerns, attitudes toward green tourism, desire to engage in

green tourism and perceptions of green tourism. H5, H6, and H7 were given the go-ahead, but Table 7 shows that H7, as seen in Table 7, is not supported. The moderating effects of age on environmental concerns and attitudes, as well as gender and nationality on green tourism perception, were also explored. The study's most significant theoretical conclusion is the ability to provide similarly valuable contributions to a number of sectors, particularly in relation to the growth of the tourist industry. Thus, our work serves as a springboard for more empirical investigation into how much a person's surroundings may affect their personality. In terms of the sustainability of green development and tourism As an example, one of his most significant achievements was Our study offers empirical proof of the significance of visitors' impressions on the sustainability of green infrastructure over the long run. Tourists' attitude towards tourism and environmental concerns in the same way, the most important factors impact of tourists' green tourism intentions on the tourist's behavior in this investigation, individual behavior was discovered. The ability to comprehend what consumers think and feel tourists' attitudes, norms, and perceptions of environmental concern in relation to green tourism individual tourist behavior and the desire to engage in green initiatives.

This study has made a contribution to the field of development to be realistic, hotel management need to strengthen the means of contact with their customers. to their guests and set up a system for gathering feedback on the green environment. Inquiries about the environmental procedures of hotels throughout their travels. Meanwhile, tourists' environmental concerns, which were found to be unaffected by their nationality. In our study, we found that the environmental concern of an individual is reflected in their subjective standards. not influence a person's decision depending on their social status. Because of this, there's a management of hotels in Petra must devise ways to raise environmental awareness among their guests it will have a significant impact on the overall achievement of a green environment. Finally, we notice that international tourists are concerned about the environment a large and favorable impact on individual eco-friendly tourist behavior.

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## ECOTOURISM - A 21ST CENTURY NECESSITY OR RESPONDING TO CONSUMER DEMAND?

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**Abstract:** This article identifies ecological tourism as a type of tourism that is most fully in line with the principles of sustainable development being a global ecological and economic concept and corresponding to "slow tourism", as a form of behavior alternative to mainstream tourism. Particular attention is paid to the study of ecological tourism in protected natural areas in the forms as close as possible to "green" tourism. The scientific novelty of the work is aimed at studying the essential features and the following trends in the development of ecological tourism as a special type of recreational activity. The authors conducted a sociological study using questionnaires and focus group interviews. Tour guides providing services in a specially protected natural area were selected as the target sample. The study was carried out in the Curonian Spit National Park – a UNESCO site. The authors have studied and analyzed the individual motives and desires of tourists when visiting specially protected natural areas. The results of the study reveal the significance of various types of resources for ecological tourism; the significance of the historical and cultural potential of the territory; the role of natural resources in creating a tourist product aimed at environmental education and awareness; technologies for excursion and educational activities with an ecocentric orientation. The authors demonstrate and propose possibilities and techniques for extrapolation of the principles of "slow tourism", including ones for visiting natural areas. The role of guides as conductors of "slow tourism" is indicated.

**Key words:** sustainable development, ecotourism, green tourism, slow tourism, protected natural area, sparsely urbanized territory, National Park, Baltic region, Curonian Spit

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### INTRODUCTION

The key topic of our research is the study of the essential content, the deep foundations of ecological tourism as a complex socio-economic phenomenon based on the use of rare and unique landscapes for recreational purposes. Is this type of tourism a respond of the tourism industry to a set of dynamically changing necessity of consumers, who are forced by the accelerating process of urbanization to turn to sparsely populated, native natural landscapes, or a new quality of recreational demand, a natural development of tourism due to a change in the level of ecological consciousness of people?

Our study was carried out for the Curonian Spit National Park, the westernmost one in Russia. The regulatory documents stipulate that the key tasks of the national park administrations for a variety of protected areas are: nature conservation, nature study and limited recreational activities. In this example, we will consider the features of the organization and development of ecotourism in specially protected natural areas, how specifically the main actors interact, the role of international cross-border projects in creating a new tourism product and preserving the natural and cultural heritage of a transboundary natural area. Earlier studies identified one of the negative features of the recreational space of the Curonian Spit National Park – a significant and unbalanced load on ecological routes (Anokhin et al., 2021). As a result, a number of routes were virtually unvisited, while others were over burdened by tourists. All this led to a decrease in the quality of the recreational process and adverse consequences for the biogeocenoses (or ecosystems) of the national park.

The study will answer the following questions: what is the resource potential of the territory and what resources are most attractive and how this potential is exploited by tour guides when organizing excursions; it will allow an assessment of the motivation for visiting the national park; to forecast demand for "slow tourism". According to the Statistics in 2019, the ecotourism industry worldwide was estimated at 181.1 billion U.S. dollars. The sector is forecast to reach 333.8 billion U.S. dollars by 2027 (Ecotourism market, 22.11.2021). In the era of covid, an even greater increase in the development of ecotourism might be expected, due to such reasons as increased concern for personal safety, which during the pandemic has been ensured primarily by maintaining distance and implementing tours in small groups, as well as being outdoors in open-air.

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Natural parks should be prepared for overloading of natural pressure points due to this increased demand, and to adjust existing strategies and plans accordingly. It is no coincidence that in the last two years amount of work devoted to advanced technology, new educational methods, and other related aspects of ecotourism has increased. An analysis of recent research in the field of eco-tourism suggested that, following Page and Dowling (Page and Dowling, 2002), the most harmonious and full definition of the concept of "ecotourism" was for IUCN by Héctor Ceballos Lascuráin in 1996 and quoted in the work of Freude (Freude, 2019). It described ecotourism as "environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low negative visitor impact, and provides for beneficially active socio-economic involvement of local populations" (Freude, 2019, P.1). Later, not only by other authors, but also by environmental organizations, attempts were made to concretize this definition []. Nevertheless, this study will rely on this IUCN definition. Modern trends in the development of tourism, which received a new round due to the coronavirus pandemic, reveal a gradual transition from mass tourism to individual tourism and from "hard" to "soft". The term "soft tourism" was introduced into scientific circulation by the German academic Robert Jungk. Jungk characterized this form of organization of tourist activity as increasing the duration of trips, reducing the speed of movement of individual tourists, greater spontaneity in the programme, in the activities of tourists, greater immersion in the historical and cultural environment of the destination and an increased emphasis on impressions and emotions (Jungk, 1980). Similar characteristics are inherent in another, "fashionable" form of tourism - "slow tourism". Most researchers define it as the antonym of mainstream or mass tourism. Studying this form of tourism, scientists consider the concept of "slow" in terms of time, speed of decision-making, means of transport, holiday duration and location, slow food (Guiver and McGrath, 2016; Fullagar et al., 2012; Oh et al., 2016). Guiver and McGrath specifically point to its anti-commercialism as "an alternative to the homogenisation of the holiday experience, destinations and their tourism provision by conventional (mass) tourism and package holidays" (Guiver and McGrath, 2016). Following Guiver and McGrath, we understand "slow tourism" as a group of associated ideas rather than as a watertight definition (Lumsdon and McGrath, 2011). Not coincidentally, the study by H. Oh, A. G. Assaf and S. Baloglu found that the focus group suggested most frequently two universal goals of "slow tourism": revitalization and self-enrichment (Oh et al., 2016:5).

If slow is the opposite of fast, one of those used in conjunction with "fast-food", which is associated with a consumer society, is often perceived as "omnivores", that is, those who are indifferent to what they consume. In relation to tourism, this can be correlated with indifference to what they see, feel, etc. Despite the fact that entire associations of "slow tourism" are already being created in the world, for example, Cittaslow concept, which is turned through the time to the slow cities association. Content analysis by Guiver and McGrath (2016) found that potential "slow destinations" are often rural: "tranquil heart of Brittany", "sleepy", "slowly in accordance with the time and with the seasons, the true speed of life", especially Italy, the starting point of the slow food and Cittaslow movements: "live at an Italian pace", "where time seems to have stopped centuries ago". Or they distinguish another option as "untouched", "unknown destinations, and unstepped routes, and out of season scenarios, far from the madding crowd". They conclude that "the slow travel philosophy" stresses the importance of getting "to know one small area well" rather than seeing "only a little bit of many different areas", underlining that "It's about getting to know one place well, focusing on quality rather than quantity, and connecting with the place and its people" (Guiver and McGrath, 2016:23). But the most important thing is that one of the major benefits of 'slow tourism' is a deeper understanding of the destination (Guiver and McGrath, 2016:27). That makes this type of tourism to be very significant for protected areas. Thus, according to its characteristics, the implementation of travel as "slow tourism" largely corresponds to "responsible tourism". Firstly, being out of hurry a person uses environmentally friendly mode of transport, and secondly, he or she prefers traveling within natural areas, because the contemplation of beautiful landscapes let him or her "slow down" the journey. This allows us, following many scientists, to consider "slow tourism" as the most suitable for the implementation of ecological tours within the protected areas. The work has the following structure. The introduction (section 1) presents the relevance of the work and offers a brief overview of the problem area. The second section presents the characteristics of the study area. The third section outlines the materials and methods of research carried out in the *Curonian Spit*. The fourth section reports results from the study. The fifth section is devoted to discussion and conclusions.

## STUDY AREA

In order to study, on the one hand, the current needs of visitors to specially protected natural areas and on the other hand, its capacity. The study focused on the example of the Curonian Spit National Park (Russia). Until the creation of the Kislovodsky National Park in 2016 (area 965.8 ha) (Official website of Kislovodsk National Park), the *Curonian Spit* was the smallest national park in Russia (6627 ha). The national park occupies 49 km in the southwestern part of the *Curonian Spit* (the national park of the Republic of Lithuania is located on its other half part). The entire *Curonian Spit* is included in the UNESCO heritage list as a unique cultural landscape. The Curonian Spit National Park has regulated entrance with an environmental entrance fee (Na Kurshskoy kose proverili, 2021). The minimum width of the *Curonian Spit* (long peninsula) is 380 m, its maximum width is 3.9 km. The uniqueness of its landscapes is associated with the relatively recent formation of the spit itself (8500-6500 years ago), the formation of unique biogeocenoses (or ecosystems) on its territory, some of which (*Korolevsky pine forest* on the 6<sup>th</sup> km of the spit) is original ancient or primary forest. Dune complexes are another example of a unique landscape: in particular, a ridge of high dunes stretching along the bay, reaching a height of 62 m in the Russian part of the spit (Shaplygina and Volkova, 2017). On the territory of the spit, you can find examples of almost all natural zones represented in Russia, including steppe and desert landscapes atypical for the Baltic Sea region. The spit is even more famous for the intensive movement of sands, which began after the cutting down of primary forests. At the same time, the sands collected in huge dunes up to 70 m high, and covered the fishing villages, which was recorded in history as the Great Sand Disaster.



Figure 1. Dune Efa, Sea View (Source: Kropinova, 2022)



Figure 2. Dune Efa, Bay View (Source: Kropinova, 2022)

Even more extraordinary is more than a hundred years of history of the confrontation between man and nature (Kropinova, 2020). Over a hundred years ago, a unique sand trapping system was developed to anchor dune complexes to protect land from damaging storms (Figure 1), and to keep the winds from uncontrolled movement of the dunes (Figure 2). The landscape created with the help of man was recognized as unique, which became the basis for including the territory in the UNESCO list (O nazionalnom parke Kurshskaya kosa, 2022).

There are different levels of protection in the territory of the Curonian Spit National Park. Only twenty nine percent of the territory (1920 hectares) is allowed a recreational function and is open to visitors. On the Russian part of the spit, there are three settlements with an area of 461 hectares, in which about fifteen hundred people live, but the locally based population increases tenfold during the summer tourist season (O nazionalnom parke Kurshskaya kosa, 2022). Visitors experience the natural and cultural heritage of the national park through a system of ecological routes, each of which is equipped with the appropriate infrastructure (parking, flooring for movement, ecological paths), as well as information (information stands, in some cases with QR codes). (Figure 3). There is a brief overview of the routes including their location, a description of the sights, and the length of the route presented in Table 1. At the 14<sup>th</sup> kilometer of the spit, there is a Visit-center – a cultural public space that includes several museums, art objects, and a marina.



Figure 3. National Park "Curonian Spit", Information Display on the ecological trail (Source: Anokhin, 2021)

Table 1. Brief description of tourist routes on the territory of the Curonian Spit National Park (Source: compiled by the authors)

| Trail name               | Location on the Spit | Length | Content (it must be seen!)  |
|--------------------------|----------------------|--------|---|
| Royal Forest             | 6 <sup>th</sup> km   | 2,9 km | Relic forest, giant thuja nursery, Grenz forestry, observation deck, accessible to persons with disabilities<br>Tourist infrastructure: minimum of infrastructure; Information infrastructure: information displays   |
| Muller Height            | 32 <sup>nd</sup> km  | 2 km   | The highest point of the Bolotnaya dune (Bruchberg). The panorama of the Baltic Sea and the Curonian Lagoon, Lake Chaika and Rybachy village. The area is the oldest part of the Curonian Spit – the island Rasyte of glacial origin. A memorial stone erected here in honor of the arborist Müller.<br>Tourist infrastructure: minimum of infrastructure; Information infrastructure: information displays   |
| From Rossiten to Rybachy | 33 <sup>rd</sup> km  | 3,8 km | Rybachy settlement: architecture and history of the settlement, its famous inhabitants. Church and communal house of the 19th century, the house of Professor Johannes Thienemann (famous German ornithologist), the historical building of the former Rossitten school. Historic cemetery; Tourist infrastructure: restaurants and shops, bird museum; Information infrastructure: information displays  |
| Rossiten Forest          | 34 <sup>th</sup> km  | 2 km   | Mixed forests, hurricanes on the spit, birds, animals and mushrooms of the Curonian Spit<br>Tourist infrastructure: missing; Information infrastructure: information displays   |
| Dancing forest           | 37 <sup>th</sup> km  | 1 km   | Coniferous forest, the trunks of which wind in bizarre zigzags. This forest is called "Dancing Forest". It is hard to imagine what makes the coniferous trees in this place "dance" like that.<br>Tourist infrastructure: developed (cafe, souvenir shops); Information infrastructure: information displays  |
| Efa Height               | 42 <sup>nd</sup> km  | 2,4 km | The highest point of the dune - 62 meters - was named the "Height of Efa" in honor of the dune inspector Franz Efa, whose work was devoted to the study and fixation of shifting sands. All the variety of landscapes of the spit opens from the observation platforms: the sea, the bay, the spaces covered with forest, the cozy houses of the Morskoye village; Tourist infrastructure: the most developed (numerous cafes and tents with food, souvenir shops, stationary toilet); Information infrastructure: information displays |
| Lake Swan                | 46 <sup>th</sup> km  | 3 km   | A unique lake of eolian origin. Coastal protection constructions. Unique landscapes of the sea coast, the palve plain, a large dune ridge and the coast of the Curonian Lagoon.<br>Tourist infrastructure: missing; Information infrastructure: information displays  |

A visit to the *Curonian Spit* is usually organized as an excursion, either as an organized group in a coach for up to 50 people - or on an individual basis in a tour guided car, with a capacity of up to 6 people. According to the national park, attendance is constantly growing. So, in 2018, 471,666 people visited the park, in 2019 – 589,044 people. In 2020, despite the long (March-June) covid lockdown and subsequent restrictions there were 529,180 visitors. In 2021 there were even more – above 800,0 visitors (Letom Kurshskuyu kosu posetili, 09.09.2022).

## MATERIAL AND METHODS

As already shown above, the main issue of the study is to determine the essential features and trends in the development of ecotourism and to identify the best forms of its implementation. The theoretical basis of the work is based on research on eco-tourism in the works (Freude, 2016; Dowling and Fennell, 2003; Fennell, 2001; Fennel, 2003). The most significant dichotomy required for conclusions on the work is formulated by us as follows:

- ecotourism arises and develops as a reaction to changes in the recreational necessity of people in an urbanized society;
- ecotourism is a new quality of realization of recreational necessity arising from changes in the level of ecological consciousness of people;
- the implementation of ecotourism in specially protected natural areas requires the designation of the so-called responsible tourism, implemented in a “soft” form of tourism, for example, “slow tourism”.

The more specific purpose of this study was (i) to give an assessment of the resource potential of the territory; (ii) analyze how this potential is used by tour guides when organizing ecotours; (iii) to identify the tourists’ motivation for ecotours, (iiii) to assess the existing infrastructure and the resource potential for organizing ecotourism in the form of “slow tourism”, identifying shortcomings and making recommendations for improvements. The assessment of the recreational potential of the Curonian Spit National Park was based on the results of numerous studies carried out earlier by scientists of various profiles, which reveal in detail the geographical, geomorphological, floristic, faunistic and landscape features of the territory, as well as its accumulated historical and cultural potential (Anokhin et al., 2021; Kropinova, 2017; Shaplygina and Volkova, 2017). Also, to clarify the issues that are significant for our study (ecological routes, infrastructure and information support for tourists), the expedition method and a detailed study of the area were used. To assess the recreation characteristics of the territory of the national park, its use for tourism and recreation, and the interests and motives of visitors, a survey of tour guides working in the area was conducted. In total, sixty two guides were interviewed, each of whom accompanies between four and thirteen hundred tourists a year to the *Curonian Spit*. The sample covered was therefore about six and a half percent of the total number of visitors to the spit in 2021.

The choice of the indirect method of questioning was due to the fact that the guides, on the one hand, are the most significant actors in shaping the style and model of visiting the national park by tourists, determine the content and volume of acquaintance of tourists with the national park. On the other hand, they see and evaluate the needs of tourists in the most detailed way, they can compare and evaluate their compliance with the concept of ecotourism.

The use of the method of indirect questioning was also due to the fact that earlier in the studies of other authors on this issue, similar variations of this method were also used. Thus, D. Fennel in his work refers to a study conducted by Weiler (1993), in which a survey of tour operators was conducted to assess consumer preferences in the field of ecotourism, which made it possible to simultaneously identify the degree of their nature-centrism. As part of this survey, it was found that 40% of operators promote themselves as eco-friendly, 66% consider their routes to be beneficial for the environment, 70% say that their tours teach tourists to respect nature, 7% of tour routes are aimed at improving the environment (they practice garbage collection while walking) (Fennel, 2003: 118). To develop the questionnaire, we invited tourism experts, from the tourism business community (Association of Tourism Industry Enterprises), tour guides, researchers of the I. Kant Baltic Federal University, employees of the Curonian Spit National Park as well as representatives of the local community. The questionnaire was trialed on a small group of tour guides undergoing advanced training at the University in 2021. The questionnaire consisted of 3 sections and 31 questions. For the purposes of this study, blocks of questions were used that made it possible to differentiate the significance of various types of ecotourism resources on the spit, to compare the views of guides as conductors of ecotourism and the expectations of tourists from visiting the National Park, to assess the orientation of guides to the values and norms of ecological tourism and the concept of “slow tourism”.

On the basis of these preliminary results, the questionnaire was improved, and, then, launched for focus group interviews, which were conducted among the tour guides of the Kaliningrad region.

To assess the transport component when visiting the Curonian Spit, the data of the National Park were used, demonstrating that today the majority of tourists (more than 99%) arrive on the spit and move along it by vehicle.

## RESULTS

### Resource potential of the National Park

Results indicated that all components of the National Park received a fairly high rating evaluation from the tour guides (Figure 4). The tour guides highly appreciated the fauna and flora of the spit, as well as its geomorphological resources, which form the basis of its unique landscapes. Historical and cultural heritage was rated a bit lower. In general, the data obtained allow us, not surprisingly, speaking about the perception of the National Park as a combination of, first of all, natural objects as far as ecotour is concerned. An attempt was also made to compare how closely the attitudes of the guides and visitors to the National Park are aligned to the values of ecological tourism, ecological education and awareness, as opposed to simply seeing the spit exclusively as a recreational space. An analysis of the routes of the National Park, which are visited by tourists as part of one-day excursions, shows that the main route of the Park is visited most frequently

(32.4%) – it is the “Height of Efa” (Duna Efa), which is the main attraction of the Curonian Spit. Tour guides rate it most highly (26.9%) as well. The next in rating, according to the guides’ opinion, which is interesting in terms of geomorphology, species composition of plants, altitudinal zonation, is the route called "Muller's Height" (Vysota Mullera), which also opens up landscape views of the village *Rybachy* and *Lake Chaika*. More than a quarter (26.3%) of the guides are to show them in their programme of visit. In reality, it is visited less frequently – 16.5%. Almost the same opinion (22.4%) among the guides is given to the route "Royal Forest" (Korolevsky Bor), which is a preserved fragment of a relict forest in the root of the Curonian Spit. Its attendance (19.3%) is close to the assessment of the guides, which demonstrates the interest of tourists in longer and more original routes. Visiting the “Lake Swan” route happens much rare (1.1%), probably due to its rapid remoteness and rather high length, which limits the number of visitors. The fact to be explained by the desire to save time, although the guides assess its environmental content is an order of magnitude higher – 11.5%.

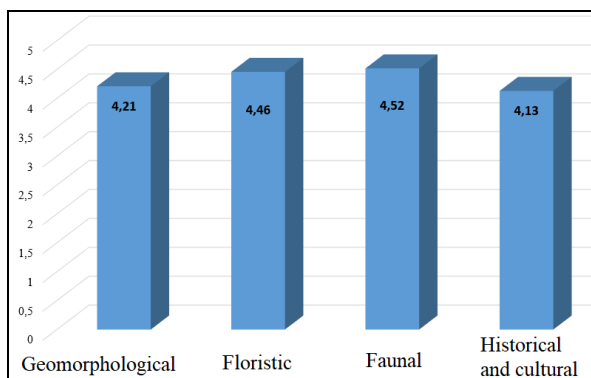


Figure 4. Comparative assessment of the resource potential of the Curonian Spit, by scores, indicated by tour guides (the research was conducted by the authors in Autumn, 2021)

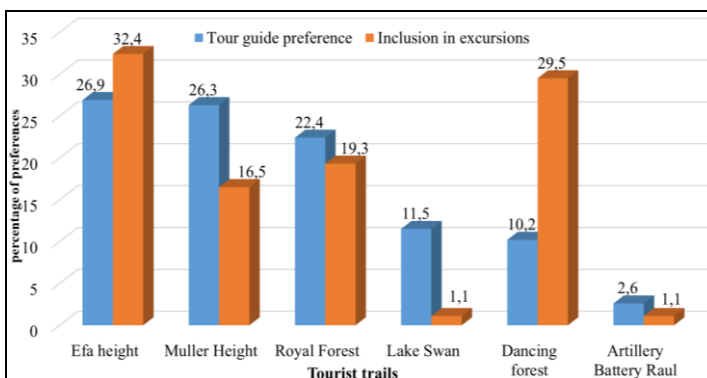


Figure 5. The ratio between the guide's assessment of the tourist trail and of the excursion attendance of the routes in the Curonian Spit National Park (the research was conducted by the authors in Autumn, 2021)

Only 10.2% of tour guides highly appreciate the intricately curving pines of the “Dancing Forest”, and for the tourists they meet, it is one of the most sought after (29.5%). The “Battery Raul” route does not have ecological health, although formally, like all routes of the National Park, it belongs to eco-routes. And such significant and interesting routes as "From Rossiten to Rybachy" and "Rossiten Forest" are practically not visited by sightseers precisely because of the transience of their stay on the Curonian Spit. At the same time, the guides also do not mention these routes, probably about providing them to tourists for individual acquaintance within the framework of “slow tourism”. This allows us to conclude that today, within the framework of an excursion visit, mainly “fast”, famous routes with a high concentration of sights are significant. You can also see a high correlation between the presence of tourist infrastructure (cafes, souvenir shops) and route attendance. Thus, the analysis of the data in Figure 5 allows us to state that most of the excursion programs of the National Park "Curonian Spit" today relate to educational, and not to the ecotourism and they are not so much correspond to the concept of "slow tourism".

### Themes and content of the excursions in the National Park

Despite the dominance of the format of educational tourism over the slow and calm pastime, which is provided by the concept of "slow" tourism, the results of the analysis of the content of excursions confirmed our hypothesis: the ecological orientation is the dominant semantic focus for the vast majority of guides. The survey found that 43% of the guides make purposeful accents on it, and another 19% use it as the basis for design of the excursion. Approximately one third of the guides – 34% maintain a balance between natural and historical-cultural sights, and only 4% are guided solely by the interests of the guests. From the point of view of visitors’ expectations, the picture is as follows: only 9% of tourists expect to see the Spit as a natural object, 34% of tourists pay much attention to natural sights, 47% are only somewhat oriented towards ecotourism, and imagine the Spit as a territory of cognitive tourism, without pronounced environmental accents only 10%. Based on the joint analysis of questions on the attitude of tourists and guides to the Curonian Spit as an area of ecotourism, we formed 4 groups of answers in descending order of focus on the values of ecotourism (Table 2).

Table 2. Nature orientation of tourists and guides by groups of values (according to the value decreases) (Source: compiled by the authors)

| Nº of Group | Tourists  | Tour guides  |
|-------------|---|--|
| I           | They imagine the Curonian Spit as a unique natural object and have little interest in other aspects | They make targeted accents on the uniqueness of the Spit as a unique natural landscape                   |
| II          | They pay a lot of attention and time to natural display objects                                     | Basically, they build an excursion with the dominance of natural components                              |
| III         | They are to some extent focused on ecotourism, but without expressed requests                       | They try to keep the balance of natural and historical and cultural objects on the spit                  |
| IV          | They completely unfocused on ecotourism. Curonian Spit for them is a place of cognitive tourism     | They pay nature aspects relatively little time. The main idea of the trip is that the tourist has a rest |

A comparative analysis (Figure 6) shows a higher level of focus on ecotourism values among tour guides, which is probably the result of their deeper knowledge about the content of excursion objects and. based on this, the perception of the spit as a unique landscape that deserves a more reverent attitude. So, in the first group, this ratio is more than obvious.



In the second and third groups, the ratio is relatively evened out, however, numerically the third group (the balance of ecological and educational tourism) statistically significantly exceeds the second. It is pleasant that a small number of tourists and only one guide from the respondents are included in the least alien to ecological tourism group.

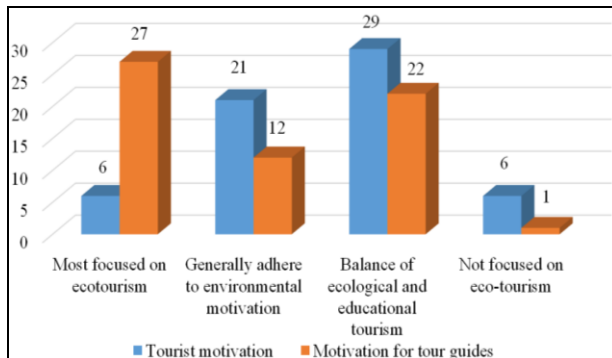


Figure 6. The attitude of visitors to the values of ecotourism (the research was conducted by the authors in Autumn, 2021)

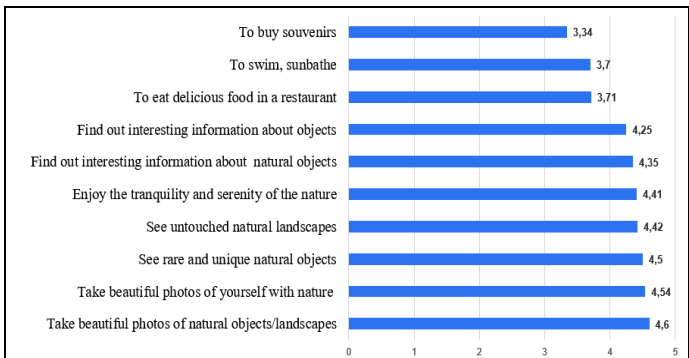


Figure 7. The main motives and needs of tourists on the Curonian Spit National Park (the research was conducted by the authors in Autumn, 2021)

Forty three percent of the tour guides made ecotourism a priority and a further nineteenth percent used it as the basis for building an excursion. Approximately one third of the tour guides were neutral between natural, historical and cultural objects, and only four percent were guided solely by the interests of the guests. At the same time, the knowledge of specific landscapes and elements was high among the guides, rather than a general commitment to the ideas of ecological tourism.

So, to the question about the knowledge of the “10 commandments of ecological tourism” among the guides, the answers were distributed as follows. “Yes, I know, I can even just about name them” – 34%

- “Yes, I read them, but I don’t remember them” – 16%
- “I heard about their existence” – 27%
- “I didn’t hear anything about it” – 23%

### Motivations of the Tourists

The revealed attitudes towards the presentation of the unique natural attractions of the National Park can be compared with the dominant motives and interests of the National Park visitors (Figure 7).

### The relevance of creating new tourists’ objects

The activity of the visiting center was also an object of our study. Almost three quarters of the respondents noted that they rarely visit the Visit-Center of the National Park. However, it is important to note that at the time of the study, there was an entrance-fee to the Visit-center (in addition to the cost of entering the National Park), but that now that entrance fee has been abolished. The questionnaire analyzed the reasons for not visiting the Visit-center exhibitions. If we exclude price reasons, then fifty two percent noted that a visit to the Visit-center is an inefficient use of excursion time, nineteen percent noted the small size of Visit-center, and twelve each noted the displayed contents and the working schedule.

In this part of the questionnaire, it was possible to express an opinion in terms of an open comment. It is worth mentioning one of the significant comments: “the museum is good, but a lot is presented in the museum tour, and further information from the guide on other routes makes little sense. The guide can’t say every time – Do you remember what we saw in the museum?” A more detailed analysis of the comments question allowed a more complex identification of contradictions in the whole visit and the excursion process in the National Park. First of all about the scale of the landscape and cultural potential of the spit. It is impossible to do all the ecological trails in one day. Optimally timed excursions cover two or three routes out of the nine. A visit to the Visit-center limits the time for experiencing acquaintance with the wildlife of the spit to an even greater extent. However, tourists are not ready to go to the spit for two to three days in a row. A guest who made an excursion to the spit, regardless of the number of attractions visited, believes that he “has done the spit.” For this reason, unlocking the potential of the *Curonian Spit* for ecotourism purposes is incomplete.

The study identified how tour guides (based on their experience of communication with tourists) assess the prospects of their repeated visits to the spit with a stop in accommodation facilities. Among the surveyed guides, over thirty percent noted that such a desire arises “very often, they are even interested in accommodation facilities”, thirty five percent answered that “most likely yes”, about nearly a third of the guides answered that such a desire arises only in a small number of people. Only about 3 percent of the respondents stated that “definitely not, the spit is a once only visit destination.” Averaging these answers, we can say that at least half of the tourists would like to return and spend much more time on the *Curonian Spit* than a one-day excursion allows. The results of the study revealed:

1) When visiting the Curonian Spit National Park, natural resources are of decisive importance for ecological tourism. Tourists are equally interested in both flora and fauna. This confirms the effectiveness of the measures taken by the administration of the national park to install information boards about endemics and other plants growing here, as well as about living birds and mammals.

2) Historical and cultural heritage, although to a lower extent, is of some interest to visitors, but its potential is either underestimated or not sufficiently used by the park administration as a resource to attract tourists. At the same time, it is the historical and cultural heritage that can play a significant role in creating new centers of attraction for tourists and relieving natural ecosystems.

3) It is natural resources that form the basis of excursions and underlie scientific, educational and cognitive tours to the National Park. The profile of the National Park as a UNESCO site as a cultural landscape is the main theme in constructing excursion programs.

4) Only one third of the guides had in-depth knowledge of the principles of ecotourism, which indicates the need to improve their environmental education. When conducting educational courses, the administration of the national park should pay more attention not only to information about the tourist and recreational resources of the territory, but also to the basics of ecological tourism and sustainable development.

5) When deciding on topics for excursions, tour guides were driven not so much by their commitment to sustainable development goals, but rather by the total amount of knowledge available.

6) The motivations to visit the National Park were identified as a) to take beautiful photos of natural objects / landscapes or b) yourself against the backdrop of nature; c) to see unique natural objects; d) see untouched landscapes e) enjoy the tranquility and serenity of nature; f) learn about natural objects and g) get interesting information about historical and cultural objects. Of somewhat lesser interest for visitors are restaurants located within the National Park, swimming and buying souvenirs.

7) Within the National Park there is a demand for new display facilities. New attractions could be included in new tourist routes, which might reduce the pressure on existing eco-trails. Particular attention could be paid to the creation of such tourist facilities in settlements located within the National Park, since, on the one hand, this would shift the focus from visiting natural areas to developed areas and on the other, would allow the local population to be more involved in ecotourism activities. Such objects could be created with an emphasis on the history and culture of the Park area.

8) As of today, there is an ambiguous situation as far as the organization of tourism in the territory of the Curonian Spit National Park is concerned. The guides present and are ready to present the park as a territory full of rare and unique natural objects. For a significant part of tourists, these accents in the representation of the Curonian Spit are also significant. At the same time, the high attendance and popularity of the Spit as a tourist site lead to an excessive increase in the number of tourists, especially during the high season (in summer). Recreational capacity is exceeded on most tourist routes. A significant part of the tourists, due to limited time or financial resources, are visiting the Spit as part of a one-day excursion, which includes 4-5 hours of stay on the Spit (travel agencies) or 7-8 hours (individual excursion by car). We can attribute this format of visiting exclusively to cognitive tourism, which is far from the principles of ecotourism and the concept of "slow tourism". However, the questionnaire also says that half of the tourists have a desire to return and spend more time on the Spit, which already fits into our concept of "slow tourism" in this area.

9) The concept of "slow tourism" should be used to the fullest when visiting a national park. This will shift the focus from a one-day stay on its territory in the "everything in one day" format, to the format of a longer acquaintance with accommodation in one of the guest houses on its territory, using non-motorized vehicles. We assume that the implementation of the started project for the construction of a bike path in the national park, scheduled for 2022-2024 will make it possible to realize the idea of ecotourism for the Curonian Spit to full extend.

## DISCUSSION AND CONCLUSION

### i) Local conclusions from the results of the study

The results of the study suggest conclusions about the current exclusively excursion format of visiting the National Park as insufficient to unlock its potential. The "tourist inhibition (slowing-down)" can be achieved through stopping at places of accommodation, the formation of additional tourist and excursion routes, including using other (softer) modes of transportation. The *Curonian Spit* has a sufficient number of accommodation units, which are concentrated mainly in the village of Lesnoy, as well as in the villages of Rybachy and Morskoe. On the Russian part of the *Curonian Spit*, it is planned to construct a bicycle path (in the Lithuanian part it is already functioning), it is planned to organize sightseeing water based excursions along the bay inside the spit. In previous studies, the author's team developed transboundary water routes (Kropinova and Anokhin, 2014; Anokhin et al., 2021). The "tourist inhibition" described above is completely in line with the requirements of sustainable development: tourists could "get the best" out of their visit as they could learn the natural landscapes in detail as well as experiencing certain geomorphological elements as well as the fauna and flora; they would spend time leisurely, taste local cuisine and enjoy the specialties of the *Curonian Spit*. All this corresponds to the most up-to-date tourism theory, which is described as the "experience economy" (Pine and Gilmore, 1998).

The information given above demonstrates the number of tourists to the *Curonian Spit*, is quite enough to create flows to justify existing tourist infrastructure and the ecological tourist routes. A significant part of the ecological routes could be visited by tourists who travel along the *Curonian Spit* in personal cars or on personal bicycles. To encourage them to visit the tourist excursion routes of the National Park, information about them would be posted on the National Park website. Dissemination of information about trails, accommodation facilities and catering facilities for tourists and about museums through various promotion channels would create sustainable tourist flows and position the *Curonian Spit* as a developed area of ecological tourism, which would also be facilitated by organizing bicycle rental points in the settlements, developing water routes along the bay from Zelenogradsk to Rybachy and Morskoy, as well as the creation of walking excursion trails between the harbors of the Rybachy village and the pier near the ecological route Dancing Forest.

"Slow tourism" concept is one of the "brand" of national parks. The following attributes of "slow tourism" could be indicated as low carbon travel, low impact on nature, longer stays, high degree of adaptability to the environment, immersive travel, high involvement of locals (Kostilnikova et al., 2022). In these ways the concept of "slow tourism" would be used to the fullest extend when visiting the National Park and would shift the focus from a day trips ("everything



in one day”) to a longer experience by over-nighting in one of the guest houses in the Park and using non-motorized vehicles. The implementation of the project for the construction of a bike path in the National Park, scheduled for 2022-2024, would thereby make it possible to realize the idea of ecotourism for the *Curonian Spit* in full measure.

The new tourist routes are being regularly created on the territory of the National Park. Among the new eco-routes, it should be noted “From the museum to the museum”, “From the Spit to the Mainland”, “Geological and Geomorphological Chronicle of the Baltic”, etc. – all fit this pattern. These local conclusions and recommendations fit in with modern trends in the development of tourism, which received a new boost as a result of the coronavirus pandemic and reinforce a gradual transition from mass tourism to individual tourism and from “hard” to “soft” tourism.

### (ii) Wider conclusions

In specially protected natural areas, due to the availability of certain resources, it is possible to implement various types of tourism. For example, the Curonian Spit National Park is popular as a beach tourism center due to its long (over 40 km) sandy beaches; as a center of health tourism due to the presence of forests rich in phytoncides in combination with ionized sea air; natural and historical and cultural heritage contributes to the development of educational tourism; museum expositions created in settlements support urban tourism; the water expanses of the bay are conducive to water sports tourism; the national park administration promotes event tourism. At the same time, various types of tourism are to varying degrees influenced by modern trends, directed from hard to softer forms. The most industrialized segment of tourism (sun sand and sea beach tourism) has been dominated by mass production and rigid forms of organization.

In Figure 8 we have identified these trends, as well as some types of tourism. The location of tourism types in the different dimensions makes it possible to supplement the diagramme with the category of “green tourism”, which implies a maximum orientation towards nature. Forms of organization and the content of ecotourism conform closely to these trends, which allows discussion of strategic prospects for its development. In the context of Figure 8, ecological tourism is closest to what is called “soft tourism” and to individual forms of tourism organization. Thus, ecological tourism is one of the promising areas of sustainable development of tourism with the optimal form being to promote both basic (recreational) and higher-level (environmental) desires of tourists. A retrospective comparative study of the motivation of eco-tourists showed in a 1992 study (Eagles, 1992), that respondents placed the main motivational emphasis precisely on landscape preferences and physical activity. The rest of the components of ecotourism and the image of the activity of the tourist in ecotourism remained in the background. In this study, as reflected in Figure 6, it has been shown that the motivation of tourists is generally similar, but the values of ecological tourism are now beginning to pre-dominate. To a large extent, this is due to the change in the role and function of the landscape, the image of which also plays a positive role in its perception by tourists and the desire to preserve it (Chen and Tsai, 2007). In their study, Chow et al even linked visitor attachment to a place and their satisfaction with their urge to behave environmentally responsible. The results show that place dependence and place identity are positively correlated with satisfaction and an intention to behave in an environmentally responsible manner (Chow et al., 2019). Tourist animation is an additional chance adding value to traditional heritage (Ilies et al., 2017). Event tourism could usually provide different types of animation. At the same time, more recent work also reveals the evolution of some of the ecological philosophies that underlie discussions about the sustainability of ecotourism (Wearing and Schweinsberg, 2018:13). The authors concluded that

“...the broad philosophical basis of ecocentrism includes the following elements:

- a belief in humanity and harmony with nature;
- attempts to alleviate (or eliminate) negative human impacts on the environment - atmospheric pollution, land degradation, etc.
- arguments for all life having its own specific intrinsic value.
- arguments against economic growth and consumerism etc.” (Wearing and Schweinsberg, 2018:23-24).

Considering therefore forecasts for the development of ecotourism in the XXI century, Wearing and Schweinsberg rightly pointed out the necessity to take into account the changing needs of subsequent generations (Wearing and Schweinsberg, 2018). The subsequent transformation of existing definitions, then, as noted by Wearing and Schweinsberg (Wearing and Schweinsberg, 2018), is that as ecotourism develops, the number of parties interested in this type of tourism (stakeholders) expands. The most complete identification of all stakeholders would allow the building of a most harmonious and sustainable model of ecological tourism. Traditionally, in tourism there is talk about tourists and employees of the tourism industry, however, the most complete coverage would also include the local population, tour guides, authorities, public environmental

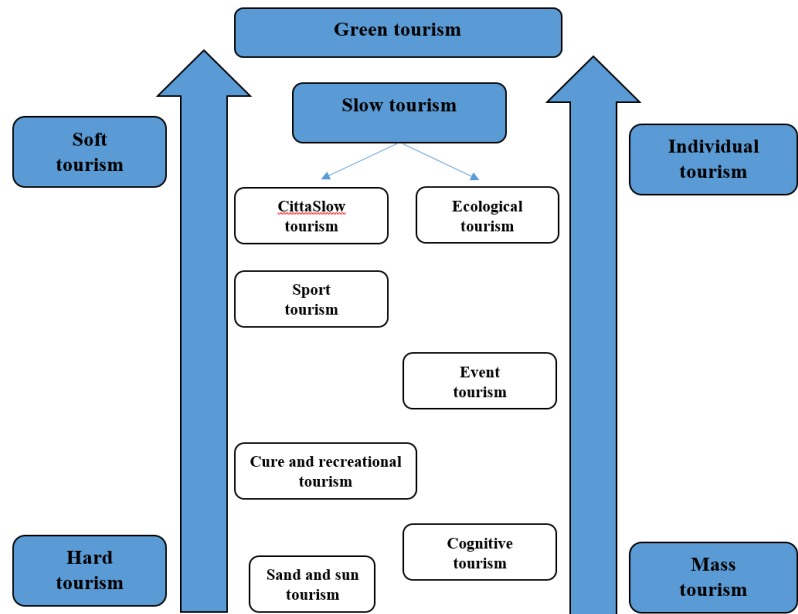


Figure 8. The main trends in the development of tourism (Source: authors)

organizations, financial players, departments for the protection of historical, cultural and natural heritage and even more. This study has confirmed the initial hypothesis that tourism, as a complex socio-economic phenomenon, is currently undergoing a number of transformations based on global trends. Among them are: differentiation of the tourism product, the transition from mass tourism to individual tourism, a more in-depth experience by tourists with features of destination resources and the social environment of the destination, the penetration of sustainable development and ecocentrism into tourism. These trends, interacting, could change the very face of tourism and tourists. For protected areas, such as national parks, these trends are expressed in the development and methodological design of ecological tourism, the growth of its importance for the area and for tourism demand. The new "ideology" of ecological tourism in the territory of national parks is increasingly taking shape in new forms of infrastructure (tourist trails, museums and other places of attractions) and methodologically (targeted orientation of tour guides to appreciate the in-depth experience of tourists with natural attractions and landscapes). The outcome could therefore be the formation of new principles for the organization of ecological tourism fully in line with the concept of the sustainable development, as well as increasing the role of slow tourism as a promising travel philosophy.

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## TYOLOGIES OF TOURISM VISITS TO MOUNTAIN DESTINATIONS. A CASE STUDY: MOUNT LAWU AREA, KARANGANYAR REGENCY, INDONESIA

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**Abstract:** The condition of slopes, climates, weathers as well as natural disasters are variables considered by tourists. The study aimed to analyze typologies of tourism visits on types of tourism destination with slope classification and formulate development and disaster mitigation of tourism area. The location was the Mount Lawu area, Karanganyar Regency. The data were empirical conditions, documents, and spatial. Data collection techniques were field observations, document viewing, mapping, and interview. Data analysis were carried out in five steps. The results show three typologies of tourism visits in accordance with types of tourism destination based on slope levels. The development and disaster mitigation of tourism areas are conducted “for”, “with”, “by”, and “from” community.

**Key words:** typology, tourism visit, destination, mountain slope, Mount Lawu Area

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### INTRODUCTION

Tourism is one of the major economic sectors in the world. This economic activity is the source of opportunity for a geographical area's social, economic, and cultural modernization (UNWTO, 2021; Croes, 2014). It is one of the economic sectors that is sensitive to climates but contributes to climate change (Alexandra et al., 2016). Tourism industries are vulnerable to some crises or disasters, although many efforts are conducted to prevent and deal with the effects of tourism crises and disasters (Susana and António, 2017). The close relationship between tourism activities, slope conditions as well as climate and weather conditions are variables considered by tourists (Méndez et al., 2014). The weather informed in real-time probably influences tourists' behaviors in selecting a destination and arranging travel plans (Morgan et al., 2000). The conducive climate stimulates most of the tourists to enjoy shopping, nightlife, and indoor activities (Terrasa et al., 2012). Various models of tourism destination development are constantly applied through sustainably managing and promoting cultural, natural, and heritage resources (Mestanza et al., 2021). Moreover, Fatemeh et al. also emphasized that tourism is a sector easily affected by external phenomena, for instance, natural disasters. The characters of mountainous areas are very diverse. As a result, not all natural attractions are suitably developed in mountainous areas (Fatemeh et al., 2018).

Different from nature-based summer activities, since the nineteenth century, the Alps have become a summer tourism destination. In rural areas, the tourism sector is the only means of economic growth (Katarzyna and Marut, 2018). However, previous studies still ignore summer product development in mountainous areas due to the substitution between the widespread tourism destinations, the development of innovative tourism products, and efficient commercialization. This mainly emphasizes mountain tourism destinations' long-term performance and differentiation (Beritelli and Reinhold, 2010; Wu, 2015). In Ecuador, biodiversity is a strategic aspect of promoting sustainable tourism. It is crucial to protect this type of tourism since it promotes social inclusion, employment, and poverty reduction (del Corral et al., 2017; Gavilanes et al., 2021). As a result, it has become more popular in the Amazon region, with a more significant number of tourists visiting national parks, protected areas, unique ecosystems, and their communities. In the Ecuadorian Amazon, tourism develops through three practical applications emphasizing the relationship between conservation and local populations (Barrera et al., 2012). The first refers to the preservation "for" people's welfare. The second model deals with the conservation "with" communities, which are the participation of indigenous communities and communities considered as the subject of a particular conservation action but not the primary decision maker. The third model indicates the conservation "by" people. It considers local communities as a determining factor for preservation (García et al., 2021; Muñoz, 2017; Floris et al., 2020).

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However, in Latin America and the Caribbean, many rural communities have integrated tourism activities into social, productivity, and economic dynamics as an alternative to fight poverty and merge populations of indigenous and mestizo communities (Mosquera et al., 2019; Castillo et al., 2021; Andries et al., 2021; Xiang et al., 2020). This type of tourism has been implemented in rural areas in which local communities, organized collectively, play a participatory role in the development, management, and monitoring, as well as preservation of natural environments, socio-culture (Caputo et al., 2005), and traditional values (Fagundes et al., 2021). These allow for a pleasant and rewarding experience and a reciprocal relationship between local communities and tourists (visitors). The tourism-rural community connection must be characterized by equity in benefit distribution (Xiang et al., 2020; Fun et al., 2014; Zielinski et al., 2020).

In short, this type of tourism, in the last two decades, will increasingly give more significant economic benefits to local communities, portraying an easy and fast strategy for development and poverty fight as well as biodiversity, landscapes, and culture (Maldonado et al., 2020; Cucari et al., 2019). The classification of activities and attractions in least-developed areas stimulates cooperation and partnership between communities in local areas and neighbours, and is beneficial in stimulating economic development through tourism (Briedenhann and Wickens 2004).

Popescu (2008) and Becken (2013) identified altitude, temperature, humidity, and bites from exotic animals and insects as causes of the decline in tourism. The world changed during the attacks in London, Madrid, and New York. Knowledge and disruption of tourism flows are among the factors with severe economic and socio-political impacts on the Gross National Product (GNP) of a country (Kordic et al., 2015). According to Du Plessis et al. (2017), safety and security, as well as the uncertainty of political stability, remain the main factors threatening the South African tourism industry as other tourism destination competitiveness. The safety and security are parts of tourists' demand standards. Therefore, safety and security are the standards that tourists expect based on their experiences and ensuring safety and security for all tourists should become priorities for the government (Porter, 1990). Besides, the 2010 Fédération Internationale de Football Association (FIFA) World Cup gave a chance for South Africa to be the host, and South Africa had succeeded to show the beauty and unique attractions of South Africa as international tourism destinations. However, the study conducted by George and Swart (2012) showed that the security problem in terms of crimes has no influence on tourists' intention to travel in the future, since they desire to come back to South Africa (George and Swart, 2012).

The success or failure of a tourism destination depends on its ability to provide a safe and secure environment for tourists (Ahmed et al., 2010). Aguilo et al. (2003) defined safety as the effect of accidents or destructive forces of nature, such as hurricanes, diseases, and earthquakes, while security involves anthropogenic factors, such as political instability, economic insecurity, terrorist attacks, etc. On the other hand, Ritchie and Crouch (2000) identified some factors reinforcing tourism destinations: location, interdependence, security, awareness/image/brand, and cost/value. Moreover, Ryglova et al. (2015) assumed that a sense of security is the most significant quality factor for a tourism destination. It contains security issues in destination areas, including local security situations and security in terms of health risks, safe, natural conditions, crime rates, and other factors. Thus, Zhou et al. (2015) concluded that safety and security are essential elements in evaluating the competitiveness of tourism destinations. However, the phenomenon in the Mount Lawu area, Karanganyar Regency, Central Java, Indonesia, shows the opposite: many tourists visit the destination on the high slope. Thus, it is necessary to study the typology of tourism areas based on the level of slope, type of tourism, and the tendency of tourist visits, to develop an appropriate model for the study of development and disaster mitigation. The Mount Lawu area, Karanganyar Regency, is the present case study, and the findings will become the basis for the effort to develop and mitigate tourism areas on the slopes of mountains. This is due to the need to integrate biodiversity and socio-economic development of communities, increasingly attracting the attention of actors and managers of conservative areas to realize sustainable development.

## METHODS

This study was conducted in Mount Lawu, Karanganyar Regency, considering that the area has a diversity of tourism types from 49 existing tourist attractions. In addition, the site has slopes with low, medium, and high levels. The scopes of the study were in 2018, 2019, 2020, and 2021. The data were in terms of empirical conditions, document, and spatial. The techniques in data collection included field observation, document viewing, mapping with GIS (Geography Information System), and interviews with all stakeholders related to the management of tourism destinations. This study was conducted with a qualitative spatial approach and aimed to describe the distribution of tourism areas in Mount Lawu, Karanganyar Regency, classify typologies of tourism visits by types of tourism, map the existence of tourism areas according to the level of slope based on its topography, analyze typologies of tourism visits based on types of tourism and their facts as classified with low, medium, and high slopes, and convey efforts to develop tourism and mitigate disasters in the Mount Lawu.

The analysis technique was conducted in five stages as the followings.

1) The first stage was identifying the spatial of tourism destinations through mapping the distribution and classification of tourism destinations by GIS method in the Mount Lawu area, Karanganyar Regency.

2) The second stage was documenting the number of tourism visits between 2018 and 2021. The data were then classified as types of tourism destinations and overlaid with the position of tourism destinations distribution.

3) The third stage was analyzing topographies based on the results of land contour mapping in accordance with the standards of National Agency of Disaster Management, that are low level as many as 100-500 MASL with the slope of 5° - 10°; medium level as many as 500-1000 MASL with the slope of 10° - 35°; and the high level as many as >1000 MASL with the slope of >35°.

4) The fourth stage was overplaying types of tourism destinations and tourism visits for various types of tourism destinations using topography map, and the topographies of tourism visits based on tourism destinations on the low, medium, and high slopes were obtained.



5) The fifth stage was discussing typologies comprehensively through dialog review and faithful recommendation for the development and disaster mitigation of tourism destinations in the Mount Lawu area, Karanganyar Regency. Diagrammatically, the flow of analysis stages represented in Figure 1.

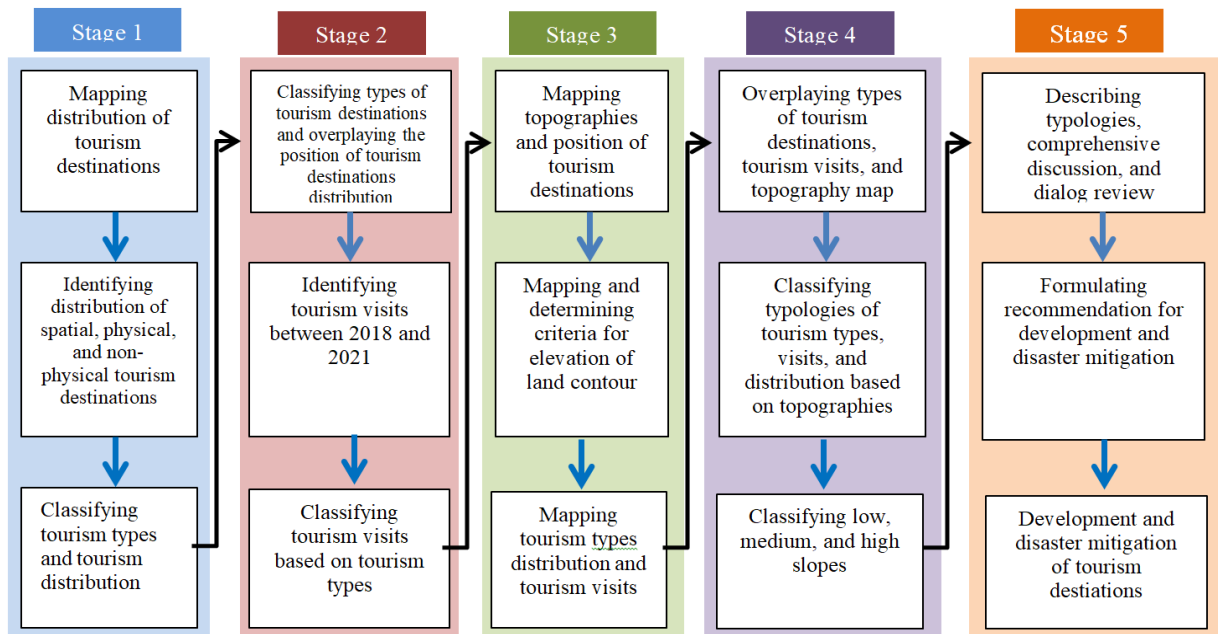


Figure 1. Flow of Analysis Stages

**RESULTS AND DISCUSSION**

Tourism is one of the keys to economic development in many countries while increasing welfare for the people. The primary motivation for tourism in mountainous areas is to conduct recreational activities in the natural environment without changing its balance, promote nature conservation, carry out appreciation activities and develop knowledge about nature through interaction (Quintana, 2017; Ibarra, 2006). On the other hand, tourism is a sector easily affected by external phenomena, i.e., natural disasters, especially in mountainous areas, and Mount Lawu is one of them (Figure 2).



Figure 2. Position of Mount Lawu Area, Karanganyar Regency on the Indonesian Map

**A. Mapping Tourism Area Distribution in Mount Lawu, Karanganyar Regency**

Tourism becomes a distinctive attraction to an area in developing its potential and increasing regional income. It is an



activity in which an individual carries out a trip for the time being from his origin to a particular destination to enjoy the environment and get rid of fatigue (Kodhyat, 1998). The Mount Lawu area, Karanganyar Regency, administratively includes Jenawi, Ngargoyoso, and Tawangmangu districts.

The Mount Lawu area is famous for its tourism potential. Some tourist objects include agrotourism, mountain areas, historical site tourism, and so forth. In 2021, the number of tourists was documented as many as 379,411, with an increase of as many as 22.76 percent compared to 2020, with 309,047 visitors. It occurs due to the government regulation to re-open the tourism area and allow people to travel but keep health protocols. Types of tourism destinations classify the mapping of tourism destination distribution in the Mount Lawu area as follows: 1) Agriculture Tourism; 2) Natural Tourism; 3) Artificial Tourism; 4) Cultural Tourism; 5) Special Interest Tourism/Sport Tourism, and 6) Other Tourism. The results of mapping tourism destinations in the Mount Lawu area based on districts are presented in Table 1, and Figure 2.

Table 1. Classification of Types of Tourism Destination in the Mount Lawu Area  
(Source: Department of Tourism, youth and sports, Karanganyar Regency, 2021)

| No           | Types of tourism destinations | Tourism Destination    |                            |                             |                          | Total (Unit) |
|--------------|-------------------------------|------------------------|----------------------------|-----------------------------|--------------------------|--------------|
|              |                               | Jenawi District (Unit) | Ngargoyoso District (Unit) | Tawangmangu District (Unit) | Jatiyoso District (Unit) |              |
| 1            | Agriculture Tourism           | -                      | -                          | 4                           | -                        | 4            |
| 2            | Natural Tourism               | 5                      | 6                          | 10                          | 1                        | 22           |
| 3            | Artificial Tourism            | 1                      | 8                          | 4                           | 1                        | 14           |
| 4            | Cultural Tourism              | 1                      | 2                          | 1                           | -                        | 4            |
| 5            | Special Interest Tourism      | -                      | -                          | 2                           | 1                        | 3            |
| 6            | Other Tourism                 | -                      | 1                          | 1                           | -                        | 2            |
| Total (Unit) |                               | 7                      | 17                         | 22                          | 3                        | 49           |

Based on Table 1, the study maps the distribution of tourism destinations in Jenawi, Ngargoyoso, Tawangmangu, and Jatiyoso districts in Figure 3a, 3b, 3c, and 3d. Besides, the compilation of the whole tourism destination classification in Mount. Lawu is represented in Figure 3. The types of tourism destinations in the Mount Lawu area that covers Karanganyar Regency are revealed as presented in Figure 3. The entire tourism destination is as many as 49 objects, including 22 objects of natural tourism, 14 objects of artificial tourism, four objects of cultural tourism, four objects of agriculture tourism, three objects of special interest tourism, and two objects of other tourism. Figure 3 indicates that the tourism destinations are equally distributed in three districts and include the area close to the top of Mount Lawu. Some types of special interest tourism destinations are provided at the altitude approaching the top of Mount Lawu.

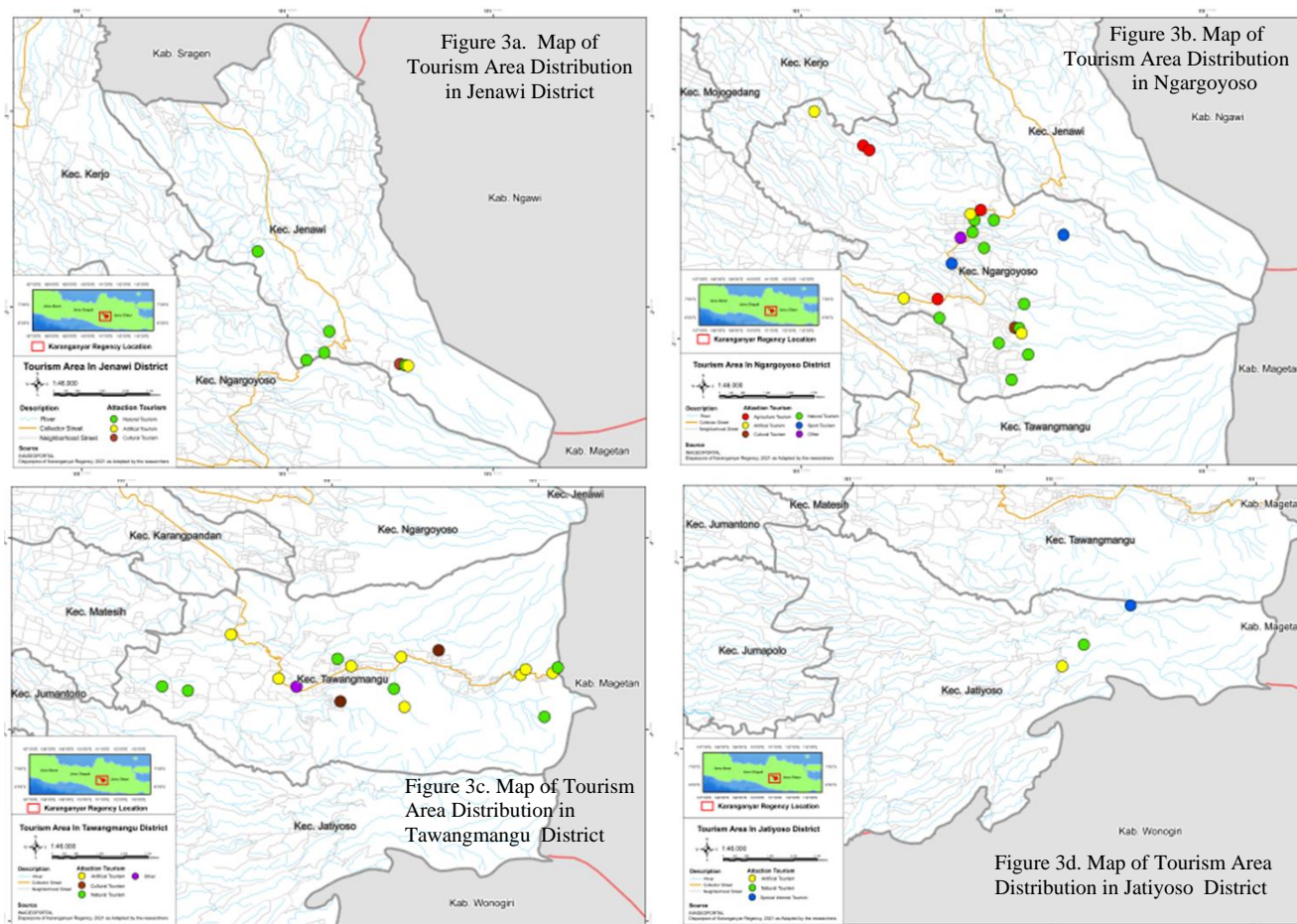


Figure 3. Map of Tourism Destination Distribution in sub-districts on the slopes of Mount Lawu, Karanganyar Regency

It is similar to Quintana (2017) and Ibarra (2006), who stated that the primary motivation of tourism to visit mountain areas is to carry out recreational activities in natural environments without changing their stability, promote the conservation of nature, undertake appreciation activities, and develop knowledge about nature through interaction. The motivation for tourism visits and security and safety are important considerations; as Ryglova et al. (2015) proposed, a sense of security is the most significant quality factor for a tourism destination. It includes security issues in a destination: local security situations, health risks, safe nature conditions, crime rates, and other factors. It is also emphasized by Zhou et al. (2015) that safety and security are essential elements in evaluating the competitiveness of tourism destinations.

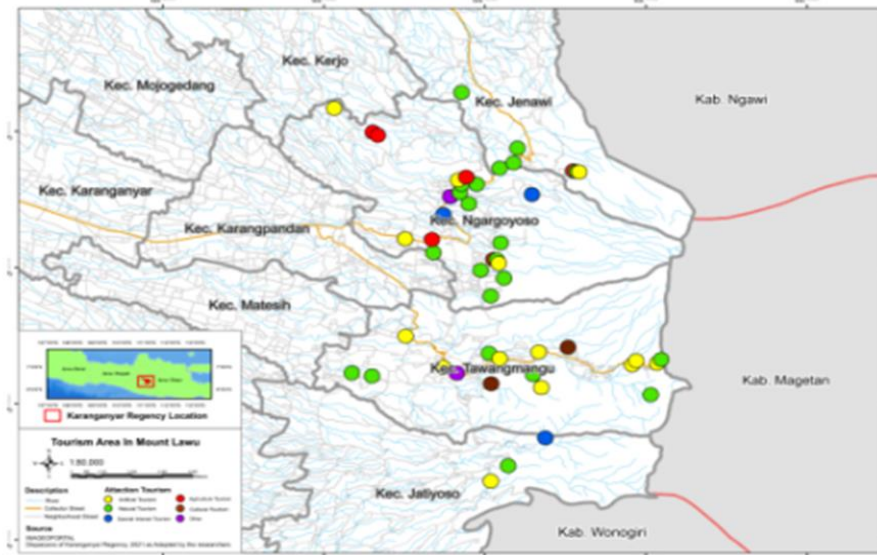


Figure 4. Map of Tourism Distribution in all Tourism Areas of the Mount Lawu, Karanganyar Regency (Source: The researchers, 2021)

**B. Identification and Typology of Tourism Visit Number in Mount Lawu Area**

Some aspects are considered in tourists’ satisfaction, and nature has a huge impact (Sepideh et al., 2015). Climate conditions strongly influences most tourists’ decisions. The influence of weather variables on the environment is manifested in warmer weather, heatwave, frequency changes, and extreme weather such as severe storms and hurricanes, floods, and the rise of sea level (Méndez et al., 2014). The result revealed by Ritchie (2009) indicates that the increasing number of disasters and crises has considerably influenced the tourism industry. It is regarded as interfering with the development of tourism industries and the stability of tourist flows. In addition, the multiplier effect of disasters occurring highly influences tourism industries, especially attractions of tourism destinations, the number of tourism visits, and other sectors supporting tourism will also get the impact of these disasters (Brent, 2009). The weather condition informed in real-time can also influence the tourists’ behavior in selecting a destination and making travel plans (Morgan et al., 2000). Most of the tourists come to enjoy shopping, nightlife, and outdoor activities in the context of pleasant climate (Terrasa, 2012).

Based on the identification and classification of tourism visit numbers for each type of tourism area in 2018, 2019, 2020, and 2021, the study obtains the typologies as presented in Figure 5.

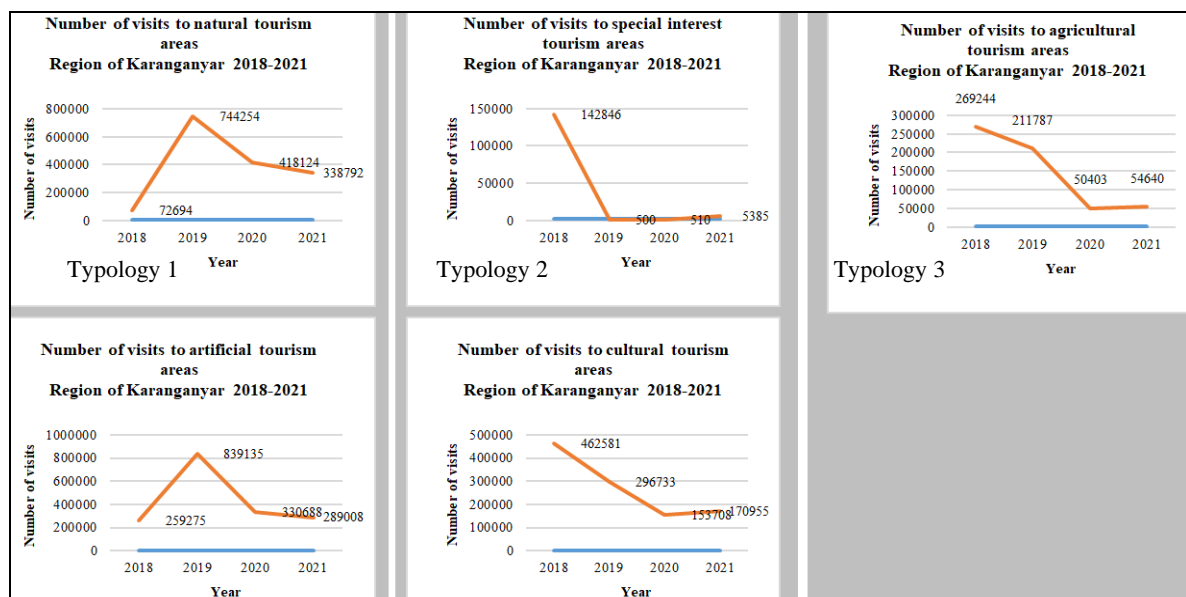


Figure 5. Typologies of Decreased Number of Visits in Tourism Destination Area

Typology 1 (Figure 5a) indicates the high increase in 2019 and the higher number of visits in 2020 and 2021 compared to 2018. However, the types of natural and artificial tourism destinations still survive. It contrasts with Zhou et al. (2015), who stated the importance of safety and security regarding tourism competitiveness. Moreover, it contradicts Ryglova et al. (2015), who claimed the significance of a sense of security for a tourism destination. Based on Figure 5b typology 2 shows that special interest tourism and cultural tourism gradually decrease during 2018, 2019, and 2020. However, in 2021 they ran into an increase, but the number of visits is still not higher than the number in 2018. The decrease in visit numbers is affected by weather conditions informed in real-time, so it influences the tourists' behavior in selecting a destination and trip plan (Morgan et al., 2000). Typology 3 (Figure 5c) indicates that agriculture tourism experienced a significant decrease in 2020 and 2021. They are affected by the community's activities in farming. In rural areas, communities cannot carry out activities collectively during the pandemic. It is similar to Caputo et al., (2005) that agriculture tourism has a close relationship with local communities' activities, is organized collectively and plays a participatory role in the development, management, and control, natural environment and socio-culture conservation.

### C. Mapping Tourism Destination Distribution based on Topography in the Mount Lawu Area, Karanganyar Regency

The Mount Lawu area topographically has diversity. The study obtains the result as presented in Figure 6a. The distribution of tourism area to the condition of the Mount Lawu slope is portrayed in Figure 6b. Figure 6b shows that the area with the high topography has 49 tourism areas, or 62.8% of the 78 areas in Mount Lawu.

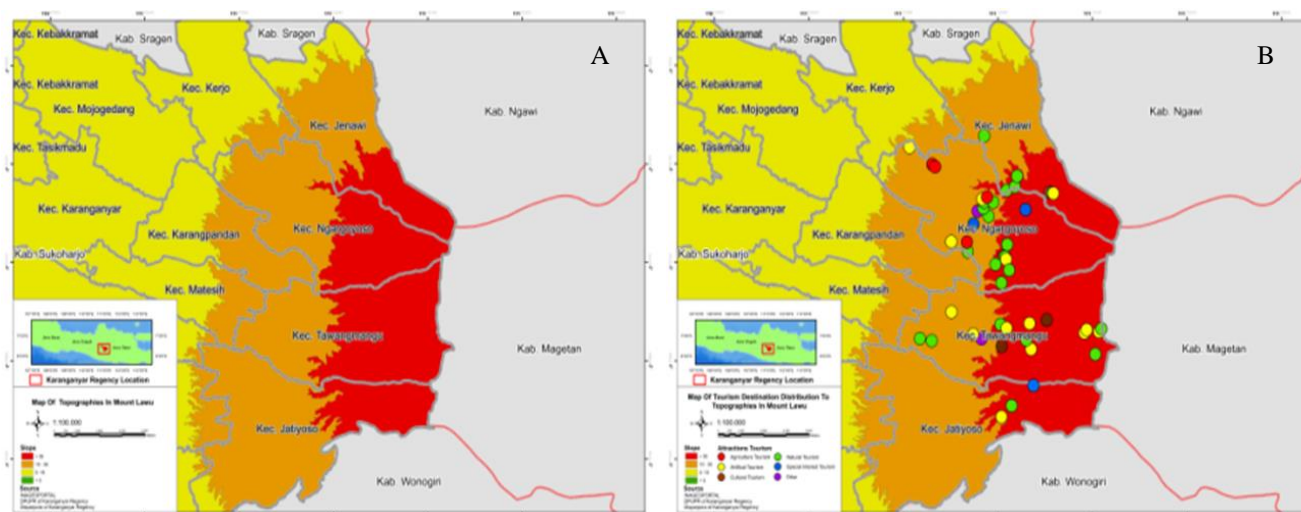


Figure 6. Map of Topography (A) and Tourism Destination Distribution (B) in Mount Lawu Area, Karanganyar Regency

Based on the mapping result, there are 78 tourism destinations distributed in three topographies. The high topography has 49 tourism destinations or 62.8% of 78 locations in the Mount Lawu area. Meanwhile, the medium one is indicated in 16 destinations or 20.5%, and the low one is distributed in 13 destinations or 16.7%. This shows that the high topography dominates the tourism locations. However, the number of visits shows different tendencies. The tourism destinations with a visit number of 50,000-100,000 and more than 100,000 per year are on high and medium topographies. However, the visit numbers of special interest, natural, and cultural tourism areas are not affected by the high topography, even the difficult access to the high topography. This is because tourism tracts to reach destinations with high topography have beautiful views.

### D. Typology Study of Tourism Visits on Tourism Area Types Based on Topography Level

The distribution of tourism destinations in the Mount Lawu area of Karanganyar Regency is mainly located on the high and medium topographies. The existence of tourism destinations on the high and medium topographies gives a cool atmosphere and beautiful views. The analysis result of tourism destination distribution based on topography levels in the Mount Lawu area of Karanganyar Regency suggests that the position of high topography does not influence tourists' interest in visiting tourism destinations. The distribution of tourism destinations to topography reflects 49 locations or 62.8% of the 78 tourism destinations in Mount Lawu. It is stressed by Quintana, 2017; Ibarra, (2006) that the principal motivation of tourism in mountain areas is to do recreation in the natural environment without changing its balance, promote conservation of nature, carry out appreciation, and develop knowledge about nature through interaction (Quintana, 2017; Ibarra, 2006). The result of tourism destinations as classified by topographies of tourism destination types and visit numbers in 2018, 2019, 2020, and 2021 shows three typologies of tourism visits based on tourism destinations of slope levels. Typology 1 points out that artificial tourism destinations on the low slope have a high number of visits in 2019. Still, the number significantly decreased in 2020 as the pandemic occurred, which also hit other tourism. Cultural tourism considerably increased in 2021, or the end of the pandemic. Typology 2 suggests that cultural tourism destinations on the medium slope had a high number of visits in 2018. Still, their number decreases in the next year until the end of the pandemic in 2021. Typology 3 indicates that natural tourism destinations on the high slope have the highest number of visits compared to other destinations. The highest number of visits was in 2019. Meanwhile, the number decreased during the pandemic but remained the highest compared to the others. Figure 8 shows the



complete picture of all slope levels, destination types, and tourism visit numbers. Figure 8 shows that the tourists' interest in tourism destinations on the high slope is not highly influenced by pandemic conditions or health but by weather conditions. Thus, most tourism destinations with high slopes strongly attract tourists, whether normal or under pandemic conditions.

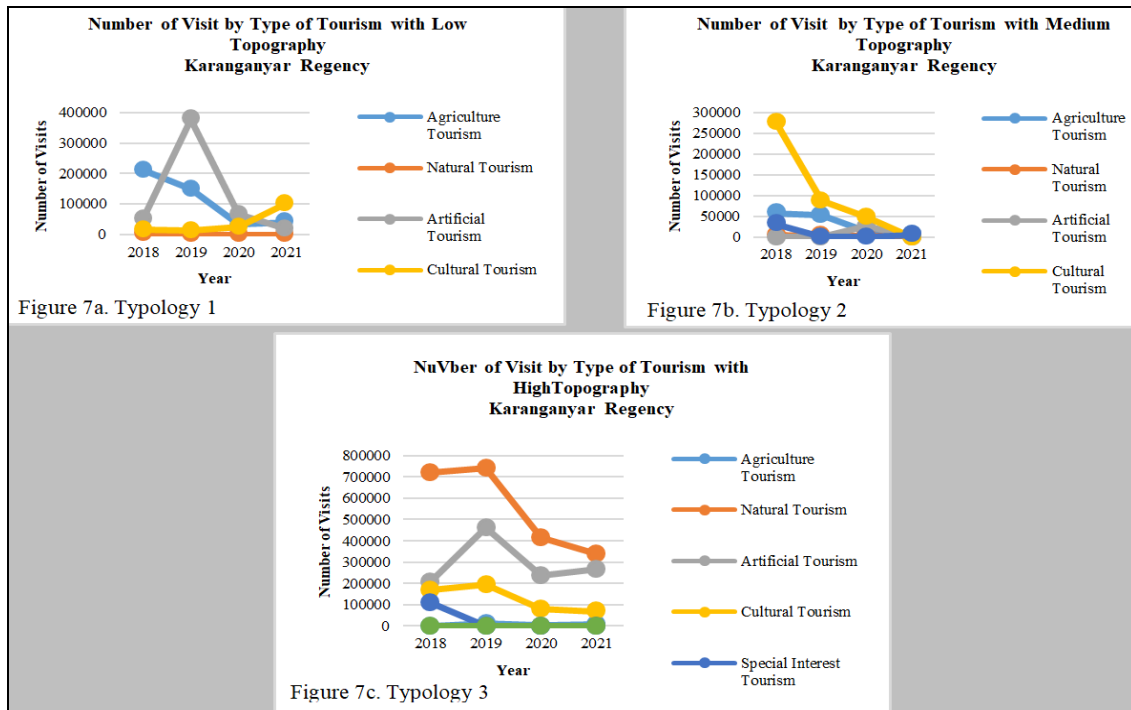


Figure 7. Typologies of Tourism Visits based on Tourism Destinations of Slope Levels

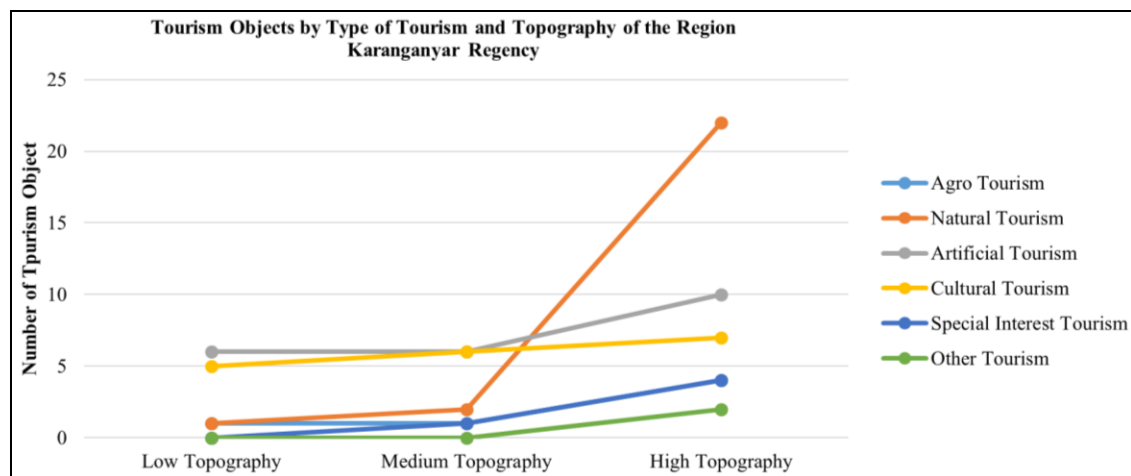


Figure 8. Classification of Topographies and Visit Numbers on each Tourism Destination Types

**E. Efforts for Development and Disaster Mitigation of the Mount Lawu Area**

Based on the analysis result, the consideration as the basis of selecting tourism destinations is weather conditions. It is in line with oleh Méndez-Lázaro et al. (2014), who claimed that the close relationship between tourism activities and weather conditions made the weather one of many variables tourists consider. The weather conditions are very burdensome for most tourists' decisions (Méndez et al., 2014). The conducive climate leads most visitors to enjoy shopping, nightlife, and outdoor activities (Terrasa, 2012). Various sustainable development models of tourism destinations are often applied through the management and promotion of natural, cultural, and heritage resources sustainably. It is done with the aim to improve the socio-economic development of local communities in tourism destinations and natural resource conservation (Mestanza and Jiménez, 2021). The development and disaster mitigation of mountain areas are carried out through four practical applications emphasizing the relationship between conservation and the local community population (Barrera and Bahamondes, 2012). The first model is “for” people’s welfare. The second relates to the development and disaster mitigation of mountain areas “with” communities, that is, the participation of indigenous communities and communities considered as the subject of the development and disaster mitigation of mountain areas but not the primary decision maker. The third model connects to the development and disaster mitigation of mountain areas “by” people. It considers local communities as a determinative factor for development and mitigation. It is assumed that long-term development only occurs if the organized local communities take over and build their own regulatory mechanism (García et al., 2021; Muñoz, 2017; Floris et al., 2020).

The fourth model is carried out “with” communities. The communities directly initiate and participate in the efforts to keep the sustainability of the local economy. However, the development and disaster mitigation of tourism areas involving most rural communities possibly integrate tourism activities into social, productivity, and economic dynamics as an alternative to fight poverty and to merge communities of local and mestizo (Mosquera et al., 2019; Castillo et al., 2021; Andries et al., 2021; Xiang et al., 2020). This allows presenting a pleasant and profitable experience as well as a reciprocal relationship between local community and tourists (visitors) (Xiang et al., 2020; Fun et al., 2014; Zielinski et al., 2020). This segment of tourism will increasingly create greater economic benefits for local communities, portray as an easy and fast strategy for development and poverty fight, and conserve biodiversity, landscape, and culture (Maldonado et al., 2020; Cucari et al., 2019).

The effort for the development and disaster mitigation of tourism destinations needs not only communities’ participation but also the government’s support and a conducive political climate. As a consequence, they become the expected standards for tourists in regard to their experiences and must become the government’s priority to ensure safety and security for all of them (Briedenhann and Wickens, 2004). Success and failure in a tourism destination depend on the ability to provide a safe and secure environment for visitors (Ahmed et al., 2010).

## CONCLUSION

Tourism destinations are equally distributed in three districts and reach the areas close to the top of Mount Lawu. The major motivation of tourism in mountain areas is to conduct recreational activities in natural environments without changing their balance, to promote nature conservation, to carry out appreciation activities, and to develop knowledge about nature through interaction. Motivation, safety, and security become important considerations in tourism. Besides, a sense of security is a significant quality factor of a destination. Based on the classification of tourism visits on each type of tourism destination, the study reveals three typologies of tourism visits. In 2021, natural tourism experiences a considerable increase and reaches the highest number compared to other tourism as many as 338,792 visits. It is due to the fact that communities need recreation by visiting natural tourism to feel rejoice, far from human interaction, and in the open nature. The classification of topographies based on tourism destination types and visits in 2018, 2019, 2020, and 2020 shows three typologies. Tourists’ interest in tourism destinations with high slopes is not considered by pandemic conditions or health but by weather conditions. Thus, the type of tourism destination on the high topography mostly has a characteristic of natural tourism and becomes a strong attraction for tourists to visit the destinations whether normal or under pandemic conditions. Therefore, the development and disaster mitigation of tourism destinations in mountainous areas are probably conducted through four practical applications that emphasize the relationship between nature conditions and local community populations. They are the development and disaster mitigation “for”, “with”, “by”, and “from” communities. The success of development and disaster mitigation efforts is affected by the government’s support and conducive political climate situation.

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## BETONG: A POTENTIAL WELLNESS TOURISM DESTINATION IN THE DEEP SOUTH OF THAILAND

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**Abstract:** According to the world wellness tourism trend, Thailand has promoted wellness tourism to boost its competitiveness. Therefore, this study aimed to determine the potential of Betong district in Yala province to be a wellness destination in the deep south of Thailand serving both domestic and international tourists. This study applied qualitative analysis to primary and secondary data on tourists' demand for wellness tourism services and the standard of wellness tourism services supplied in Betong. The findings revealed that Betong's wellness tourism services, found to have high market potential, include gastronomy services, Betong hot springs, and historical and community-based tourism destinations. These indicated that Betong has the potential to become a wellness tourism destination. However, Betong has to develop new services like herbal tourism and halal tourism as well as creative tourism products and services to increase its competitiveness and achieve inclusive income distribution and sustainable growth.

**Key words:** Hot spring, Gastronomy, SWOT analysis, TOWS Matrix, modified BCG Matrix

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### INTRODUCTION

Wellness tourism is currently receiving a lot of attention from tourists all over the world, due to the increasing concern among tourist on matters related to health care or rehabilitation in making themselves stronger and live a longer. According to the Global Wellness Institute, wellness tourism is defined as “travel associated with the pursuit of maintaining or enhancing one's personal wellbeing”. As a result, wellness tourism services include various tourism activities, such as sightseeing at natural and cultural sites, learning about local customs, and receiving wellness services in hotels or accommodations such as massages and spa treatments. The global wellness tourism market has increased from \$617 billion in 2017 to \$720.4 billion in 2019 and is expected to fall to \$435.7 billion in 2020 as a result of the COVID-19 pandemic.

However, global wellness tourism is expected to grow at a rate of 20.9 percent per year between 2020 and 2025 (Yeung and Johnston, 2021). Thailand was positioned as the world's fifteen largest wellness tourism expenditures in 2020, with a spending value of \$4.7 billion, and was Asia's fourth largest wellness tourism market after China, Japan, and India (Yeung and Johnston, 2021). The COVID-19 pandemic has had a significant impact on tourism in Thailand.

The numbers of both domestic and foreign visitors were significantly less during COVID-19. However, following the ending of COVID-19 pandemic, there is an increasing interest among tourist towards wellness services, Thailand has seemed to likely attract wellness tourists from all over the world. Betong district in Yala province of Thailand, located at the border between Thailand and Malaysia with latitude 5.773056 and longitude 101.0725, is an attractive tourism destination for both domestic and international tourists especially among Malaysian in the tourism route connecting Hat Yai District in Songkhla Province and three southern border provinces of Thailand, including Pattani, Yala and Narathiwat. Not only having several tourism attractions, but Betong also has a border crossing point between Thailand and Malaysia. As a result, Betong has become the third highest number of Malaysian tourists' destination in the south after Sadao district in Songkhla province and the Su-ngai Kolok district in Narathiwat Province (Praprom and Laipaporn, 2022).

Formerly, Betong was famous for its nightlife tourism that have attracted a large number of Malaysian tourists. However, it had resulted in social problems, especially the problem of human trafficking and the illegal sex trade (Wungaeo, 2014; Ball and Farrelly, 2012). Unfortunately, the unrest that erupted in 2004 caused the tourism situation in Betong and the surrounding areas to continuously deteriorate and affect the travel decision of domestic tourists from other regions of Thailand (Praprom and Laipaporn, 2021). In order to mitigate the impact of the unrest, Thai government thus initiated the economic development plan in the southern border provinces which Betong District is one of the targets following the Stability, Wealth, and Sustainability Triangle project. The government supports the development of the infrastructure linking the existing tourist attractions and develop new tourist attractions with the hope that economic development through tourism will make people in the area to have a better living and reduce the incidence of unrest (Malisuwan et al., 2021). In accordance with the Thailand tourism development policy that focuses on the wellness

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tourism, Praprom and Laipaporn (2021) found that Betong has nine wellness tourism services that most of the tourists who travelled to Betong, were interested in. These services consisted of 1) natural sightseeing, 2) visiting historical and community - based tourism destination,

3) visiting hot springs, 4) patronizing and using beauty and spa services, 5) utilizing traditional massage, 6) visiting religion tourism destination, 7) gastronomy services, 8) visiting street arts and 9) performing health checkup. Moreover, that study also revealed that tourists had different willingness to pay for each service which were determined by characteristics and behaviors of the travelers. For all wellness tourism services, the overall tourists' willingness to pay was 2,587.8 baht per person per trip. Whereas, the Malaysian tourists' willingness to pay were a 2,745.5 baht which is more than the willingness to pay by Thai tourists at 2,114.7 baht per person per trip.

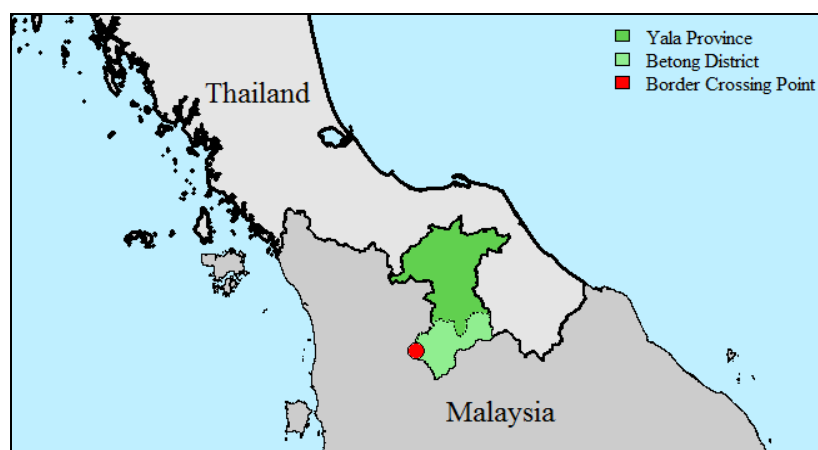


Figure 1. The study area in Betong district, Yala province in the deep south of Thailand (Source: Author)



Figure 2. The sea of mist viewpoints in Betong, A) Gunung Silipat viewpoints; B) Jarohganga viewpoints (Source: Author, 2020)

However, only the demand potential analysis from Praprom and Laipaporn (2021) is not sufficient to answer the question of whether Betong has the potential to be a wellness tourism destination or the otherwise. Therefore, this study aims to 1) investigate the supply potential of wellness tourism in Betong and then utilized these findings with the demand potential analysis from Praprom and Laipaporn (2021) to indicate the overall potential of wellness tourism at Betong, then 2) provide the implementation strategies for developing Betong to become a wellness tourism destination as well.

To assess supply potential, analyze market potential and provide implementation strategies for developing wellness tourism in various countries, previous studies mostly employed 6As tourism components framework, SWOT and TOWS analysis and Boston Group Consulting or BCG matrix. As indicated in recent studies, the 6As tourism components, which consisted of attraction, accessibility, amenities, ancillary services, available programs and activities, were generally employed for qualitatively assessing supply potential (Canson and Caelian, 2022; Bernal Escoto et al., 2021; Pattiyagedara and Fernando, 2020). The 6As components indicated the potential of a particular tourism destination in various aspects. The attraction of a destination among the tourists mainly focuses on how attractive is the tourism destination or tourism services offered such as the uniqueness, reasonable pricing, strategic location and favorable weather condition. The accessibility emphasizes on how easy for the tourists to access the tourism services or destination. Then, the amenities provided is another factor that relate to the tourism facilities available in the tourism destination such as accommodations, food providers as well as local markets for shopping. Consequently, the ancillary service is also another relevant factor related to additional services for the tourists such as banking and financial services, telecommunication facilities, and hospital or health services. In the rural area, normally, tourism destination is lacking in terms of the ancillary services and need to be improved (Pattiyagedara and Fernando, 2020). Lastly, the available programs and activities were indicated by the various kinds of tour packages and tourism activities provided in the tourism destination. For assessing and analysis market potential of wellness tourism, SWOT analysis was another methodology widely employed (Fertas et al., 2022; Brisevac et al., 2021; Rahyuda et al., 2021; Paungya et al., 2020; Khanal and Shimizu, 2019). This analysis does not only assess the internal factors indicating strength and weakness of the tourism destination, but also reflects the effects of the external factors, including opportunities and threats of the tourism destination, that can be beneficial or harmful to tourism development as well. Moreover, SWOT analysis provides the inputs for further analysis namely the TOWS analysis. The TOWS analysis is normally used for generating

implemented strategies consisted of Strength-Opportunity strategy, Strength-Threat strategy, Weakness-Opportunity strategy, and Weakness-Threat strategy (Sumanapala et al., 2021).

Likewise, the Boston Consulting Group or BCG matrix is another framework used in various studies by many researchers to formulate the developmental strategy and classify market position or segment of any investigated tourism products. (Bernal Escoto et al., 2021; Jeong Won et al., 2021; Prawira and Budisetyorini, 2021). The BCG matrix provides strategic assessment of the highest potential tourism products and indicates the most effective strategy for fair allocation of resources. For example, Prawira and Budisetyorini (2021) employed the BCG matrix to indicate the market potential of fishing tourism in Lancang Island, Kepulauan Seribu, Indonesia among its competitors and then recommended the strategy to improve qualities of relevant tourism product and services and recommended a marketing strategy through online marketing. The methodologies used in this study mostly based on literature reviews. However, this study additionally utilized Thailand tourism standards which can be obtained from the website of Ministry of Tourism and Sport (<https://tts.dot.go.th>) as another guidelines to assess overall supply potential of each wellness tourism services in Betong. Since these standards bases on numerical assessment. Accordingly, they effectively reveal more precise comparison in overall supply potential of wellness tourism services than 6As tourism components. All findings of this study are hoped to benefits all stakeholders as an information for not only supporting wellness tourism development in Betong but also other tourism destination in the deep south border of Thailand.

## MATERIALS AND METHODS

This study applied qualitative methodology to investigate the potential of wellness tourism in Betong as showed in Figure 3 by employing 6As tourism components and Thailand tourism standard. In addition, this study applied SWOT and TOWS analysis to obtain the implementation strategy and subsequently employed the modified BCG matrix in order to position market potential of wellness tourism services in Betong. Details of the methodology were described as follows.

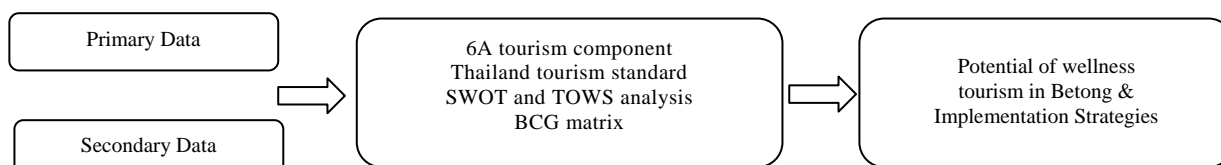


Figure 3. Conceptual Framework Diagram (Source: Authors)

### 1) Key informants

This study focused on the supply-side of wellness tourism in Betong. Therefore, the population of this study included the wellness tourism service providers, government and private organizations involved in this industry. Initially, government and private organizations such as Tourism Authority of Thailand (TAT), Betong Tourism association, Betong Municipality, Yala Provincial Administrative organizations, etc., were selected specifically as key informants. The snowball technique was then used for the other informants until the data became saturated.

### 2) Data Collection

This study employed both primary data and secondary data. The primary data was obtained by focus group discussion and in-depth interview, whereas the secondary data was related to the demand side data which included proportions of the tourists' utilizing for each wellness tourism services in Betong mainly obtained from Praprom and Laipaporn (2021). The questions in focus group and in-depth interview revolved around 6A tourism components and the standard and potential of wellness tourism services providing included 1) the number of establishments or tourist attractions providing wellness tourism, 2) the potential to serve tourists, 3) standards for providing wellness tourism services (applying Thailand tourism standard), 4) ease for assessing information about wellness tourism services, 5) ease for assessing to wellness tourism service providers, 6) prices, 7) cost structure, 8) critical public policy, 9) key factors affecting the wellness tourism development, and 10) recommendation for wellness tourism development.

The wellness tourism services investigated in this study were focused on nine wellness tourism services including 1) sight Seeing at Aiyerweng Skywalk and other sea of mist viewpoints, 2) visiting historical and community-based tourism at Piyamit Tunnel, Chulabhorn Pattana 10<sup>th</sup> community and winter flower garden, 3) visiting Betong and Nakor hot spring, 4) beauty and spa services, 5) traditional massage services, 6) religion tourism, 7) gastronomy tourism services in municipal area and non-municipal area, 8) visiting street arts and 9) health checkup services. Then, the thematic analysis and triangulation technique were also applied prior to the data analysis.

### 3) Data Analysis

The information and data collected from focus groups and in-depth interviews were categorized and analyzed with the secondary data following strictly to the objectives of the study. This study employed five qualitative methods characterized as follows. The first step focused on the strength, weakness opportunity and treat (SWOT) analysis of wellness tourism in Betong. Then, the second step was to analyze the potentiality of supplying wellness tourism services in Betong by employing 6As tourism components and standards for providing wellness tourism services. Each 6As tourism components were evaluated from primary data and then categorized into three levels: Good, Moderate and Poor, whereas standards for providing wellness tourism services following Thailand tourism standard were evaluated by key informants. There are 5 levels of assessment in standards for providing wellness tourism services namely quoted as-follows: a) poor (0-50 points), b) moderate (51-60 points), c) Good (61-70 points), d) very good (71-80 points), and e) excellent (81-100 points).



The third step was utilizing the modified BCG matrix to determine the feasible wellness tourism services. This study alternatively applied the proportion of tourists' service usage from Praprom and Laipaporn (2021) which reported in percentage and points of standards for providing wellness tourism services as a measure used to indicate overall demand and supply potential in all nine types of wellness tourism services instead of using the growth and market share of each tourism services following the previous study since those two latter data were not available. However, the proportion of tourists' usage and points of standards for providing wellness tourism services were gathered from different sources and assessment basis. Therefore, both indicators were consequently adjusted to a Standard Score (T Score) as illustrated in the following formula (Romano, 2018).

$$T_i = \left[ \left( \frac{x_i - \mu}{\sigma} \right) \times 10 \right] + 50 \quad (1)$$

Where  $T_i$  was a calculated T-score,  $x_i$  was indicator, that included proportion of the tourists utilizing each wellness tourism service and evaluated scores of wellness services standards.  $\mu$  and  $\sigma$  are mean and standard deviation of each indicators respectively. These T scores have their mean equal to 50 and their standard deviation equal to 10. Finally ending up with the TOWS matrix analysis to provide the recommendation for policy implementation in developing Betong into becoming a wellness tourism destination.

## RESULTS AND DISCUSSION

According to Praprom and Laipaporn (2021), there were nine wellness tourism services used by most tourists. The overall supply of those services was consequently assessed to verify their potential as follows.

### 1) SWOT Analysis of Overall Supply of Wellness Tourism Services in Betong

The SWOT analysis showed that there were various internal and external factors that might affect the performance of wellness tourism services in Betong. The internal factors, strength and weakness, as well as the external factors, opportunities and threat, were subsequently described as follows.

The first strength of wellness tourism supply of Betong is the weather. Betong is named as "a city in the mist" by its cool weather. Moreover, Betong has low air pollution indicated by a small amount of PM 2.5 throughout the year. Secondly, Betong also has various tourist attractions, including natural, cultural, and community-based attractions that are ready to provide wellness tourism services as well as new tourist attractions that local tour operators and government agencies have tried to develop to capably cater for tourists' attraction continuously. Thirdly, Betong has the wisdom of using herbs that is passed down from generation to generation. Herbal products and treatments were considered as products accepted and liked by tourists and the general public. Lastly, Betong has its own identified authentic local ingredients or sources for cooking such as Betong's chicken, watercress, grass carp, aquaculture Tilapia fish raised in flowing waters, etc. With local culinary wisdom, these fresh ingredients have become famous local dishes that every traveler must try.

The critical weakness of Betong wellness tourism supply is standard of quality of tourism sites, especially the toilets hygiene and waste management such as unmanaged rubbish. Improper quality standards enormously affected tourists' first impression. These reflected to the inadequacy of knowledge and improper management among local tourism service providers. Public transport was the second weakness that has caused difficulties among tourists to get to the attractions area outside the municipal area. Shortage of service provider was the third weakness. Despite being well known in Thailand, there are very few beauty and spa providers in Betong due to the lack or limitation among local entrepreneurs' in terms of monetary funding for investment in this type of business. Hence, there is not enough provider to serve the tourists' demand for these services. Lastly, a lot of tourism attractions established by public sector have been abandoned or have not been used to their fullest capacity, such as wellness service promotion center, indicating public loss in investment opportunity.

The significant opportunity of wellness tourism supply in Betong is continuous tourism demand of Malaysian tourists. It was clearly found that Malaysian tourists prefer to visit Betong which was indicated by their have continuously inquiries to the travel agencies, despite the pandemic, and had expressed their intention to travel to Betong after the outbreak situation improves. Secondly, Betong was the Thai government's development target in the Triangle of Stability, Wealth, and Sustainability project. This has subsequently caused high investment in terms of infrastructure, such as Aiyerweng Skywalk and Betong International Airport, that has attracted and facilitated tourists traveling. Lastly, the global health care trend has expanded continuously. This has then created more demands among tourists toward herbal products and wellness services in Betong. During the COVID-19 pandemic, several herbal pharmacies in Betong had to export herbal products to serve Malaysian tourists who used to buy these products but could not come to Betong. The serious threat found in this analysis was the effect of the COVID-19 to Malaysian economy. The COVID-19 affected the Malaysian consumption (Shah et al., 2020). The Malaysian ringgit has faced devaluation significantly due to the pandemic (Shahrier, 2022). Subsequently, it has caused Malaysian tourists to have less spending power. In addition, tourism regulations have become more complex and has affected the convenience of serving tourists. Traditional massage, beauty and spa services have to discontinue following government regulations during the pandemic. To further aggravate the condition, the unrest in southern Thailand has not yet been resolved. While the past image of Betong as a famous destination for night life tourism still persist in the mind of the tourist, undoubtedly, it is still a factor affecting the tourists' decision, especially family tourists.

### 2) The Supply Potentials of Wellness Tourism Services in Betong

The supply potentials of wellness tourism services in Betong were separately analyzed by using the 6As tourism components and employing standards for providing wellness tourism services as an overall supply potential indicator as shown in Table 1. Wellness tourism services in Betong are located in many areas, both in municipal area and non-municipal area. Following the 6As components, most of the wellness tourism services were found to be in the categories of



good and moderate attractive, except for the health checkup services which was in the category of poor attractive. The accessibility of these investigated services was generally good due to the high investment on infrastructure developments by the government following the Triangle area project. However, the wellness tourism services in remote area such as sightseeing at the other sea of mist viewpoints (Kunung Silipat, Kunung Tohni, and Jarohganga) and visiting Nakor hot spring were found to be moderately attractive since their locations were in the jungle with only walking route or narrow road, thus making tourists difficult to travel. Amenities components of investigated wellness tourism services were generally moderate. Only sightseeing at other sea of mist viewpoints and visiting street art had poor amenities components, since there were less tourism facilities in remote areas and the street art had limited public information on their location. Tourists had only one option of obtaining information that is via online. Most of wellness tourism services in Betong were limited by the traveling package of tourism agency and could be arranged in various programs following different demand of tourists.

However, the investigated wellness tourism services did not have various activities whereby many services were found to have poor activities components. Lastly, the ancillary services components of wellness tourism services in non-municipal area were found to be poor which was in contrast to the services within the municipality area where several ancillary services were readily available. Consequently, for those tourism destinations in non-municipal areas, the wellness tourism services provided has to be developed as stated in the previous studies (Pattiyagedara and Fernando, 2020). According to standards for providing wellness tourism services, most of investigated wellness tourism services in Betong have standard scores higher than 50 except for the sightseeing activities at other sea of mist viewpoints which were found to be of poor standard.

Table 1. The supply potentials assessment of nine wellness tourism services by 6As tourism components and Standards for providing wellness tourism services (Source: Authors)

| Wellness Tourism Services  | Components of Tourism (6A) |               |           |                   |            |                    | Standards for providing wellness tourism services (Total 100 points) |
|--|----------------------------|---------------|-----------|-------------------|------------|--------------------|--|
|  | Attraction                 | Accessibility | Amenities | Available Package | Activities | Ancillary Services |  |
| 1.1 Sightseeing at Aiyerweng Skywalk   | Good                       | Good          | Good      | Good              | Poor       | Poor               | Moderate (59.54)   |
| 1.2 Sightseeing at other sea of mist viewpoints (Gunung Silipat, Gunung Tohni, and Jarohganga)           | Good                       | Poor          | Poor      | Good              | Poor       | Poor               | Poor (48.23)   |
| 2. Historical and Community-Based Tourism (Piyamit tunnel, Chulaborn Pattana 10th, Winter flower garden) | Good                       | Good          | Moderate  | Good              | Poor       | Poor               | Good (70.75)   |
| 3.1 Betong Hot Spring  | Moderate                   | Good          | Good      | Good              | Good       | Good               | Good (71.67)   |
| 3.2 Nakor Hot Spring   | Moderate                   | Poor          | Moderate  | Moderate          | Good       | Poor               | Moderate (52.18)   |
| 4. Beauty and Spa  | Moderate                   | Good          | Moderate  | Good              | Good       | Good               | Excellent (82.87)  |
| 5. Traditional Massage   | Good                       | Good          | Moderate  | Good              | Poor       | Good               | Excellent (90.72)  |
| 6. Religion Tourism  | Good                       | Good          | Moderate  | Good              | Poor       | Good               | Good (60.74)   |
| 7.1 Gastronomy Tourism (municipal area)  | Good                       | Good          | Moderate  | Good              | Poor       | Good               | Excellent (91.37)  |
| 7.2 Gastronomy Tourism (non-municipal area)  | Good                       | Good          | Moderate  | Good              | Good       | Poor               | Excellent (88.59)  |
| 8. Street Arts   | Moderate                   | Good          | Poor      | Good              | Poor       | Good               | Moderate (53.29)   |
| 9. Health Checkup  | Poor                       | Good          | Moderate  | Moderate          | Poor       | Good               | Good (77.85)   |

Table 2. Indicators and standard scores for demand and supply of nine wellness tourism services in Betong (Source: Authors)

| Wellness Tourism Services  | Indicators          |                 | Standard Scores |                 |
|--|---------------------|-----------------|-----------------|-----------------|
|  | Demand (Percentage) | Supply (Points) | Demand (Scores) | Supply (Scores) |
| 1.1 Sightseeing at Aiyerweng Skywalk   | 87.75               | 59.54           | 61.70           | 42.94           |
| 1.2 Sightseeing at other sea of mist viewpoints (Gunung Silipat, Gunung Tohni, and Jarohganga)           | 87.75               | 48.23           | 61.70           | 35.75           |
| 2. Historical and Community-Based Tourism (Piyamit tunnel, Chulaborn Pattana 10th, Winter flower garden) | 74.75               | 70.75           | 55.80           | 50.06           |
| 3.1 Betong Hot Spring  | 79.25               | 71.67           | 57.84           | 50.64           |
| 3.2 Nakor Hot Spring   | 79.25               | 52.18           | 57.84           | 38.26           |
| 4. Beauty and Spa  | 34.00               | 82.87           | 37.32           | 57.76           |
| 5. Traditional Massage   | 53.75               | 90.72           | 46.28           | 62.77           |
| 6. Religion Tourism  | 49.75               | 60.74           | 44.46           | 43.70           |
| 7.1 Gastronomy Tourism (municipal area)  | 65.50               | 91.37           | 51.61           | 63.16           |
| 7.2 Gastronomy Tourism (non-municipal area)  | 65.50               | 88.59           | 51.61           | 61.40           |
| 8. Street Arts   | 50.00               | 53.29           | 44.58           | 38.97           |
| 9. Health Checkup  | 16.25               | 77.85           | 29.27           | 54.57           |

### 3) The Assessment of Wellness Tourism Services in Betong by Modified BCG Matrix

Indicators of demand and supply were used to generate modified BCG matrix obtained from the tourists' proportions utilizing each wellness tourism service from Praprom and Laipaporn (2021) and points of standards for providing wellness tourism services of each service assessed in this study. These indicators were transformed into standard score (T-Score) as shown in Table 2 and then modified BCG matrix was generated as shown in Figure 4.

Figure 4 showed that there are four wellness tourism services in the raising star quadrant (S) with high proportion of tourist usage and high standard of tourism service, namely: 1) gastronomy services in municipal area, 2) gastronomy

services in non-municipal area, 3) visiting Betong hot spring, and 4) visit historical and community-based tourism destinations. Although these services were better than the others, they still have development gap in order to increase their competitiveness. The services in the question mark quadrant (Q) of the modified BCG matrix with high proportion of tourist usage and low standard of tourism service include 1) Sightseeing at Aiyerweng skywalk, 2) Nakor hot spring, and 3) Sightseeing at the other sea of mist viewpoints. It was found that the potential demand in these services were high, but their supply standard was lower than the other area. Thus, improvement is needed in terms of their standard and related tourism components such as accessibility, cleanliness, and waste management, etc.

In the cash cow quadrant (C) with low proportion of tourist usage and high standard of tourism service, there are three wellness tourism services that prevailed comprising of these services as follows: 1) Thai traditional massage, 2) spa and beauty services, and 3) health checkup service. All three services are considered to have high standard of supply, since they have been regulated by their corresponding public authorities. However, sound marketing strategies are needed in order to promote these services to encourage more tourists demand after the COVID-19 pandemic. The last quadrant of the modified BCG matrix is the dog quadrant (D) which comprised of religious tourism service and leisure services in listening to music, reading and watching art. These two services exhibited low proportion of tourist usage and low standard of tourism services. According to additional interviews held with tourists and entrepreneurs in Betong District, most of them agreed that religious tourism was not the first choice to visit among general tourists, because they were less famous and less attractive than other attraction in the neighboring provinces. Moreover, most of the street art did not reflect the way of life, legend, history, and identity of Betong, which is found to be very much different than the street arts at the old town in Songkhla province, Thailand or the street arts in Penang, Malaysia, that were more unique and have better story telling.

Development Strategies Derived from TOWS Matrix Analysis

Following the SWOT analysis and the BCG matrix analysis, the TOWS matrix was subsequently analyzed as follows. According to the strength and opportunity of wellness tourism services' supply in Betong, the local wisdom and food ingredients as well as herb are found to be very unique. Some of well-known menus showed in Figure 5. Therefore, to serve to the continuously increasing number of tourists' demand, the first aggressive strategy was inventing the new products and tourism activities by applying local wisdoms and local natural resources, such as mineral water facial spays from Betong hot spring or Nakor hot spring (Figure 6) and instant food mixed with local herbal ingredient. In addition, the government should have clear development goals and continuous support especially in the area of investment in research and development. Consequently, the private sector will then be able to expand the wellness tourism market more easily.

Furthermore, travel agencies and local tourism services providers should focus on the global wellness tourism trends and needs of tourists, especially Malaysian tourists, which are considered as important markets in Betong. The strategy on increasing the variety of wellness tourism products and services as well as developing and maintaining tourist attractions to better serve tourists should be looked into seriously. For the strategies

from the combination of a weakness and opportunity of wellness tourism services' supply in Betong, the most important point is to improve the cleanliness of the tourism attractions, increase the standard of wellness tourism services and develop tourism components that is still considered as weakness. Moreover, the public transport link in Betong should be established as well as providing opportunities for the private sector to participate in transport services through public private partnership (PPP) or introduction of private on-demand transportation services such as Grab or Uber car. Park, Kim and Pan

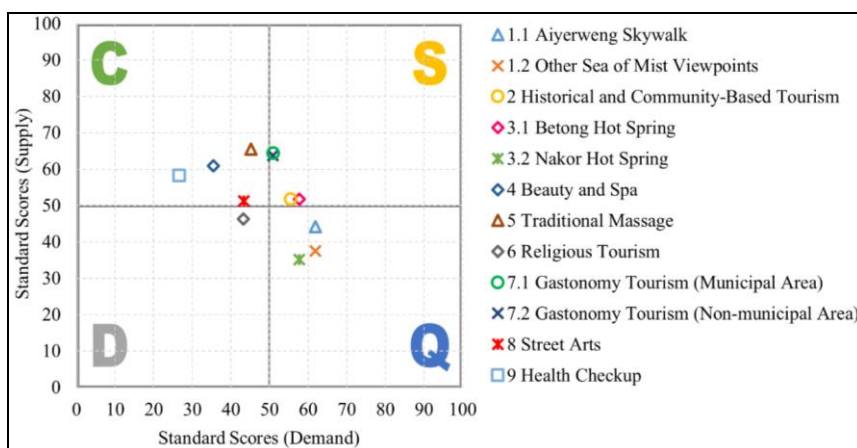


Figure 4. The modified BCG Matrix of wellness tourism services in Betong (Source: Authors)

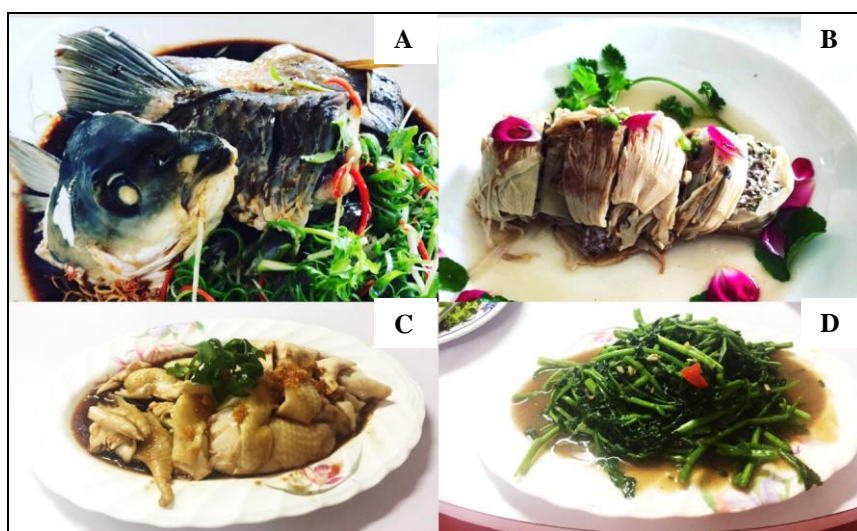


Figure 5. Well-known menus in Betong, A. steamed grass carp with soy sauce, B. rolled bamboo shoot with minced pork, C. chopped Betong chicken, D. stir-fried watercress (Source: Authors, 2021)

(2020) showed that Uber plays a key role in the expansion of the tourism economy in sub-Saharan African countries, whereas poor public transport was a hindrance to tourism in remote areas. Additionally, the Betong international airport should be promoted as a main alternative traveling route for both domestic and international tourists. Nonetheless, tourism authority of Thailand and relevant government agencies should support the Betong private sector in developing entrepreneurial skills and professional skills for wellness tourism services. This can be done through the introduction of a low interest source of funds that will allow the business to expand correspondingly to the growth of the wellness tourism market in the future.



Figure 6. Nakor hot spring (Source: Authors, 2021)

Based on the elements of strength and threat of wellness tourism services' supply in Betong, the first diversification strategy is to promote and improve Betong tourism image. Although the unrest in the deep south of Thailand persists, but Betong is still considered as attractive for tourists to visit, especially Malaysian tourists. This is because tourists visiting Betong feel safer compared to other nearby areas such as Narathiwat, Pattani and Yala. Therefore, relevant government agencies should encourage the tourism festival in Betong continuously following the Triangle of Stability, Wealth, and Sustainability project in order to stimulate both domestic and international tourists throughout the year. According to the weakness and threat of wellness tourism services' supply in Betong, one of the defensive strategies is to develop skills in providing halal wellness tourism services as an alternative tourism services to accommodate Muslim tourists from the deep southern provinces and Malaysia by inventing and promoting "halal" travel package. Corresponding to Dabphet (2021), providing quality halal services has a significant influence on increasing overall Muslim tourist satisfaction. Additionally, due to the complexity of the standard of tourism service and relevant regulations, the government agencies should facilitate local tourism entrepreneurs to improve their potential to meet those existing standard and regulations. Lastly, the tourism image of Betong should be improved in many ways such as by establishing new street arts that reflect history and way of life in Betong or rebranding Betong tourism from nightlife tourism to wellness tourism destination in the deep south of Thailand.

## CONCLUSION

According to the BCG matrix analysis in this study, the results showed that most of investigated wellness tourism services possess market potential, except for health checkup services. The wellness tourism services in the raising star quadrant that have the highest market potential include gastronomy services in municipal areas, gastronomy services in non-municipal area, visiting Betong hot spring, and visiting historical and community-based tourism destinations. With this analysis which obtained by both demand and supply indicators, it can be concluded that Betong has market potential to be a good wellness tourism destination. Additionally, the result from SWOT and TOWS matrix analysis revealed that to increase wellness tourism competitiveness, it has to invent new wellness tourism services. Since Betong is strategically located in the tropical forest zone, it has a great potential of tourism supply by initiating a unique service product offering called the "forest therapy" as the new wellness tourism services. However, further research and investigation need to be carried out in order to discover the suitability of the forest area that can enhance, facilitate and support the forest therapy program. Moreover, our finding indicated that Betong has the potential to be developed as a hub for herbal tourism since Betong is rich with herbal products that are famous to both domestic and international tourists as well as possessing the local wisdom of herb utilization and raw material to produce herbal medicine. Therefore, herbal tourism has a great potential to be a new development target for the Betong tourism. Moreover, in order to expand Betong tourism market, the concept of halal wellness tourism services have to be viewed seriously and should be supplied and strategized properly to serve existing demand. Tourism authority and government agencies should support Betong tourism entrepreneurs by providing training program about halal wellness services such as halal spa or halal massage or anything related to halal industry. The Prince of Songkla University Halal Institute could play an important role in taking advantage of the growing needs towards halal tourism in Betong. To further improve the infrastructure facilities for tourism, transportation in Betong should also be developed by connecting various available transport services to create a seamless tourism that can make tourists more comfortable in traveling, feeling safer and having lower traveling costs.

Furthermore, in order to increase the competitiveness of local entrepreneurs all tourism stakeholders in Betong should focus on the development of entrepreneurial skills, especially skills related to the development of local based ingredient food, local based material goods and services while tagging to concept of creative economy.

This can be done by adding value to local wisdom and creating a new experience for tourists through community-based tourism management. Consequently, these will also generate distribution of profits and reduce the impact of tourism. Although our findings provide useful information to the development of Betong as a wellness tourism destination, however further studies are needed in offering additional information and implementing policy following our recommendations.

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## GEOARCHAEOSITES FOR HERITAGE TOURISM PRODUCT OF KUALA MUDA DISTRICT, KEDAH, MALAYSIA

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**Abstract:** Archaeological research in the Kuala Muda district until 2022 has recorded three archaeological complexes that are still in-situ and can be visited by tourists. The archaeological evidence at Sungai Batu, Bukit Batu Pahat and Pengkalan Bujang Archaeological Complex which proves the existence of the Kedah Tua kingdom as the main trading location in the world. In order to obtain primary data, field research such as surveys, mapping and archaeological excavations are carried out to obtain in-situ data. The results of the study revealed that the Sungai Batu Archaeological Complex has been used as an iron smelting industrial area since 788 BC while the Bukit Batu Pahat and Pengkalan Bujang Archaeological Complexes have been used as a port and a Hindu-Buddhist complex since the 7th Century AD to the 13th Century AD. Based on the uniqueness of the archaeological data in the complex, as many as five tourism packages have been created to preserve this archaeological heritage tourism with the Sungai Batu Archaeological Complex (SBAC) has been made as a one stop center for the management of the tourism package.

**Key words:** Sungai Batu Archaeological Complex, Bukit Batu Pahat Archaeological Complex, Pengkalan Bujang Archaeological Complex, tourism packages

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### INTRODUCTION

Scientific research in this area since the 1840s has revealed very unique and special archaeological evidence. Packages like this are not available in other districts of the country. Accordingly, this study will generally map the potential of the Kuala Muda district to be developed as a tourism product based on these values as is the case in other parts of the world. This is because the tourism industry is an agent capable of enhancing the name of a country's heritage, both as an economic resource and finally as a very positive energy to maintain it under the concept of World Heritage. The history of the tourism industry shows that it is a phenomenon that has gone through a process of metamorphosis that is experiencing significant changes. Starting with the industrial revolution in the 19<sup>th</sup> Century AD which was seen as more destructive to the past until the 20<sup>th</sup> Century AD which was seen to be more prominent on a very large and profitable scale (Walsh, 1992). For this reason an effort has been undertaken to identify each feature of the geoarchaeological tourism site in the district in order to develop it on a par with similar tourist locations in the world.

This is because at the Southeast Asia level itself it clearly shows the development of tourist demand to travel to archaeological sites. The archaeological site at Borobudur Temple as an example shown the result of the large number of tourist arrivals to this site (Pradana et al., 2020). In fact, the same statistics were recorded at the tourist location of Angkor Wat which is consistently rated as the top Global Landmark by travelers in TripAdvisor (Baniya et al., 2020). This shows that archaeological heritage tourism locations can be developed into successful tourism products if the basic tourism facilities are at the best level (Chheang, 2011) and its tourism marketing is carried out consistently (Gallaga et al., 2022).

### Site Study

This study was conducted at Sungai Batu Archaeological Complex, Bujang Valley, Kedah which is located at latitude 05°41.6' North, longitude 100° 27.1' East, Pengkalan Bujang Archaeological Complex (5°44'15" N, 100°24'50 E) and

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Bukit Batu Pahat Archaeological Complex (5°41'00" N, 100°25'27" E) (Figure 1). The Pengkalan Bujang Archaeological Complex is an entrepot area while the Bukit Batu Pahat Archaeological Complex was found specifically as a place of worship where there is Site 8 which is a Hindu temple. In addition, this complex has also been used as a reconstruction area for Site 16 (from Pendi Village), Site 21 (from Pengkalan Bujang Village) and Site 50 (from Bendang Dalam Village) by the Department of Museums and Antiquities in the early 1970s. In fact, the Bujang Valley Archaeological Museum was also established on this hill in 1980 to specifically display every piece of evidence discovered by the Kedah Tua kingdom. This shows the availability of the three archaeological complexes to be developed sustainably as a successful tourism product in Kuala Muda district.

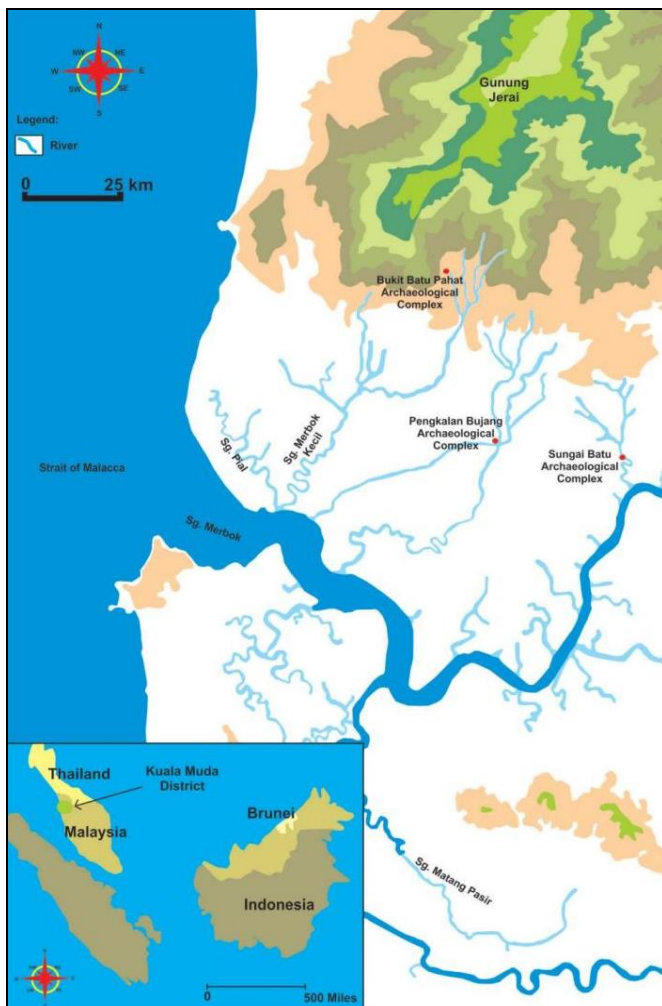


Figure 1. Location of the site study at the Sungai Batu, Pengkalan Bujang and Bukit Batu Pahat Archaeological Complex (Source: Halim et al., 2021 and illustrated by Author, 2023)

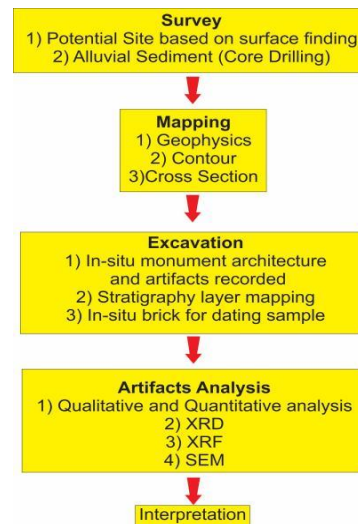


Figure 2. The methodology applied to obtain primary data to complete this study (Source: Halim et al., 2021 and illustrated by author, 2023)

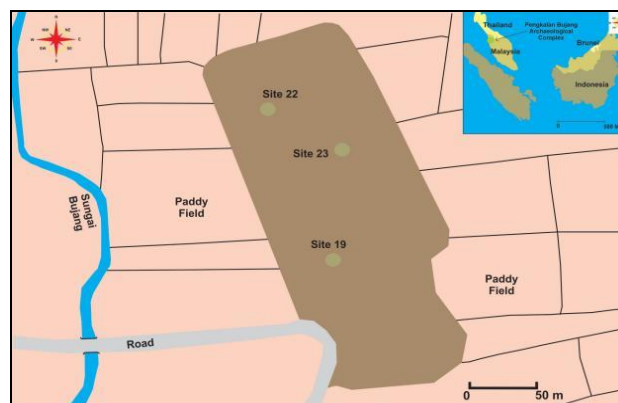


Figure 3. Location of Site 19, 22 and 23 at Pengkalan Bujang Archaeological Complex (Source: Adam, 2019 and illustrated by author, 2023)

**METHODOLOGY**

This study involves field research (survey, mapping, excavation and analysis) to complete the primary data. After that, an analysis of architectural remains, building materials and production technology was carried out to strengthen the interpretation presented (Figure 2). This is because survey activities are able to examine the site's potential based on surface findings (Prabhakar and Korisetar, 2017) and mapping is carried out to map basic data such as contour, location, floor map plan and geophysical mapping (Auni, 2020). After that, the excavation process was carried out to obtain primary data to complete the study (Edgeworth, 2011). The results of the study will then be analyzed which allows the outstanding universal value (OUV) of each site to be identified which allows it to be used as an archaeological heritage tourism product in the Kuala Muda district.

**Archaeological Evidence as a Tourism Site**

The geological evolution of the Kuala Muda district was also found to have provided a very suitable landscape for humans to inhabit. Archaeological studies since the beginning of 1,800 AD have found evidence that this area has been inhabited since 788 BC as evidence of the earliest civilization in the country and also in the region (Saidin, 2022). Evidence was found in the form of monuments and artifacts at more than 100 sites covering an area of over 1,000 km<sup>2</sup>. Saidin (2022) recorded three archaeological complexes that housed several well-preserved sites.

The sites are Sungai Batu Archaeological Complex, Pengkalan Bujang Archaeological Complex and Bukit Batu Pahat Archaeological Complex. The area was named as a complex because of its diverse archaeological finds that

include industry and commerce (Sungai Batu Archaeological Complex) and Hindu-Buddhist religious monuments (Pengkalan Bujang Archaeological Complex and Bukit Batu Pahat Archaeological Complex).

**Pengkalan Bujang Archaeological Complex**

Archaeological research at the Pengkalan Bujang Archaeological Complex (Figure 3 and Table 1) has discovered an entreport complex that has Hindu and Buddhist temples. Archaeological studies carried out on the riverbanks of Sungai Bujang also recorded the discovery of trade artifacts such as Chinese ceramics, pottery, Indio-Pacific beads and glass that suggested it was a port area. Archaeological excavations in this area have recorded six sites namely 18, 19, 20, 21, 22 and 23 (Table 2). However, nowadays only sites 19, 22 and 23 are still there and can be visited in this complex. Sites 18 and 20 were completely destroyed due to paddy farming activities in this area while site 21 was rebuilt in the Bujang Valley Archaeological Museum area for conservation purposes (Adam, 2020).

Table 1. The architecture of Hindu and Buddhist temples that are still in situ at Pengkalan Bujang Archaeological Complex (Source Adam, 2020 and illustrated by author., 2023)

| No.  | Sites | Function        | Floor Map Plan  |
|--|-------|-----------------|---|
| <b>Pengkalan Bujang Archaeological Complex</b> |       |                 |   |
| 1  | 19    | Hindu Temple    | <p>Legend:<br/>A Vimana<br/>B Mandapa</p>   |
| 2  | 21    | Buddhist Temple | <p>Legend:<br/>A Empty space in the middle of the structure<br/>B Foundation from brick around the structure<br/>C Rectangular structure from brick<br/>D The base structure from brick</p> |
| 3  | 22    | Buddhist Temple | <p>Legend:<br/>A Foundation from brick around the structure<br/>B Two rectangular main structure from brick</p>   |
| 4  | 23    | Hindu Temple    | <p>Legend:<br/>Vimana<br/>Mandapa<br/>Apit Temple<br/>Wall<br/>Pedestals<br/>Door<br/>Corridor<br/>Sculpture Area</p>   |

Table 2. The architecture of Hindu and Buddhist temples that are still in situ at Bukit Batu Pahat Archaeological Complex (Source Adam, 2020 and illustrated by author., 2023)

| No.  | Sites                                   | Function        | Floor Map Plan   |
|--|---|-----------------|--|
| <b>Bukit Batu Pahat Archaeological Complex</b> |   |                 |  |
| 1  | 8                                       |                 | <p>Legend:<br/>A Vimana structure from granite block<br/>B Mandapa structure from pabel block<br/>C Pillar base from granite block<br/>D Stair structure from granite block<br/>E Basemen structure from granite block</p> |
| 2  | 16 (Origin at Pendi Village)            | Hindu Temple    | <p>Legend:<br/>A Vimana structure from laterite block<br/>B Vimana structure from laterite block<br/>C Wall structure from laterite block<br/>D Basemen structure from laterite block<br/>E Layers from laterite block</p> |
| 3  | 21 (Origin at Pengkalan Bujang Village) | Buddhist Temple | <p>Legend:<br/>A Empty space in the middle of the structure<br/>B Foundation from brick around the structure<br/>C Rectangular structure from brick<br/>D The base structure from brick</p>                                |
| 4  | 50 (Origin at Bendang Dalam Village)    | Hindu Temple    | <p>Legend:<br/>A: E. D. Apit Temple from laterite block<br/>B: Vimana structure from laterite block<br/>C: Mandapa structure from laterite block<br/>F: Mandapa Basement from gravel mixed with clay</p>                   |

Site 19: Archaeological research at Site 19 has recorded a Vimana-Mandapa structure interpreted as a Hindu Siva religious monument measuring 2.5x4.8 square meters with a wall height of 1.5 meters. This interpretation is strengthened by the discovery of Ganesha sculptures, lingas and reliquaries made of stone clearly confirming that they were used as tools of worship and mediation for Hinduism (Adam, 2020).

Site 22: Reveals the appearance of the Vimana-Mandapa architectural which has an entrance direction from the northeast. Archaeological studies at this site allow this monument to be classified into sections A and B (Adam, 2020). The building structure of part A is characterized by a square shape measuring 1.82 meters in length and width and 0.46 meters in height. Part B also reveals the appearance of a square architectural shape characterized by its size measuring 2.13 meters wide, 2.13 meters long and 0.84 meters high. The significant difference between the two forms is that structure B has a hole in the middle of the monument compared to structure A which is more solid without a hole. Excavations at the site also found sculptural images such as Buddha images, standing Buddhas, Bodhisattvas, elephant images, ceramics, stoneware and beads which show their dating around 9<sup>th</sup> to 10<sup>th</sup> Century AD (Adam, 2020).

Site 23: Excavation of site 23 has revealed the architectural of the monument which consists of a floor, walls, corridors and a small square monument structure (Candi Apit). The main monument structure of site 23 was built in a northeast-southwest direction with entrances on each side of the building indicating its function as a Hindu temple in use since the 12<sup>th</sup> Century AD. Although no sculptures have been recorded at this site, the presence of rooms especially where sculptures are placed and adjacent temples have strengthened the interpretation (Adam, 2020).

Bukit Batu Pahat Archaeological Site: Archaeological research at Bukit Batu Pahat Archaeological Complex (Figure 4) has found an insitu site which is Site 8. In addition, several sites were also rebuilt in this complex such as Sites 16, 21 and 50 so that the conservation process can be carried out more effectively. For the purpose of providing tourism facilities in this area, an archaeological museum was built in 1980 known as the Bujang Valley Archaeological Museum with several facilities available such as parking lot, toilets and gazebo areas.

Site 8: Archaeological studies at site 8 allowed Vimana-Mandapa structures made of granite and pebbles to be recorded. In general, the Mandapa structure has the same orientation as site 4 and site 5, but the entrance direction of Site 8 is not from the east but is on the southeast side. The archaeological research carried out also found six reliquaries filled with precious stones, phalluses, images of women, gold dust, images of bulls, animal symbols made of silver, images of tortoises and lotuses made of copper. Excavation of this site also recorded the discovery of a stupa, snana droni and pillar base which strengthens the interpretation of the site as functioning as a Hindu temple which is relatively suggested to be around the seventh to 8<sup>th</sup> Century AD (Adam, 2020).

Site 16: The remains of this structure were excavated and then rebuilt at the Bujang Valley Archaeological Museum same as Site 21 and 50. When this site was discovered, the structural condition of this site was in a collapse, making it difficult for researchers to determine the function based on the remains of the structure. The structure of this site 16 has been built entirely of laterite block and there have a Vimana and Mandapa separated from each other with an empty space that has a width of about 35.7 meters. The orientation of the site is east-west with the Vimana facing to east. Among the artefacts found at site 16 such as a bronze reliquary containing a small artefact, a golden bowl, an image of a cow made of silver, an image of a horse made of copper and the elephant image that shows the function of the site is a Hindu Temple that was used around the 11<sup>th</sup> Century AD (Adam, 2020).

Site 21: Archaeological research at this site and successfully revealed the appearance of the main architectural form of site 21 which is cross-shaped and built entirely of bricks measuring 6.5 X 3.0 m. It works for Buddhism (Rahman and Yatim, 1992). The results of research at this site have found Buddha statues made of terracotta and bronze, Kala and Ganesha sculpture and brick with inscriptions. Based on the findings of the sculpture in addition to Chinese ceramics suggests a relative dating of this site is around the 9<sup>th</sup> to the 10<sup>th</sup> Century AD (Rahman and Yatim, 1992).

Site 50: Archaeological studies at Site 50 have revealed the square architecture monument which interpreted as a Vimana-Mandapa. It is oriented east-west with the entrance from the west just like site 31. The structure is built using laterite blocks with the Vimana size 6.25 x 6.25 m<sup>2</sup> while the Mandapa is 6.75 x 6.20 m<sup>2</sup> (Adam, 2020). This site also reveals three Apit Temples which are located in the south, east and west of the Vimana-Mandapa respectively.

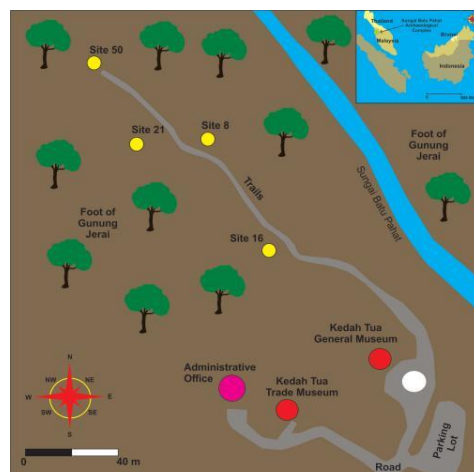


Figure 4. Bukit Batu Pahat Archaeological Complex location site (Source: Adam, 2020 and illustrated by author, 2023)

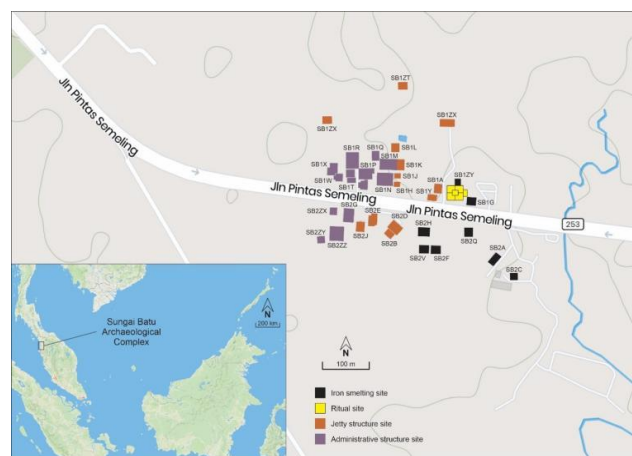


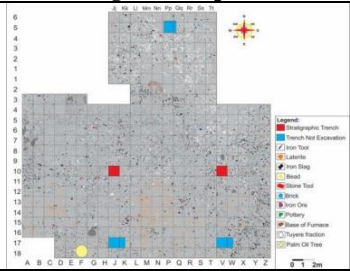
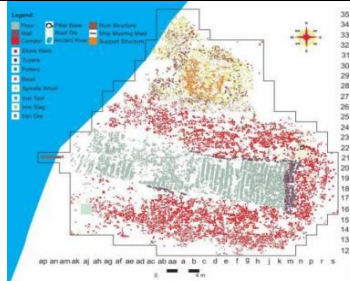
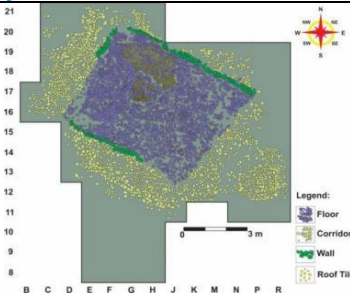
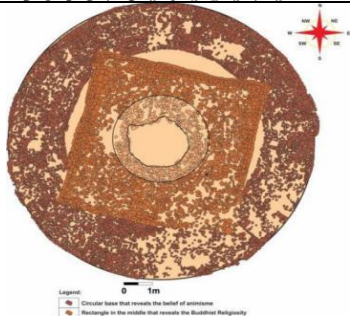
Figure 5. Sungai Batu Archaeological Complex location which reveals the evidence of iron smelting site, jetty, port management and a complex ritual and Buddhist religious (Source: Saidin et al., 2011; Saidin, 2022 and illustrated by author, 2023)



The largest Apit temple is located 4.75 m south of the Vimana-Mandapa with a size of around 4.75 x 4.75 m<sup>2</sup>. The size of the other two Apit Temples cannot be identified because they are not clearly recorded. Excavation of site 50 also revealed the discovery of Kala and Linga sculpture in addition to Chinese ceramics. Therefore, the function of this site has been interpreted as a Hindu temple of Siva, dated around the 12<sup>th</sup> to 13<sup>th</sup> Century AD (Rahman and Yatim, 1992).

Sungai Batu Archaeological Complex: Archaeological research in this complex (Figure 5) has revealed four main evidence such as iron smelting workshops, jetty, port management and a complex of animism and Buddhism (Table 3). The findings recorded in this complex are also different, which is based on the economy of the iron industry, while in Pengkalan Bujang and Bukit Batu Pahat Archaeological Complex was only used as a enterport and a Hindu-Buddhist religious area.

Table 3. The archaeological evidence of iron smelting site, jetty, port management and complex ritual and Buddhist temples that are still in situ at Sungai Batu Archaeological Complex (Source: Hassan, 2018; Mokhtar, 2019 and Halim, 2019 and illustrated by author 2023)

| No.                                       | Sites | Function                        | Floor Map Plan  |
|---|-------|---------------------------------|---|
| <b>Sungai Batu Archaeological Complex</b> |       |                                 |   |
| 1   | SB2 H | Iron Smelting Site              |    |
| 2   | SB2 D | Jetty Site                      |   |
| 3   | SB1 V | Port Management Site            |  |
| 4   | SB1 B | Ritual and Buddhist Temple Site |  |

Iron Smelting Site: Archaeological excavations carried out on 17 iron smelting workshops at Sungai Batu Archaeological Complex have found the raw materials for iron smelting (hematite, magnetite and goethite) along with iron slag, tuyere, bases of furnace and iron ingot. In order to know its age, several insitu charcoal samples were taken to obtain chronometric dating data. The results have shown that this industry started as early as 788 BC. Based on the data, this iron smelting workshop has made the Kedah Tua kingdom that initiate the civilization in Southeast Asia. Furthermore, based on the discovery of millions of tuyeres at the iron smelting site, this complex is the only one in the world that reveals the largest tuyeres storage recorded through archaeological research (Mokhtar, 2019).

Jetty: Until now, 11 jetty structures have been recorded on the left and right riverbanks of the ancient Sungai Batu. It is built entirely of brick with a structure of floors, walls, corridors, stairs and mast anchoring structures. The architecture of this jetty is built oriented and sloping towards the ancient river. Chronometric dating on a brick sample that is still in situ gives the dating that it was built since 582 BC. This means that the structure of the jetty was built as an aid to the export of iron ingots in this complex. Furthermore, based on the number of jetties recorded in this complex, it is also the only one in the world to reveal a large number of jetties in the environment of a river (Halim, 2019).

Port Management: In order to fulfill the requirement of the iron trade in this complex, as many as 17 port management sites have been built using bricks (Aminuddin, 2015; Ahmad, 2016; Yusof, 2016). The Port management structure was built as early as 487 BC. The location of this site is at the back of the jetty and is built horizontally with several small rooms. In general, this port management architectural structure is the only one built whose main purpose is to meet the needs of the iron industry in this complex.

Ritual and Buddhist Complex: Sungai Batu Complex also has a monument whose architecture very different from the jetty and port management which is the SB1B site (Hassan, 2018). The SB1B monument is built with the appearance of a circular base of size 10.17 meters with a floor thickness of 0.3 meters, on top of which is built a square measuring 5.91x5.91 meters, 1.21 meters high and the upper part is built with a small circle of size 3.12 meters (Hassan, 2018). Based on the location and other sites around the site SB1B suggests that it was used as a monument for worship or ritual (base circle) and Buddha (rectangle and stupa). Chronometric dating on the brick sample of the base circular structure gives an age of around 2<sup>nd</sup> Century AD while the square and circular structure of the stupa gives an age of around 7<sup>th</sup> Century AD. This shows that it is the only one in the world that reveals evidence of continuous use from the belief of animism (2<sup>nd</sup> Century AD)

until Buddhism (7<sup>th</sup> Century AD) for the iron smelting community in this complex (Hassan, 2018). Therefore, at the Kuala Muda district level, at least has a three archaeological complexes that can be used as a successful archaeological heritage tourism product. This is because the archaeological research carried out on the site also allows the appearance of its architecture to be clearly recorded which can be used as the main tourism product of the district.

**DISCUSSION**

Academic studies have mapped the existence of three archeological complexes that are very unitary, still preserved and can be visited, causing the process of marketing heritage tourism locations to be carried out more specifically as suggested

by Thomas and Langlitz (2018). In order to strengthen the tourism package offered, the preparation of the tourism package also takes into account the location of successful archaeological heritage tourism sites such as Borobudur Temple. For that reason, the designed tourism package will also involve surrounding tourist locations such as Borobudur Temple which combines tourist locations into a successful combination of tourist packages (Tunjungsari, 2020).

Furthermore, in order to empower the heritage tourism sector, each heritage tourism destination needs the availability of a tourism information center that is able to manage all travel and package tours (Ludmila and Kristina, 2018) that are offered systematically. This is because heritage tourism requires the preparation of a package that can combine iconic heritage products with byproducts to allow the tourism sector to grow rapidly. In relation to that, the existence of a tourism information center is an initial step in providing information related to tourist destinations directly to tourists so that the selection of tourism packages becomes more effective. Based on these requirements, five special tourism packages (Table 4) that combine archaeological heritage at Sungai Batu Archaeological Complex, Bukit Batu Pahat Archaeological Complex and Pengkalan Bujang Archaeological Complex were created to preserve this tourism starting in 2022. Even Sungai Batu Archaeological Complex (SBAC) infrastructure has begun to be completed and upgraded as a one-stop center for archaeological heritage tourism in this district. At the SBAC one-stop tourism center all tourism activities involving (i) guided tours at SBAC, (ii) experimental activities of iron smelting, brick making and hands on excavation (Figure 6), (iii) guided tours to the Bukit Batu Pahat Archaeological Complex and (iv) guided tour to the Pengkalan Bujang Archaeological Complex and Archaeological Museum will be monitored to preserve tourism products.

In order to maximize the dissemination of information about the tourism package, several measures for the purpose of tourism promotion have been carried out. Promotional methods through 1) the involvement of travel agencies, 2) exhibitions, fair and festivals, 3) professional relations with stakeholders, 4) notes and press conferences and 5) the internet have been carried out. Tourism promotion involving travel agencies allows existing travel agencies to provide travel package offers at their agencies. This will help in the surge in tourist arrivals. In addition, scientific research evidence disseminated through exhibitions, fair and festivals such as the Kedah Tua Festival, Festival Purwa Puitika has helped in the process of promoting tourism areas since 2016. In addition, tourism promotion by establishing good professional relations by organizing visits by ministers, international delegations, community representatives, media representatives and university researchers is also a form of promotion in developing Kuala Muda tourism packages. Promotion through notes and press conferences is closely related to the organization of interview sessions, interviews and press conferences which is an important step to further smooth the promotion process. Because nowadays the widespread use of the internet is also used as best as possible in the process of promoting tourism sites. Brochures and information posters are uploaded on the website which allows information related to the site and tour packages to be disseminated without hindrance. This shows that at the Kuala Muda district level there has been an organized movement in the process of developing its tourism marketing.

Table 4. Tourism packages created at Sungai Batu Archaeological Complex (SBAC) (Source: Compiled by author, 2023)

| No. | Packages | Location   | Accessability               | Duration |
|-----|----------|--|-----------------------------|----------|
| 1   | 4        | Guided tour at Sungai Batu Archaeological Complex + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex  | All means of transportation | 1 Day    |
| 2   | 5        | Full packages (Sungai Batu Archaeological Complex) + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex |                             | 1 Day    |
| 3   | 6        | Guided tour (Sungai Batu Archaeological Complex) + Pengkalan Bujang Archaeological Complex   |                             | Half Day |
| 4   | 7        | Full packages (Sungai Batu Archaeological Complex) + Pengkalan Bujang Archaeological Complex   |                             | 1 Day    |
| 5   | 8        | Guided tours (Sungai Batu Archaeological Complex) + Bujang Valley Archaeological Museum + Bukit Batu Pahat Archaeological Complex + Pegmetite Jerai + Pengkalan Bujang Archaeological Complex  |                             | 1 Day    |



Figure 6. Tourism packages offered for archaeological heritage tourism in the Kuala Muda district such as site visits (a), demonstrations of iron smelting (b), brick making (c) and excavations (d) at the Sungai Batu Archaeological Complex since 2022 (Source: Research Data Analysis, 2023)

**CONCLUSION**

Academic studies conducted at archaeological complexes in the Kuala Muda district in particular have been able to provide several sets of very unique archaeological heritage tourism packages.

In addition, the archaeological evidence at Sungai Batu Archaeological Complex which is heralded as the oldest civilization in Southeast Asia (Embong et al., 2016; Halim et al., 2021) and added to the unique architecture of Hindu and Buddhist temples built from the 8<sup>th</sup> Century AD to 13<sup>th</sup> Century AD clarify the uniqueness of this archaeological heritage tourism in this district. Based on the data and examples of successful archaeological heritage tourism locations



such as Borobudur and Angkor Wat Temple, it is believed that the tourism package created since 2022 can be developed as an heritage tourism comparable to other archaeological heritage tourism sites in the world.

### Acknowledgement

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## ASSESSMENT OF CLIMATE CHANGE IN NATURAL AREAS OF THE TURKESTAN REGION OF THE REPUBLIC OF KAZAKHSTAN FOR THE PURPOSES OF SUSTAINABLE AGRICULTURAL AND RECREATIONAL NATURE MANAGEMENT

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**Abstract:** The article presents the scientific results of a study for assessing climate change trends in natural areas of the Turkestan region of the Republic of Kazakhstan based on the use of long-term climate data (1940-2020) of sixteen meteorological stations located in the region. In the course of the study, tested domestic, international and proprietary methodology for assessing climate change in natural areas were used based on plotting a fixed time series of climatic indicators and the resulting equations of linear trends. The results of the study showed that the average annual air temperature in all natural areas of the Turkestan region tend to increase, and the amount of annual precipitation to decrease, this has a negative impact on the development of recreational and agricultural nature management. On the basis of the developed mathematical models of changes in climatic indicators that characterize the coefficient of coincidence of the growth rates of average annual air temperature and annual precipitation, their quantitative values were determined in the territories of the natural areas of the region, which influence the formation of the environment-forming functions of the natural system. The results of the study enable economic entities, especially farms, to organize sustainable agricultural environmental management, and management bodies to develop plans for the development of recreational tourism in the Turkestan region.

**Key words:** climate, air temperature, precipitation, climate model, natural system, agricultural and recreational nature management

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### INTRODUCTION

The study of climate change, as the most important environmental factor involved in the implementation of the laws of nature, providing the environment-forming and ecological functions of the natural system, is the object of research in the field of geography, climatology, geoecology, agriculture and recreation (Karl and Trenberth, 2003). Timely identification and assessment of trends in spatio-temporal dynamics and patterns of climate change makes it possible to take them into account in various types of nature management (Chen et al., 2011). Analysis of the state of the modern climate, identification of facts of detection of climate change and development of strategic measures to adapt various types of nature management to a changing climate are extremely important tasks for sustainable development (Kharlamova, 2011). Conducted studies on climate change over the past decades state that in many regions of the world and, in particular, in Central Asia and Kazakhstan, there is a trend towards an increase in average annual air temperatures and a decrease in annual precipitation, which leads to an increase in the daily expenditure item of the water balance surfaces (Tursunova et

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al., 2022). As an arid region, the development of society and economy in Central Asia and Kazakhstan in particular is more sensitive to climate change than in the humid regions (Huang et al., 2016; Huang et al., 2017). Changes in surface temperature and rainfall erosion have the most direct effect on soil ecosystem services (ESs) (Li et al., 2015; Li et al., 2020; Zhang et al., 2010, 2017a). During the past 30 years, the temperature rise in Central Asia has been reported to be higher than the global average (Zhang et al., 2010; Hu et al., 2017), which has accelerated evaporation losses (Lioubimtseva and Henebry, 2009) and caused a shortage of water consumption of agricultural land.

Climate change, population growth, over-exploitation of water resources and inappropriate land management are considered to be responsible for environmental degradation in Central Asia (Agadjanian et al., 2013; Demin, 2016; Kuzmina and Treshkin, 2016), this, in turn, exacerbates the risk of land degradation and desertification in the near future in developing countries. Dryland climate change is also increasing the challenges related to food security and water supply in these regions (Asseng and Pannell, 2013; Zinyengere et al., 2014), as water supply is an important part of the climate system (Confortola et al., 2013). Climate change will certainly cause the change of hydrological information (water level, flow, groundwater level, etc.) in time and space (Wang et al., 2022).

Precipitation events, especially following extreme drought, can sharply alter soil moisture, which plays a vital role in soil biological activity (Banerjee et al., 2016; Slessarev et al., 2021) and agricultural food production. Agricultural food products (Hou et al., 2022) remain in perpetual demand because of the increasing population, rapid urbanization and urban growth, declining productivity of the agricultural land, and climate change (Aldazhanova et al., 2022). Drought resilient vegetation species in areas with increasing air temperature and precipitation deficiency are outcompeting other species in natural vegetation such as grasslands, and being more frequently sown in arable lands (Móricz et al., 2021). Vegetation types and types of crops grown can greatly influence the amount of rainfall that can reach the soil surface, as dense vegetation canopy intercepts raindrops, which might not reach the ground, especially for smaller precipitation events, or, the non-evenly distributed, rainwater might result in heterogeneous soil water content (Horel et al., 2022).

Climate change, whether natural or human-caused, will have an impact on human life, including recreation and tourism among other things (Endler and Matzarakis, 2011). The local ecosystem gives services of recreation and tourism that can fundamentally provide support for greater incomes (Reyers et al., 2013; Malhi et al., 2020). Climate change is affecting the ecosystem services of tourism and recreation internationally, not because of their unique characteristics and specific to certain regions but are not viable to the society who created them (Bakure et al., 2022). In addition, tourism is a highly climate-sensitive sector that is also strongly influenced by numerous factors including the state of the natural environment (Scott et al., 2012), the average annual precipitation, seasonal temperature, etc. In this regard, the Turkestan region has an important place in the development of tourism in the country in recent years. The region is assigned an important role in the historical, cultural, spiritual and tourist life not only of Kazakhstan, but of the entire Central Asian region. The landscapes of the mountainous territories of the Turkestan region are the object of assessment of recreational attractiveness (Mukayev et al., 2022). Thanks to the continuous development of the sphere of natural and sacred tourism in the region, by 2025 it is planned to increase the flow of tourists and the number of visitors by 2.5 million people (The concept of the master plan for the development of the city of Turkistan, 2018). Economic and social destinations in the tourism industry create favorable conditions for effective use of tourist and recreational potential of the country in the context of the concept of balanced development and increase the positive impact of the industry on socio-economic development of the regions (Kirylov et al., 2022). Therefore, climate change will pose an increasing barrier to tourism contributions to the Sustainable Development Goals (Scott et al., 2019). Taking into account the above, there is a need to test the hypothesis of an increase in the intensity of average annual air temperatures and a decrease in the amount of annual precipitation over several decades in various natural zones of Kazakhstan (Medeu, 2010).



Figure 1. Location of natural zones on the territory of the Turkestan region (Source: personal original data)

The object of our study is the territory of the Turkestan region of the Republic of Kazakhstan, the geographical coordinates of the region: 41-46° N. and 65-74° E. where four natural zones are located: a forest-meadow steppe zone of mid-mountains; a steppe zone of low-hill terrain and midlands; a semi-arid zone of foothills; arid zone of foothills, lowland and high plains, characterized by a variety of climatic conditions (Kuderin et al., 2019) (Figure 1). The length of the region from north to south is more than 550 km, and from west to east - about 470 km (Medeu, 2010). The relief of the territory is mostly flat with a general slope to the southwest. In the north, the territory of the region is located within the elevated Betpakdala plateau. To the south of the Shu River lies the Moyinkum sandy massif. In the central part of the region, the Karatau Range extends from the northwest to the southeast. In the southeast there are mountains Talas Alatau, Karzhantau, Ugam ridge. The sands of Kyzylkum go to the south-west of the region with their marginal part, and in the very south there is the marginal part of the flat plain Hungry Steppe. The purpose of the study is to assess the trends in climate indicators (average annual air temperatures and annual precipitation) in natural areas and, on their basis, develop models of climate change and growth rates of climate indicators to ensure sustainable agricultural and recreational nature management.

## MATERIALS AND METHODS

Research on the assessment of climate change in the natural areas of the Turkestan region of the Republic of Kazakhstan was based on the methods of mathematical statistics. Theoretical and methodological basis of the study included: creation of an information and analytical database of research, assessment of changes in climatic indicators on a spatio-temporal scale, development of models: 1) climate change; 2) growth rates of climatic indicators (Figure 2). An analysis of annual temperatures and the period of precipitation is a necessary condition for organizing regional recreational and agricultural activities (Kotlyarova, 2020). To assess climate change trends in the territory of the Turkestan region for 1940-2020, we used a verified time series of average annual air temperatures and annual precipitation at sixteen meteorological stations (Table 1) located in various natural zones of the region. Climatic studies were carried out on the basis of long-term information and analytical materials of the Republican

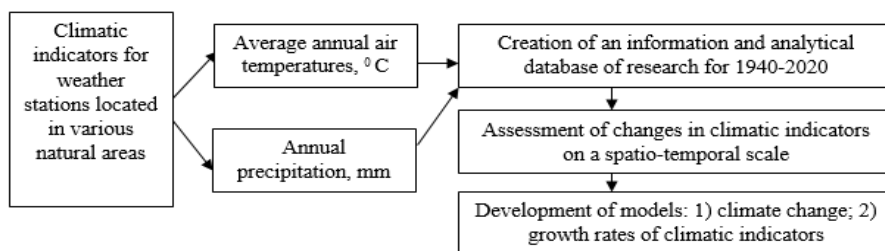


Figure 2. Flowchart of the theoretical and methodological basis of the study on the assessment of climate change in the natural areas of the Turkestan region (Source: compiled by the authors)

Table 1. Geographical coordinates of meteorological stations located in the natural zones of the Turkestan region (Source: personal original data)

| Natural zones                                      | Meteorological station | Geographic coordinates |          | Height above sea level, m |
|--|------------------------|------------------------|----------|---------------------------|
|  |                        | longitude              | latitude |                           |
| 1. Forest-meadow steppe zone of mid-mountains      | Shuyldak               | 42.30                  | 70.43    | 1984.0                    |
|  | Tassaryk               | 42.23                  | 70.15    | 1122.0                    |
| 2. Steppe zone of low-hill terrain and midlands    | Achisai                | 43.55                  | 68.90    | 822.0                     |
|  | T. Ryskulov            | 42.48                  | 70.30    | 808.0                     |
| 3. Semi-arid zone of foothills                     | Shymkent               | 42.32                  | 69.70    | 604.0                     |
|  | Kazygurt               | 41.76                  | 69.36    | 566.0                     |
| 4. Arid zone of foothills, lowland and high plains | Sholakkorgan           | 43.77                  | 69.18    | 481.0                     |
|  | Shayan                 | 43.03                  | 69.37    | 365.0                     |
|  | Shardara               | 41.37                  | 68.00    | 275.0                     |
|  | Bugen                  | 42.74                  | 68.98    | 250.0                     |
|  | Arys                   | 42.43                  | 68.80    | 240.0                     |
|  | Bayirkum               | 42.12                  | 68.15    | 215.0                     |
|  | Turkestan              | 43.27                  | 68.22    | 207.0                     |
|  | Tasty                  | 44.80                  | 69.12    | 190.0                     |
|  | Kyzylkum               | 42.80                  | 67.42    | 185.0                     |
| Akkum  | 43.72                  | 67.42                  | 174.0    |                           |

State Enterprise "Kazgidromet" (<http://www.kazhydromet.kz>), World Meteorological Organization (<https://public.wmo.int/en>) and information and reference portal "Weather and climate" (<http://www.pogodaiklimat.ru/>). One of the main methods for studying changes in climate parameters, according to time series of observations, the climatic indicators we are considering (average annual air temperature and annual precipitation), is the assessment of trends in the average statistical value, that is, trend coefficients that characterize the average rate of change in the level of the series for a certain duration of time (Otnes and Enoxon, 1982). To determine the patterns of change in the average annual air temperature and the amount of annual precipitation for 1940-2020, the linear trend method was used, that is, the method of statistical mathematics, which is widely used to assess the trend in climate indicators, and is calculated using the linear regression formula 1 (Ivchenko et al., 2015: 46):

$$y(n) = a_0 + a_1 \cdot n, \quad (1)$$

where  $y(n)$  – is the calculated value of the observation index;  $n$  – is the ordinal number of the observed quantity;  $a_0$  and  $a_1$  – are regression coefficients.

Climate change is a long-term statistical series of the state of the natural environment, characteristic for each natural area, which depends on the growth rate of climatic indicators and has an impact on the development of recreational and agricultural nature management. The assessment of the growth rates of climatic indicators was also carried out on the basis of the equation of linear trends of the time series (Ivchenko et al., 2015), which characterizes the average annual air temperatures and the amount of annual precipitation, allowing us to determine their current and base values within the time period we are considering. Thus, the growth rate of climatic indicators was calculated as the ratio of the difference between



the current and basic values of climatic indicators to the current value of the time series, expressed as a percentage, according to formula 2 (Developed by the authors):

$$\Delta T_t = [(t_m - t_v) / t_v] \cdot 100; \quad \Delta T_{Oc} = [(O_{cm} - O_{cv}) / O_{cv}] \cdot 100, \quad (2)$$

where  $\Delta T_t$  – growth rate of mean annual air temperatures;  $\Delta T_{Oc}$  – growth rate of annual atmospheric precipitation;  $t_m$  – current values of mean annual air temperature;  $O_{cm}$  – current value of annual precipitation;  $t_v$  – base value of average annual air temperatures;  $O_{cv}$  is the base value of annual precipitation.

At the same time, the ratio of the growth rate of average annual air temperatures to the growth rate of annual precipitation characterizes the coefficient of coincidence of climatic indicators for the period under review for all fixed meteorological stations, which was determined by formula 3 (Developed by the authors):

$$m_{tOc} = \Delta T_t^{min} / \Delta T_{Oc}^{min} \div \Delta T_t^{max} / \Delta T_{Oc}^{max}, \quad (3)$$

where  $\Delta T_t^{min}$  – is the minimum value of the growth rate of average annual air temperatures for the period under consideration;  $\Delta T_{Oc}^{min}$  – the minimum value of the growth rate of annual precipitation for the period under review;  $\Delta T_t^{max}$  – the maximum value of the growth rate of average annual air temperatures for the period under consideration;  $\Delta T_{Oc}^{max}$  – the maximum value of the growth rate of annual precipitation for the period under consideration.

## RESULTS AND DISCUSSION

The climate of the Turkestan region is characterized by extreme heterogeneity, which is due to the inland position of the territory, orographic conditions, a significant latitudinal strike and openness of the territory's topography from the north. The region belongs to areas of insufficient moisture, and is characterized by low rainfall and high evaporation rates (Kuderin et al., 2019). In the distribution of precipitation over the territory of the region, there is a large unevenness due to a significant latitudinal strike and the presence of mountain systems. The general pattern of climate formation in the region is the interaction of air temperature, precipitation, solar radiation and evaporation from the underlying surface. The average annual air temperature is the energy resource basis for climate formation and the development of ongoing physical and geographical processes, and annual precipitation is the most important source that ensures the flow of chemical, physicochemical and biological processes in all natural zones of the region (Zheleznova et al., 2021).

Based on the created information and analytical database (1940-2020) on the climatic indicators of the Turkestan region, graphs were built (using the Microsoft program Excel 2010) showing the changes in the average annual air temperature and the amount of annual precipitation with their linear trends (Figure 3-6), which made it possible to obtain a climate model in the form of systems of linear equations presented in Table 2.

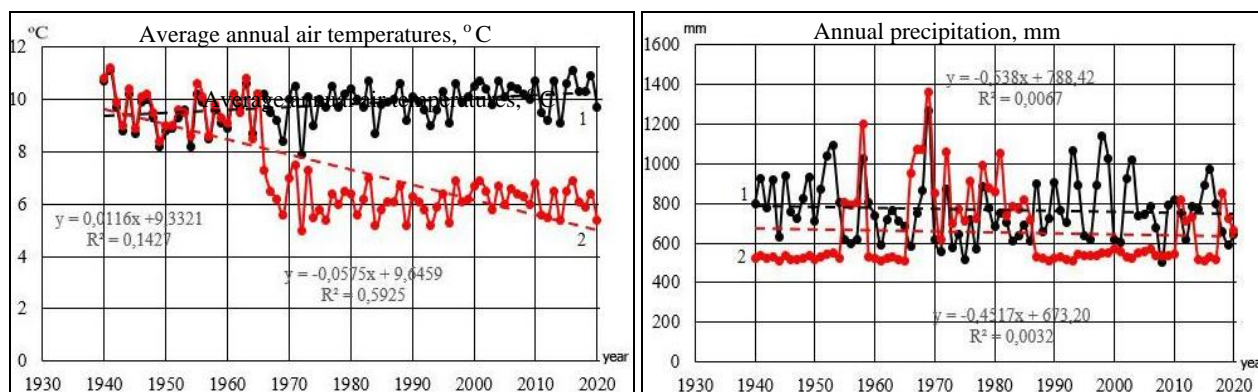


Figure 3. The trend of climate change in the forest-steppe and meadow steppe zone of the middle mountain of the Turkestan region (according to meteorological stations: 1. Tassaryk and 2. Shuyldak)

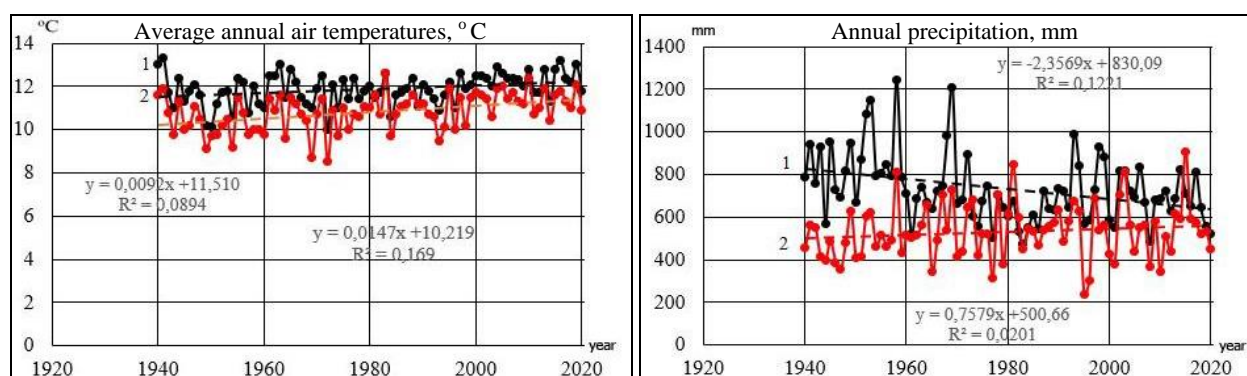


Figure 4. The trend of climate change in the steppe zone of low and middle mountains of the Turkestan region (according to meteorological stations: 1. T. Ryskulov and 2. Achisai)



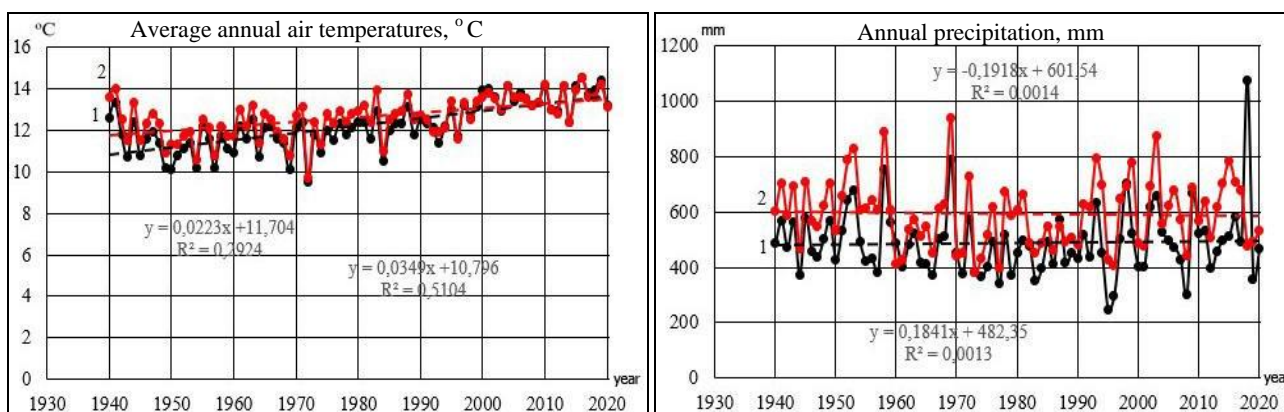


Figure 5. The trend of climate change in the semi-arid zone of foothills of the Turkestan region (according to meteorological stations: 1. Kazygurt and 2. Shymkent)

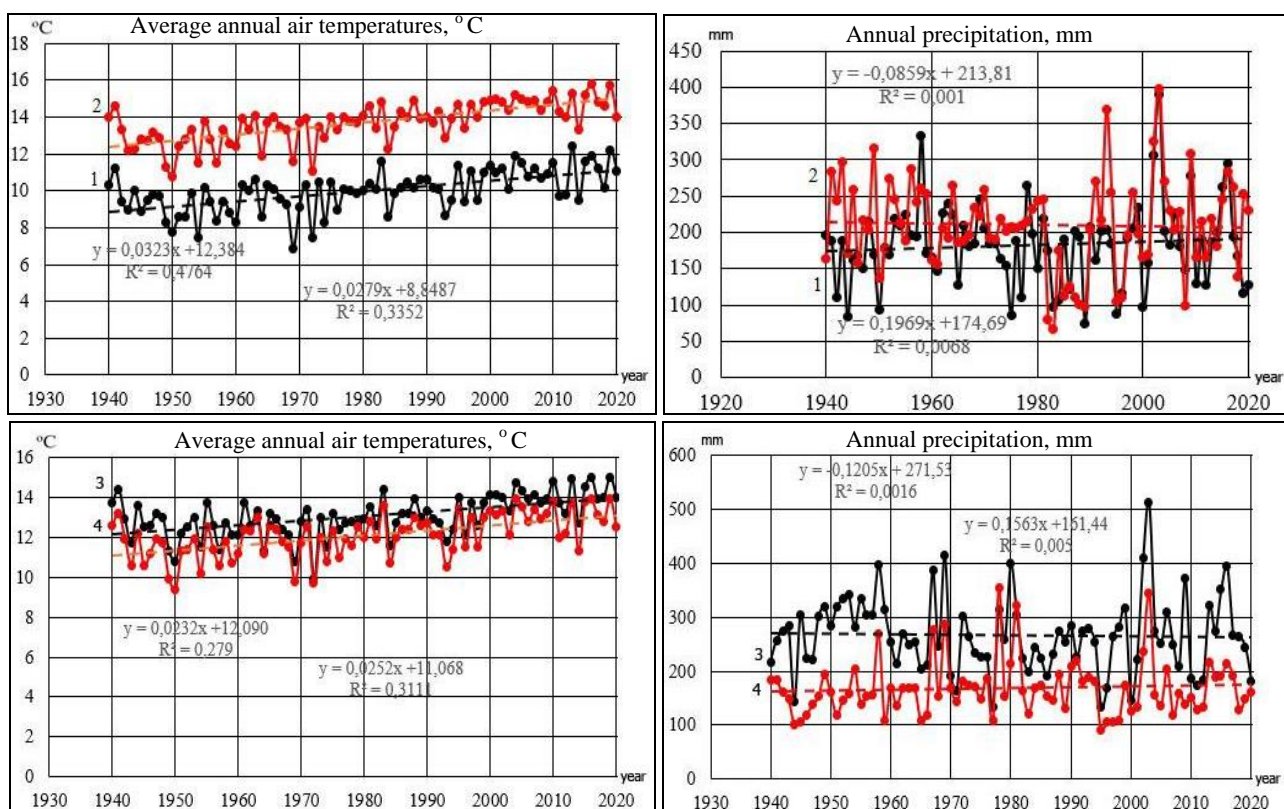


Figure 6. The trend of climate change in the arid zone of foothills, low and high plains of the Turkestan region (according to meteorological stations: 1. Sholakkorgan and 2. Shardara); (according to meteorological stations: 3. Arys and 4. Akkum)

An analysis of the dynamics of changes in climatic indicators (average annual air temperatures and annual precipitation) in the natural zones of the Turkestan region (for sixteen meteorological stations) showed that, despite their significant variability over the years, common patterns of climate change are observed in all natural zones. The most pronounced increase in air temperature, and the observed decrease in the amount of precipitation is noted at the meteorological stations Tassaryk, T. Ryskulov, Shymkent, Shardara, Bugen, Arys, Bayirkum and Tasty (Table 2).

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- in the forest-meadow steppe zone of mid-mountains, where the meteorological stations Shuyldak and Tassaryk are located, the changes in the average annual air temperatures were  $-4.64$  and  $0.93$  °C with an intensity of  $-0.057$  and  $0.011$  °C/year, and the change in the amount of annual precipitation was observed on the order of  $-43.04$  mm with an intensity of  $-0.53$  mm/year;
- in the steppe zone of low-hill terrain and midlands (meteorological stations Achisai and T. Ryskulov), the change in the average annual values of annual air temperatures was about  $1.18$  and  $0.74$  °C with an intensity of  $0.015$  and  $0.009$  °C/year, and the change in the amount of annual precipitation about  $61.63$  and  $-188.56$  mm with an intensity of  $0.760$  and  $-2.327$  mm/year;

- in the semi-arid zone of foothills (meteorological stations Shymkent and Kazygurt), the change in the average annual values of annual air temperatures was observed 1.86 and 2.79° C with an intensity of 0.023 and 0.034° C/year, and the change in the amount of annual precipitation was -15.36 and 14.72 mm with an intensity of -0.19 and 0.18 mm/year;
- in the arid zone of foothills, lowland and high plains (the territory of the location of 10 meteorological stations: Sholakkorgan, Shayan, Shardara, Bugen, Arys, Bayirkum, Turkestan, Tasty, Kyzylkum and Akkum), the change in the average annual values of annual air temperatures ranged from 1.86 to 2.63° C with an intensity of 0.023-0.032° C/year.

Table 2. Regression model of climate change on a spatio-temporal scale in the context of natural zones of the Turkestan region for 1940-2020 (Source: personal original data) (Note: -4.64 is a decrease rate)

| Natural area                                    | Weather station       | Indicators                           | Linear trend equation                | Change indicators | Growth rate |
|---|-----------------------|--------------------------------------|--------------------------------------|-------------------|-------------|
| Forest-meadow steppe zone of mid-mountains      | 1. Shuyldak           | $t_i, ^\circ\text{C}$                | $t_i = -0.058 \cdot n_i + 9.646$     | -4.64             | -93.8       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.538 \cdot n_i + 673.2$  | -43.04            | -6.84       |
|   | 2. Tassaryk           | $t_i, ^\circ\text{C}$                | $t_i = 0.0116 \cdot n_i + 9.3321$    | 0.93              | 9.03        |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.538 \cdot n_i + 788.4$  | -43.04            | -5.78       |
| Steppe zone of low-hill terrain and midlands    | 3. Achisai            | $t_i, ^\circ\text{C}$                | $t_i = 0.0147 \cdot n_i + 10.219$    | 1.18              | 10.31       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = 0.7579 \cdot n_i + 500.66$ | 61.63             | 10.97       |
|   | 4. T. Ryskulov        | $t_i, ^\circ\text{C}$                | $t_i = 0.0092 \cdot n_i + 11.510$    | 0.74              | 6.00        |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -2.357 \cdot n_i + 830.1$  | -188.56           | -29.50      |
| Semi-arid zone of foothills                     | 5. Shymkent           | $t_i, ^\circ\text{C}$                | $t_i = 0.0233 \cdot n_i + 11.7040$   | 1.86              | 13.71       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.192 \cdot n_i + 601.5$  | -15.36            | -2.62       |
|   | 6. Kazygurt           | $t_i, ^\circ\text{C}$                | $t_i = 0.0349 \cdot n_i + 10.796$    | 2.79              | 20.49       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = 0.184 \cdot n_i + 482.35$  | 14.72             | 2.96        |
| Arid zone of foothills, lowland and high plains | 7. Sholakkorgan       | $t_i, ^\circ\text{C}$                | $t_i = 0.0279 \cdot n_i + 8.8487$    | 2.23              | 20.10       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = 0.1969 \cdot n_i + 174.69$ | 15.75             | 8.26        |
|   | 8. Shayan             | $t_i, ^\circ\text{C}$                | $t_i = 0.0243 \cdot n_i + 11.4140$   | 1.94              | 14.52       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = 0.1667 \cdot n_i + 342.87$ | 13.34             | 3.74        |
|   | 9. Shardara           | $t_i, ^\circ\text{C}$                | $t_i = 0.0323 \cdot n_i + 12.3840$   | 2.58              | 17.23       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.086 \cdot n_i + 213.81$ | -6.88             | -3.33       |
|   | 10. Bugen             | $t_i, ^\circ\text{C}$                | $t_i = 0.0273 \cdot n_i + 11.5380$   | 2.18              | 15.88       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.109 \cdot n_i + 291.5$  | -8.72             | -3.08       |
|   | 11. Arys              | $t_i, ^\circ\text{C}$                | $t_i = 0.0232 \cdot n_i + 8.2529$    | 1.86              | 18.32       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.121 \cdot n_i + 271.5$  | -9.68             | -3.70       |
|   | 12. Bayirkum          | $t_i, ^\circ\text{C}$                | $t_i = 0.0276 \cdot n_i + 11.539$    | 2.21              | 16.03       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.1016 \cdot n_i + 256.1$ | -8.13             | -3.28       |
|   | 13. Turkestan         | $t_i, ^\circ\text{C}$                | $t_i = 0.0286 \cdot n_i + 11.402$    | 2.29              | 16.68       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = 0.1470 \cdot n_i + 201.52$ | 11.76             | 5.51        |
|   | 14. Tasty             | $t_i, ^\circ\text{C}$                | $t_i = 0.0329 \cdot n_i + 8.3778$    | 2.63              | 23.83       |
|   |                       | $O_{ci}, \text{mm}$                  | $O_{ci} = -0.330 \cdot n_i + 179.3$  | -26.40            | -17.30      |
| 15. Kyzylkum                                    | $t_i, ^\circ\text{C}$ | $t_i = 0.0241 \cdot n_i + 11.870$    | 1.93                                 | 13.95             |             |
|   | $O_{ci}, \text{mm}$   | $O_{ci} = 0.0814 \cdot n_i + 172.3$  | 6.51                                 | 3.64              |             |
| 16. Akkum                                       | $t_i, ^\circ\text{C}$ | $t_i = 0.0252 \cdot n_i + 11.0480$   | 2.02                                 | 15.40             |             |
|   | $O_{ci}, \text{mm}$   | $O_{ci} = 0.1563 \cdot n_i + 161.44$ | 12.50                                | 7.18              |             |

The trend of change in the amount of annual atmospheric precipitation in the areas where the meteorological stations Sholakkorgan, Shayan, Kyzylkum and Akkum are located was positive in the range from 6.51 to 15.75 mm with an intensity of 0.080 to 0.194 mm/year. In the areas where the meteorological stations Shardara, Bugen, Arys, Bayirkum and Tasty are located, a negative trend was observed in the change in the amount of annual precipitation from -6.88 to -26.40 mm with an intensity of -0.085 to -0.326 mm/year. The analysis of changes in climatic indicators in the natural zones of the Turkestan region showed that for 1940-2020 the growth rate of average annual air temperatures compared to the growth rate of annual precipitation is much higher (Table 2), which influences the formation of the environment-forming functions of natural systems. In the natural zones of the region, changes in climatic indicators can be observed, differing from each other in intensity, growth rates and direction, which affect the formation of the qualitative and quantitative state of all components of the natural system. Below is the mathematical model of the growth rates of climatic indicators developed by the authors, where  $\Delta T_t$  – growth rate of mean annual air temperatures;  $\Delta T_{Oc}$  – growth rate of annual atmospheric precipitation,  $m_{TOc}$  – coefficient of coincidence of climatic indicators:

- 1) if  $(-\Delta T_t)/(-\Delta T_{Oc}) = m_{TOc}$ , then in the forest-meadow steppe zone of mid-mountains, simultaneous decreases in the average annual air temperatures and annual precipitation will be observed, which will reduce its runoff-forming functions;
- 2) if  $(-\Delta T_t)/\Delta T_{Oc} = -m_{TOc}$ , then in the forest-meadow steppe zone of mid-mountains, the steppe zone of low-hill terrain and midlands, there will be a decrease in average annual air temperatures and an increase in the amount of annual precipitation, which will increase their runoff-forming functions and water supply;
- 3) if  $\Delta T_t/(-\Delta T_{Oc}) = -m_{TOc}$ , then in the forest-meadow steppe zone of mid-mountains, the steppe zone of low-hill terrain and midlands, there will be an increase in average annual air temperatures and a decrease in the amount of annual precipitation, which will affect the increase in runoff-forming functions and a decrease in water supply;

4) if  $\Delta T_t / \Delta T_{oc} = m_{toc} = 1.0$ , then in the steppe zone of low-hill terrain and midlands there will be a balanced increase or decrease in average annual air temperatures and the amount of annual precipitation, which will ensure the optimal flow of soil-forming processes in the natural system;

5) if  $\Delta T_t / \Delta T_{oc} = m_{toc} > 1.0$ , then in the forest-meadow steppe zone of mid-mountains, the steppe zone of low-hill terrain and midlands, there will be a decrease in average annual air temperatures and an increase in annual precipitation, which will provide a balanced combination of physicochemical and biochemical processes, which will contribute to accumulation of biological substances, and will allow organic and reliable integration with the components of the natural system;

6) if  $\Delta T_t / \Delta T_{oc} = m_{toc} < 1.0$ , then in the semi-arid zone of the foothills and the arid zone of foothills, lowland and high plains, an increase in average annual air temperatures and a decrease in precipitation will be observed, which will lead to a decrease in the ecological productivity of the vegetation cover and the intensity of the soil-forming process due to a decrease in natural water supply, which cause degradation of the natural system.

Thus, the climatic model of the natural system developed by us and the mathematical model of the growth rates of climatic indicators (average annual air temperatures and annual precipitation) in the natural zones of the Turkestan region have scientific and practical significance for recreational and agricultural nature management. The scientific significance of the developed climatic model of the natural system of the region, obtained on the basis of the equations of linear trends and the model of the growth rates of climatic indicators, lies in the ability to trace the causal relationship between the formation of various states of the natural systems in accordance with the laws of nature.

## CONCLUSION

Assessing the trend climate change (average annual air temperatures and annual precipitation) for 1940-2020, in the context of the natural zones of the Turkestan region, it was carried out on the basis of long-term information and analytical data on sixteen meteorological stations of the Kazgidromet RSE, which made it possible to perform all statistical calculations and build graphs of changes in climate indicators using a linear trend in the Microsoft program Excel 2010.

It is established that in all natural zones of the Turkestan region, there is an increase in average annual air temperatures. Average annual air temperatures in the region as a whole over the period under consideration (81 years) increased in all natural zones. The range of increase was from  $0.736^\circ\text{C}$  (steppe zone of low-hill terrain and midlands) to  $2.792^\circ\text{C}$  (semi-arid zone of foothills). There is also a decrease in annual precipitation at 9 meteorological stations out of 16 located in all natural zones of the Turkestan region. The range of decrease is from  $-6.88$  (arid zone of foothills, lowland and high plains) to  $-188.56$  mm (steppe zone of low-hill terrain and midlands).

It should be noted that the obtained climatic model of the natural system and the mathematical model of the growth rate of average annual air temperatures and the amount of annual precipitation in the context of the natural zones of the Turkestan region do not coincide in the direction and intensity of their development, which has a negative impact on the ecological and economic functions of the natural system of the Turkestan areas. The obtained results of the study enable economic entities, especially farms, to organize sustainable agricultural environmental management, and management bodies to develop plans for the development of recreational tourism in the Turkestan region of the Republic of Kazakhstan.

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## AN EVALUATION ON THE EXPLOITATION LEVEL OF TOURIST ATTRactions, CASE STUDY IN AN GIANG PROVINCE, VIETNAM

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**Abstract:** As one of the most important components of the tourism system, the evaluation of tourist attractions (TAs) is essential to the planning and exploitation of the tourism sector. This study aims to evaluate the exploitation level of TAs in the province of An Giang, which is in the west of Mekong Delta, Vietnam. In this study, the method of synthetic scoring with 8 evaluation indicators together with AHP techniques were used to evaluate total of 46 TAs in the province. The rated TAs will be classified into 5 groups with different levels of exploitation convenience. The results of the evaluation of An Giang's TAs reveal that the majority of them simply halt at the medium level of exploitation level. The TAs that located in the tourist area of Sam Mountain Goddess have a very favorable level of exploitation, and Sam Mountain Goddess temple is considered as the core of tourism in the province.

**Key words:** Exploitation level; tourist attractions; evaluation; An Giang province; Vietnam

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### INTRODUCTION

Tourist attractions (TAs) plays crucial role to local and international tourism and are the subject of multidisciplinary research (Pearce, 1998). According to Leiper (1990), a TA system is defined as an empirical connection of tourist, nucleus, and marker. Tourists are travelers or visitors seeking leisure-related experiences, which involve nuclear and marker elements. Nuclei are discussed in terms of a hierarchy, clusters, and their inviolate zones. Markers are analyzed in reference to an earlier model of tourism systems, and nine roles or functions of markers in attraction systems are identified. A TA comes into existence when three elements are connected (Leiper, 1990). TAs are an essential ingredient for successful tourism destination development (Hu and Wall, 2005). Attractions can be utilized to support, consolidate, and aid in the promotion of the tourism product at any level of tourism development (Walsh-Heron, 1990). The value of TAs has been acknowledged in a variety of ways. People are initially attracted to a place by its attractions (Aksöz and Çay, 2022; Swarbrooke and Page, 2012). TAs provide visuals and symbols for the public's depiction of locations (Leiper, 1990). Yale confirmed that tourism wouldn't exist or might look very different from what it does now without attractions of some variety (Yale, 1991).

Although the importance of TAs is readily recognized, tourism researchers and theorists have yet to fully come to terms with the assessment of TAs as phenomena with variety of aspects. Studies on TAs continue to confirm that a TA is a space containing many types of resources, which has the function of satisfying the needs of tourists. Based on this, many studies focus on analyzing aspects of TAs. A.M. O'Reilly places a greater emphasis on carrying capacity and space as a criterion in the evaluation of TAs, which has a direct impact on how they develop sustainable growth. Tue and Hoa (2017) illustrate that the evaluation of TAs should be conducted in a schematically because they are related to several indicators. From this point of view, many studies have initially established evaluation criteria related to TAs, such as tourism resources, carry capacity, linkage capacity, as well as establishing weights by level of importance (Bhat, 2012; López-Toro et al., 2010; Morgan and Lok, 2000; Nga, 2015; Zha et al., 2021). The aforementioned research has showed that evaluating TAs is a crucial step in the tourism's growth industry, and that the spatial development of tourism has strengthened into a fundamental characteristic of the TAs. In order to enable managers directly address pertinent criteria, the approach and

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assessment of TAs should be based on an integrated scale that reflects many characteristics of the TA. While the previous studies mainly evaluate some of aspects and propose weights of indicators mainly based on the level of subjective perception, the construction of a synthetic scale to evaluate many necessary indicators related to TAs is a practical requirement and merit further research. Based on those requirements, the article concentrates on developing an integrated rating scale for TAs assessment and applying it to the province of An Giang that located in the Mekong Delta and has many attractive and diverse TAs, with the following goals:

- (1) Creating a scientific foundation for the evaluation indicators;
- (2) Clarifying the findings of a specific assessment of TAs in An Giang.

## LITERATURE REVIEW

### Tourist attractions

As one of the most crucial components of the tourism system, TAs play a significant part in the development of the different factors that are favorable for modern tourism. According to Walsh-Heron (1990), a TA is defined based on the potential, as well as on the infrastructure and services that can meet the needs of visitors. The attraction must be managed and can be for-profit or non-profit. From this point of view, when approaching the assessment of TAs, it is necessary to pay attention to related aspects of TAs such as resources, infrastructure, services and factors associated with the economy (Walsh-Heron, 1990). Hu and Wall (2005) defined “a TA is a permanent resource, either natural or human-made, which is developed and managed for the primary purpose of attracting visitors”. This definition does not include transient attractions like festivals and events. Additionally, places of interest, like national parks and churches that are primarily run for preservation or religious reasons, are excluded. According to VisitEngland “An attraction where it is feasible to charge admission for the sole purpose of sightseeing. The attraction must be permanently established excursion destination, a primary purpose of which is to allow access for entertainment, interest, or education and can include places of worship (but excludes small parish churches); rather than being primary a retail outlet or a venue for sporting, theatrical, or film performances. It must be open to the public, without prior booking, for published periods each year, and should be capable of attracting day visitors or tourists as well as local residents. In addition, the attraction must be a single business, under a single management, so that it is capable of answering the economic questions on revenue, employment etc” (Fyall et al., 2022). This definition does create additional questions, such as the stipulation that a site must be able to charge an admission fee in order to be deemed a tourist attraction, as this may not account for expanding visitor motivations and exclude groups. For the classification of TAs, there have been many attempts to explain the multitude of forms in which TAs may manifest themselves with early classifications based on one- dimensional views relating to the features of the resource and original use of associated building (Boniface et al., 2020; McKercher, 2016). Classification of TAs explores the various influence and aspects on the development and management of an TA.

In Vietnam, Tue and Hoa (2017) suggest that a TA a location with a concentration of a particular resource (natural, historical, cultural, or socio-economic), a unique sort of tourism-related activity, or a modest combination of both. As a result, there are two sorts of TAs including potential TAs and real TAs (Tue and Hoa, 2017). From a macro - management perspective, Vietnam Tourism Law (2017) stipulates that a TA is a place where tourism resources are invested and exploited to serve tourists (Chapter I, Article 3) (National Assembly, 2017). Conditions to recognize TA include: (1) The appropriate infrastructure and services to accommodate tourists; (2) Data income; defined boundaries; and (3) Satisfy the legal requirements for security, order, social safety, and environmental preservation. According to this approach, attractions which are primarily managed for preservation or religious purposes (national park, church etc.) are included because these sites have the potential to attract tourists while providing related economic benefits outside of religious or historical factors. While the theory of research on TAs is limited to the kinds of TAs, this article focuses on analyzing TAs that are being bound by the Vietnam Tourism Law, and are exploited in practice in An Giang in order to assess the attractiveness and the exploitation capacity of the TAs.

### Tourist attractions evaluation

TA must be evaluated from a variety of perspectives because it is linked to several resource features and development-related issues. López-Toro (2010) analyses existing perceptions on the quality of Nerja as a tourist destination by using a measurement tool to specify and quantity perceived quality levels, and this study result highlights the importance of hotel services, the climate and the beauty of the landscape, and the friendliness of personnel towards customers (López-Toro et al., 2010). For TAs capacity, determining an attraction's social carrying capacity is problematic when considering the relationships among the multifaceted characteristics of users and the unique elements within specific locations, and in their research, a comfort indicator is proposed to determine user experiences within the context of an attraction's management objectives (Hoang et al., 2022; Morgan and Lok, 2000). Mikulić et al. (2016) evaluates factors influencing destination allure by using relevance-determinacy analysis and competitive-performance analysis. Liu's research suggests a way for classifying cultural tourism destinations based on the preferences of visitors, as revealed by their citywide travel patterns. Based on the significance of historical and modern aspects, a typology of cultural tourism attractions was established after cluster analysis revealed four categories (Liu et al., 2022). Numerous studies use tools to quantify aspects related to tourist attraction evaluation, such as the FCEM-AHP approach to measure tourist preferences (Wang et al., 2016); model LSTM to forecast the daily tourism volume of tourist attractions (Bi et al., 2020); model QAP (Quadratic Assignment Procedure) to explore the underlying mechanisms of tourist attraction network informed by tourist flows (Liu et al., 2017); model GIS and network analysis to identify the spatial structure of the tourist attraction system (Kang et al., 2018), and the LDA

(Latent Dirichlet Allocation) to determine the dimensions of tourist destination (Taecharungroj and Mathayomchan, 2019). These studies continue to demonstrate that the assessment of TAs is crucial and must be done from multiple viewpoints in order to analyze the elements associated with TAs in a multidimensional manner.

In summary, the evaluations of elements related to TAs receive considerable attention from researchers. The results of the evaluations confirm the significance of TAs for the economic development of the destination as well as the destination itself. While research has focused mostly on individual characteristics, TAs inherently comprise numerous interrelated factors. Therefore, the purpose of the overall evaluation is to determine the ease of exploitation of TAs.

## RESEARCH AREA AND METHODOLOGY

### Research area

An Giang Province is situated west of the Mekong Delta between the Tien and Hau rivers and shares a 100 km-long northern border with Cambodia. In addition, it shares borders with Kien Giang Province in the south-west, Dong Thap Province in the east, and Can Tho city in the south-east. Midland regions and low mountains make up the two main topographical categories in the Province. Many artifacts from the Oc Eo Civilization have been unearthed in the An Giang region. With the aforementioned benefits, An Giang develops becoming a desirable travel location, drawing both domestic and international travelers. According to official statistics, there were more than 9.2 million tourists overall in 2019, making An Giang one of the top two tourist destinations in the entire Mekong Delta. Eighty-seven percent of tourists who visited An Giang were domestic tourists (AGPC, 2020).

### Methodology

The synthetic scoring approach is used in the study to measure the TAs. The synthetic scoring system is applied in the following order based on integrating it with other complimentary research methods. The detail method process is shown in the Figure 1.

#### Step 1: Computing the number of analyzed TAs

According to Tue and Hoa, (2017), computing the number of analyzed TAs based on the regarding the idea

such (a) The number of TAs to be included in the determination is based on the value of resources, the current development status, and the ability to exploit in the future; (b) The TAs must represent the type of tourism resources and products; and (c) The TAs must reflect the level of tourism exploitation and development in An Giang province. Due to these restrictions and the extent of the study region, the study is limited to 46 TAs (Table 10), which contain a range of kinds and rated historical and cultural resources, craft villages; beautiful locales; and ethnographic subjects. Also, in this study, the method will omit TAs with below medium attractiveness, which are less likely to be exploited (Nga, 2015).

#### Step 2: Establishing a set of standards for evaluation indicators

The study employs a synthetic scoring method with 8 evaluation indicators, including: (1). Attractiveness (2). Infrastructure and facilities; 3). Operating time (4). Location and accessibility; (5). Likability, (6). Management hierarchy; (7). Capacity, and (8) Environment to assess the TAs system in An Giang province. Tables 1 and Table 2 provide more information on the indicators - criterion and evaluation indicators levels.

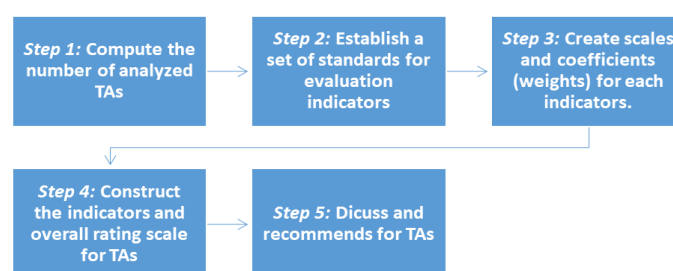


Figure 1. Research process

Table 1. Indicator and criteria of evaluating scale

|   | Indicators                    | Coded | Criteria (Variables)  | Sources   |
|---|-------------------------------|-------|---|---|
| 1 | Attractiveness                | C1    | <ul style="list-style-type: none"> <li>Landscapes with natural ingredients</li> <li>Cultural and historical sites, craft villages, festivals etc.</li> <li>Type of tourism</li> </ul> | Cracolici and Nijkamp, (2009)<br>Mikulić et al., (2016).  |
| 2 | Infrastructure and facilities | C2    | <ul style="list-style-type: none"> <li>The extent of the access road's destruction</li> <li>Accommodations</li> <li>Number of Tourists</li> <li>Communication standard</li> </ul>     | Fafurida et al., (2018)   |
| 3 | Operating time                | C3    | <ul style="list-style-type: none"> <li>Operating time</li> <li>Good time for health (average day temperature 180)</li> </ul>  | Sirakaya-Turk and Woodside, (2005)<br>C. Hall, (2005); Tue and Hoa, (2017)                            |
| 4 | Location and accessibility    | C4    | <ul style="list-style-type: none"> <li>Distance from TA to administrative centre (km)</li> <li>Number of vehicles</li> <li>Approach time</li> </ul>                                   | Hooper, (2015); Reitsamer and Brunner-Sperdin, (2017). Marrocu and Paci (2011) ; Hadad et al., (2012) |
| 5 | Likability                    | C5    | <ul style="list-style-type: none"> <li>Number of TAs at least within a radius of 10 km</li> <li>Means of Transport</li> </ul>   | Anderson and Gerbing (1988)<br>Nga, (2015)  |
| 6 | Management                    | C6    | <ul style="list-style-type: none"> <li>Management board</li> <li>Management plan</li> </ul>   | Kreitner, (2005).   |
| 7 | Capacity                      | C7    | <ul style="list-style-type: none"> <li>Number of tourists per day</li> <li>Number of tourists per year</li> </ul>   | Toubes et al., (2021); Butler, (2019); O'Reilly, (1986)   |
| 8 | Environment                   | C8    | <ul style="list-style-type: none"> <li>Natural environment</li> <li>Cultural environment</li> <li>Tourism environments</li> </ul>   | UNWTO, (2003)   |

Table 2. The evaluation indicators levels of TAs in An Giang province, Vietnam

| Indicators                         | Criteria  | Levels  |  |  |   |   |
|------------------------------------|---|---|--|--|---|---|
|                                    |   | (1)   | (2)  | (3)  | (4)   | (5)   |
| Attractiveness (C1)                | For natural tourism resources                                   | <b>Very attractive</b><br>The landscape is very beautiful, very unique with a variety of natural ingredients or at least one natural element that has received World Natural Heritage.                        | <b>Attractive</b><br>The landscape is quite beautiful, with a variety of natural ingredients, or at least one natural element that has received National Natural Heritage.                       | <b>Medium</b><br>The landscape is quite monotonous with 2-3 natural ingredients.   | <b>Less attractive</b><br>Landscape, monotonous with 1-2 natural ingredients.   | <b>Very unattractive</b><br>The landscape is very monotonous with a natural ingredients.  |
|                                    |   | For cultural tourism resources  | Cultural and historical sites, craft villages, festivals etc. with unique characteristics or having at least 1 site recognized The World Cultural Heritage; can exploit over 5 types of tourism. | Cultural and historical sites, craft villages, festivals etc. are quite unique or having at least 1 site recognized at the Special National Site; can exploit 3-4 types of tourism.        | Cultural and historical sites, craft villages, festivals etc. are quite small in scale or having at least 1 site recognized at the Provincial site; can exploit 1-2 types of tourism. | Cultural and historical sites, craft villages, festivals are small-scale, not yet recognized at all levels; can exploit 1-2 types of tourism. |
| Infrastructure and facilities (C2) |   | <b>Very good</b>  | <b>Good</b>  | <b>Average</b>   | <b>Poor</b>   | <b>Very poor</b>  |
|                                    | The extent of the access road's destruction                     | No  | No   | Some sections of the road but not much impact  | Significant damage  | Severe damage, difficult to access TAs  |
|                                    | Accommodat-ions   | > 3 stars hotel   | 2 stars hotel  | 1 star hotel   | Hostel  | Motel   |
|                                    | Number of Tourists  | > 500 tourists per day  | 300 to <500 tourists per day   | 100 to <300 tourists per day   | 50 to <100 tourists per day   | <50 tourists per day  |
|                                    | Communication standard  | International   | National   | Local  | Local   | Local   |
| Operating time (C3)                |   | <b>Very long</b>  | <b>Long</b>  | <b>Medium</b>  | <b>Short</b>  | <b>Very short</b>   |
|                                    | Operating time  | > 250 days  | 201 to 250 days  | 151 to 200 days  | 101 to 150 days   | < 100 days  |
|                                    | Good time for health (average day temperature 18 <sup>0</sup> ) | >230 days   | 180-229 days   | 120-179 days   | 90-119 days   | <90 days  |
| Location and accessibility (C4)    |   | <b>Very advantage</b>   | <b>Advantage</b>   | <b>Medium</b>  | <b>Unfavourable</b>   | <b>Very unfavourable</b>  |
|                                    | Distance from TA to administrative centre (km)                  | <10km   | 10 to 30km   | 31 to 50km   | 51 to 70km  | >70km   |
|                                    | Number of vehicles  | >3  | 3  | 2  | 1   | 1   |
|                                    | Approach time   | <30 minutes   | 30 to 60 minutes   | 60 to 90 minutes   | 90 to 120 minutes   | >120minutes   |
| Likability (C5)                    |   | <b>Very high</b>  | <b>High</b>  | <b>Medium</b>  | <b>Low</b>  | <b>Very low</b>   |
|                                    | Number of TAs at least within a radius of 10 km                 | >5 TAs  | 4 TAs  | 3 TAs  | 2 TAs   | 1 TAs   |
|                                    | Transport   | Highway   | Highway  | Provincial road  | District road   | Commune road  |
| Management (C6)                    |   | <b>Very efficient</b>   | <b>Efficient</b>   | <b>Fair</b>  | <b>Bad</b>  | <b>Very bad</b>   |
|                                    | Management board  | A private Management Board is in charge of all relevant departments, including those operators, guides, lodging, meals, and souvenirs and for self-security, resource protection, and environmental cleaning. | A management board that is shared by the management boards of monuments, landscapes, and cooperative communes.   | No specific Management Board; management agencies at all levels oversee TAs and have personnel to monitor on tourism-related activities, environmental sanitation, and natural protection. | No single Management Board; management agencies at all levels oversee the region's popular tourism attractions.   | No management board, management activities are less focused.  |
|                                    | Management plan   | There are a full range of management plans and are applied systematically and regularly   | There are a large number of management options for a number of key segment areas and are applied   | There are a large number of management options for a number of key segment areas and are applied   | Limit the options and extent of application in practice.  | There are almost no management options.   |

| Capacity (C7)        |  | Very high  | High  | Medium  | Low   | Very low  |
|----------------------|--|--|---|---|---|---|
|                      | Number of tourists per day                               | >500   | 301 – 500   | 201 – 300   | 101 – 200   | < 100   |
|                      | Number of tourists per year                              | >100.000   | 50.000-100.000  | 10.000-50.000   | 5.000-10.000  | <5.000  |
| Environment (C8)     |  | Very good  | Good  | Average   | Bad   | Very bad  |
|                      | Natural environment                                      | Fresh, unpolluted.   | Fresh, less polluted.   | A risk of contamination.  | Some components (air, water, etc.) are contaminated.                  | Severely contaminated.  |
|                      | Cultural environment                                     | Cultural values and customs are preserved intact, no social evils.   | Cultural values and customs are preserved almost intact, with few social evils. | Some cultural values and customs are lost, social evils increase. | Cultural values and customs are less preserved, social evils increase | Cultural values and customs are almost not preserved, social evils are common |
| Tourism environments | There is no situation of pulling, chopping, begging etc. | There is very little situation of tug-of-war, chopping, begging etc. | Situations of tug-of-war, guillotine, begging etc. are quite common.            | Situations of pulling, chopping, begging etc. are common.         | Situations of tug-of-war, guillotine, begging etc. are very common.   |   |

Table 3. Interview informants

|   | Interviewee        | Organization   | Date of interview |
|---|--------------------|--|-------------------|
| 1 | Government officer | An Giang Tourism officer   | Mar, 2021         |
| 2 | Government officer | An Giang Tourism promotion Center                                      | Mar, 2021         |
| 3 | Government officer | Mekong Delta Tourism Association (MDTA)                                | Mar, 2021         |
| 4 | Researcher         | An Giang university  | August, 2021      |
| 5 | Private business   | Manager of Saigon Tourist, brand in Long Xuyen City, An Giang province | August, 2021      |
| 6 | Researcher         | An Giang university  | February, 2022    |
| 7 | Government officer | Chau Doc city People's Committee                                       | Apr, 2022         |
| 8 | Private business   | Manager of Viettravel, brand in Long Xuyen City, An Giang province     | Apr, 2022         |

### Step 3: Creating measurement scales and coefficients (weights) for each indicator.

The study develops the corresponding weights for the indicators based on combining with the AHP method's outcomes. Study conducted a survey of 8 experts (Table 3), focusing on 2 issues:

- Rank the priority of the indicators.
- Evaluate and score each pair of factors

according to (Saaty and Vargas, 2012)

The study summarizes the findings from the interviews and uses the average approach to determine the relative importance of each pair of indicators. From the results of the priority summation, the study conducted a pairwise comparison matrix. Details of the outcomes of the pairwise comparison matrix's indicator's priority processing are displayed in Table 4. Based on the results of prioritization, the study carried out the analysis of weights and consistency indexes. The results are presented as follows Table 5. The weight will be multiplied by the indicators to determine the value at each level. The weight vectors of the indicators are rearranged in the manner shown below.

The table shows that the attractiveness and infrastructure and facilities factors are the most crucial and valuable when compared to other indicators. The group of management ability, environment, and linkage indicators is quite significant. Location and accessibility, capacity, and operating time make up the last category of characteristics that are less significant.

One of the important calculations to determine the homogeneity of applied research AHP is the Consistency Ratio (CR). CR is a metric used to evaluate the scale's consistency. The formula used to determine the consistency ratio (CR) is:

$$CR = CI / RI \text{ Where: RI (random index) is determined from the Table 7.}$$

The AHP method measures consistency through the consistency ratio (CR). The value of CR should be  $\leq 0.1$ , and component  $CI < 10$  (Saaty and Vargas, 2012). If greater, the assessment is random, and needs to be repeated. Based on the values of CI (Table 5) and RI (Table 7), CR is calculated as follows:  $CR = 0.05/1.41=0.039$  Therefore, the weighted values provide consistency and the data fits the indicators for analysis with  $CR < 0.1$  and component  $CI < 10$  (Table 5).

Table 4. Pairwise comparisons (Source: Result of Analyzing AHP, 2021)

| Variables | C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8  |
|-----------|------|------|------|------|------|------|------|-----|
| C1        | 1    | 1    | 5    | 4    | 3    | 1    | 3    | 3   |
| C2        | 1    | 1    | 3    | 5    | 2    | 2    | 2    | 1   |
| C3        | 0.2  | 0.33 | 1    | 1    | 0.5  | 0.5  | 0.5  | 0.5 |
| C4        | 0.25 | 0.2  | 1    | 1    | 1    | 0.5  | 2    | 0.5 |
| C5        | 0.33 | 0.5  | 2    | 1    | 1    | 0.5  | 2    | 0.5 |
| C6        | 1    | 0.5  | 2    | 2    | 2    | 1    | 4    | 1   |
| C7        | 0.33 | 0.5  | 2    | 0.5  | 0.5  | 0.25 | 1    | 0.5 |
| C8        | 0.33 | 1    | 2    | 2    | 2    | 1    | 2    | 1   |
| Total     | 4.5  | 5.0  | 18.0 | 16.5 | 12.0 | 6.75 | 16.5 | 8.0 |

Table 5. Pairwise comparisons matrix analysis result (Source: Result of Analyzing AHP, 2021)

| Variables | C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | Total | Weight   | CI   |
|-----------|------|------|------|------|------|------|------|------|-------|----------|------|
| C1        | 0.22 | 0.20 | 0.28 | 0.24 | 0.25 | 0.15 | 0.18 | 0.38 | 1.90  | 0.24     | 8.40 |
| C2        | 0.22 | 0.20 | 0.17 | 0.30 | 0.17 | 0.30 | 0.12 | 0.13 | 1.60  | 0.20     | 8.44 |
| C3        | 0.04 | 0.07 | 0.06 | 0.06 | 0.04 | 0.07 | 0.03 | 0.06 | 0.44  | 0.05     | 8.39 |
| C4        | 0.06 | 0.04 | 0.06 | 0.06 | 0.08 | 0.07 | 0.12 | 0.06 | 0.55  | 0.07     | 8.42 |
| C5        | 0.07 | 0.10 | 0.11 | 0.06 | 0.08 | 0.07 | 0.12 | 0.06 | 0.69  | 0.09     | 8.35 |
| C6        | 0.22 | 0.10 | 0.11 | 0.12 | 0.17 | 0.15 | 0.24 | 0.13 | 1.24  | 0.15     | 8.42 |
| C7        | 0.07 | 0.10 | 0.11 | 0.03 | 0.04 | 0.04 | 0.06 | 0.06 | 0.52  | 0.06     | 8.28 |
| C8        | 0.07 | 0.20 | 0.11 | 0.12 | 0.17 | 0.15 | 0.12 | 0.13 | 1.07  | 0.13     | 8.37 |
| Total     | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  | 1.0  |       | CI= 0.05 |      |



**Step 4: Constructing the indicators and overall rating scale for TAs**

The component evaluation scale comprises eight indicators on a five-step scale (from 1 to 5) with scores ranging from 5, 4, 3, 2, 1 for the highest to the lowest level. The score of the component evaluation is the score of The AHP creates the order by multiplying the weight (Table 8). The study summarizes and categorizes TAs into 5 tiers after assessing the component indicators (from I to V). The following formula will be used to generate the composite score from the indicator

$$X = \sum_{i=1}^n X_i * W_i$$

$$S = \frac{S_{max} - S_{min}}{B}$$

component score: Including:  $X$ : composite score;  $W_i$ : weight of indicators;  $X_i$ : score of indicators;  $i=1 \rightarrow n$ ;  $n$ : number of indicators

To evaluate the accessibility of TAs, the study applies the following formula from Arman (1975):

Including:  $S_{max}$ : maximum value;  $S_{min}$ : minimum value;  $B$ : number of classification

Source: (Arman,1975 cited in Nga, 2015)

Table 6. The weight of the indicators (Source: Result of analyzing AHP, 2021)

| TT | Indicators                     | Weight      |
|----|--------------------------------|-------------|
| 1  | Attractiveness                 | <b>0.24</b> |
| 2  | Infrastructure and facility    | <b>0.20</b> |
| 3  | Operating time                 | <b>0.05</b> |
| 4  | Location and accessibility     | <b>0.07</b> |
| 5  | Likability                     | <b>0.09</b> |
| 6  | Management                     | <b>0.15</b> |
| 7  | Capacity                       | <b>0.06</b> |
| 8  | Environment and sustainability | <b>0.13</b> |

Table 7. Random Index Classification (RI) (Source: Saaty and Vargas, 2012)

| n  | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
|----|------|------|------|------|------|------|------|------|
| RI | 0.58 | 0.90 | 1.12 | 1.24 | 1.32 | 1.41 | 1.45 | 1.49 |

(Note: n is the number of elements in the comparison matrix)

The composite score is the total of the weighted indicators scores, where 1 is the lowest value and 5 is the highest. There is a 0.8 difference between each rank in the composite score. As a result, the overall score will be categorized using the Table 9.

Table 9. Exploitation level classification of TAs

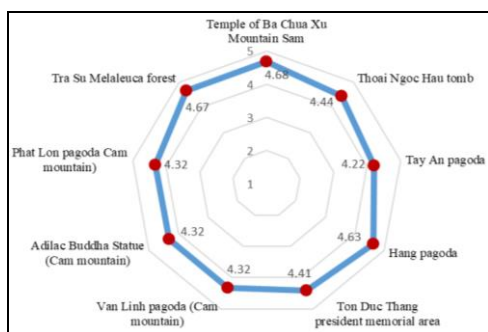
| STT | Evaluation levels                | Scores           | Rank |
|-----|----------------------------------|------------------|------|
| 1   | TAs with very advantage level    | ***** 4.21 – 5.0 | I    |
| 2   | TAs with advantage level         | **** 3.41 – 4.2  | II   |
| 3   | TAs with medium level            | *** 2.61– 3.4    | III  |
| 4   | TAs with disadvantage level      | ** 1.81 – 2.6    | IV   |
| 5   | TAs with very disadvantage level | * 1.0 – 1.8      | V    |

**RESULTS AND DISCUSSION**

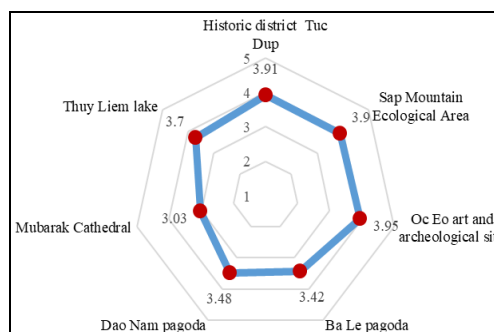
The following table (Table 10) displays the findings of the overall evaluation of TAs in the province. The information in the table demonstrates the four levels of classification for the province of An Giang's tourism attractions. Temple of Sam Mountain Goddess has the greatest rating (4.68), while Bung Binh Thien has the lowest rating (2.06). The following model is used to fit the aforementioned results to the normalized Radar charts:

Table 8. The indicators rating scale

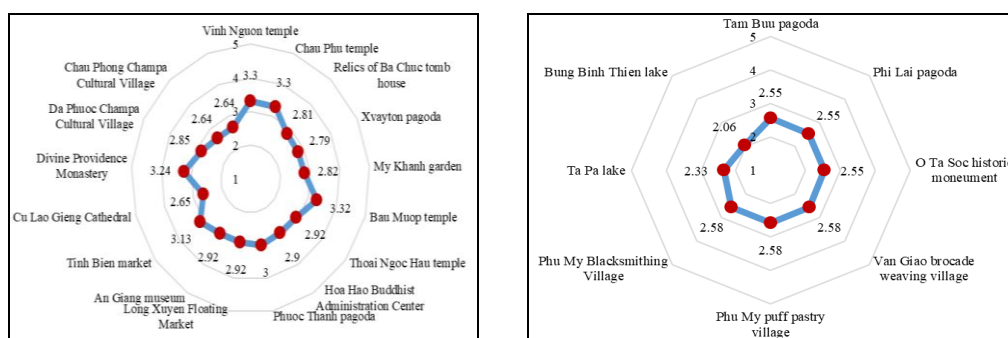
| TT | Indicators                  | Level             | Score | Weight      | Evaluation scores |
|----|-----------------------------|-------------------|-------|-------------|-------------------|
| 1  | Attractiveness              | Very attractive   | 5     | <b>0.24</b> | <b>1.2</b>        |
|    |                             | Attractive        | 4     |             | <b>0.96</b>       |
|    |                             | Medium            | 3     |             | <b>0.72</b>       |
|    |                             | Less attractive   | 2     |             | <b>0.48</b>       |
|    |                             | Very unattractive | 1     |             | <b>0.24</b>       |
| 2  | Infrastructure and facility | Very good         | 5     | <b>0.20</b> | <b>1</b>          |
|    |                             | Good              | 4     |             | <b>0.8</b>        |
|    |                             | Average           | 3     |             | <b>0.6</b>        |
|    |                             | Bad               | 2     |             | <b>0.4</b>        |
|    |                             | Very bad          | 1     |             | <b>0.2</b>        |
| 3  | Management                  | Very efficient    | 5     | <b>0.15</b> | <b>0.75</b>       |
|    |                             | Efficient         | 4     |             | <b>0.6</b>        |
|    |                             | Fair              | 3     |             | <b>0.45</b>       |
|    |                             | Bad               | 2     |             | <b>0.3</b>        |
|    |                             | Very bad          | 1     |             | <b>0.15</b>       |
| 4  | Environment                 | Very good         | 5     | <b>0.13</b> | <b>0.65</b>       |
|    |                             | Good              | 4     |             | <b>0.52</b>       |
|    |                             | Average           | 3     |             | <b>0.39</b>       |
|    |                             | Bad               | 2     |             | <b>0.26</b>       |
|    |                             | Very bad          | 1     |             | <b>0.13</b>       |
| 5  | Likability                  | Very high         | 5     | <b>0.09</b> | <b>0.45</b>       |
|    |                             | High              | 4     |             | <b>0.36</b>       |
|    |                             | Medium            | 3     |             | <b>0.27</b>       |
|    |                             | Low               | 2     |             | <b>0.18</b>       |
|    |                             | Very low          | 1     |             | <b>0.09</b>       |
| 6  | Location and accessibility  | Very advantage    | 5     | <b>0.07</b> | <b>0.35</b>       |
|    |                             | Advantage         | 4     |             | <b>0.28</b>       |
|    |                             | Medium            | 3     |             | <b>0.21</b>       |
|    |                             | Unfavorable       | 2     |             | <b>0.14</b>       |
|    |                             | Very unfavorable  | 1     |             | <b>0.07</b>       |
| 7  | Capacity                    | Very large        | 5     | <b>0.06</b> | <b>0.3</b>        |
|    |                             | Large             | 4     |             | <b>0.24</b>       |
|    |                             | Medium            | 3     |             | <b>0.18</b>       |
|    |                             | Small             | 2     |             | <b>0.12</b>       |
|    |                             | Tiny              | 1     |             | <b>0.06</b>       |
| 8  | Operating time              | Very long         | 5     | <b>0.05</b> | <b>0.25</b>       |
|    |                             | Long              | 4     |             | <b>0.2</b>        |
|    |                             | Medium            | 3     |             | <b>0.15</b>       |
|    |                             | Short             | 2     |             | <b>0.1</b>        |
|    |                             | Very short        | 1     |             | <b>0.05</b>       |



(I) - Excellent level of exploitation



(II)- Favorite level of exploitation



(III)- Medium level of exploitation

(IV)- Less attractive level of exploitation

Figure 2. The group of TAs with levels of exploitation

Table 10. The overall evaluation of TAs in An Giang province (with weight)

| TT                               | TAs                                    | Indicators |     |      |      |      |      |      |      | Total       | Rank       |
|----------------------------------|--|------------|-----|------|------|------|------|------|------|-------------|------------|
|                                  |  | C1         | C2  | C3   | C4   | C5   | C6   | C7   | C8   |             |            |
| <b>I. Historical sites</b>       |  |            |     |      |      |      |      |      |      |             |            |
| 1                                | Temple of Sam Mountain Goddess         | 1.2        | 1   | 0.75 | 0.52 | 0.45 | 0.21 | 0.3  | 0.25 | <b>4.68</b> | <b>I</b>   |
| 2                                | Thoi Ngoc Hau tomb                     | 0.96       | 1   | 0.75 | 0.52 | 0.45 | 0.21 | 0.3  | 0.25 | <b>4.44</b> | <b>I</b>   |
| 3                                | Tay An pagoda                          | 1.2        | 0.8 | 0.6  | 0.52 | 0.45 | 0.21 | 0.24 | 0.2  | <b>4.22</b> | <b>I</b>   |
| 4                                | Hang pagoda                            | 1.2        | 1   | 0.75 | 0.52 | 0.45 | 0.21 | 0.3  | 0.2  | <b>4.63</b> | <b>I</b>   |
| 5                                | Vinh Nguon temple                      | 0.96       | 0.6 | 0.45 | 0.39 | 0.36 | 0.21 | 0.18 | 0.15 | <b>3.30</b> | <b>III</b> |
| 6                                | Chau Phu temple                        | 0.96       | 0.6 | 0.45 | 0.39 | 0.36 | 0.21 | 0.18 | 0.15 | <b>3.30</b> | <b>III</b> |
| 7                                | Historic district Tuc Dup              | 0.96       | 0.8 | 0.75 | 0.65 | 0.18 | 0.14 | 0.24 | 0.2  | <b>3.91</b> | <b>II</b>  |
| 8                                | Relics of Ba Chuc tomb house           | 0.72       | 0.6 | 0.45 | 0.39 | 0.18 | 0.14 | 0.18 | 0.15 | <b>2.81</b> | <b>III</b> |
| 9                                | Tam Buu pagoda                         | 0.72       | 0.6 | 0.3  | 0.39 | 0.18 | 0.14 | 0.12 | 0.1  | <b>2.55</b> | <b>IV</b>  |
| 10                               | Phi Lai pagoda                         | 0.72       | 0.6 | 0.3  | 0.39 | 0.18 | 0.14 | 0.12 | 0.1  | <b>2.55</b> | <b>IV</b>  |
| 11                               | O Ta Soc historic monument             | 0.72       | 0.4 | 0.15 | 0.14 | 0.18 | 0.45 | 0.12 | 0.39 | <b>2.55</b> | <b>IV</b>  |
| 12                               | Xvayton pagoda                         | 0.96       | 0.4 | 0.45 | 0.39 | 0.18 | 0.14 | 0.12 | 0.15 | <b>2.79</b> | <b>III</b> |
| 13                               | Ton Duc Thang president memorial area  | 1.2        | 0.8 | 0.75 | 0.52 | 0.36 | 0.28 | 0.3  | 0.2  | <b>4.41</b> | <b>I</b>   |
| 14                               | My Khanh garden                        | 0.72       | 0.6 | 0.45 | 0.39 | 0.18 | 0.21 | 0.12 | 0.15 | <b>2.82</b> | <b>III</b> |
| 15                               | Van Linh pagoda (Cam Mountain)         | 1.2        | 1   | 0.6  | 0.52 | 0.36 | 0.14 | 0.3  | 0.2  | <b>4.32</b> | <b>I</b>   |
| 16                               | Adilac Buddha Statue (Cam Mountain)    | 1.2        | 1   | 0.6  | 0.52 | 0.36 | 0.14 | 0.3  | 0.2  | <b>4.32</b> | <b>I</b>   |
| 17                               | Phat Lon pagoda Cam Mountain)          | 1.2        | 1   | 0.6  | 0.52 | 0.36 | 0.14 | 0.3  | 0.2  | <b>4.32</b> | <b>I</b>   |
| 18                               | Bau Muop temple                        | 0.72       | 0.6 | 0.6  | 0.52 | 0.36 | 0.14 | 0.18 | 0.2  | <b>3.32</b> | <b>III</b> |
| 19                               | Sap Mountain Ecological Area           | 0.96       | 0.8 | 0.6  | 0.52 | 0.36 | 0.28 | 0.18 | 0.2  | <b>3.90</b> | <b>II</b>  |
| 20                               | Oc Eo art and archeological site       | 0.96       | 0.8 | 0.75 | 0.52 | 0.27 | 0.21 | 0.24 | 0.2  | <b>3.95</b> | <b>II</b>  |
| 21                               | Thoi Ngoc Hau temple                   | 0.72       | 0.6 | 0.45 | 0.39 | 0.27 | 0.28 | 0.06 | 0.15 | <b>2.92</b> | <b>III</b> |
| 22                               | Hoa Hao Buddhist Administration Center | 0.72       | 0.6 | 0.45 | 0.39 | 0.27 | 0.14 | 0.18 | 0.15 | <b>2.90</b> | <b>III</b> |
| 23                               | Phuoc Thanh pagoda                     | 0.72       | 0.6 | 0.45 | 0.39 | 0.36 | 0.21 | 0.12 | 0.15 | <b>3.00</b> | <b>III</b> |
| 24                               | Ba Le pagoda                           | 0.96       | 0.6 | 0.45 | 0.52 | 0.36 | 0.21 | 0.12 | 0.2  | <b>3.42</b> | <b>II</b>  |
| 25                               | Dao Nam pagoda                         | 0.96       | 0.6 | 0.45 | 0.52 | 0.36 | 0.21 | 0.18 | 0.2  | <b>3.48</b> | <b>II</b>  |
| 26                               | Mubarak Cathedral                      | 0.72       | 0.6 | 0.45 | 0.52 | 0.27 | 0.14 | 0.18 | 0.15 | <b>3.03</b> | <b>III</b> |
| <b>II. Ethnographic subjects</b> |  |            |     |      |      |      |      |      |      |             |            |
| 27                               | Long Xuyen Floating Market             | 0.72       | 0.6 | 0.3  | 0.39 | 0.36 | 0.28 | 0.12 | 0.15 | <b>2.92</b> | <b>III</b> |
| 28                               | An Giang museum                        | 0.72       | 0.6 | 0.45 | 0.39 | 0.36 | 0.28 | 0.18 | 0.15 | <b>3.13</b> | <b>III</b> |
| 29                               | Tinh Bien market                       | 0.72       | 0.4 | 0.45 | 0.26 | 0.36 | 0.07 | 0.24 | 0.15 | <b>2.65</b> | <b>III</b> |
| 30                               | Cu Lao Gieng Cathedral                 | 0.72       | 0.6 | 0.45 | 0.52 | 0.36 | 0.21 | 0.18 | 0.2  | <b>3.24</b> | <b>III</b> |
| 31                               | Divine Providence Monastery            | 0.72       | 0.6 | 0.3  | 0.39 | 0.36 | 0.21 | 0.12 | 0.15 | <b>2.85</b> | <b>III</b> |
| 32                               | Da Phuoc Champa Cultural Village       | 0.72       | 0.4 | 0.45 | 0.39 | 0.27 | 0.14 | 0.12 | 0.15 | <b>2.64</b> | <b>III</b> |
| 33                               | Chau Phong Champa Cultural Village     | 0.72       | 0.4 | 0.45 | 0.39 | 0.27 | 0.14 | 0.12 | 0.15 | <b>2.64</b> | <b>III</b> |
| <b>III. Craft villages</b>       |  |            |     |      |      |      |      |      |      |             |            |
| 34                               | Chau Doc raft village                  | 0.72       | 0.6 | 0.45 | 0.39 | 0.36 | 0.14 | 0.18 | 0.15 | <b>2.99</b> | <b>III</b> |
| 35                               | Van Giao brocade weaving village       | 0.72       | 0.4 | 0.3  | 0.39 | 0.36 | 0.14 | 0.12 | 0.15 | <b>2.58</b> | <b>IV</b>  |
| 36                               | Phu My puff pastry village             | 0.72       | 0.4 | 0.45 | 0.39 | 0.27 | 0.14 | 0.06 | 0.15 | <b>2.58</b> | <b>IV</b>  |
| 37                               | Phu My Blacksmithing Village           | 0.72       | 0.4 | 0.45 | 0.39 | 0.27 | 0.14 | 0.06 | 0.15 | <b>2.58</b> | <b>IV</b>  |
| 38                               | Long Dien Carpentry Village            | 0.72       | 0.4 | 0.45 | 0.39 | 0.27 | 0.21 | 0.18 | 0.15 | <b>2.77</b> | <b>III</b> |
| 39                               | Chau Giang Brocade Weaving Village     | 0.72       | 0.6 | 0.45 | 0.39 | 0.27 | 0.14 | 0.12 | 0.15 | <b>2.84</b> | <b>III</b> |
| <b>IV. Landscape, ecology</b>    |  |            |     |      |      |      |      |      |      |             |            |
| 40                               | Tra Su Melaleuca forest                | 1.2        | 1   | 0.75 | 0.65 | 0.36 | 0.21 | 0.3  | 0.2  | <b>4.67</b> | <b>I</b>   |
| 41                               | Ta Pa lake                             | 0.72       | 0.4 | 0.15 | 0.52 | 0.18 | 0.14 | 0.12 | 0.1  | <b>2.33</b> | <b>IV</b>  |
| 42                               | Soai So lake                           | 0.72       | 0.6 | 0.6  | 0.52 | 0.27 | 0.14 | 0.18 | 0.15 | <b>3.18</b> | <b>III</b> |
| 43                               | My Khanh Mulberry Garden               | 0.72       | 0.6 | 0.45 | 0.52 | 0.18 | 0.21 | 0.18 | 0.1  | <b>2.96</b> | <b>III</b> |
| 44                               | Bung Binh Thien Lake                   | 0.72       | 0.4 | 0.3  | 0.26 | 0.09 | 0.07 | 0.12 | 0.1  | <b>2.06</b> | <b>IV</b>  |
| 45                               | Thuy Liem lake                         | 0.96       | 0.8 | 0.6  | 0.39 | 0.36 | 0.14 | 0.3  | 0.15 | <b>3.70</b> | <b>II</b>  |
| 46                               | Tan Trung lake                         | 0.72       | 0.6 | 0.45 | 0.52 | 0.27 | 0.14 | 0.18 | 0.15 | <b>3.03</b> | <b>III</b> |

### **The division of exploitation level of tourist attractions**

The majority of the TAs in An Giang are concentrated in the group with the average exploitation level, according to the classification of attractions based on their levels of exploitation. Locations in the Sam Mountain and Cam Mountain tourism areas are examples of tourist sites with exceptionally favorable levels of utilization.

*Group I. TAs with an excellent level of exploitation:* The number of TAs in group (I) made up 19.6% of the total, with a mean value of 4.45. This includes the Temple of Sam Mountain Goddess, Hang Pagoda, and Tra Su Melaleuca Forest, all of which have average ratings above or equal to 4.45. The primary TAs in the province are acknowledged to be these attractions. Nearly all assessment markers are met by the Temple of Sam Mountain Goddess, which is also highly attractive and matches all other criteria. The TAs have ratings that are lower than the group average of 6 points while having a high appeal. This is a result from their irregular closing times and separation from the provincial hub.

The majority of these locations are scattered in the Sam Mountain (Chau Doc) and Cam Mountain tourism regions (Tri Ton). There are some places classified as singular national monuments, such as the Tay An pagoda, the President Ton Duc Thang memorial, and the Tra Su Melaleuca Forest. The fusion of multiple TAs contributes to the creation of engaging tourism routes, besides having spillover consequences for territorial directions.

*Group II. TAs with favorite level of exploitation:* Six TAs are in figure 2 with good levels. The number of TAs in the group accounts for 13% of the total TAs considered. The historical site on Tuc Dup Hill, the archaeological and artistic site at Oc Eo, and the historical site at Nui Sap all received index ratings that were greater than the group's average (3.73). These characteristics include the distinctive, indigenous resources, the infrastructure, and the high completeness of the management department. The other TAs were rated below average, mostly due to their poor accessibility (Ba Le Pagoda, Phuoc Thanh Pagoda, Thuy Liem Lake). These TAs may be found, for example, in the Tri Ton, Cho Moi, and Thoai Son districts.

*Group III. TAs with a medium level of exploitation:* This category has the most points overall (representing 50.0% of the total number of TAs analyzed; see figure 2) with 23 TAs at a moderately favorable level. TAs including Chau Phu Community House, Mubarak Mosque, Long Xuyen Floating Market, An Giang Museum, Cu Lao Gieng Cathedral, Chau Doc Rafting Village, Soai So Lake - Golden Stream, and Ecological Tourism Site in Tan Trung Lake have scores that are higher than the country's average (2.98). Although these locations have average resources, they have limitations in their technology setup, management, and operational time. At the remaining locations, the infrastructure, geography, and accessibility are still a little troublesome. The majority of these TAs are in areas like Chau Doc, Cho Moi, Tinh Bien, Phu Tan, Tan Chau, and Long Xuyen city.

*Group IV. TAs with a less attractive level of exploitation:* Tam Buu Pagoda, Phi Lai Pagoda, Ta Pa Lake, Bung Binh Thien, Van Giao Brocade Weaving Village, Phu My Blacksmith Craft Village, Phu My Puff Pastry Village, and O. Ta Soc are among the eight TAs, or 17.4% of the total score, that are awarded to TAs with less favorable evaluations. Only 2.47 points make up the average. Although they are frequently still in their infancy, these TAs are first used for tourist expansion. Its key limitations are the location's distance from the province's center, the terrain's monotony, a lack of attention to factors related to tourist growth, including infrastructure and linkages, and managerial skills that are yet inherent broadcast. The TAs in the group concentrated on distribution in remote locations like An Phu and Tri Ton, Tinh Bien, and Phu Tan districts.

Generally, the classification of TAs in An Giang reflects the development aspect of An Giang tourism. An Giang welcomes a large of tourists to visit every year. The number of visitors to the area has been rising over the past ten years. According to data, the number of visitors who utilized the province's lodging services increased dramatically from 250 thousand in 2007 to over 9.2 million tourists in 2019 (AGPC, 2020). However, despite drawing a sizable (and consistent) number of tourists each year, the province has not been able to draw in tour companies. Since there aren't many tours available to the area, most tourists to An Giang make their own travel arrangements on their own (and possibly without early reservation of other services). Despite having the most visitors overall, the income and average daily stay are only average. According to the records of the MDTA, revenue per tourist in An Giang is the lowest among the 13 provinces in the Mekong Delta even though the volume of tourists is on top of the list (AGPC, 2020).

Spending and the average length of stay among domestic and international tourists are quite limited. This may due to the fact that many of the tourists, especially tourists who visit the spiritual TAs (for example, to attend the Temple of Sam Mountain Goddess festival or to worship at the pagodas), are not willing to spend much on local services. Records from hotels show that the average length of stay is only slightly more than one day (1.05 day) per guest, while a larger number of tourists spend less than a day in the province (AGPC, 2020). According to the evaluation result, the average score (mean) of the majority of TAs is low, despite the fact that the index of attractiveness in TAs is high. This demonstrates the limitations of most popular tourist locations' infrastructure, connections, and other pertinent variables. However, because of the emphasis on spiritual tourism attractions, where the Temple of Sam Mountain Goddess serves as the focal point, the indicators of days spent and money are still quite low.

### **The performance and the core of An Giang tourism**

The results of the assessment of TAs contribute to clarifying the performance and core of the tourism industry in An Giang province. The results of evaluation and classification of TAs confirm that tourism in An Giang is dominated by spiritual tourism when the results of the assessment of TAs show that most of the TAs are located in areas with very favorable exploitation levels as spiritual tourist destinations. This further confirms the point made by Uyen, (2012) when the author said that spiritual tourism is the core of the tourist cluster. While other TAs, such as ecotourism, craft village tourism, community tourism, etc., are not particularly fascinating due to infrastructure, connectivity, and environmental

constraints, capital for spiritual TAs is concentrated in the province of An Giang's most popular tourist destinations, where it is being steadily improved through increased investment. The majority of visitors are pilgrims, and the province's most popular tourism attractions are spiritual ones. In addition, the province's tourism industry is highly dependent on the four to five-month-long Temple of Sam Mountain Goddess event. The Temple of Sam Mountain Goddess and its festival, which lasts from after the lunar new year through the fifth lunar month, make up the majority of the religious tourist sector in An Giang. People participate in religious ceremonies at the Temple of Sam Mountain Goddess in the hope that doing so will bring them wealth and success in their businesses.

Basically, the volume, expenditure, prestige, and unique features of the Temple of Sam Mountain Goddess event have a considerable impact on the economy of the An Giang tourism cluster. The other activities, including sightseeing and shopping, have been developed to support this primary activity. Additionally, visitors to An Giang have the option of visiting other well-known locations such as Tuc Dup Hills, the President Ton Duc Thang's memorial, and Cam Mountain's Entertainment Park (Uyen, 2012). The other tourist activities, like as sight-seeing and shopping, would not be alluring on their own; rather, they must be combined with the main events, such as visiting the pagodas or the Temple of Sam Mountain Goddess. The Temple of Sam Mountain Goddess festival in An Giang, which is heavily reliant on tourism, poses serious risks to the sector. First of all, because the festival only lasts four to five months out of the year and travelers mostly visit during this time, the income of individuals who work in the tourism sector is particularly erratic because demand for services varies throughout peak and off-peak travel seasons. Ecotourism sites and craft village tourism still require relatively little in the way of infrastructure and accessibility despite having compelling resources.

## CONCLUSION

Managing and using tourism strengths requires approaching and analyzing TAs based on a variety of indicators. An Giang is a province with great potential and a range of affordable TAs. However, despite their abundance, most of them are TAs in An Giang with ordinary levels of exploitation, according to the results of the assessment of TAs. The level of exploitation is excellent, focusing solely on a few TAs such as the President Ton Duc Thang's memorial area, Hang Pagoda, Tra Su Melaleuca forest, and Ba Chua Xu Temple of Nui Sam. This shows that the province of An Giang's tourism development has not kept pace with its potential. In order to increase the quality of tourism, tourist managers and operators must advocate for a range of service type-related solutions, as well as boost promotion and draw in more infrastructure at attractions strong management and sustainability scores. Also, in order to properly exploit TAs, policies on investment, tourism marketing, and connections must all be implemented simultaneously. These strategies should connect TAs with various levels of exploitation to complement and establish attractive tourist networks.

## STUDY LIMITATION

This study has certain some limitations. Although a scale with 8 indicators has been established, there are still a few indicators related to the score assessment that have not been included in the scale, such as the combination between the tourism resources and the tourism infrastructure, the impact of tourist destinations on socio-economic. In terms of research method, the study only used field trip method, and take a survey of 8 experts with AHP technique. However, combining with tourist interviews, if done, can provide a more multi-dimensional view of attractions. In addition, the upper and lower - limit values in that scale are built mostly based on the natural, socio-economic and tourism characteristics of An Giang province, not universally applicable to other areas. In order to more thoroughly verify the accuracy of the scale, it is required to conduct the experiment in a variety of places.

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## ANALYSIS OF URBAN EXPANSION SURROUNDING ARCHAEOLOGICAL ATTRACTIONS BY NORMALIZED DIFFERENCE BUILT-UP INDEX TECHNIQUE AT ANCIENT CIVILIZATION SITE OF HARIPUNJAYA KINGDOM IN MUEANG LAMPHUN DISTRICT, LAMPHUN PROVINCE, THAILAND

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**Abstract:** The objective of this research is to study urban expansion surrounding archaeological attractions by Normalized Difference Built-up Index (NDBI) technique at ancient civilization site of Haripunjaya Kingdom in Mueang Lamphun District, Lamphun Province, Thailand. From the survey area on October 18-20, 2022, the data was collected on important ancient sites that still appear traces around the city of Lamphun. The study found that there are a total of 13 archaeological sites, each of which is classified into 3 categories: 8 Ancient Religious sites, 4 Ancient City Wall sites, and 1 Historical site. Then, surveys of urban and built-up land cover found that within the past 20 years, light urban and built-up land, urban areas and buildings with sparse density increased by 534.45%, or about 5 times, appearing around the old city in Nai Mueang sub-district and the area where the main road passes in a corridor pattern. In addition, the medium urban and built-up land area has also grown more than three times. It can be seen that urban expansion direction in the northern and central of the study area is most located in the 5 sub-district areas: Makhuea Chae, Ban Klang, Wiang Yong, Pa Sak, and Nai Mueang. The NDBI analysis revealed that the archaeological attractions that were most affected by urbanization were the Victory Shrine Pagoda. At present, it has become a historical site in the middle of the community area. It is located in the middle of the shopping mall parking lot, and there are buildings surrounding it, causing the archaeological site to be invaded and damaged greatly. The results of this study can be used to effectively manage cultural tourism planning, especially in the ancient civilization sites in Mueang Lamphun District, to be sustainable in the future.

**Key words:** Urban Expansion, Archaeological attractions, Normalized Difference Built-up Index Technique, Haripunjaya, Lamphun

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### INTRODUCTION

Archaeological sites are valuable and important in history, archaeology, fine arts, architecture, ethnology and academics (Richards, 2001; Carbone et al., 2020). The archaeological site is an important historical resource that reflects the past,

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traditions and culture (Rahal et al., 2020; Halim et al., 2022). Therefore, it is an important learning center for the people and society of that area, regarded as a tourist attraction as cultural resources, in other words, as a cultural heritage (Mckercher and Du Cros, 2012), and it is necessary to preserve archaeological sites to maintain their value and importance, in order not to destroy the ancient site (Global Heritage Fund, 2010; Ababneh et al., 2019). The preservation of archaeological sites is a global concern, with measures for preserving and managing archaeological sites that vary according to the suitability and context of that society. Lamphun is a province with a history of more than 1300 years, which is considered the oldest in all the ancient kingdoms of the northern region of Thailand (Ongsakun, 2000; Mukherjee, 2022). From the evidence of more than 10 stone inscriptions in the Hariphunchai National Museum in Lamphun Province, mentioning that the Hariphunchai Kingdom was established in the year 662. Haripunjaya, Hari means Vishnu and Punjaya means edible, meaning "Which Vishnu can enjoy". Haripunjaya Kingdom was built by Hermit Wasuthep, Mon people, mobilized people to build a city in the area between two rivers, the Kuang River and the Ping River. When the construction was completed, an ambassador was sent to invite Queen Chamdhevi (A.D. 662-669), who was a princess from the Lavo Kingdom (current Lop Buri), as the first king of the Haripunjaya Kingdom (Settakul, 2009; Tansukanun, 2022).

The importance of the Haripunjaya Kingdom is that of the most prosperous civilization as the center of Buddhism in the northern region. This primary civilization was the birthplace of the invention of ancient Mon characters, which influenced the inventing of Bagan, Burmese and Mon scripts for the Bagan Kingdom (modern Myanmar), as well as Lanna scripts, Tai Lue scripts, Tai Ahom scripts, and Tai Yai scripts. It is also a model of economy, politics, governance, arts, culture, and military in ancient times, and was the foundation and pattern of the Lanna Kingdom (Chiang Mai) (Winichakul, 1994; Srinurak and Mishima, 2017). The prosperity of Haripunjaya Kingdom is famous among the Southeastern people: Bagan; Angkor Wat (Khmer); Champa; Srivijaya; Nakhon Si Thammarat; Lavo; and Chinese. Haripunjaya has become a strategic city that many regions have visited in order to build diplomatic, commercial, social welfare, and well-being towards valuable cultural consensus. For this reason, the Haripunjaya period art and culture is a perfect blend of valuable arts.

King of the Chamadeviwong dynasty of Haripunjaya City reigned for approximately 620 years (A.D. 663-1293), with a total of about 50 monarchs. And at present, the kingdom has changed its status to become one of Thailand's major tourist destinations. Due to its outstanding cultural heritage, invaluable archaeological sites, leading to important historical sites, such as Wat Phra That Hariphunchai Woramahawihan Temple, where Phra Borommathat Hariphunchai is located, 1 of 8 great pagodas over 1000 years old in Thailand, also the center of Buddhism, politics, and culture of the ancient northern region of Thailand that has inherited its identity to the present day. At present, the status of Haripunjaya has changed to a modern city like Lamphun Province. It has continued to grow since the introduction of The Forth National Economic and Social Development Plan 1977–1981, resulting in Lamphun Province being the center of Thailand northern regional industrial estates. It was established around Ban Klang Subdistrict and Makhuea Chae Subdistrict, Mueang Lamphun District, Lamphun Province in 1983 (The National Economic and Social Development Board, Office of The Prime Minister of Thailand, 1977). This requires the development of infrastructure in almost all surrounding areas of Lamphun Province, to support urban expansion and key economic areas to support systematic linkages with sub-regions and regions.

This, coupled with the potential of Lamphun Province, which is a province adjacent to Chiang Mai only 20 kilometers, has resulted in both Thai and foreign tourists coming to travel, and the trend is increasing every year. Since the promulgation of The Fifth National Economic and Social Development Plan 1982–1986, Lamphun province has undergone urbanization, that is, more immigrants to settle in to live (The National Economic and Social Development Board, Office of The Prime Minister of Thailand, 1982). Being close to work place, with many tourist attractions, about 20 kilometers from Chiang Mai International Airport, good food and suitable climate for living, and has a unique and charming culture, makes Thais and foreigners impressed. As a result, urbanization causes some areas of Lamphun to suffer environmental and architectural impacts: some new buildings, power pylons, and telecommunication lines obscured ancient sites, some areas have encroached upon important ancient sites, which may cause damage to the archaeological attractions.

Remote sensing technology is a tool that can continuously and consistently study changes that occur on the terrain. Such topographic data is of great benefit for studying changes in terrestrial manifestations, as it provides a broad and comprehensive picture to study the relationship of such change contexts, such as monitoring the expansion of urban areas in different regions of the world, as mapping the environmental impact of rapid urbanization in the metropolitan city of Delhi, India to have applied the NDBI technique in those areas (Sharma and Joshi, 2016). In Istanbul, Türkiye, a major megacity between two continents, in Europe and Asia, land cover change studies were conducted using NDBI techniques to investigate the Urban heat island phenomenon (Khorrami et al., 2021). Raipur City of India, an urbanization study was conducted by analyzing land surface temperature in combination with NDBI techniques and using Landsat satellite image data to study the dynamics of change from 1991-2019 (Guha et al., 2021). Even the arid region of Rawalpindi City, Pakistan, the fourth largest city at the center of the hub of industrial, military, and commercial activities, has studied NDBI techniques to classify land cover to obtain information for planning groundwater use to be adequate for the activity of the topographic surface (Haq et al., 2021). A number of study guides in key regions of the world have applied the NDBI technique classifying land cover to analyze changes in urbanization. Therefore, in this research study, the principle of NDBI analysis was applied in the land cover survey, resulting in quick information, low educational budget. It also obtains data that covers a large area and has relatively high data accuracy, is ideal for environmental research and can track changes especially urbanization. This study aims to assess the changes of buildings surrounding archaeological attractions of the ancient civilization site of Haripunjaya Kingdom in Lamphun Province from 2001 until the 2022 using NDBI technique to monitor urbanization in Lamphun Province, Thailand. This research sees the benefits of Remote sensing techniques in

environmental management that can be analyzed in a spatial form and can be monitored in multiple temporals. Using the NDBI technique, the results of the study can be used as a guideline for planning and formulating a policy framework to prevent and reduce damage to the surrounding area of archaeological attractions, by providing a database as a spatial model for systematic land use planning management to support sustainable changes in the future.

### Study area

In this research, the study was conducted in Mueang Lamphun district, the old town of Haripunjaya Kingdom over 1300 years ago. It has an area of approximately 480.015 km<sup>2</sup>. The study area, located between latitude 18°25' N to 18°40' N, longitude 98°55' E to 99°15' E (Figure 1), is a mountainous flat terrain known as the Intermontane basin, formed by the deposition of sediment from the valley. Specifically, the study area was influenced by sediment transport from the eastern high mountains, including the Mae Ta Mountain range and the Khun Tan Mountain range, which is a crescent-shaped mountain range along the Mae Ta active fault. The sediments are caused by erosion from the influence of waterways, including the Mae Ta River and the tributaries of the Kuang River. The river has an influence to bring sediment from the high valleys to deposit into the foothills, resulting in an important geomorphological effect: the Alluvial fan, arranged along the north to south in a geomorphic feature known as Coalescing fan or Bajada in Spanish. The morphology is a Tertiary (65–1.8 million years ago) sedimentary rock with a fertile, highly arable soil. The sedimentary mound, known as Mae Kuang coalescing fan, is located in the northern part of the study area. Mae Ta coalescing fan covers both the study area and the area where Haripunjaya City was established over 1300 years ago, and has developed into Lamphun City today.

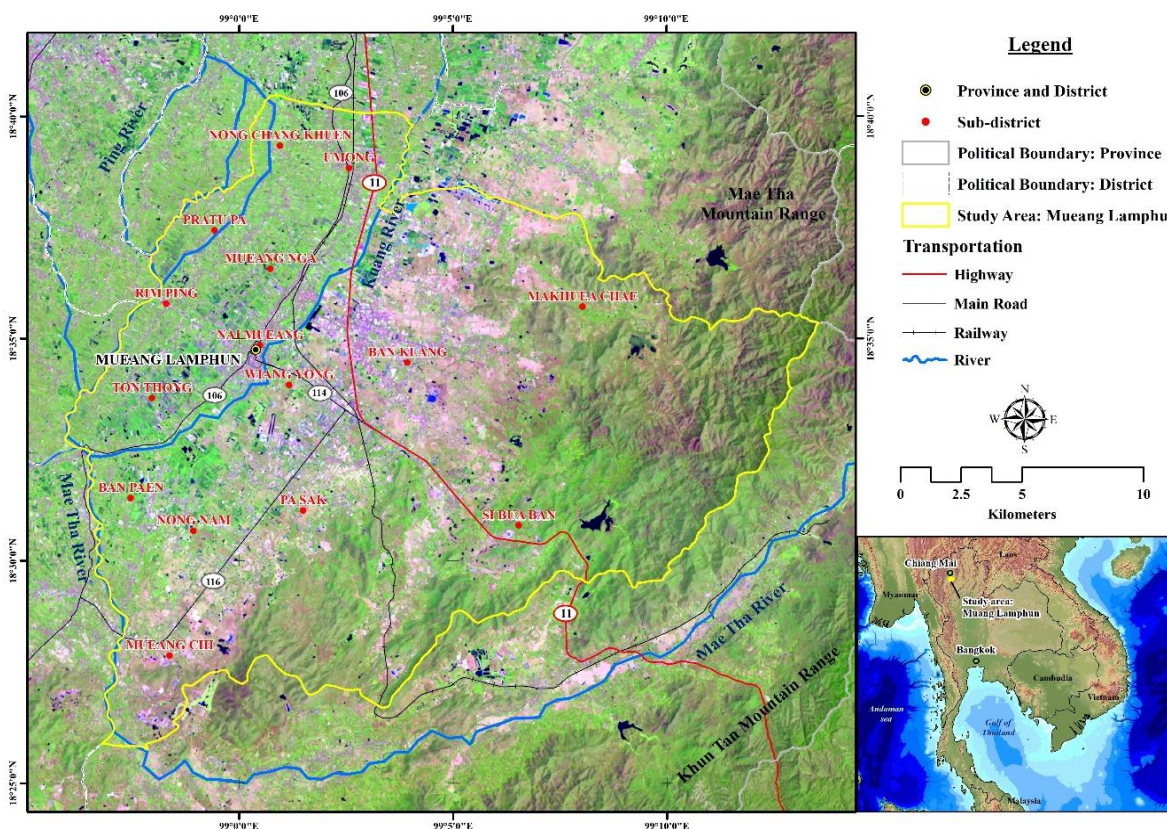


Figure 1. Location of Mueang Lamphun District, Lamphun Province, Thailand (Source: collected and processed by authors)

### MATERIALS AND METHODS

In this study, in order to conduct an effective survey of the land cover conditions of a building, data with appropriate spatial and temporal resolution were selected, using Landsat 5 TM and Landsat 8 OLI/TIRS satellite data downloaded from Earthexplorer.usgs.gov website, as shown in Table 1, covering the years 2001, 2013 and 2022, respectively. However, the image processing process used Erdas Imagine 9.2 software to verify the data and improve its quality before analysis as radiometric and geometric were corrected. It then goes into the band combination process in the following bands: Landsat 5 TM, 2001 data, performs Band Combination 5:4:3 (Red: Green: Blue) and Landsat 8 OLI/TIRS satellites, with 2013 and 2022 data, performed a Band Combination 6:5:4 (Red: Green: Blue) before analyzing the NDBI, shown in Figure 2.

Table 1. Satellite Image Data over the Mueang Lamphun District for Analysis

| Database   | Acquisition date | Format     | Sources   |
|--|------------------|------------|---|
| Landsat 5 TM satellite image; Path 131 Row 047       | 17 April 1994    | Image File | <a href="https://earthexplorer.usgs.gov/">https://earthexplorer.usgs.gov/</a> |
| Landsat 8 OLI/TIRS satellite image; Path 131 Row 047 | 27 March 2013    | Image File | <a href="https://earthexplorer.usgs.gov/">https://earthexplorer.usgs.gov/</a> |
| Landsat 8 OLI/TIRS satellite image; Path 131 Row 047 | 26 March 2022    | Image File | <a href="https://earthexplorer.usgs.gov/">https://earthexplorer.usgs.gov/</a> |



A spatial analysis process for detecting different types of land cover and tracking changes in each type of land use, using the NDBI technique. The principle of remote sensing was applied in this study, especially in areas with human-caused land-use activities. Urban area, industrial area, commercial area, including agricultural area, it is necessary to apply NDBI in Mueang Lamphun area. At present, the study area has a lot of urbanization, and inevitably affects archaeological sites, with the NDBI being the indexes for the analysis of built-up area (Li and Chen, 2018; Waiyasuri, 2021). The built-up areas and bare soil reflects can be classified as Short-wave Infrared (SWIR) in combination with NIR (Guha et al., 2021; Kombate et al., 2022). Therefore, in the Landsat 5 TM satellite, Band 5, which is a SWIR band with electromagnetic wavelength between 1.75 to 1.75  $\mu\text{m}$ , is analyzed together with Band 4 (NIR), as in Equation 1. However, Landsat 8OLI/TIRS uses Band 6, which is SWIR1 (1.566-1.651  $\mu\text{m}$ ), to be analyzed together with Band 5, which is the NIR spectrum in the NDBI study (Li and Chen, 2018; Guha et al., 2021; Kombate et al., 2022), as shown in Equation 2.

$$\text{NDBI (Landsat 5TM)} = (\text{Band 5} - \text{Band 4}) / (\text{Band 5} + \text{Band 4}) \quad (1)$$

$$\text{NDBI (Landsat 8OLI/TIRS)} = (\text{Band 6} - \text{Band 5}) / (\text{Band 6} + \text{Band 5}) \quad (2)$$

The analysis result is NDBI between -1 to +1 (Mathew et al., 2017). Negative value of NDBI represent water bodies whereas higher value represents built-up areas. NDBI value for vegetation is low (Mahmood et al., 2021). The NDBI analysis can quickly and efficiently determine land cover types, urban areas and buildings.

For validity after the NDBI analysis, validation was conducted by comparing the data obtained from the field survey and land-use data from the Land Development Department (LDD) in the study area, with overall accuracy and kappa coefficient (Congalton, 1988; Ababneh et al., 2019), as in Equation 3 and 4, respectively.

$$\text{Overall accuracy (OA)} = \frac{1}{N} \sum P_{ii} \quad (3)$$

Where:  $N$  = Total number of test pixels, and  $\sum P_{ii}$  is Total pixels that are correctly classified.

Kappa coefficient, a classification accuracy measurement, multiplies the total pixels in all the ground truth classes by sum of confusion matrix diagonals, subtracting sum of ground truth pixels in class times, and the sum of classified pixels in the class, summed over all classes, divided by the entire pixels (Congalton, 1988; Ababneh et al., 2019),

$$\text{Kappa coefficient} = (\text{OA} - \frac{1}{q}) (1 - \frac{1}{q}) \quad (4)$$

Landsat images used Overall Accuracy values and Kappa coefficients (KHAT) to assess the accuracy of each type of classification for identification of the area (Jia et al., 2018).

- < 0, less than chance agreement,
- 0.01–0.40, poor agreement,
- 0.41–0.60, moderate agreement,
- 0.61–0.80, substantial agreement,
- 0.81–1.00, almost perfect agreement.

Land cover classification by NDBI method, the result is a land cover model that covers the study area, which is the key result to know what appears to be a spatial database, created as a database in GIS. Land cover analysis was then performed at different intervals to determine the change in land cover (Jia et al., 2014), as in Equation 5.

$$\Delta = [(A_2 - A_1) / A_1 \times 100] / (T_2 - T_1) \quad (5)$$

Where  $\Delta$  is the proportion of the change in land use pattern (percent).

$A_1$  is the type of land use at the first time ( $T_1$ )

$A_2$  is the type of land use at the second time ( $T_2$ )

The results are shown as the land cover ratio of each type on the map, which shows the land cover change pattern for 2001 - 2022, along with the Change Detection comparison chart from the Overlay analyst, using the Tabulate area tool in ArcMap 10.3.

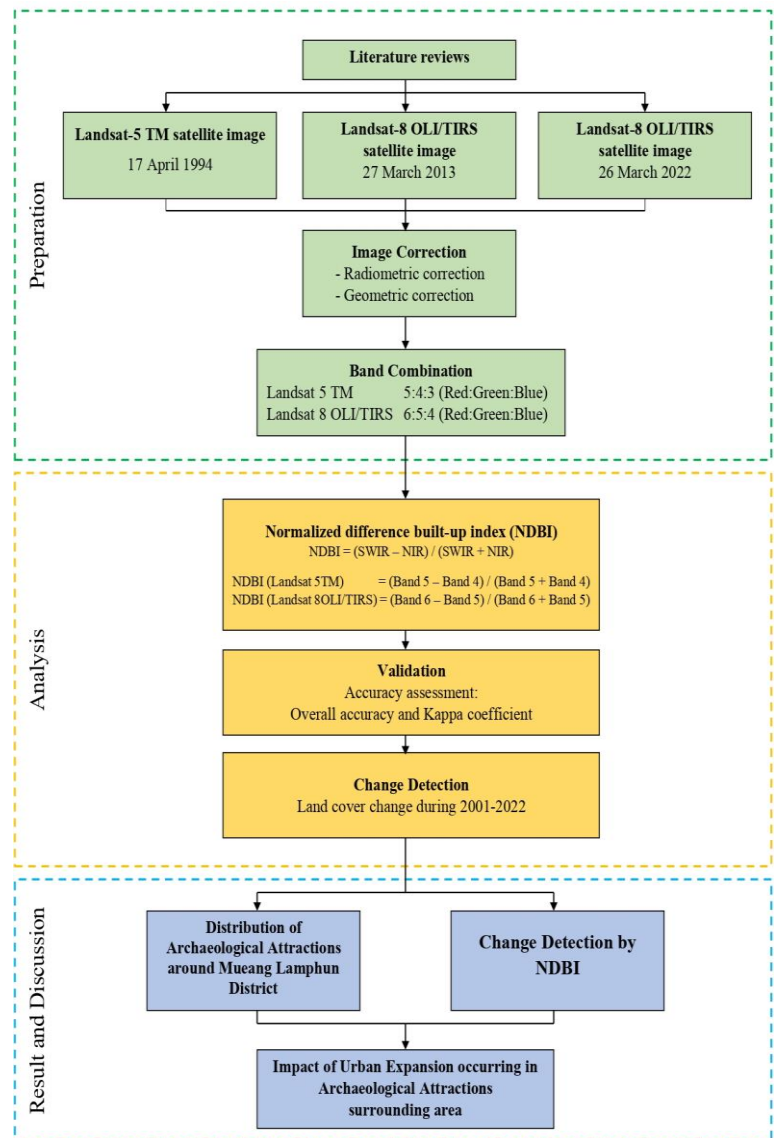


Figure 2. Flowchart of Methodology

## RESULTS AND DISCUSSION

### Distribution of Archaeological Attractions around Mueang Lamphun District

Since the area was once an ancient civilization site of Haripunjaya Kingdom, which flourished in arts and culture, traditions, economy, politics and governance, stupa, pagodas and temples were built around Muang Lamphun District.



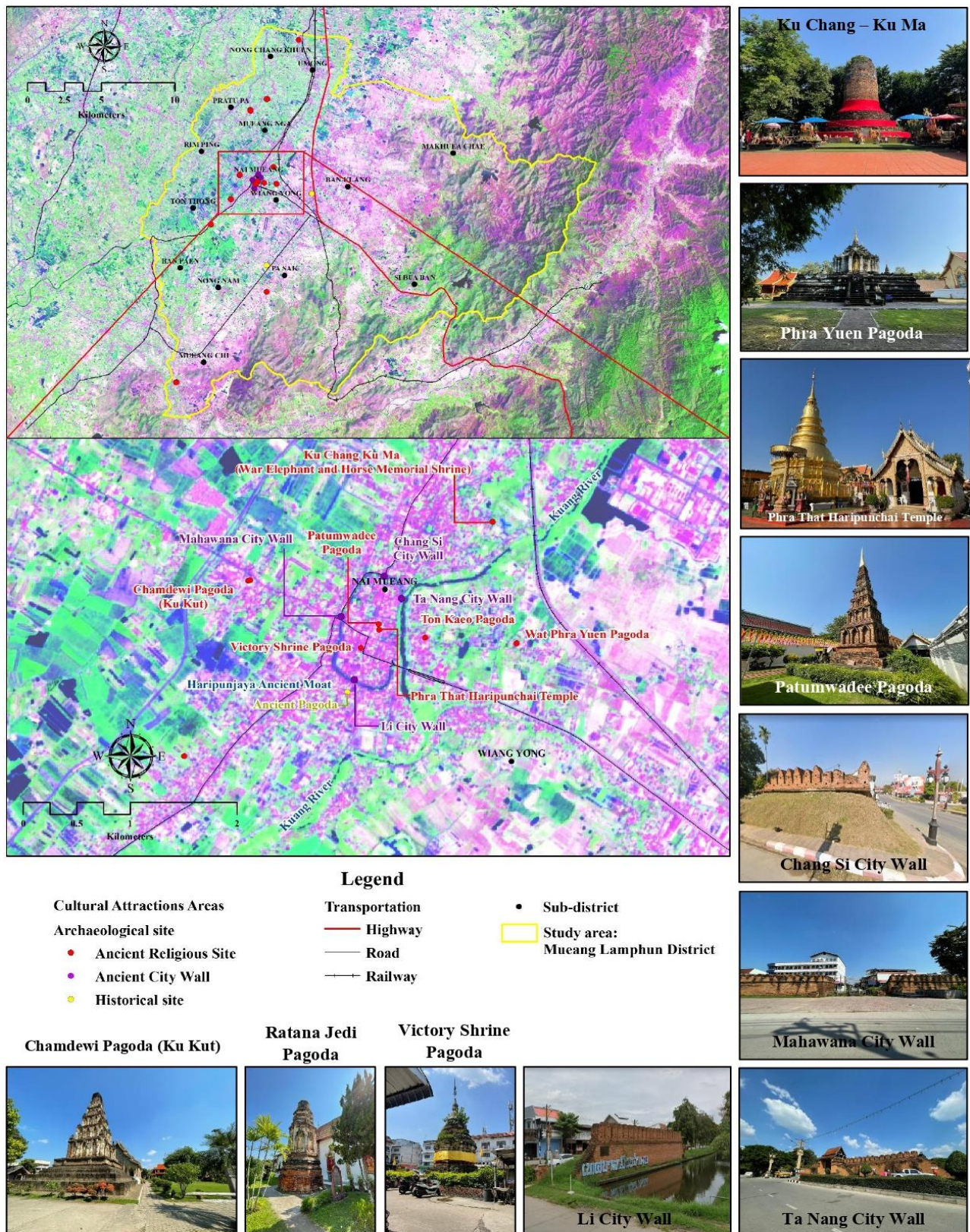


Figure 3. Ancient Civilization Site of Haripunjaya Kingdom in Mueang Lamphun District, Lamphun Province (Source: field survey, October 2022)

However, from the survey area on October 18-20, 2022, the data was collected on important ancient sites that still appear traces around the city of Lamphun. The results showed that there was a total of 13 archaeological sites, each of which was classified into 3 categories: 8 Ancient Religious sites, 4 Ancient City Wall sites, and 1 Historical site. The details of the location from the survey area are shown in Table 2 and Figure 3. The survey study revealed that there are archaeological sites in the Ancient City area, which are within the Haripunjaya Ancient Moat at 3 sites: Phra That Haripunchai Temple, Patumwadee Pagoda, and Victory Shrine Pagoda. Phra That Haripunchai Temple and Patumwadee Pagoda is an



archaeological site that represents the administrative center of the Haripunjaya Kingdom over 1300 years (11th century AD) in Wat Phra That Haripunchai Woramahawihan Temple, which has now become a Buddhist landmark and a beautiful cultural attraction of Lamphun Province. Phra That Haripunchai Temple is one of the 12 great stupas of Thailand, is a relic of the year of the Rooster's birth. Inside Phra That Hariphunchai is a pedestal for enshrining the urn containing the Buddha's relics. This relic has been an important sanctuary in Thai Lanna since ancient times. On the full moon day of the 6th lunar month, there will be a worship and watering ceremony for the relics every year. And in the present, such ancient tourist attractions are still being renovated to this day.

Around Lamphun, there are Haripunjaya Ancient Moat, and also 4 ancient city wall ruins: Chang Si city wall on the north, Ta Nang city wall on the east, Mahawana city wall on the west, and Li city wall on the south. Outside Haripunjaya Ancient Moat also found distribution of important archaeological sites as follows: Chamdewi Pagoda and Ratana Pagoda, where contains the ashes of Queen Chamadevi, west of Lamphun, about 1 km from Mahawana city wall. North appears Ku Chang Ku Ma (War Elephant and Horse Memorial Shrine), a cylindrical stupa, a war elephant cemetery "Pu Kam Nga Khiao" of Queen Chamadevi and a horse tomb of Chamadevi's son, 1.8 km

away from Chang Si city wall. In the east of Lamphun, there are two important pagoda sites, namely Ton Kaeo Pagoda and Wat Phra Yuen Pagoda, which are approximately 700 m and 1.4 km from Ta Nang city wall, respectively. And to the south, an unidentified Ancient Pagoda was found, in the Li Temple near the Li city wall, the most recently discovered archaeological site. It can be seen that the coordinates of the Cultural Attraction areas are recorded with a global positioning system (GPS). The tool records geo-coordinated system location data. The results of this research by recording the location of ancient tourist sites, allow us to determine how they are located in the surrounding environment. This is consistent with the work of Li et al. (2017) applying GPS Tracking to a historic site in Gulangyu, China to create a set of spatial databases overlay with data in the community area, to create understanding in the community not encroaching the historic sites. Due to the rapid urbanization of Gulangyu, it is also developing as a tourist destination (Li et al., 2016; Li et al., 2017). Even the integration of remote sensing, digital photogrammetry, laser scan, GPS, GIS, etc., has also been studied to find important ancient sites (Luo et al., 2014; Green et al., 2019). Therefore, Geo-informatics technology is essential for accurate and efficient exploration of archaeological sites to develop into cultural attractions.

### Change Detection by NDBI

Based on the analysis of Landsat satellite imagery, the NDBI technique was applied in this research. It is a technique of obtaining land cover spatial data, especially areas covered by cities and buildings, with effective accuracy (Simwanda and Murayama, 2018). NDBI levels range from -1.00 to 1.00 with high negative values represent forest area and water bodies, high positive values represent higher built-up, and levels close to zero value represent areas

covered with agricultural land. The results showed that the NDBI level classified land cover into 8 important classes (Table 3) as follows: NDBI levels 0.10 to 1.00 are urban and built-up land cover levels, where 0.40 to 1.00 are found in the area with the highest density of urban areas, 0.20 to 0.40 are moderately covered urban areas, and 0.10 to 0.20 is an area covered by low-level urban areas. For agricultural areas in the study area, the NDBI level is between -0.10 to 0.10 and the area covered by swamp, paddy field, and forest area shows the NDBI level in negative values. However, the results of this research were able to classify the Urban and built-up land area effectively. This contrasts with the Cuca and Agapiou (2021) study, which found the NDBI study of Urban and built-up land areas in terms of high positive values in the Historic Cities' Centers, Nicocia in Cyprus. For the detection of historical landscape changes in Lake Victoria Basin, Kenya using the NDBI technique, it was found that high positive values represent the territory of the area where urban expansion occurred (Onyango and Opiyo, 2022) and in the Lahore district in Pakistan applying to find rapidly developing city.

Table 2. Locations of Haripunjaya ancient civilization archaeological attractions, surveyed between 18-20 October 2022

| Site | Cultural Attraction areas    | Type                   | Latitude | Longitude |
|------|------------------------------|------------------------|----------|-----------|
| 1    | Chamdewi Pagoda (Ku Kut)     | Ancient Religious Site | 18.5816  | 98.9961   |
| 2    | Ratana Jedi Pagoda           | Ancient Religious Site | 18.5816  | 98.9963   |
| 3    | Patumwadee Pagoda            | Ancient Religious Site | 18.5778  | 99.0076   |
| 4    | Phra That Haripunchai Temple | Ancient Religious Site | 18.5773  | 99.0077   |
| 5    | Victory Shrine Pagoda        | Ancient Religious Site | 18.5758  | 99.0061   |
| 6    | Ton Kaeo Pagoda              | Ancient Religious Site | 18.5767  | 99.0119   |
| 7    | Wat Phra Yuen Pagoda         | Ancient Religious Site | 18.5762  | 99.0199   |
| 8    | Ku Chang Ku Ma               | Ancient Religious Site | 18.5867  | 99.0178   |
| 9    | Chang Si City Wall           | Ancient City Wall      | 18.5819  | 99.0081   |
| 10   | Mahawana City Wall           | Ancient City Wall      | 18.5785  | 99.0043   |
| 11   | Ta Nang City Wall            | Ancient City Wall      | 18.5800  | 99.0097   |
| 12   | Li City Wall                 | Ancient City Wall      | 18.5730  | 99.0055   |
| 13   | Ancient Pagoda               | Historical Site        | 18.5714  | 99.0055   |

Table 3. NDBI result of land cover classes from 2001, 2013, and 2022

| NDBI value        | Land cover area |        |                 |        |                 |        | Land cover classify     |        |
|-------------------|-----------------|--------|-----------------|--------|-----------------|--------|-------------------------|--------|
|                   | 2001            |        | 2013            |        | 2022            |        |                         |        |
|                   | km <sup>2</sup> | %      | km <sup>2</sup> | %      | km <sup>2</sup> | %      |                         |        |
| -1.00 to -0.50    | 215.988         | 45.00  | 16.847          | 3.51   | 5.021           | 1.05   | Forest area             |        |
| -0.50 to -0.10    | 56.318          | 11.73  | 89.552          | 18.66  | 11.023          | 2.30   | Swamp and Paddy field   |        |
| -0.10 to 0.00     | 156.798         | 32.67  | 208.361         | 43.41  | 194.221         | 40.46  | Agricultural land       |        |
| 0.00              | 25.048          | 5.22   | 17.725          | 3.69   | 186.187         | 38.79  |                         | Light  |
| 0.01 to 0.10      | 13.800          | 2.87   | 124.188         | 25.87  | 12.917          | 2.69   |                         | Medium |
| 0.10 to 0.20      | 12.063          | 2.51   | 21.357          | 4.45   | 64.471          | 13.43  | Urban and built-up land |        |
| 0.20 to 0.40      | 0.000           | 0.00   | 1.945           | 0.41   | 6.166           | 1.28   |                         | Light  |
| 0.40 to 1.00      | 0.000           | 0.00   | 0.040           | 0.01   | 0.009           | 0.00   |                         | Medium |
| Total             | 480.015         | 100.00 | 480.015         | 100.00 | 480.015         | 100.00 | Dense                   |        |
| Overall accuracy  | 83.51           |        | 80.43           |        | 78.11           |        |                         |        |
| Kappa coefficient | 81.76           |        | 79.62           |        | 76.64           |        |                         |        |



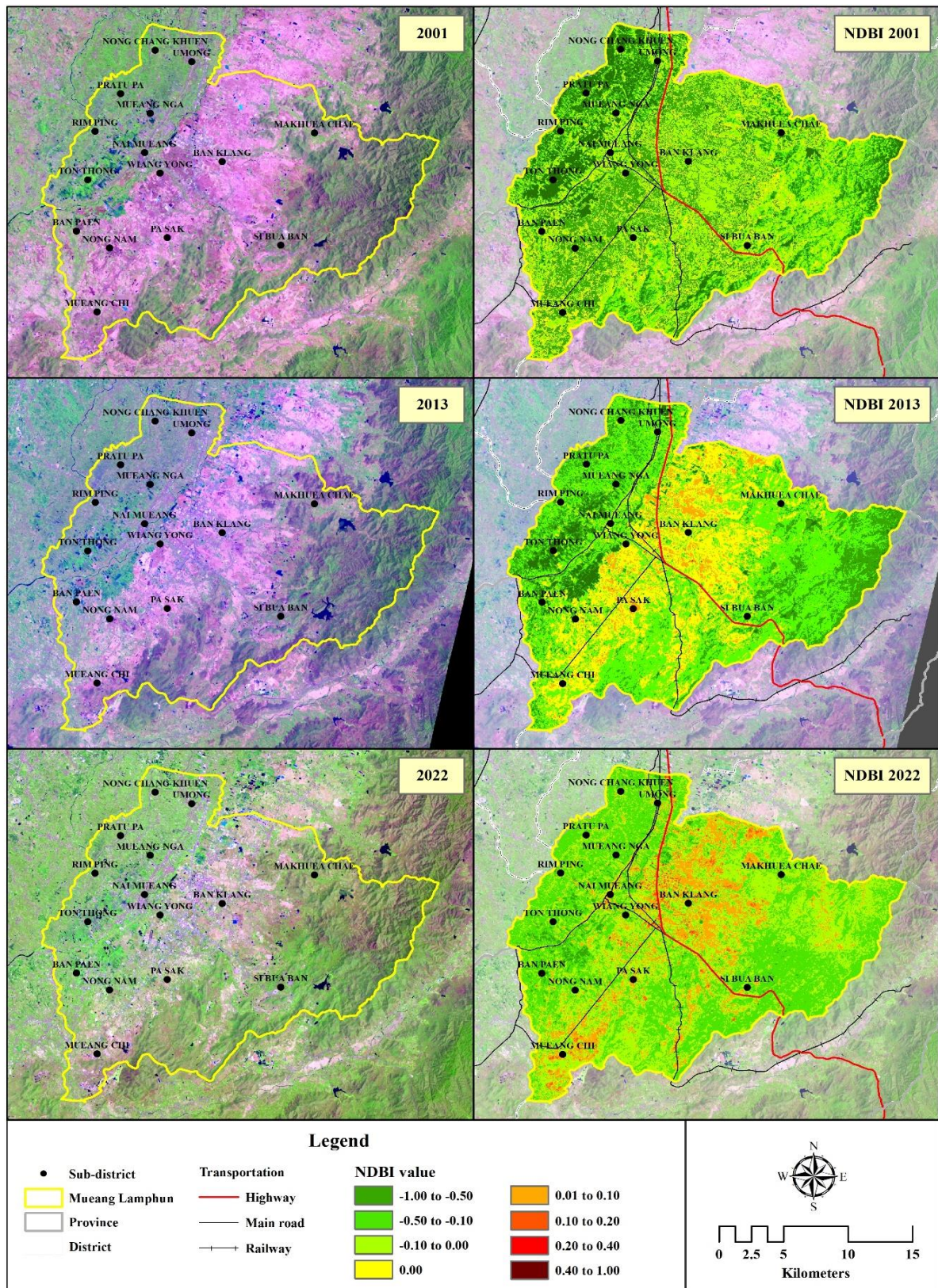


Figure 4. Landsat Satellite Image and NDBI map of the Mueang Lamphun District, Lamphun Province (Source: by authors)

The urbanized district had an NDBI level close to 1.00 (Mahmood et al., 2021). All of the above studies revealed differences that most did not classify the level of building density according to the NDBI level. But most agree that the technique is used for analysis and follow-up in urban expansion and urbanization, in order to plan for orderly managing land use in urban areas and minimizing the impact on historical sites. From the NDBI analysis, the results of the research on urban and built-up land expansion in Mueang Lamphun district were evident. From Table 3, urban density levels showed that light urban and built-up land areas experienced the greatest increase. From 2001 with an area of 12.063 km<sup>2</sup>



(2.51% of the total area) has been expanded until in 2022 the area is 64.471 km<sup>2</sup> (13.43% of the total area). It can be seen that in the past 20 years, the area of light urban and built-up land has increased by 534.45% or about 5 times, appearing around the old city area in the Nai Mueang sub-district and where the main road cuts through in a corridor pattern (reference). Additionally, the medium urban and built-up land areas have also grown more than three times. From Figure 4, the direction of expansion is seen in the northern and central areas of the study area, which are in the 5 sub-district areas: Makhuea Chae, Ban Klang, Wiang Yong, Pa Sak, and Nai Mueang. Especially in the Makhuea Chae and Ban Klang districts, there is considerable expansion and density of medium urban and built-up land. This is because the area is an important industrial estate area, namely the Northern Region Industrial Estate, which is the largest industrial estate in northern Thailand. As a result, there is a noticeable expansion of residential communities in the area, and the business and service sectors are actively engaged in economic activities in the area. Importantly, in Wiang Yong, Pa Sak, and Nai Mueang, they are areas that support community expansion occurring in Makhuea Chae and Ban Klang districts, especially Wiang Yong and Nai Mueang, which are directly affected by the expansion of urban and built-up land from these two districts, as they are ancient community areas in the old city near industrial estates and with convenient transportation routes.

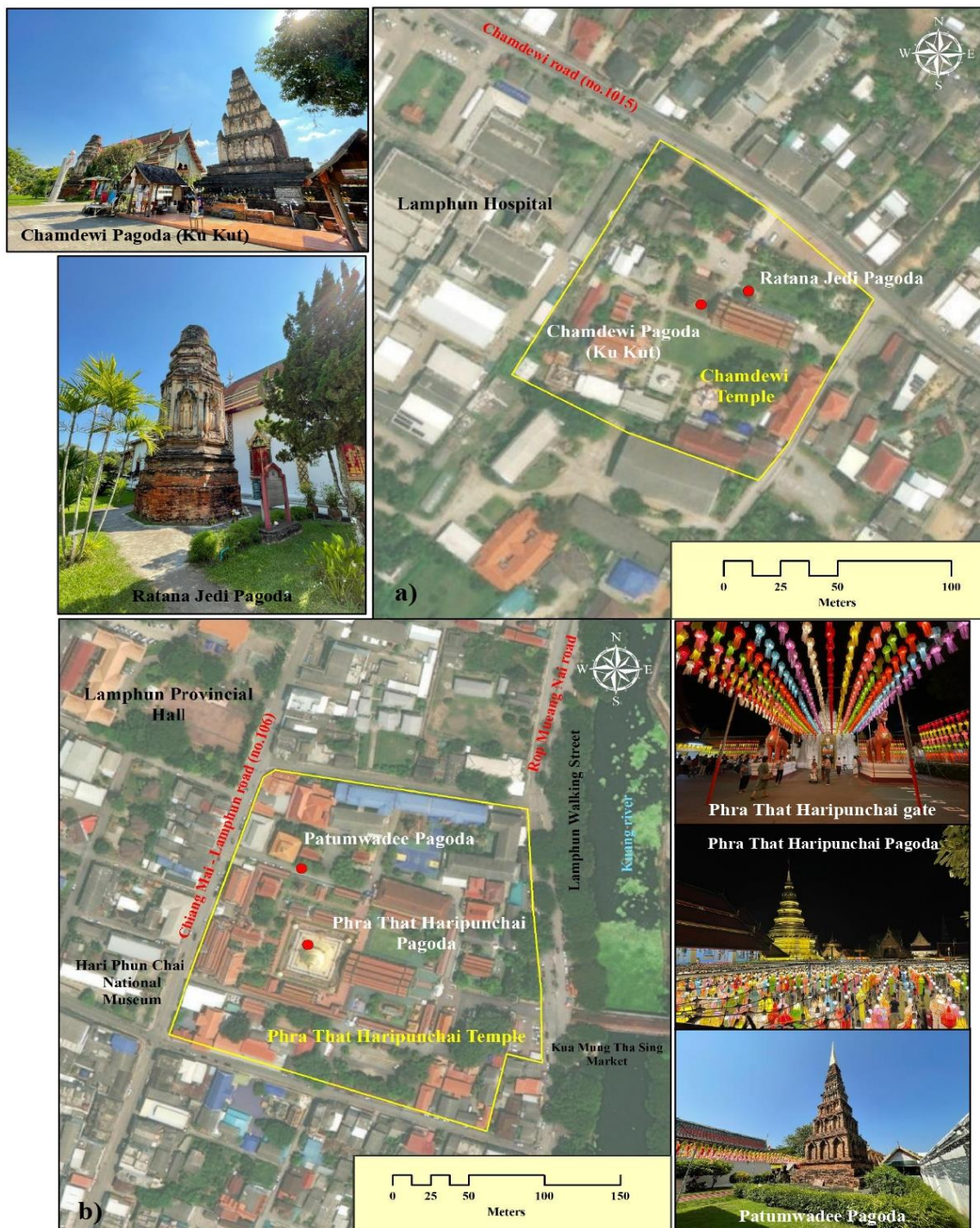


Figure 5. Well-maintained archaeological attractions sites in Chamdewi Temple (a) and Phra That Haripunchai Temple (b) (Source: field survey)



### Impact of Urban Expansion occurring in Archaeological Attractions surrounding area

The expedition took place Oct. 18-20, 2022, to explore each archaeological attractions, record its location with GPS, and import it into the GIS database, for analyzing the impact of urban expansion occurring in archaeological attractions surrounding area, obtained by NDBI analysis. The study found that archaeological attractions are divided into three main groups: Restored Groups, Unrestored Groups, and Renovated Groups, detailed below:

The group that has been restored is well-maintained archaeological attractions sites include Chamdewi Pagoda (Ku Kut), Ratana Jedi Pagoda, Patumwadee Pagoda, Phra That Haripunchai Temple, Ton Kaeo Pagoda, Wat Phra Yuen Pagoda, and Ku Chang Ku Ma. Most of such places are in important temple areas, so they are treated with special care, such as Chamdewi Pagoda (Ku Kut) and Ratana Jedi Pagoda are located within Chamdewi Temple (Figure 5a). Chamdewi Temple was built in the A.D.749 that is important in both history and archeology, as evidenced by the inscription found that the royal son of Queen Chamdhevi was King Mahantayot and Anantayot ordered this temple to be built for the cremation.



Figure 6. Under-restored archaeological attractions sites in Victory Shrine Pagoda (a) and 4 Ancient city gates (b) (Source: field survey, October 2022)

Then build a square pagoda with a gold top, called Suwanajangkot Pagoda. However, the area to the northwest adjacent to the wall of Wat Chamdewi is Lamphun Hospital, a large provincial hospital with a large number of people coming in and out every day. The two ancient ruins may be indirectly affected by periodic noise and vibrations.

Patumwadee Pagoda and Phra That Haripunchai Temple is an important landmark since the 9th century AD, built by King Athitayaraj in A.D.897 as the administrative center of the Haripunjaya Kingdom. The Patumwadee Pagoda is 50 meters northwest of Phra That Haripunchai, built by Queen Pathumwadee, the wife of King Athitayaraj. Pathumwadi Chedi is also known as Suwanakot Jedi Pagoda (Suwana means golden) (Figure 5b). The place has long been a sacred place of worship and the center of the mind of Thai people; therefore, it has been well taken care of and has not suffered from environmental impact. Ton Kaeo Pagoda is now a folk museum about the traditions and culture of the Yong or Lue people, who migrated from Shan State, Myanmar and Xishuangbanna, Yunnan Province of China. Wat Phra Yuen Pagoda is inside Wat Phra Yuen, located on the east bank of the Kuang River. There is a standing Buddha statue that is the highlight of this pagoda. The art of the pagoda is in the Bagan style. Ku Chang Ku Ma is located in the northern part of the study area.

This place contained the remains of the royal elephant, “Pu Kam Nga Khiao”, which was the royal elephant of Chamdhevi with great strength. When this elephant died, a stupa was built to contain the elephant's remains in this place. At present, the Fine Arts Department has restored it to be in perfect condition. Most of the under-restored groups are archaeological attractions that are difficult to maintain, due to their location in the community and close to transport links, directly receiving environmental impacts, whether air pollution or noise pollution. Such sites include Victory Shrine Pagoda, Chang Si City Wall, Mahawana City Wall, Ta Nang City Wall, and Li City Wall. Especially the Victory Shrine Pagoda, a former place of worship and gathering of troops, to build the morale of the warriors before the war. When the battle was won, this pagoda was built. It is now an archaeological site in the middle of the community area, located in the middle of the parking lot of Cham Fha Plaza Mall. The Victory Shrine Pagoda used to be part of the Chaimongkhon temple area. But with the expansion of the city and construction, the ancient site was invaded and greatly damaged (Figure 6a).

As for the city gates in all 4 directions, namely Chang Si City Wall, Mahawana City Wall, Ta Nang City Wall, and Li City Wall, only the remains of the city wall are visible in the middle of the intersection. It is directly affected by the vibrations from the passing vehicles and the sound waves from the signal, which would have a negative effect on the archaeological site. At present, there is a lack of maintenance or restoration from relevant agencies (Figure 6b).

And finally, the group being restored is an ancient historical site near the Li City Wall on the south side of the study area. The archaeological site of Wat Sangkharam (Li Gate) is located in Nai Mueang Subdistrict, Mueang District. Wat Sangkharam is an old temple from the reign of Queen Chamdhewi. It is said to be a temple of Wat Si Mum Muang, a temple located outside the southern city wall. Pottery amulets of various craftsmen, Haripunchai-style pottery and a large group of human skeletons were discovered: Cauldron containing human bones of Haripunchai culture, fire burner bone fragments, glass beads, clay amulets, candlesticks, Song Dynasty Chinese white porcelain pottery, bronze ornaments, iron tools, roof tiles, and densely scattered brick fragments. At present, in 2022, a more concrete exploration of the archaeological site is undertaken. From the study of impact of urban expansion occurring in archaeological attractions surrounding area, there are well-maintained cultural attractions, which mostly appear around the major temple districts. There are still some sites, in the middle of the community and transportation routes, difficult to maintain. However, there is still a tendency for relevant agencies to take better care and maintenance. It can be seen that the urban area and buildings expanding on the north and northeast is the location of the Northern Region Industrial Estate, the largest industrial estate in northern Thailand. Government agencies should regularly monitor and control environmental pollution standards such as air, noise, and water pollution. Since November through February is the strong northeast monsoon season, it can easily carry material that damages ancient sites. Water pollution should have measures for wastewater treatment bases before discharging into natural water sources, as the industrial estates are located along the Kuang River.

## CONCLUSION

Mueang Lamphun District, Lamphun Province has a long history of thousands of years, showing many ancient sites and archeology. At present, some places have developed into cultural attractions to attract both Thai and foreign tourists to experience the culture and traditions of the Haripunchai people. With the context of the urban expansion from Chiang Mai, Lamphun is directly affected because it is a secondary city located only 20 km from Chiang Mai. With the efficiency of remote sensing and Landsat satellite imagery data, the land cover covering the study area was obtained, which applied the NDBI technique to examine urban expansion in Mueang Lamphun district, showing the direction of the urban area's expansion very well. Specifically, the north, northeast, and central regions showed high positive NDBI values showing significant urbanization. Such techniques have been used to analyze the impact on tourist attractions such as important ancient sites, as some of them still lack the attention of relevant agencies. This research therefore presents the data from the analysis with the aforementioned techniques to solve problems and plan land use in Mueang Lamphun District. Such spatial data can be used to effectively manage the planning of cultural tourism, especially in the ancient civilization sites, in various ways in accordance with land use. This is for the government, the private sector, and the local community to participate with each other in jointly conserving the cultural attractions in Mueang Lamphun District to be sustainable in the future.

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## VOLCANO TOURISM IN VOLCANIC RISK AREAS: EXPLORATION OF THE HIGHER EXPERIENCE IN MOUNT SEMERU – INDONESIA

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**Abstract:** Volcano tourism is a part of ecotourism or geotourism in developed and developing countries. The visitors or tourists in this kind of tourism immerse themselves in the bodily enjoyment of feeling and sensing the volcano's high elevation instead of viewing its beauty. The present article aims to explore tourists' subjective experiences of being at a high altitude by taking the case of Mount Semeru tourists. The tourist attraction of Mount Semeru as a volcanic mountain has a selling point and appeal for climbing but with threats and risks. This research explores and reveals the meaning of hiking trips and the manifestation of fear during trips in risky areas. The existential-phenomenological approach examines multifaceted phenomena from an individual's point of view. Informants were determined by using a purposive sampling technique. In this phenomenological study, researchers look for information (individuals) who have the capability so they can articulate their life experiences related to the phenomenon under study. This study's results describe the experience of climbers enjoying the journey through struggles and successes by interpreting the phenomena during the ascent and the anticipatory attitude of climbers toward facing the threats and risks of climbing Mount Semeru.

**Key words:** volcanic mountain tourism, meaning of climbing experience, risk tourism, Semeru mountain, higher experience

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### INTRODUCTION

The key objective of this paper is to explore the volcano tourists' subjective experiences and investigate the social and cultural meaning of their mountaineering activities. Due to the fact that climbing volcanic areas could pose any risks to visitors or tourists, only people with sufficient risk-aversion training and mountaineering skills are capable of undertaking such a journey. The contribution of the present paper is to examine how such a fearless attitude can be nurtured among volcano tourists or visitors. Before moving further on, the contemporary progress of volcanic tourism in Indonesia is highlighted. Volcanic tourism has the potential to become popular in Indonesia, which would be beneficial for the country's economy. Because of the collision of three major tectonic plates, Indonesia is home to 127 active volcanoes. These plates include the Indo-Australian Plate, the Pacific Plate, and the Eurasian Plate (Hidayat et al., 2020). Volcanoes have the potential to improve the visual appeal of a tourist location thanks to the iconic qualities they embody (Dehn and McNutt, 2015). Natural tourism attractions located in national parks, geoparks, and other types of protected areas can be found in volcanic landscapes. World Heritage Sites are another type of protected area (Erfurt, 2018). It is possible for the natural region and geological singularity of a volcano to entice tourists, who may then study biodiversity up close and enjoy the beautiful environment (Erfurt-Cooper and Lopes, 2015). Because of this, the location of the volcano is considered a strategic place; thus, it is an essential component of the tourism industry, which is one that is beneficial to the economy of the nation (Chakrabarty et al., 2018; Wibowo et al., 2021). The existence of volcanoes in Indonesia carries the possibility of generating tourist attractions, such as mountain climbing trips, which can stimulate the country's tourism industry.

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Ascending Mount Semeru is a popular climbing tour in Indonesia. Mount Semeru is the highest active volcano on the island of Java, with an altitude of 3,676 meters above sea level. Mount Semeru has a natural attraction that climbers can enjoy (Wiratama et al., 2014). Three lakes can be found during the ascent: Ranu Kumbolo, Ranu Pani, and Ranu Regulo (Wahyuningtyas et al., 2021). Ranu Kumbolo is a camping area for climbers before heading to the top of Mahameru. Ranu Kumbolo is a favorite area of climbers because of the beauty that can be enjoyed in the morning, afternoon, evening, and sunset (Nofiyanti et al., 2018). In addition, there are other natural uniquenesses, such as the incline of love behind Ranu Kumbolo and Oro-Oro Ombo, which is a wide, beautiful savanna. In addition to Mount Semeru's natural beauty, which is a tourist attraction, climbing Mount Semeru includes concerns that can threaten climbers' safety. Climbers should be aware of these risks before attempting to scale Mount Semeru. Climbing is a physically demanding activity that calls for a high level of mental and physical preparedness (Zhou et al., 2020). Climbing to the summit of Mount Semeru is an activity that is fraught with danger due to the fact that the environment of Mount Semeru contains obstacles that climbers need to overcome in order to reach the summit (Barlow et al., 2013). Mount Semeru is a composite volcano that often experiences minor eruptions every three to four hours, releasing toxic gases and dust material from Jonggring Saloka Crater; thus, it poses a risk to the health of climbers (Iguchi et al., 2012). The temperature at the peak of Mahameru can reach 3°C, which can cause hypothermia and threaten the safety of climbers (Hakim, 2011). In addition, the danger of landslides from the volcanic material of Mount Semeru can be lethal to climbers (Meilani et al., 2018).

However, these risks do not affect the climbers of Mount Semeru. They choose to continue climbing despite an element of risk just to gain climbing experience (Marrosu et al., 2020). Experiences such as the sensation of enjoying the wealth and beauty of natural scenery and an atmosphere that cannot be found in other places can grow and strengthen the motivation of climbers (Segara and Basyari, 2021). In addition, climbers encounter *Flow Experience*, which is the sensation of feeling the balance between risk and the climber's abilities (Mackenzie et al., 2018). Therefore, the natural beauty of Mount Semeru exceeds the risk of climbing, which can threaten the safety of climbers. Climbers who are not aware that the oxygen pressure will decrease, causing fatigue, with every increase in altitude (Gasser, 2022), can experience health problems (Luks et al., 2017). Climbing tourism cannot be equated with other tours; it is necessary to recognize the characteristics of the location, the level of climbing, physical and mental preparation, food management, and climbing attributes (Riungu et al., 2018). This research was conducted with the goals of discovering and elucidating the significance of mountaineering expeditions in the hazardous volcanic region of Mount Semeru, as well as investigating the manifestations of fear that mountaineers experience while traveling in regions that are in danger from Mount Semeru.

## MATERIALS AND METHODS

### Object of Research

Mount Semeru is a mountain in the Bromo Tengger Semeru National Park Area (Figure 1). Mount Semeru is the highest active volcano (3,676 masl) in East Java, Indonesia (8° 60' latitude and 112° 55' east longitude) with very high magmatic activity. The peak of Mount Semeru is named Mahameru, while the crater of Mount Semeru is named Jonggring Saloko. The Tengger Mountains, Semeru Mountains, and Jambangan Volcano are three morphological units that thrive in a straight line in the south-north direction. The activity of Mount Semeru is still dominated by earthquake eruptions that center on the Jonggring Seloko crater in the south and southeast of Mount Semeru (Nakada et al., 2019). This active eruption in the Jonggring Seloko Crater also produces toxic gases that, if inhaled by humans, cause death. Mount Semeru has explosive and strombolian eruption types with volcanic and strombolian ash types (Nishimura et al., 2012) which occur every 3–4 hours. This type of eruption and volcanic material (black andesite, lapilli, sand, tuff, rock, and dust) is one of the threats to climbing Mount Semeru. Ascending Mount Semeru is a favorite climb for local and foreign tourists in Indonesia and includes the Seven Summits of Indonesia. To enjoy this hike, the ideal travel estimate is three days and two nights, with the place of setting up a favorite climber's tent at Ranu Kumbolo or Kalimati.

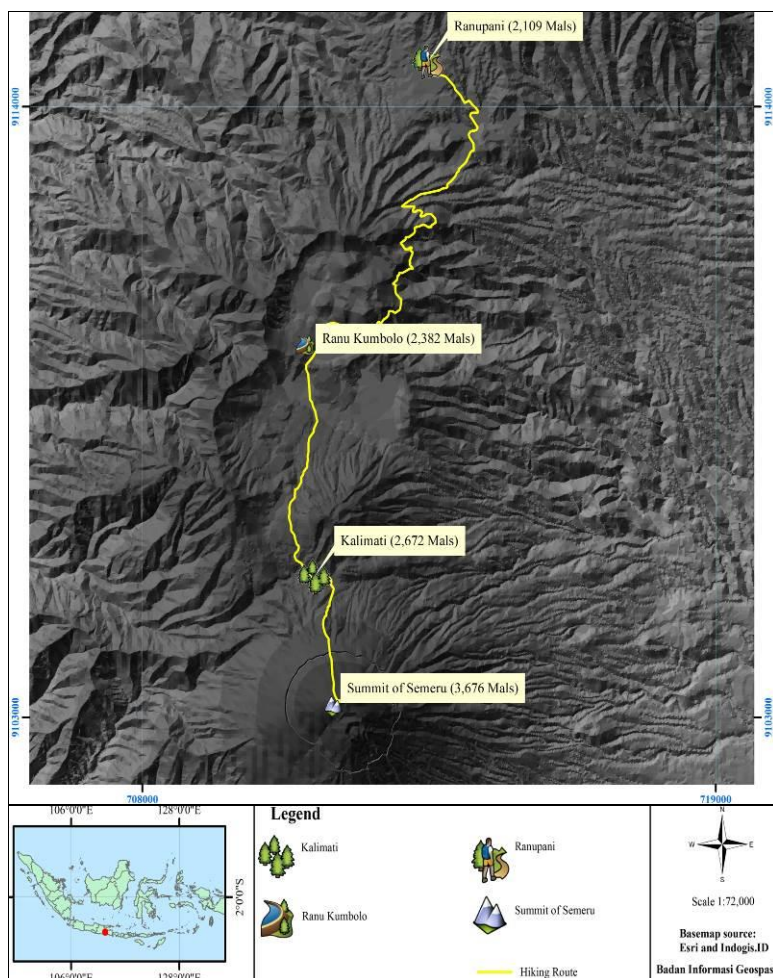


Figure 1. Map of Semeru East Java, Indonesia (Researcher Data, 2022)



The Mount Semeru hiking trail has a climbing track length of 18.3 km with varying slopes (Figure 1). The climbing route segmentation is as follows: (1) Ranu Pani (2,109 masl)-Ranu Kumbolo (2,382 masl) route ( $[\bar{x}]$  slope 16.6 degrees, distance 10.6 km), (2) Ranu Kumbolo Line (2,382 masl)-Kalimati (2,672 masl) ( $[\bar{x}]$  slope 13.1 degrees, distance 4.6 km), and (3) Kalimati Trail (2,700 masl)-Semeru Mountain Peak (3,676 masl) ( $[x]$  slope 43.7 degrees, distance 3.1 km).



Figure 2. Bromo Tengger Semeru National Park (Gunarto Song Documentation, 2022)



Figure 3. Volcanic Lake “Ranu Pani / Regulo” (Priscilla Documentation, 2020)



Figure 4. Volcanic Lake “Ranu Kumbolo” (Angel Documentation, 2022)



Figure 5. Shalter Kalimati (Jaelani Documentation, 2021)



Figure 6. Condition of hiking trail to the summit of Mount Semeru “Volcanic Risk Areas” (Drone Jowo Documentation, 2022)

### The Phenomenological Approach

Phenomenology is philosophical research that deals with the meaning of phenomena experienced and felt by individuals. Individual feelings are constructed from knowledge and experience; thus, the interpretation of data provided by individuals is subjective (Mohajan, 2018). Phenomenology is studied in qualitative research as an approach that aims to interpret deep understanding based on the direct experiences of individuals (McLeod, 2019; Mohajan, 2018; Ziakas et al., 2014). Phenomenology in tourism studies has not been widely used, although it can be used as a significant analytical tool

regarding the tourist experience (revealing the meaning of the experience) (Noy, 2008; Timothy, 2008; Hermanto, 2021). The research in this article uses an existential-phenomenological approach to the tourist experience of climbing Mount Semeru. This research has an important position because it explores a multifaceted phenomenon from an individual’s point of view. Dimensions for understanding the tourist experience can be understood from five types of experiences: recreational, diversionary, experiential, experimental, and existential. This type of experience proves that a comprehensive understanding of tourists is influenced by place (location) (Guachalla, 2018). This research focuses on revealing the importance of life experiences and the meaning of individuals (climb tourists) through phenomenological analysis.

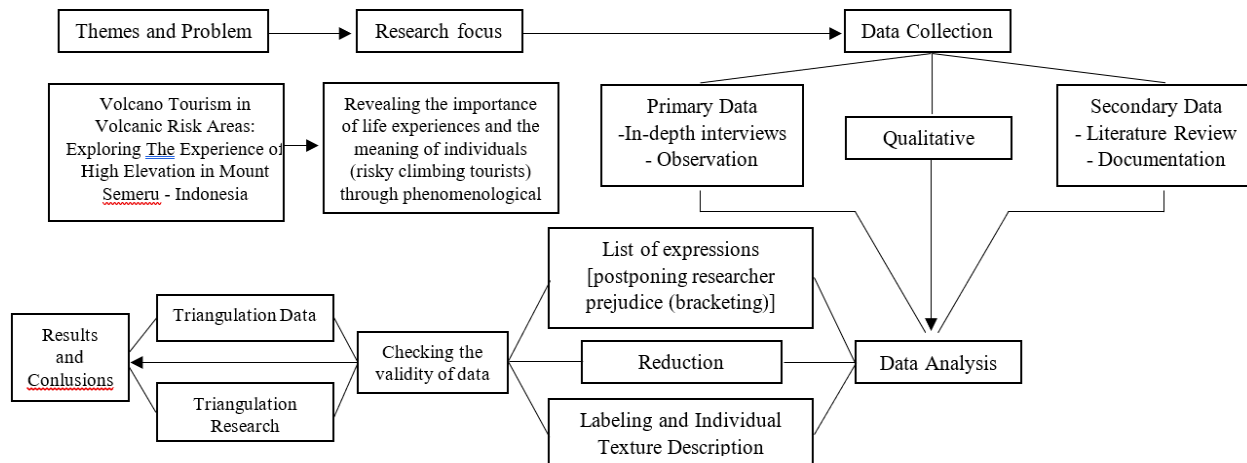


Figure 7. Research Metodology (Resource: Personal documentation of the Researchers, 2022)

The Semeru Active Volcano climbing tour was chosen as a case study for the following reasons: (1) Mount Semeru is a Strato volcano with a Vulcanian-strombolian eruption type with the epicenter of the eruption at the active crater “Jonggring Saloko,” with an internal structure dominated by sedimentary sandstone and rock with cavities and toxic gases (sulfur dioxide, carbon dioxide, and hydrogen sulfide) and (2) Mount Semeru is one of the highest mountains (3,676 meters above sea level) on the island of Java, Indonesia, and is a favorite mountain for local and foreign climbers because the hiking trail passes through Lake Ranu Kumbolo, Jambangan Grasslands (cypress, Mentigi, and Edelweiss plants), Savana Oro-Oro Ombo (Purple Verbena Flowers), and Cemoro Kandang Forest (*Casuarina junghuhniana*).

Informants were determined by using a purposive sampling technique. In this phenomenological study, researchers look for information (individuals) who have the capability so they can articulate their life experiences related to the phenomenon under study. Therefore, researchers conducted in-depth unstructured interviews with more than 18 climbers but provided detailed information on only ten climbers of Mount Semeru in April 2021. The number of respondents was deemed sufficient to conduct phenomenological interviews (Groenewald, 2004; Wimpenny and Gass, 2000), considering the data is getting saturated. Each respondent interview took two to three hours. The purpose of the in-depth interviews was to understand the phenomena used (terms) by the respondents (Deterding and Waters, 2021). Interviews are the basis for an exchange of perspectives between respondents and researchers (McGrath et al., 2019), where researchers try to understand phenomena from the respondent's point of view to reveal the meaning of their experiences (Mohajan, 2018).

Table 1. Profile of Respondents

| No  | Respondent | Gender | Age | Occupation         | Climbing Visit to Mount Semeru  |
|-----|------------|--------|-----|--------------------|---|
| 1.  | Ridwan     | Male   | 21  | Student            | Oct. 2019, Apr. 2021  |
| 2.  | Fernanda   | Male   | 37  | Full-time employee | Oct. 2019, Sept. 2020, Apr. 2021  |
| 3.  | Yustina    | Female | 35  | Doctor             | Mar. 2018, Apr. 2021  |
| 4.  | Azizah     | Female | 27  | Full-time employee | Jun. 2017, Apr. 2021  |
| 5.  | Fahmi      | Male   | 26  | Government Officer | Jan. 2018, Sept. 2020, Apr. 2021  |
| 6.  | David      | Male   | 23  | Surveyor           | Jun. 2016, Jun. 2018, Oct. 2020, Apr. 2022                                |
| 7.  | Baidori    | Male   | 29  | Photographer       | Jan. 2008, May 2010 Aug. 2013, Oct. 2015, Jun. 2016, Sep. 2020, Apr. 2022 |
| 8.  | Dhimas     | Male   | 30  | Lecturer           | Aug. 2015, Sep. 2017, Apr. 2021   |
| 9.  | Wiksono    | Male   | 31  | Government Officer | Jul. 2010, Aug. 2015Apr 2022  |
| 10. | Al Hadi    | Male   | 29  | Teacher            | Apr. 2009, Jan. 2013, Sept. 2018, Apr. 2022                               |

Unstructured and open interviews are important keys to building respondents' social interactions (McGrath et al., 2019) in gathering information. This form of interview allows researchers to follow the respondents' interests, feelings, and thoughts (Mohajan, 2018). The following are basic questions that focus on experiences, feelings, beliefs, and convictions about climbing in the risky area of Mount Semeru: (1) How was your climb in the risky area of Mount Semeru? (2) What do you like about climbing Mount Semeru? (3) How do you feel when you climb Mount Semeru? (4) What is your impression of climbing Mount Semeru when compared to other mountains in Indonesia? and (5) What experience did you get from climbing Mount Semeru? The basic questions in the study of phenomenology are deliberately generalized (Levitt, 2021) and aim to make it easier for tourists to describe and interpret the presence of



tourists on a hike. Researchers invite respondents to describe life experiences in chronological order of climbing activities and to describe whether certain events have a positive or negative impact on their experiences. Interview results were recorded and transcribed, then exploited to extract the meaning. The validity of the examination results is addressed to the respondent in a summary of the interview to confirm whether the essence of the experience and its meaning is correct. To understand the perception of risk, it is necessary to go through and share the experiences and emotions of the respondents; thus, the researchers conducted participatory observations.

## RESULTS

### Enjoy Climbing, Learn to Control Fear

Climbing Mount Semeru in April 2021 leaves an everlasting impression and experience for climbers. The most memorable thing is the threat felt during the ascent due to the rising status of Mount Semeru to level II “Alert.” This status means an increase in volcanic activity and eruptions can occur; thus, climbers are recommended not to carry out activities around the crater (Davis et al., 2013). Baidori, Al-Hadi, and Yustina said that they enjoyed climbing, even when the threat status of Mount Semeru increased:

[...] I was given information by the porter if the status of Mount Semeru was increasing, but my adrenaline was challenged by that information because it was an opportunity for me to enjoy and look for moments of Semeru volcanic activity for my photography and videography content. [...] I built a tent in Kalimati at an altitude of 2,700 meters above sea level, enjoyed the sunrise, and looked up at the peak of Semeru while drinking coffee, a beautiful tourist attraction, seeing gas coming out of the crater, even though the status of the mountain was increasing. [...] I enjoyed this hike, the tiredness of track was paid for by the natural beauty of Semeru, drinking water from very natural sources, and chatting with outdoor activists at the camping site before the summit attack to Mahameru Peak, a beautiful day.

The hiking trail from Kalimati to the top of Mount Semeru (3676 masl) is 2.8 km long, with an average slope angle of 45° and travel time of five hours by walking along steep volcanic cliffs and mountain materials in the form of stones, gravel, ash, and sand. Fernanda and Yustina shared their experiences; every challenge must be enjoyed with good climbing knowledge and management:

[...] taking the risk of climbing is a decision, identifying and climbing the best route will reduce the risk of injury and more, enjoying the struggle and celebrating the suffering on the trail is fantastic. [...] don't negatively assume the risk of danger, I will continue to climb at the highest level and believe in going home safely because the main purpose of climbing is to return home. [...] My and my lover's hiking trip was not without a plan, all with good and proper management.

Likewise, David and Fahmi expressed positive feelings about climbing Mount Semeru:

[...] when I decided to go on a hike, my goal was not to seek fame through photos uploaded on social media, I have to admit that I wanted solitude, serenity, adrenaline, and the smell of Ranu Kumbolo grass. [...] I said to myself, maybe every climbing trip, I will never come back again (lost/died), I try to control what I can. [...] I observed many climbers here, in a hurry, lack of logistical preparation and not paying attention to climbing management, I thought how I could enjoy the climbing trip.

Overall, climbers who have good climbing knowledge and management enjoy climbing Mount Semeru. Tourists feel positive things by appreciating the experience gained while climbing, which encourages and motivates climbers to revisit Mount Semeru because, for them, the hardest thing is not conquering the peak of Mahameru but conquering the ego within themselves.

### The Threat of Asking Mount Semeru

Climbing Mount Semeru is recommended by tour managers only up to the Kalimati Post. The Kalimati route to the summit of Mount Semeru is highly risky because the hiking trail is a bundle of volcanic material avalanches, so the condition of the path is unstable and prone to landslides and rock falls. Fernanda, Al-hadi, and Azizah expressed a fear of heights when first climbing and were worried about threats during the hiking trail:

[...] A few days before I climbed Mount Semeru, it was raining quite heavily, as far as I know, if it rains, there is a potential for landslides and trees to fall due to the fragile soil bonds, this worries me but I remain calm. [...] before climbing, all climbers were briefed by the manager of the Mount Semeru climbing tour (Saverindo), regarding the risks of climbing on the Kalini-Peak Mount Semeru route. If a climber sees a rock of eruptive material falling from above, he must shout “beware of falling rock” thus other climbers know it.

On this route, climbers pass many “inscriptions of dead climbers.” Dhimas, Baidori, David, and Fahmi have one perception of this inscription:

[...] The inscription reminds me as a climber never to be arrogant and arrogant toward nature because nature can punish me at any time. [...] this climber died from many factors, teaching me that climb management is important to reduce the risk of death or accident. [...] we all have to learn from the climbers who died here, that don't underestimate/underestimate the preparation during climbing tours, I always recognize internal and external factors when I want to climb to a place, without that I don't go. [...] I looked at the inscriptions, there are some inscriptions consisting of more than one person, I think that the risk and management of individual climbing by climbing as a team are different, this is often not realized by other climbers.

In addition, the threat of hypothermia must be considered. Ridwan, Yustina, and Wiksono describe their experiences while on this route:

[...] I feel nervous and I am careful to avoid falling rocks, my friends always remind me to always regulate my breath and body temperature to avoid hypothermia, [...] during the first climb, I observed another group of climbers climbing in

wet clothes, pants and shoes due to the rain, 2 of them had hypothermia, they were careless and endangered themselves. [...] I saw another climber was suffering from hypothermia, his body was shivering, he was weak, had difficulty speaking and lost his balance, this made me nervous and worried. [...] When I meet a hypothermic climber, I suggest warming the body with a jacket or sleeping bag, giving warm water, and palm sugar or warm milk, if there is an emergency blanket with aluminum foil. If in this position, stay calm and don't be nervous, knowing this is important for every climber.

In the same discussion, Dhimas and Baidori stated that the threat is not only hypothermia but also toxic gases:

[...] Even though I've climbed Mount Semeru 3 times, I'm always worried when I reach the Kalini tracking route to the summit of Semeru. On the last hike, I was late to the summit (at 09.15 am), the wind had changed to the hiking trail, unfortunately, it was carrying poison gas. [...] when I was hit by this gas, I felt short of breath like poisoning, I immediately ran downstairs while wetting the buff and gloves with water to cover my nose. [...] My Garmin GPS records the average temperature at the peak of around 4 – 8 degrees Celsius, for Indonesians like me, who live in a tropical climate, are not used to cold temperatures.

The respondents in this study were receptive to the researcher's questions. This is good for describing the experiences of respondents in a more varied and holistic way. Hikers with more climbing experience appear to be more experienced and have better climbing management. The experience is constructed from knowledge from previous visits or climbing; the experience leads them to prepare for a better climbing tour.

## DISCUSSION

### Hiker's Experience in Enjoying Risky Climbing Tour

It is noteworthy that the selling point of volcanic tourism is the element of fear in itself. The visitors often search for a sense of fear and edging throughout the trip. In the findings, the tourists uncover these experiences. In more detail, the edging experiences conveyed by tourists climbing Mount Semeru in this study described their feelings about how to deal with dangers and risks while climbing. Their perspectives on danger and risk are highly dependent on knowledge and preparedness (Siegrist, 2021) before embarking on a climbing trip. The main source of knowledge cannot be separated from how an individual can feel and observe with his or her senses (Xiong et al., 2021). If climbers are knowledgeable about risks and hazards, this will lead to a positive attitude toward climbing (Huang et al., 2020). Through the logical placement of knowledge and experience, climbers will turn fear into a sense of enjoyment (Singleton, 2019); the more tourists know about climbing conditions, the more they will be able to minimize the risks that could occur (Apollo and Rettinger, 2019). Experience indirectly organizes one's actions to be better at making wise decisions.

The results of the interview show that climbers have experience in activities on volcanoes (risky). Hikers are well acquainted with the situation of the hiking trail, its risks, and consequences (Littlefield and Siudzinski, 2012; Ritter et al., 2012), thus preparing for the climb well despite feelings of fear and anxiety along the way. The sense of beauty of the interviewee has a different experience and serenity. When a climber enjoys his climbing journey, happiness arises. Happiness does not start with "pleasure" but departs from "serenity". This is in line with the respondents' climbing goals: they climb to find peace, unwind from work and thoughts, and enjoy the scent of the morning dew of the wild. Peace of mind relieves anxiety from the negative effects of climbing (Oh et al., 2020). Happiness results from individual struggles and successes in interpreting life. Traveling happiness is subjective; therefore, it is interpreted differently by each person (Gao et al., 2018; McCabe and Johnson, 2013). Happiness is the result of construction that refers to different levels, mental states, and psychological concepts. Meanwhile, interpreting one's life depends on the background experience that has passed (Mohajan, 2018). Climbers interpret the climb positively because of the belief that challenges and obstacles exist but can be passed wisely. The meaning of life also comes from pleasant and unpleasant conditions (suffering) faced by individuals (Bueno-Gómez, 2017). Happiness is perceived as an indicator of subjective well-being and refers to experiencing joy and rarely emotions the effect of vacation trips for climbing affects psychological conditions.

Vacation trips provided a beneficial experience for the climbers in this study, and experiences were gained, such as new knowledge, pleasure, mental health, satisfaction, and happiness (enjoyment). Tourists associate happiness with the quality of life. This is in line with the study of Lohmann and De Bloom (2017) in their book *Happiness in a Tourism Context*, which describes emotions as "golden moments," pleasant experiences, and subjective values that are not followed by positive effects on other dimensions depending on the stimulus and factor situational context (e.g., physical, social); this creates a more lasting effect. Thus, happiness is one of the deciding factors in determining tourist destinations.

### Experience of Climbers in Facing Threats from Ascent Risk

Even though mountain climbing is considered risk, it is full of fun for specific group of people, including the volcano tourists. This 'dealing with risk' attitude has been the commercial branding for volcanic tourism. Climbers state that safety and fear are important factors in climbing tourism. This supports similar previous research Dunets et al., 2019; Kessler, 2019; Kozak et al., 2007; Monasterio, 2015). The tracking path on climbing Mount Semeru is high risk (Meilani et al., 2018). Climbers show concern and fear but have an anticipatory attitude. Anticipatory attitudes toward the dangers of traveling in risky areas arise from previous experience or information from others. Anticipatory attitudes are individual beliefs that respond to negative things during tourist trips (Bergs et al., 2020; Nawijn and Biran, 2019). This attitude also reflects the desire to avoid the repetition of negative things and lessen worry (Luo and Lam, 2020).

As many as 31 climbers died on this route, while 23 climbers had been injured in the last ten years. Anxiety arises from feelings of fear and alertness to threats or unpleasant things (Milyavskaya et al., 2018). Anxiety is a response to certain situations and is a normal thing that accompanies development (Campbell et al., 2020) and changes in new

experiences that have never been done to form self-identity and give meaning to life (Crone, 2021). Anxiety helps individuals be alert to take steps to prevent harm and or minimize the impact of harm (Zsido et al., 2020). The fear that arises from the climbers is caused by seeing directly and clearly the heights that threaten the climbing route.

During the journey, climbers express fear and worry not to fellow climbers but rather about natural threats. This is in contrast to most fears and concerns of female climbers, who are concerned about harassment, actual violence, and difficulty mingling with other climbers (Osman et al., 2020; Wilson and Little, 2008). This study makes it clear that on a tourist trip (climbing), there is intimacy, solidarity, concern, and togetherness (Beedie and Hudson, 2015). There is clear evidence that travel is also meant to strengthen, cooperate, and maintain the same goal, namely enjoying the peak of Mahameru. The meaning that has been successfully revealed is that climbing is not to prove strength but to suppress, recognize, and be aware of one's weaknesses, following the research findings of Janowski et al. (2021), and Lötter and Welthagen (2020). The climbers' experience of Mount Semeru in this study reflects learning as a form of expressing a constructive impression. Climbing tourism is a special interest tour; it has a different purpose from other tours.

The climbing trip fosters a sense of courage and self-confidence (Kangas et al., 2018), so it is necessary to prepare for the worst that will happen. A climber is faced with independence and responsibility (individual and group responsibility). Strength and emotional control are the keys to happiness in climbing (Lötter and Welthagen, 2020) because of the extraction from a struggle in the face of challenges and difficulties: the courage to take responsibility, courage to manage emotions in the face of physiological stress, dehydration due to long journeys, phobia of heights, and all that makes human performance decline. Thus, the risk of fatigue, serious injury, and mental error increases the higher a climber goes (Blakely et al., 2021; Osborne, 2021; Raue et al., 2018). The probability of reaching the peak is inversely proportional to the risk of death (the higher the risk of traveling, the higher the risk of death).

## CONCLUSION

This paper has unfolded a variety of social meanings of climbing for different respondents. At the individual level, this activity is undertaken to vent out inner voices and self-evince that the fear of heights is just imagination. Secondly, for some respondents, being at a high altitude allows them to make sense of solidarity and sustain nature engagements. Thirdly, this activity helps them to identify and evaluate the critical points of being in high altitudes and the possible risks involved. The ascent of Mount Semeru is considered to be one of the most hazardous activities available to tourists due to the presence of a treacherous ascent route, the risk of hypothermia, the presence of toxic gases, and the possibility that Mount Semeru will erupt. In spite of the potential for life-threatening volcanic eruptions, it is safe to say that the mountaineers who attempt to scale Mount Semeru have a tremendous amount of courage. This courage arises because climbers want to enjoy tourist attractions or the beauty of natural scenery and gain valuable experiences.

Climbers experience a variety of threats and fears along the climb, all of which must be effectively managed in order to fully appreciate the stunning natural splendor of Mount Semeru. Not only that, the climbers of Mount Semeru consider the journey to the summit as risky as an adrenaline-pumping challenge, although the feeling of worry and fear of threats or accidents persists. The climbers are able to control the sensation of anxiety they have while on the journey by mastering their feelings to maintain composure and continually think positively. The Mount Semeru climbing trip provides moral and spiritual values manifested by several behaviors, such as increasing awareness of the threat of disaster, being careful during the trip, not being underestimated, and not feeling arrogant in all conditions. The climbers realized that there were many threats during the journey to the summit; fear, anxiety, and worry were countered to reach Mount Semeru.

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## POSITIONING OF ISLAMIC HOTELS: A CORRESPONDENCE ANALYSIS APPROACH

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**Abstract:** Islamic hotels are defined as those implementing the Islamic model of hospitality and this pioneering study aims to examine the positioning of these hotels compared to conventional hotels. A structured questionnaire was used to collect data and a total of 207 responses were received and analyzed. Correspondence analysis was used to analyze the data and perceptual maps were generated. The results showed that specific hotel attributes relate more to Islamic rather than to conventional hotels and that both types of hotels seem to lack a comparative positioning strategy. Islamic hotels could build on, and strengthen their current positions, while, simultaneously expanding their appeal to the non-Muslim travel market based on its desired attributes. Conventional hotels, on the other hand, could offer key attributes required by Muslim travelers in order to capture the growing Islamic travel market.

**Key words:** Islamic hotels, positioning, perceptual maps, correspondence analysis, Muslim traveler

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### INTRODUCTION

The market of the travel services oriented towards the Islamic demographic is becoming increasingly significant. Many international hotel chains are now explicitly seeking to cater to the Islamic travel market, including high-end brands such as the Hotel Vier Jahreszeiten Kempinski in Munich, The Grand Hotel Kempinski Geneva, and the Marriott International's Ritz-Carlton. For example, the Kempinski indicates on its website that “among the services for Muslim guests at the chain's Grand Hotel des Bains in St. Moritz, Switzerland, is a special women's spa and gender-segregated exercise sessions. Kempinski offers identical services at other properties in Berlin, Bangkok and Budapest, Hungary” (Islam.ru, 01.17.2013). Accordingly, understanding the desired attributes of Islamic hotels by both Muslim and non-Muslim travellers is of value to conventional hotels in that they are better able to keep up with increased competition from the Islamic hotels. While Muslim travellers probably took the conventional hotel model for granted as the sole model in hospitality in the past, the number of Muslim travellers seeking an Islamic hotel experience is substantial (Kamin, 2019), especially coming from the Middle East and Southeast Asia. Conventional hotels are indeed taking notice of this demand for Shariah-compliant hospitality as the interests of Muslim travellers has become more widely acknowledged.

The academic literature on hospitality branding has recently been advanced to give greater consideration to non-Western cultural frameworks. For example, Han et al., (2021) found that there are adverse mental health effects of “inconvenient tourism” for Muslim travellers in non-Muslim countries. One such extension is to the development and marketing of tourism to the Muslim demographic through Islamic and/or Halal tourism. While recent research examines the demand for Islamic compliant services, customer satisfaction, trust, performance of Islamic hotels, and customer preferences, less has been explored regarding the positioning of Islamic hotels. The position of a brand is the perception it creates in the minds of consumers and the way an organization positions itself is its positioning strategy that enables it to establish a competitive advantage (Chieh-Hua and Wen-Ya, 2010). Although such a position remains in the eyes of customers, establishing a unique market position is critical to an organization's success in boosting its market share. That position encompasses the bundle of attributes offered in an effort to meet customers' wants and needs. In other words, the offer must clearly show the organization's selling proposition. In order to demonstrate the selling proposition, accurate positioning must occur. In this paper, we examine the current position of Islamic hotels in the marketplace -whether that position reflects their true identity as

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'Islamic' - and whether it serves the business interests of Islamic hotels to create a more authentic identity as Islamic in the minds of consumers. Therefore, positioning in the case of Islamic hotels is analysed here through their niche strategy or building their position away from competitors using the four major components of positioning; product, perceptions, communications, and competition. We use perceptual mapping to reflect each of these components.

We find that survey respondents consider a number of attributes characteristic of Islamic hotels, namely privacy and modesty in attire of staff and customers, the provision of prayer facilities, dedicated check-in facilities for female guests, a prohibition on alcohol and exclusively Muslim food services staff, conservative in-room entertainment, Muslim-majority staff and management and Islamic management practices, on-site Islamic educational opportunities, and sharia-compliant hotel events. Consumers surveyed consider the prohibition of immoral entertainment activities, the provision of exclusively halal food, gender-segregated sports facilities, and the restrictions on unmarried couples staying together desirable attributes for both conventional and Islamic hotels. Further, survey respondents indicate that their perceptions of the attributes of conventional hotels include non-Muslim guests dressed decently (but without a mandatory headscarf) and bidets in guest bathrooms. Our results have implications for governments, management of hotel chains, and the hospitality industry at large. Some of the anticipated attributes of tourists related to conventional hotels could be achieved by many family-oriented hotel chains, even outside of Muslim-majority countries, such as disposable (given as gifts) bidets and guidelines on appropriate guest attire. Clearly, hotels outside of Muslim-majority countries with on-site activities considered immoral by Islamic travellers (casinos, nightclubs, bars, and so forth) will not seek to implement changes to take on these attributes. For hotels in Islamic countries, and for hotels seeking to improve their reputation in meeting the needs of Islamic tourists, improvements in the quality of services provided can be made in some cases simply by establishing policies regarding guest and staff attire, controls on in-room entertainment, staff and facilities more responsive to Muslim women, and on-site infotainment regarding Islamic culture and religion. Doing so can both meet the needs of Muslim travellers and generate brand loyalty by providing holistic benefits.

In addition to that the success of Islamic tourism or halal tourism depends on whether the tourism activities are carried out according to Islamic principles (Battour and Ismail, 2016). Yousaf and Xiucheng (2018) emphasize that Muslims travel according to certain Islamic rules. Akyurt (2020) say that the most important factors among the Islamic hotel selection criteria of Muslim tourists are halal food and segregated service areas. Karaoğlu and Şahbaz (2021) stress the importance of halal certification in hotel marketing. Yusof and Soelar (2022) found that service quality significantly affects customer satisfaction in their study on Muslim-friendly hotels. Al-Ansi et al., (2022) investigated the effects of Islamophobia on Muslim tourism, examined the differences between western and eastern society, and emphasized that local people's feelings about Muslim tourists are an important factor for tourists. An important point that is usually overlooked is the role of Muslim women in choosing a hotel (Khan et al., 2022), as they have a keen interest in attributes such as privacy and segregated facilities. Accordingly, this study used a descriptive method to describe customers' perceptions concerning the positioning of hotels, i.e., Islamic and conventional hotels.

Correspondence analysis was used to develop perceptual maps (Iacobucci and Grisaffe, 2018), with attributes related to Islamic and Conventional hotels. For this purpose, we first show the current market positioning of both types of hotels. Next, we examine whether the current position of Islamic hotels truly reflects the acclaimed Islamic identity. To collect the needed data, an online questionnaire was designed to collect data from Islamic hotel in Jordan.

The paper proceeds as follows. In section 1, we review the relevant literature on Islamic hotels and brand positioning, and present our research questions. In sections 2 and 3, we describe the data and methods used in the analysis while section 4 presents the findings, limitations, implications for future research, and conclusions. The following figure 1 summarizes the steps followed to achieve the research objectives.

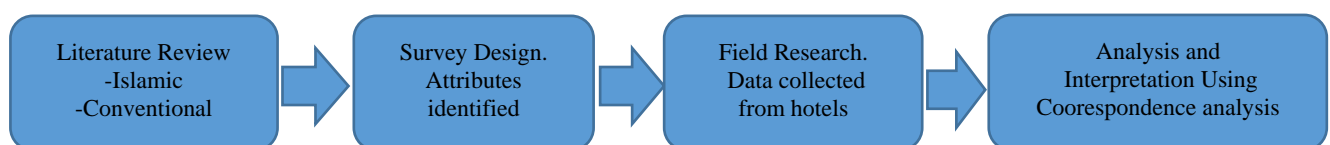


Figure 1. Research Flowchart

## LITERATURE REVIEW

### 1. Islamic Hotels

Islamic marketing has evolved into a substantial body of literature. Alserhan (2010) offers a detailed description of Islamic branding, linking it to the Islamization of international brands. He notes that a number of non-Muslim corporations, such as Nestle, have made substantial investments in research on the factors related to their brands that would make them amenable to the Halal market, as well as new production facilities in Muslim-majority countries such as Malaysia. Alserhan (2016) notes that in order to engage the halal market, firms need to employ brand-Islamization strategies, using a holistic analysis of the business environment they seek to develop. However Alserhan (2016), warns that success for non-Muslim MNCs in entering and maintaining positions within the Islamic demographic will rely on marketing and branding strategies that adhere to Islamic guidelines and standards rather than simply applying Western marketing and branding approaches to Islamic consumers. In addition, authenticity in the approach to product offerings demonstrates respect, care, and consideration, and signals that the company values the Islamic consumer, which can lead to increased brand loyalty. The literature on Islamic branding has been extended to the hospitality and tourism literature, often under the guise of "halal"

tourism. It is necessary to make a distinction between Islamic hotels and Halal hotels, two terms which are often conflated in the literature despite a significant difference in interpretation. The term “Islamic” is a more general term, rooted in Islam and Arabic, than the term “halal”, which is too specific to describe institutions or frameworks. For this reason, for instance, the term “Islamic finance” is used to describe the framework of a financial system, rather than “Halal finance”, and “Halal Certificates” are given for certain products (such as food or drinks) at Islamic hotels. Our objective is to examine the positioning of Islamic hotels, not to define which products or services of hotels are “halal”.

Islamic hotels draw their justification from the Islamic Shariah. Therefore, they are clearly guided in terms of what kind of behaviour or hospitality they offer (Alserhan et al., 2016). Islamic hotels offer a comfortable, ‘culturally compatible’ experience for Muslims, by catering to their basic religious requirements (Rehman and Aisha, 2023). In addition to this, for any other guest, an ‘Islamic’ hotel can provide a ‘cultural and family experience’ (Batrawy, 2015; Moussly, 2011).

In order for hotels to appeal to consumers looking for a ‘Muslim’ guest experience, many hotels utilise the Crescent Rating system ([www.crescentrating.com](http://www.crescentrating.com)), which is an accreditation system for hotels measuring particular criteria which are important within Islamic teaching. These characteristics include, among others, the provision of a ‘dry’ (alcohol free) environment, availability of halal foods, and access to dedicated prayer space.

Muslim travellers increasingly consult the Crescent Rating website when booking a holiday or business trip (Zulkharnain and Jamal, 2012). In addition to looking to the Crescent Rating for a perspective on what an Islamic hotel is, several researchers focused on their attributes. One of the most complete works in this regard is that of Stephenson (2014) who listed twenty nine attributes divided among five major categories: Human Resources, Private Rooms (bedrooms and bathrooms), Dining and Banqueting Facilities, Other Public Facilities, and Business Operation. Another detailed assessment is found in Razalli et al., (2015), who introduced SIHAT or Shariah Islamic Hotel Assessment Tool, a comprehensive model generated from an exploratory study of Shariah-compliant hotels in Malaysia. SIHAT is composed of five main categories; administration, common areas, bedroom, services, and food and beverages, with a total of 64 attributes. Finally, the concept of *Aurat* would require compliance with dress standards (i.e., non-revealing clothing and head coverings for Muslim guests and staff and non-revealing clothing for non-Muslim guests), with this dress code clearly stated in the hotel. Further, privacy requires separate recreational facilities for men and women, halal food prepared by Muslim food service workers, and Islamic themed events for guests.

## 2. Brand Positioning

A positioning strategy is used by organizations to establish a competitive advantage through an assessment of the impact of their external environment on their strategic capability (resources and competences) and expectations. Kotler (2000) defines positioning strategy from the marketing point of view as the act of designing a company’s offerings and image to occupy a distinct place in the target market’s mind; it refers to the design and implementation of a retail mix to create an image relative to its competitors. It is a holistic, integrative, cross-functional activity taking into account merchandise, environmental, customer service, and customer communication decisions. Kalafatis et al., (2000) argue that positioning strategy deploys both tangible assets (such as products and other physical items) and intangible assets, such as the reputational capital of the company. Managers should deliberately and proactively define, modify, and implement consumer perception of marketable offerings relative to the competition.

Although there are different conceptualizations regarding positioning, the literature appears to have reached a consensus that it corresponds to the development of a resource-based asset valued in the capital markets. Dou et al., (2010) and Coffie and Owusu-Frimpong (2014), among many others, consider positioning “to be one of the key elements of modern marketing management” (Blankson and Kalafatis, 2004: 5). Positioning adds value to the firm by supporting the differentiation of the organization from its competitors, stimulating more effective strategic planning, directing a successful corporate communication program that clarifies to customers what the organization stands for, and enhancing financial performance (Coffie and Owusu-Frimpong, 2014; Gilbert and Wong, 2003; Fisher, 1991). However, for these benefits to be realized, positioning needs to be successful: firms need to develop and occupy a well-defined position in consumers’ minds, which is difficult to develop and maintain due to various market forces and dynamics. Further, internal forces, such as constraints on capital and managerial expertise, also have significant impacts on positioning.

Prior research has uncovered insights into various aspects of positioning strategy. For example while Lovelock and Wirtz (2011: 83) focus on the product in the positioning process and posit that “positioning involves decisions on attributes important to customers” (Chieh-Hua and Wen-Ya, 2010: 7) highlight a different aspect –customers- of that process and Ries and Trout (1972, 2006), positioning is about how a product or service is communicated to the target audience and its ability to represent it. Positioning is explored through the concept of distinctiveness by Andrei et al., (2008: 1106) who define positioning as “the act of designing the company’s offering and image to occupy a distinctive place in the mind of the target market”.

Taken together, successful positioning supports enhanced performance objectives. First, a well-established position is difficult and costly for competitors to achieve. Second, it requires firms to develop their corporate communication skills (Gursoy et al., 2005). Third, it supports brand loyalty. Fourth, it allows the organization to command higher prices through differentiation (Coffie and Owusu-Frimpong, 2014). Because our study focuses on the establishment of a comprehensive positioning strategy for Islamic Hotels, we use a broad perspective, defining it as an effort to influence consumer perception of a brand or product relative to competing brands or products, to create an image for the product based on its intended audience achieved through the marketing mix (promotion, price, place and product). This perspective includes the four main core components of positioning as product, perceptions, communications, and competition. These components will be used as the basis for the perceptual maps that will be created and discussed in the analysis section of this paper.



### 3. Positioning of Islamic Hotels

For Islamic hotels, the most obvious choice is to pursue their own path to hospitality as it will be very difficult for them to compete on the same ground as more established competitors within the conventional hospitality industry (Alserhan et al., 2018). Islamic hotels are distinct, and they should emphasize and exploit their distinctiveness, and build business around this core concept of hospitality. The distinctiveness of Islamic hotels generates barriers to entry for traditional hotels to compete with Islamic hotels using the Islamic concept. This conclusion is fact not myth. One only needs to look at Islamic finance as an example where almost all major banks in the world are opening Islamic banking windows or branches. Yet, these windows are not having the same success as banks that were established as Islamic from the beginning. The point that needs to be emphasized here is that doing business as 'Islamic' is unique. While major hotel chains will shy away at this period in the life of Islamic hotels, they will have no option but to engage the Islamic guest segment sooner or later. This is so because, eventually, even though Islamic hotels are targeting a specific type of guests. That segment is growing and that growth will inevitably come at the expense of traditional hotels. Therefore, rather than seeing their share of the Muslim guest segment dwindle they will launch their own Islamic brands or dedicate some of their hotels that are most frequented by Muslims. Islamic hotels are also building the image of family friendly hotels i.e. no alcohol, no night clubs, no prostitution etc. Family travellers are a significant segment that could also possibly be lost to Islamic hotels provided that these hotels could manage their image properly and stand by their values (Alserhan et al., 2018). While Islamic hotels could at this stage build their position away from competitors, they will eventually become main stream providers of hospitality services. This natural transformation from niche to direct competition will be gradual and therefore giving Islamic hotels the time to establish themselves as formidable competitors within the hospitality industry.

Broadly speaking, although businesses have the ability to differentiate and position their offerings using a seemingly infinite combination of the various elements of the marketing mix (Coffie and Owusu-Frimpong, 2014) the extent of this ability varies between sectors since what works in a sector doesn't necessarily work in another. This situation is even exacerbated in services since the characteristics of the service makes it almost impossible to standardize and therefore harder to use as a foundation for positioning. Islamic hotels are not only part of the international hospitality industry, but also part of the growing Islamic business which is worth between 3 and 5 trillion USD.

This sector includes, in addition to hospitality, other services such as Islamic finance, Islamic entertainment, and most recently Islamic airlines, among many other services. Although the fact that Islamic hotels are 'Islamic' could be leveraged as a positioning strategy, it also poses several challenges for Islamic hoteliers.

As a strategy, positioning as 'Islamic' has the potential to fulfil the requirements of effective positioning. First, it becomes difficult for competitors to match since it is based on an entirely different business model within the hospitality industry that competitors cannot readily emulate, or want to emulate in the first place. Second, it is also easy to communicate to customers because such a position means a hotel is Shariah-compliant i.e. no alcohol, no night club, gender-segregated swimming pool, etc. Associating Islamic hotels with these attributes would be similar to Toyota being associated with economy and breakthrough technology, Ferrari with speed and thrill, and Range Rover with luxury. Not only are such attributes easy to communicate to customers, they also give a clear idea about the hotel's identity and values, an issue that many organizations struggle to achieve. Third, customers can clearly see the difference between such a hotel and a traditional hotel by comparing the attributes of both. Fourth, customers who are specifically looking for an Islamic hotel might be willing or expecting/expected to pay a premium for it. The literature indicates that Islamic hotels are characterized by high customer satisfaction.

Eygu and Gulluce (2017) examine expectations of Turkish conservative concept hotels by Turkish and foreign customers and find that over 90% of customers were satisfied by conservative concept hotels, particularly Turks and retired customers. They also note that while satisfaction is high, conservative concept hotels should continually update their facilities, services, and offerings. This being the case, there is an established model for Islamic hotels to follow successfully. On the other hand, positioning of hotels as 'Islamic' presents several significant challenges. While Islamic hotels face the usual challenges most other new comers face, there are some that are unique to these hotels (Alserhan et al., 2018). However, in this paper we will not be discussing the usual challenges because these are found in numerous resources specializing in the establishment of new businesses, but special attention will be given to those aspects specifically related to Islamic hotels. These unique challenges are related to staffing, stereotyping, Islamophobia, transparency, and facilities. These four challenges are discussed next.

1. Staffing. Finding qualified people who are well-trained in the provision of hotel services that are guided by Islam is a serious problem. The key challenge here is that Islamic work ethics and values, including those related to hospitality, cannot be easily communicated through a crash course or even an extended one. These are acquired through life time exposure to them which limits the pool of applicants to Muslims, especially in front stage positions where guests and staff members meet regularly whether that meeting takes place in reception, room services, catering, sports and entertainment facilities, etc. Other back stage jobs with less direct contact with guests can tap into a much larger pool of applicants since non-Muslims can apply to them. For Muslim guests, catering is the most important aspect, since food and drinks must be Halal. Other aspects that have been linked to satisfaction of Islamic hotel guests are segregated swimming pools and fitness facilities, although important, are not core requirements. Eating and dining takes precedence over swimming and going to the gym. Muslim guests can simply avoid them if they wish to do so. However, the lack of such facilities can undermine the hotel's position as Islamic.

2. Stereotyping. Being an Islamic hotel will directly imply religion (Rehman and Aisha, 2023). Religion is not usually associated with fun and relaxation, something that is expected of hotels. How do Islamic hotels position themselves as Islamic while at the same time be associated with offering a gratifying guest experience is a nontrivial challenge.

3. Islamophobia. This situation arises more so in the case of non-Muslim guests who might have negative preconceptions about Islam as a religion and such preconceptions are projected on Islamic hotels. This is a difficult challenge

to overcome because it requires a change at the level of the society as whole and not a single initiative by a certain hotel. On the other hand, there is a chance that the problem of Islamophobia may not be as detrimental to the success of Islamic hotels as one may think. This is so because people with such beliefs might avoid all together going to Islamic countries, in addition to a world-wide attitude towards encouraging mutual understanding between different cultures and religions.

4. Transparency. Islamic hotels risk losing out on repeat business from some non-Muslim clients who were unaware that they were staying in an Islamic hotel. Many traditional hotels, especially in the west, are associated with offering alcoholic beverages, and guests would naturally expect to find these in the hotel of their choice. Since many Islamic hotels do not clearly specify in their corporate communications and marketing that they do not serve alcohol, guests desiring such products will be unpleasantly surprised when they discover that they are unavailable. Such a position leads to client disappointment and bad customer experience, which are two situations that all businesses try to avoid (Alserhan et al., 2018).

5. Facilities. The challenge regarding facilities is that the high cost of building and maintaining the quality of segregated facilities, including the corresponding staffing costs. If Islamic hotels opt for shared facilities that provide separate operating hours for men and women, time management and optimizing the use of these facilities to achieve higher customer satisfaction become costly. The fitness facilities and pool are the two most difficult facilities to manage in this regard in terms of cost, optimal use, and time management.

Based on our literature review, we ask three research questions:

RQ1. What are the perceived essential attributes of Islamic hotels?

RQ2. What are the perceived essential attributes are common to both Islamic and Conventional hotels?

RQ3. Do the perceived essential attributes of Conventional hotels differ from Islamic hotels?

## METHODOLOGY

This study used a descriptive method to describe customers' perceptions concerning the positioning of hotels, i.e., Islamic hotels and conventional hotels. We used correspondence analysis to develop perceptual maps with attributes related to Islamic and Conventional hotels. Like many multivariate data analysis approaches, correspondence analysis seeks to establish scores that indicate how similar or dissimilar answers from two or more variables are (Beh, 2004). Thus, the correspondence analysis transforms the table with the data into a row set and a column set, which provide the similarity structure of the rows and the columns based on the correspondence data table (Abdi and Béra, 2014). The correspondence analysis as a technique turns a data matrix into a specific type of graphical representation in which the rows and columns are shown as points (Greenacre and Hastie, 1987). Thus, the correspondence analysis plots the data for better visualization.

### 1. Measurement Constructs

The measurement scale was based on the list of attributes from Stephenson (2014) and Razalli et al., (2015) in addition to the Crescent Rating system. The attributes, which are shown in table 1, are comparable. It is important to note here that although many conventional hotels announce that they are Muslim-friendly and provide Halal food, we do not know if consumers' actually perceive them as Islamic hotels or not. Based on these three resources, the following attributes were included in the survey: Aurat (Privacy and modesty in attire), Halal food, Mahram (Male companion), Ibadat (Worship), Islamic entertainment and decoration, Islamic management, and Islamic event. For a better clarity, first the original Arabic words are given, then the English equivalents in the parentheses are given. Respondents were asked to indicate which attributes relate to which type of hotel. Of course, any given attribute could be specific to one type of the hotels or could apply to both types. A Convenience sampling technique was applied for this study. Two-hundred and seven valid responses were collected through a structured questionnaire. The questionnaire included attributes and respondents were asked to indicate if these attributes mostly described one type of the hotels or both hotels (Islamic vs. Conventional). As shown in Table 1, these attributes, as dimensions, were included in the survey: Aurat, Halal food, Mahram, Ibadat, Islamic entertainment and decoration, Islamic management, and Islamic event.

### 2. Questionnaire and Sample Selection

The face validity of the questionnaire was ensured following a two-stage approach. A panel of three bilingual faculty members who are fluent in both Arabic and English were asked to review the instrument and make suggestions, which were then incorporated in the revised instrument and sent back to the panel for their approval. Afterwards, the questionnaire was administered to hotels guests. The questionnaire included a list of attributes and respondents were asked to indicate which type of hotels these attributes mostly belong. Respondent had the option select both types of hotels if they deemed certain attributes applied to both types. Using a convenience sampling technique, 207 valid responses were collected through a structured questionnaire.

### 3. Data Collection

An online questionnaire was designed to collect data from Islamic hotel guests in Jordan. The questionnaire included the hotel service attributes representing either, or both Islamic and conventional hotels. It also included certain attributes that mostly characterize Islamic hotels such as being alcohol-free, the existence of prayer rooms, gender separation, Halal catering, etc. While it might be wrongly assumed that conventional hotels would not provide such features, it is important to debunk such a myth. Almost all international conventional hotels in Muslim countries are progressively moving closer towards the Islamic model of hospitality. For example, the Sheraton in Bahrain - a conventional hotel- provides a prayer mat with a compass that shows the direction of Mecca while the Royal Plaza on Scotts in Singapore declares that it has many Muslim-friendly amenities: all rooms come with Quran and Qiblah direction signs, prayer times and prayer mats are available upon request, food at buffet restaurant, Carousel and Artisan Cupcakes by Gourmet Carousel are prepared in Halal-certified

kitchens, and there is also a prayer room within the hotel. The PNB Darby Park Executive Suites is another example of such a trend. It is a four-star hotel in Malaysia that caters to Muslim guests, albeit quietly, which sometimes inconveniences some of its guests. For example, a review at Booking.com by a guest reads “No biggie - No wine glasses in room”.

Table 1. Constructs items

| Constructs                            | Code | Items   |
|---------------------------------------|------|---|
| Aurat (Privacy and modesty in attire) | AU1  | AU1. Muslim women staff shall dress fully complying with Aurat rules.   |
|                                       | AU2  | Non-Muslim women staff shall wear decent clothing according to Islamic-style complete with headscarves.   |
|                                       | AU3  | Muslim women hotel guests shall wear headscarves and decent clothing.   |
|                                       | AU4  | .Non-Muslim hotel guests shall wear decent clothing without the need for head covering for the women.   |
|                                       | AU5  | The hotel shall provide separate recreational facilities or different timings for men and women use.  |
| Halal food                            | HF1  | Alcoholic beverages cannot be consumed anywhere in the hotel premise including guest rooms.   |
|                                       | HF2  | Only halal food can be served in the hotel premise.   |
|                                       | HF3  | All kitchen workers for all the restaurants and cafes within the Islamic Hotel premise shall be Muslim  |
| Mahram (Male Companion)               | MA1  | Only couples with Mahram relationship can be allowed to check in to the same room   |
|                                       | MA2  | The hotel shall allocate a dedicated floor for female guests to check in without a male guest as their Mahram   |
| Ibadat (Worship)                      | IB1  | The hotel shall provide a dedicated place or preferably a mosque for congregational prayer and Islamic teaching. Call for prayer shall be clearly broadcast to the rest of the hotel and congregational prayer must be established for the five compulsory daily prayers. |
|                                       | IB2  | All guest rooms shall be equipped with means that facilitate Muslim guests to comfortably pray. Prayer mat, holy Quran, and Qiblat signs, the three basic facilities, are compulsory in all rooms.  |
|                                       | IB3  | The bathroom as well as the bed is not positioned in the direction of the Kiblah.   |
|                                       | IB4  | A bidet shall be provided for all bathrooms in guest rooms.   |
| Islamic Entertainment & Decoration    | IED1 | The hotel shall not allow entertainment centres offering any form of service that contains immoral elements.  |
|                                       | IED2 | For room entertainment, only conservative and Islamic television channels can be provided by the hotel.   |
|                                       | IED3 | Hotel decoration using statues or images of living objects should be avoided.   |
| Islamic Management                    | IM1  | The majority of the hotel staff should be Muslim, particularly the management.  |
|                                       | IM2  | The whole aspects of the hotel management shall be based on the principles and models of Islamic management especially the financial aspects.   |
|                                       | IM3  | The hotel must ensure that donation and zakat responsibilities are paid according to the annually earned profit   |
| Islamic Events                        | IE1  | The hotel must ensure that all events held within the premises are carried out according to the Islamic way or shariah  |
|                                       | IE2  | The hotel should regularly organise events related to Islamic teaching and knowledge.   |

## RESULTS

We conduct correspondence analysis using SPSS statistical software in order to generate tables and two-dimensional graphs. These tables and graphs show hotels and associated attributes (Aurat, Halal food, Mahram, Ibadat, Islamic entertainment and decoration, Islamic management, and Islamic event) that were plotted representing customer's perception of Islamic and conventional hotels. Table 2 and Figure 2 show the frequency of responses related to consumer perceptions regarding the attributes that Islamic and conventional hotels have.

In order to support the correspondence analysis, a chi-square test was used to examine the significance of the association between hotels and attributes (Greenacre, 2017). The results shown in Table 3, revealed a significant association between attributes dimensions and hotels ( $\chi^2$ , 676.453; Df, 42;  $P < 0.001$ ) (Table 3). Table 3 shows the summary of inertia value for each dimension, as well as the total inertia value, which is 0.136. As it can be seen from Table 3, the inertia value for dimension 1 is 0.131 Thus, dimension 1 accounts for 13.1% of 13.6% of the total variance that explains the model. Dimension 2 accounts for 0.04% of the total variance. Therefore, our model explains only 13.6% of the variance in the correspondence table. In addition, the proportion of inertia column shows that dimension 1 accounted for 97% of total inertia (13.6%), whereas dimension 2 accounted for 0.30% of the total inertia (13.6%). Finally, the standard deviation column shows the standard deviation of the singular values, which are 0.014 and 0.016 while the correlation between dimensions is shown on the correlation column.

Table 4 displays how each row contributes to the dimensions (of point to inertia of dimension), and how each dimension (of dimension to inertia of point) contributes to the rows (Abdi and Valentin, 2007). Whereas the mass represents the proportion of rows to the total (4989). Table 5 displays how each column contributes to the dimensions (of point to inertia of dimension), and how each dimension (of dimension to inertia of point) contributes to the columns. Whereas the mass represents the proportion of rows to the total (4989). Moreover, the inertia column reveals the amount of variance that each column contributes to the total inertia value (rows (Abdi and Valentin, 2007; Clausen, 1998). The contribution of point to inertia of dimension columns denotes the role that each column plays in each dimension.

Table 2. Correspondence frequency of respondents

| Items         | Islamic | Conventional | Both | Active margin |
|---------------|---------|--------------|------|---------------|
| AU1           | 189     | 10           | 16   | 215           |
| AU2           | 187     | 9            | 18   | 214           |
| AU3           | 164     | 20           | 41   | 225           |
| AU4           | 141     | 32           | 64   | 237           |
| AU5           | 120     | 35           | 85   | 240           |
| HF1           | 168     | 12           | 37   | 217           |
| HF2           | 132     | 30           | 73   | 235           |
| HF3           | 190     | 7            | 15   | 212           |
| MA1           | 144     | 30           | 61   | 235           |
| MA2           | 157     | 22           | 48   | 227           |
| IB1           | 180     | 15           | 25   | 220           |
| IB2           | 181     | 13           | 24   | 218           |
| IB3           | 173     | 25           | 32   | 230           |
| IB4           | 81      | 65           | 124  | 270           |
| IED1          | 145     | 23           | 85   | 253           |
| IED2          | 179     | 15           | 26   | 220           |
| IED3          | 162     | 23           | 43   | 228           |
| IM1           | 192     | 13           | 13   | 218           |
| IM2           | 190     | 14           | 15   | 219           |
| IM3           | 191     | 14           | 14   | 219           |
| IE1           | 191     | 14           | 14   | 219           |
| IE2           | 192     | 13           | 13   | 218           |
| Active margin | 3649    | 454          | 886  | 4989          |

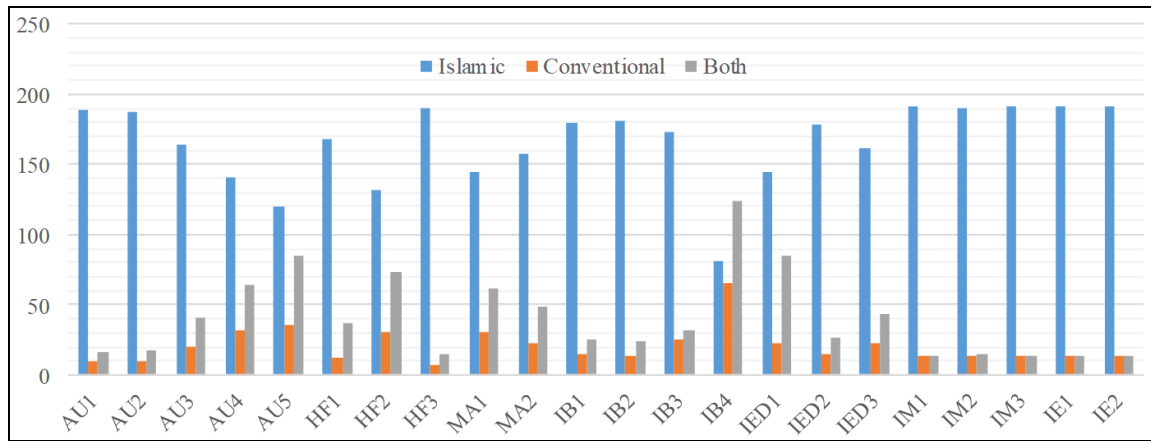


Figure 2. Correspondence frequency of respondents

Table 3. Summary of Inertia

| Summary                  |                |         |            |                   |                       |            |                           |             |
|--------------------------|----------------|---------|------------|-------------------|-----------------------|------------|---------------------------|-------------|
| Dimension                | Singular Value | Inertia | Chi Square | Sig.              | Proportion of Inertia | Cumulative | Confidence Singular Value | Correlation |
|                          |                |         |            |                   | Accounted for         |            | Standard Deviation        |             |
| 1                        | 0.363          | 0.131   |            |                   | 0.970                 | 0.970      | 0.014                     | -0.023      |
| 2                        | 0.064          | 0.004   |            |                   | 0.030                 | 1.000      | 0.016                     |             |
| Total                    |                | 0.136   | 676.453    | .000 <sup>a</sup> | 1.000                 | 1.000      |                           |             |
| a. 42 degrees of freedom | -              | -       | -          | -                 | -                     | -          | -                         | -           |

Table 4. Overview of row points

| Overview Row Points <sup>a</sup> |       |        |        |           |                                  |       |                                  |       |       |       |
|----------------------------------|-------|--------|--------|-----------|----------------------------------|-------|----------------------------------|-------|-------|-------|
| Hotels                           | Mass  |        |        | Inertia I | Contribution                     |       | of dimension to inertia of point |       |       | Total |
|                                  |       |        |        |           | of point to inertia of dimension |       |                                  |       |       |       |
|                                  |       |        |        |           | 1                                | 2     | 1                                | 2     |       |       |
| Islamic                          | 0.731 | -0.363 | 0.017  | 0.035     | 0.265                            | 0.003 | 1.000                            | 0.000 | 1.000 |       |
| Conventional                     | 0.091 | 0.812  | -0.723 | 0.025     | 0.165                            | 0.744 | 0.877                            | 0.123 | 1.000 |       |
| Both                             | 0.178 | 1.078  | 0.302  | 0.076     | 0.569                            | 0.253 | 0.986                            | 0.014 | 1.000 |       |
| Active Total                     | 1.000 |        |        | 0.136     | 1.000                            | 1.000 |                                  |       |       |       |
| a. Symmetrical normalization     | -     | -      | -      | -         | -                                | -     | -                                | -     | -     |       |

Table 5. Overview of column points

| Overview Column Points <sup>a</sup> |       |        |        |         |                                  |       |                                  |       |       |       |
|-------------------------------------|-------|--------|--------|---------|----------------------------------|-------|----------------------------------|-------|-------|-------|
| Attributes                          | Mass  |        |        | Inertia | Contribution                     |       | Of dimension to inertia of point |       |       | Total |
|                                     |       |        |        |         | Of point to inertia of dimension |       |                                  |       |       |       |
|                                     |       |        |        |         | 1                                | 2     | 1                                | 2     |       |       |
| AU1                                 | 0.043 | -0.554 | 0.054  | 0.005   | 0.036                            | 0.002 | 0.998                            | 0.002 | 1.000 |       |
| AU2                                 | 0.043 | -0.530 | 0.149  | 0.004   | 0.033                            | 0.015 | 0.986                            | 0.014 | 1.000 |       |
| AU3                                 | 0.045 | 0.012  | 0.045  | 0.000   | 0.000                            | 0.001 | 0.272                            | 0.728 | 1.000 |       |
| AU4                                 | 0.048 | 0.510  | -0.097 | 0.005   | 0.034                            | 0.007 | 0.994                            | 0.006 | 1.000 |       |
| AU5                                 | 0.048 | 0.879  | 0.154  | 0.014   | 0.103                            | 0.018 | 0.995                            | 0.005 | 1.000 |       |
| HF1                                 | 0.043 | -0.144 | 0.381  | 0.001   | 0.002                            | 0.099 | 0.446                            | 0.554 | 1.000 |       |
| HF2                                 | 0.047 | 0.647  | 0.170  | 0.007   | 0.054                            | 0.021 | 0.988                            | 0.012 | 1.000 |       |
| HF3                                 | 0.042 | -0.612 | 0.194  | 0.006   | 0.044                            | 0.025 | 0.983                            | 0.017 | 1.000 |       |
| MA1                                 | 0.047 | 0.444  | -0.058 | 0.003   | 0.026                            | 0.002 | 0.997                            | 0.003 | 1.000 |       |
| MA2                                 | 0.046 | 0.154  | 0.083  | 0.000   | 0.003                            | 0.005 | 0.951                            | 0.049 | 1.000 |       |
| IB1                                 | 0.044 | -0.328 | -0.021 | 0.002   | 0.013                            | 0.000 | 0.999                            | 0.001 | 1.000 |       |
| IB2                                 | 0.044 | -0.370 | 0.062  | 0.002   | 0.016                            | 0.003 | 0.995                            | 0.005 | 1.000 |       |
| IB3                                 | 0.046 | -0.096 | -0.376 | 0.001   | 0.001                            | 0.102 | 0.268                            | 0.732 | 1.000 |       |
| IB4                                 | 0.054 | 1.604  | -0.475 | 0.051   | 0.384                            | 0.191 | 0.985                            | 0.015 | 1.000 |       |
| IED1                                | 0.051 | 0.629  | 0.708  | 0.009   | 0.055                            | 0.397 | 0.818                            | 0.182 | 1.000 |       |
| IED2                                | 0.044 | -0.310 | -0.001 | 0.002   | 0.012                            | 0.000 | 1.000                            | 0.000 | 1.000 |       |
| IED3                                | 0.046 | 0.076  | -0.065 | 0.000   | 0.001                            | 0.003 | 0.885                            | 0.115 | 1.000 |       |
| IM1                                 | 0.044 | -0.570 | -0.163 | 0.005   | 0.039                            | 0.018 | 0.986                            | 0.014 | 1.000 |       |
| IM2                                 | 0.044 | -0.521 | -0.174 | 0.004   | 0.033                            | 0.021 | 0.981                            | 0.019 | 1.000 |       |
| IM3                                 | 0.044 | -0.539 | -0.194 | 0.005   | 0.035                            | 0.026 | 0.978                            | 0.022 | 1.000 |       |
| IE1                                 | 0.044 | -0.539 | -0.194 | 0.005   | 0.035                            | 0.026 | 0.978                            | 0.022 | 1.000 |       |
| IE2                                 | 0.044 | -0.570 | -0.163 | 0.005   | 0.039                            | 0.018 | 0.986                            | 0.014 | 1.000 |       |
| Active Total                        | 1.000 |        |        | 0.136   | 1.000                            | 1.000 |                                  |       |       |       |
| a. Symmetrical normalization        |       |        |        |         |                                  |       |                                  |       |       |       |



The following Figure 3 shows the score for each category of Attributes on dimension number 1. On the other hand, Figure 4 shows the score for each category of Attributes on dimension number 2.

The results from Figure 5 denote that most of attributes relate to Islamic hotels and address our first research question. Respondents perceive that essential attributes of Islamic hotels include the following: AU1, AU2, AU3, IB1, IB2, IB3, M2, HF1, HF3, IED2, IM1, IM2, IE1, and IE2. These factors correspond to policies supporting modesty in attire of hotel staff and guests, required facilities and items for prayer, a floor with check-in facilities for female guests, a prohibition on alcohol, an exclusively Muslim food services staff, conservative in-room entertainment, Muslim-majority staff and management and Islamic management practices, on-site Islamic educational programming, and sharia-compliant hotel events.

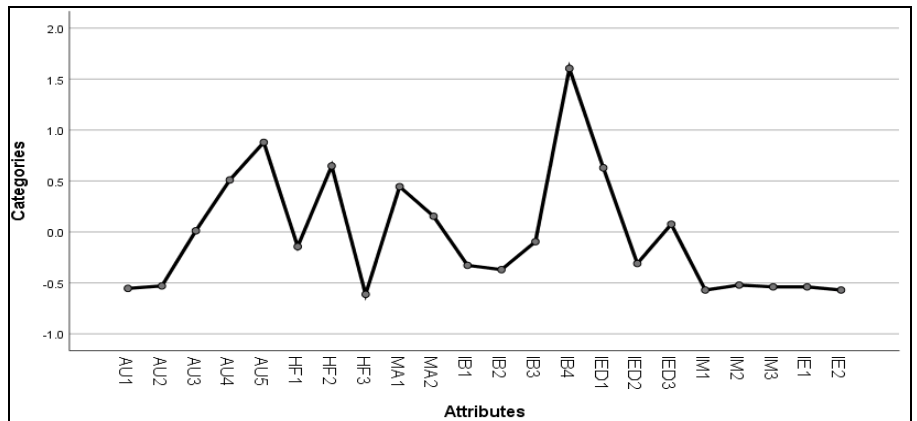


Figure 3. Attributes score for dimension number 1 (Symmetrical normalization)

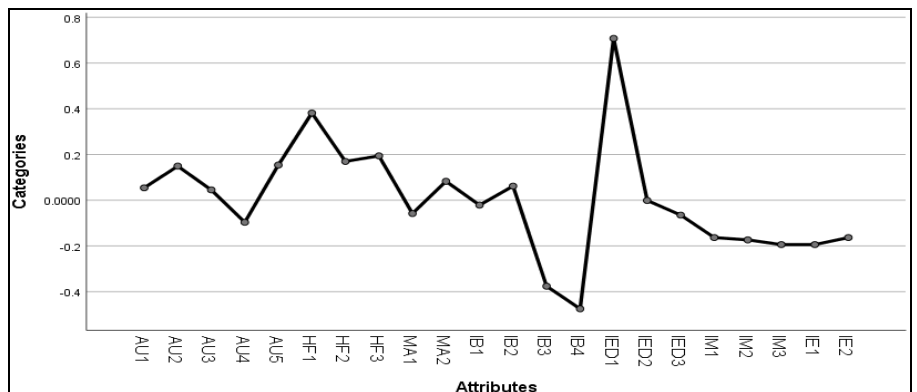


Figure 4. Attributes score for dimension number 2 (Symmetrical normalization)

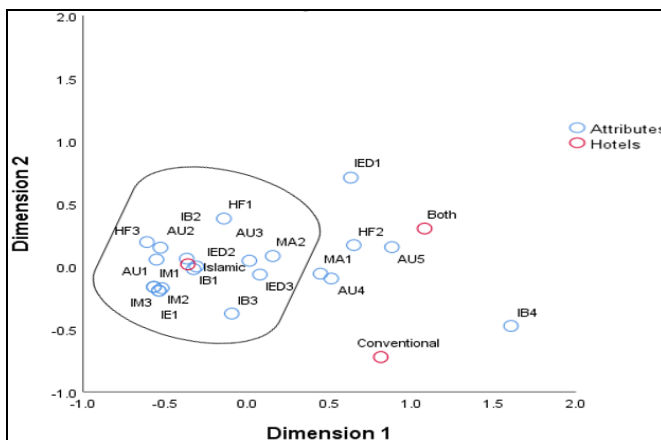


Figure 5. Customers' Perception of attributes items regarding Islamic hotels

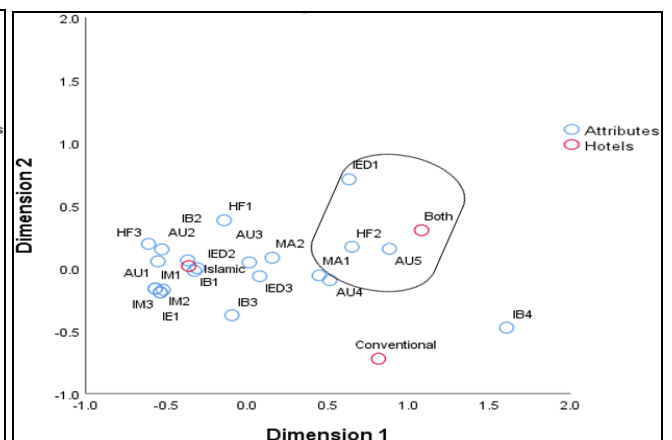


Figure 6. Customers' Perception of attributes items regarding both Islamic and conventional hotels

**Note:** Aurat (AU1, AU2, AU3, AU4, AU5), Halal food (HF1, HF2, HF3), Mahram (MA1, MA2), Ibadat (IB1, IB2, IB3, IB4), Islamic Entertainment & Decoration (IED1, IED2, IED3), Islamic Management (IM1, IM2, IM3, Islamic Events (IE1, IE2)

The results from Figure 6 address research question 2 and reveal that customers believe that perceived attributes of both Islamic and Conventional hotels are the following IED1, HF2, MA1 and AU5. These attributes include: the prohibition of immoral entertainment activities on the hotel grounds, halal only food items, gender-segregated sports facilities, and prohibition of unmarried couples staying together in the same room. Figure 7 addresses our third research question and indicates that items AU4 and IB4 were perceived by the customers to be attributes only of conventional hotels, involving non-Muslim guests dressed not wearing headscarves and bidets provided in guest bathrooms. Clearly, the expectations of conventional hotels differ substantially from those of Islamic hotels.

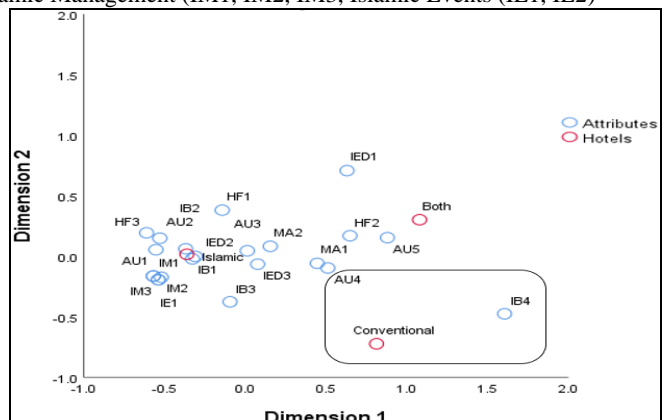


Figure 7. Customers' Perception of attributes items regarding Conventional hotels

## IMPLICATIONS, LIMITATIONS, AND CONCLUSIONS

Our goal was to create perceptual maps showing the comparative positioning of Islamic and conventional hotels as viewed by guests. These maps revealed the perceptual space Islamic hotels occupied relative to their competitors. Therefore the maps can be used as strategic planning tool since they can help Islamic hotels, and conventional hotels as well, decide if the current position is actually reflecting their intended offerings and whether the position should be maintained or changed. Moreover, the perceptual maps reveal the critical differentiating factors which set apart these two types of competing hotel business models.

### a. Practical Implications

For a hotel seeking to be perceived as Islamic, a key consideration will be its overall compliance with the Shariah requirements pertinent to hotels. This position in turn will impact everything else the hotel does. Hotels, like other businesses, need to create a unique positioning advantage. One-dimensional strategy position maybe hard to find. At the same time a strategic position that works for one firm may not work for another. Clearly one-position-fits-all does not work and different positioning options may be required. Islamic hotels should evaluate the importance of the various attributes for the development of their positioning strategy. Most likely, not all Islamic hotels need all attributes. Depending on their segment, some of the more expensive attributes could be outsourced, or removed all together if not in demand.

For example, a dedicated floor for female guest check-in and gender-segregated exercise facilities may be prohibitively expensive to achieve; however, women-only hours for swimming pools and exercise rooms may be achievable for many hotels. Certainly, spa facilities are already gender-segregated in many hotels, both conventional and Islamic. The provision of prayer rugs and bidets in guest rooms are not standard in some Western countries; however, hotels (both Islamic and conventional) seeking to appeal to Muslim guests could provide these amenities, as well as a dedicated prayer space, for customers in some rooms at relatively low cost. Other attributes of Islamic hotels may be difficult to accommodate even in Muslim majority countries based on business laws; for example, a perceived attribute of Islamic hotels is Muslim-only food preparations staff, which could run afoul of anti-discrimination regulations. Finally, the hotel industry itself can promote Islamic values in terms of common global values. Islamic management practices contain universal values of equity and justice, and these should be promoted under the general banner of sustainability. Further, a global alliance of Islamic hotels could be formed, with a network extending to “Islamic adjacent” structures such as wellness resorts and spas where halal dining options are offered, family privacy is afforded through segregated pools, gyms, and spas, and alcohol is not sold on the premises. For instance, The Retreat Palm Dubai by Sofitel is a dry resort which offers halal dining, segregated gender gyms and spas, and extensive juice bars. While it does not explicitly target Muslims, it may be the case that the features that make it amenable for holistic health reasons would attract Muslim guests as well, if they were aware of the hotel features. Forming alliances and networks will help Islamic hotels in achieving and reinforcing their positioning advantage.

An example that could be followed is One World, which is an Airline alliance based in New York City. Such an alliance will greatly expand the reach of these hotels through providing them with the much needed access to international travellers.

### b. Limitations and future research

This study is the first of its type within the Islamic hospitality industry. It is intended as an eye-opener, and to instigate more in depth research. While positioning studies are abundant in other sectors, there is a clear lack of them in all areas of Islamic business, including hospitality. Therefore, despite of the obvious limitations, which include a relatively small sample size, nonprobability sampling, being limited to hotels in one country only – Jordan, the study remains a significant step forward in the positioning area. Future research could address one or more of the limitations of this study. In particular, surveying guests from several locations and increasing the sample size. However, getting a probability sample could prove to be more problematic due to the nature of the hospitality business.

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## ASSESSMENT OF RECREATIONAL SUITABILITY OF LAKE ALAKOL IN THE REPUBLIC OF KAZAKHSTAN ON HYDROLOGICAL INDICATORS

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**Abstract:** Kazakhstan has excellent nature and tourist resources, with their reasonable use, it is possible to increase profitability, study and evaluate the tourist potential of the regions, and determine their capabilities. Today, the number of visitors to Alakol lake as an object of domestic touristic destination interest has increased, one of the main factors of which is the favorable geographical location, the cross-border zone with China, and the significant impact of the lake on human health. It is necessary to study the basin of Lake Alakol in Urdzhar district of East Kazakhstan region and Alakol district of Almaty region. A functional assessment of the recreational use of lakes in the Alakol Lake basin was carried out according to a well-known methodology. Its essence is to determine the recreational potential based on an assessment of the possibility of developing various types of recreational activities. In order to increase the tourist and recreational potential of the Alakol lake Basin region, recommendations were made to repair the road system; develop cross-border tourism with China; monitor the environmental situation, organize landfills for solid and liquid household waste, and clean the beach, etc. It is possible to develop the Alakol resort area by providing high-quality infrastructure and finding ways to solve problems related to their development, and scientific research is needed to properly use the tourist and recreational potential.

**Key words:** Lake Alakol, geographical location, recreational resources, hydrological indicators, assessment of recreational suitability, favorable territories

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### INTRODUCTION

Definitions of recreational activities that improve the rehabilitation and recovery of people, scientific, cultural, and cognitive development, methodological guidelines describing the natural conditions of the region, various approaches to the study of the dynamics of territorial recreational systems were published in the articles (Vedenin and Zorin, 1973; Dunets at el., 2020; Dmitriyev at el., 2021; Berdenov, 2021). In the concept of development of the tourism industry of the Republic of Kazakhstan until 2023, the issues of development of beach tourism are highlighted, the unique nature and tourist resources of the country have a special impact on tourists, allow them to improve their health and engage in various recreational activities. One of the unique Water Resources is included in the cluster «Pearl of Altai», the Urdzhar district of the Eastern region of Kazakhstan, and the Alakol lake basin in the Alakol district of the Almaty region (Mukayev at el., 2020; Dmitriyev at el., 2022). The lake basin is particularly popular among tourists, and today it has a huge potential for development, which should be developed and used correctly (On approval of the state program for the development of the tourism industry of the Republic of Kazakhstan for 2019-2025, 2019)\*\*.

The region is surrounded in the north by the Tarbagatai Ridge, in the South by the Dzungarian (Zhetysu) Alatau, and in the East and South-East by the Barlyk ridge. Between the Barlyk ridge and the Zhetysu Alatau, there is a narrow mountain pass called the «Dzungarian gate». The area is 68,700 km<sup>2</sup>, on the territory of Kazakhstan - 48,600 km<sup>2</sup> (the

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rest is located on the border with China). 56% of the basin is a desert plain, and the following groups of lakes occupy the lower part: Alakol (2650 km<sup>2</sup>), Sasykkol (736 km<sup>2</sup>), Uyaly (120 km<sup>2</sup>), Zhalanashkol (38 km<sup>2</sup>) and 100 small lakes, covering an area of 0.5 to 600 hectares, formed a system of reeds and wetlands (Yaschenko, 2006).

The terrain changes from the middle mountains (Tarbagatai Ridge, Zhetysu Alatau) to the flat steppe (Alakol plot). V.P. Blagoveshchensky considered the recreational potential of 2 districts, 7 complexes, 30 sites in the Zhetysu Alatau (Blagoveshchensky, 2015), located in the Alakol lake basin, with an assessment of the distribution of areas terrain, vegetation cover, water resources, climate, aesthetic value, anthropogenic changes, transport accessibility, etc. Y.A. Tokpanov, based on the results of the study and assessment of the tourist and recreational potential of the Zhetysu Alatau, indicates the regions of Altynebel-Uygentas, Bayanzhurek, which are favorable for tourism and recreation (Tokpanov, 2021).

## MATERIALS AND METHODS

There are more than 500 lakes in the Alakol lake basin. Of the 4 largest lakes in the region (Alakol, Sasykkol, Koshkarkol, Zhalanashkol), 95% of the total water area, 90% of the water reserves, and the rest are small lakes. Alakol Lake is the most suitable lake for the development of beach and resort recreation. Other reservoirs of the Alakol lake basin mentioned above are suitable for the development of beach, swimming, and sports recreation. From the point of view of the organization of recreation, sanitary and hygienic, microclimatic conditions are favorable, not swampy, but dry coastal lakes are valuable (Figure 1). Swampy areas corresponding to the Alakol lake basin are found on the eastern slopes of Sasykkol, on the northern slopes of Alakol along the Katynsu and Urjar rivers (Erdavletov and Aktymbayeva, 2012).

Based on the methods proposed by (Sevastyanova, 2008; Kolotova, 1999) we proposed criteria for a component-wise integral assessment of the recreational potential of landscapes. This methodology is based on a component-wise landscape assessment, which is composed of the main landscape components (topography, climate, water bodies, and soil and vegetation cover). The main assessment criterion is the degree of favorableness of landscape components and its functional suitability. There are various methods for assessing natural recreational resources. In our opinion, the most appropriate comprehensive recreational analysis of the territory is to assess the degree of favorability of certain parameters for the recreational use of landscapes. It is optimal to use a three-point system, since it allows you to compare the terrain, climate, water, and soil and vegetation assessment of the territory and obtain a comprehensive characteristic. When assessing the recreational potential of the landscape is the main factor that affects the development of tourism, as well as the aesthetics of the territory.

Landscape research focuses on holistic approaches, in which landscape is understood as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (Burgi et al., 2017; Safarov, 2020; Niyazova, 2022). Landscape determines the aesthetic value—the suitability of space, and as a set of specific properties that determine the development potential

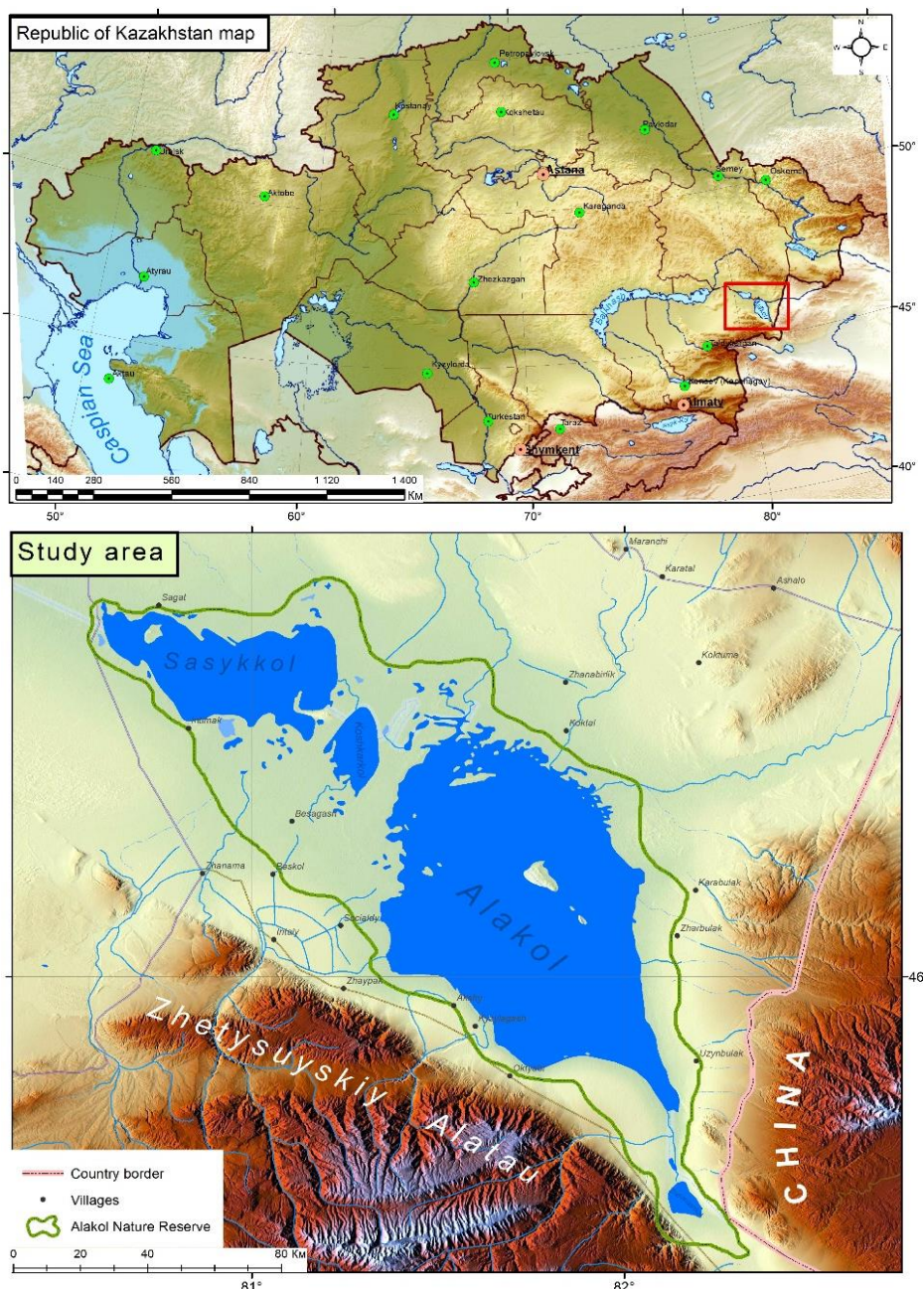


Figure 1. Map of the study area (Source: Author, created in the program ArcGIS.10)

of a particular type of recreational activity. From the point of view of landscape diversity, the number of landscapes forming elements (terrain, reservoirs, vegetation), their proportionality, mosaic contours, contrast borders are important. The most attractive recreational resources in the territory of the Alakol lake basin are concentrated in the southern part of the northern mountain slopes of the Zhetysu Alatau. Swampy areas are most common between the Sasykkol and Alakol lakes. Swampy areas are one of the factors hindering the development of hiking and mass tourism. Shallow waters with reeds are suitable for hunting, but not suitable for diving. The most favorable territories in the Zhetysu Alatau are located in the middle part of the mountains, and some in the lower and upper areas of the mountains, which cover 30.6% of the territory. The northern slope of the Zhetysu Alatau is characterized by a sufficient number of water objects and a large distribution of spruce forests (Figure 1).

These territories are suitable for all forms of active tourism. The most attractive ones are located in the valleys of the Tentek, Tastau, Koksuat rivers and on the forest-covered slopes of the Zhetysu Alatau range. Favorable territories include the southern slope of the Tarbagatai range, the hilly-Foothill slope of the entire mountain range, and Lake-alluvial plains. Low-altitude natural areas have less attractive landscapes. Semi-desert plains are landscapes with minimal aesthetic value. Relatively favorable territory includes areas of desert, semi-desert, and hilly sands located on the western side of the Alakol lake basin, covering 26% of the total area (Iskakova et al., 2013). First of all the recreational value of the territory is determined by the features of the most important natural factors for recreation: relief, climate, and water. The study of the natural recreational resources of the territory for the purposes of recreation and tourism development allows its zoning by taking into account the totality of certain types of resources (Erkkilä, 2006; Hall and Stoeffels, 2003; Gartner, 2006). To study the hydrological attractiveness of the natural waters of the Alakol Lake basin, the territory of the Alakol Reserve was chosen. The zoning of the territory according to the degree of attractiveness of natural waters (lakes Alakol, Sasykkol, Koshkarkol, Zhalanashkol) provides initial information about the resource possibilities of meeting the recreational needs of the population.

The Alakol Nature Reserve was established on April 21, 1998 on the territory of Almaty and East Kazakhstan regions (Urdzhar district) in order to preserve natural complexes, flora and fauna of the Tentek River, as well as a unique population of relict gulls and other colonial birds on the islands of Lake Alakol. Alakol State Reserve is a unique reserve of flora and fauna. Up to 5 million birds accumulate on the lake during seasonal migrations for recreation and feeding, in the protection of which the reserve also plays an important role. Negotiations are currently underway with the secretariat of the Ramsar Convention on the inclusion of the Alakol lake system in the list of wetlands of international importance as stopping and nesting sites for aquatic and shorebirds (Chigarkin, 2003). When assessing the tourist and recreational suitability of natural complexes for organizing fishing tourism in the Alakol lake basin, the degree of diversity of fish resources was taken into account. According to the analysis of the map, the lakes Alakol and Sasykkol are of great interest to fishermen. There are more than 7 species of fish (roach, perch, bream, carp, walleye, etc.). Thus, the Alakol lake basin has a variety of biological resources that create optimal conditions for the organization of hunting activities, educational, environmental, and scientific tourism. Assessment of the recreational suitability of the Alakol lake basin by hydrological indicators (Erkkilä, 2006). When assessing the tourist and recreational suitability of natural complexes for organizing fishing tourism in the basin of Lake Alakol, the degree of diversity of fish resources was taken into account. According to the analysis, lakes Alakol and Sasykkol have a great interest from fishermen. There are more than 7 species of fish (roach, perch, bream, carp, pike perch, etc.). Thus, the basin of Lake Alakol has a variety of biological resources that create optimal conditions for organizing hunting activities, educational, ecological, and scientific tourism. Assessment of the recreational suitability of the Lake Alakol basin by hydrological indicators. A point scale has been developed for the expert assessment of the attractiveness of the water resources of the Alakol basin (Table 1). The final data serve as the basis for drawing up an assessment scale, which, in turn, is the base for zoning the territory adjacent to Lake Alakol, according to the degree of tourist attraction of natural waters. Functional assessment of the recreational use of lakes in the territories basin can be carried out according to the methodology proposed by S. V. Akhmatov. Its essence is to determine the recreational potential based on an assessment of the possibility of developing various types of recreational activities (Table 1, 2) (Akhmatova, 2010).

It is possible to find out whether tourism can be developed in the region using water resources by conducting an assessment according to the formula (Bramwell, 2007):

$$\sum RFC = \sum_{types} + \sum_{QC} \quad (1) \quad \text{Where:}$$

$\sum RFC$  – is the total coefficient of recreational fitness;

$\sum_{types}$  – total number of suitable recreational activities;

$\sum_{QC}$  – coefficient of total quality of recreational activities.

Table 2. Types of recreational activities on water bodies,  $\sum_{types}$  (Akhmatova, 2010; Bramwell, 2007)

| Recreational groups             | Types of recreational activities                                     |
|---------------------------------|--|
| I. S – swimming, beach holidays | Swimming, etc.   |
| II. B – types of boat holidays  | Bs - sailing;<br>Bo - rowing boat ride;<br>Bm - motorboat ride;      |
| III. F – fishing                | Fb - fishing;<br>Fs-fishing on the shore;<br>Fi-ice fishing;         |
| IV. H – hunting                 | Hw – waterfowl hunting   |
| V. E – extreme sports           | Courage-windsurfing;<br>Ed-diving;<br>Ek-kiting;<br>Es-skateboarding |

Table 2. Scale of assessment of the attractiveness of water resources,  $\sum_{QC}$  (Source: Author)  
3 points – indicates the maximum degree of recreational conditions

| Conditions                | Mark     | Tourism potential   | Proposed territory                                    |
|---------------------------|----------|---|---|
| Very favorable conditions | 3 points | Low-mountain landscapes, foothills, forests, developed infrastructure, mineral waters, therapeutic mud, resort resorts. | Lake Alakol, the eastern and western part of the lake |
| Favorable conditions      | 2 points | Steppe landscapes, developed coasts for swimming, mineral waters, therapeutic mud, fishing.                             | Northern part of Alakol Lake, Sasykkol lakes          |
| Unfavorable conditions    | 1 point  | Dry-steppe landscapes, lack of swimming places, sport fishing, hunting tourism  | lake Zhalanashkol, lake Koshkarkol                    |

## RESULT AND DISCUSSION

The deep part of the basin is occupied by the main lake of the system- lake Alakol, a deep-water, non-flowing lake. Along the longitudinal axis of the basin, there are Koshkarkol and Sasykkol lakes in the North, and Zhalanashkol lakes in the South, which drain their excess water into Alakol. The surface water network in the area is formed by regularly flowing rivers and lakes. The rivers are formed along the mountain edges (Tarbagatai Ridge, Barlyk ridge, Zhetysu Alatau) and flow into lake Alakol. The density of the hydrographic network and the composition of water depend on the terrain and climatic conditions of the basin (Newsome et al., 2022; Tokpanov et al., 2021).

From the southern slope of the Tarbagatai range to the Alakol lake basin, such rivers as Tansyk, Ai, Karakol, Urjar, Katynsu, and Emil flow. The Urdzhar, Katynsu, and Emil rivers flow into Lake Alakol itself. The first three lakes do not reach Lake Sasykkol. The Tansyk River loses its water in large quantities in the plains, near Mount Kaldar, between Balkhash and Sasykkol. According to such conditions, the Ai River drains 30-40 kilometers from Sasykkol. The Karakol River is more watery than the Tansyk and Ai rivers, but it supplies its waters to Sasykkol only in the spring period, when there is a lot of water. In the summer period, the water of this river is used for full irrigation. In the basin of Lake Alakol, such large rivers as Tokty, Olenty, Yrgayty, Zhamanty, and Tentek flow from the Zhetysu Alatau. The Tokty and Olenty rivers lose their waters immediately after leaving the mountains. The Yrgaity river supplies its waters to the swamps between Alakol and Zhalanashkol. Only the Zhamanty river flows into lake Alakol. Optimal orographic conditions allow this (Erdavletov, 2010).

An important natural factor in the formation of recreational activities can be called the presence of warm mineral water sources, which are used for therapeutic and health-improving purposes. In the entire valley, 20 kilometers from lake Alakol, at a height of 579 m above sea level, there are healing mineral springs. All Arasan mineral waters are thermal (+42°C). It contains silicic acid (50-57.5 mg/l), chloride-sulfate, calcium-sodium (mineralization 1.7 g/L) and fluorine. These mineral waters are used as a bath, shower, and drinking water, which is used for the treatment of diseases of the organs of movement and support, nervous system, gastrointestinal tract, skin diseases (Cooper, 2006). The Alakol lake region is adjacent to the cities of Almaty, Semey, Taldykorgan and neighboring China with approximately 6 million population. If we provide good service in the region, the profitability indicator will increase and the indicator will increase every year, for example, the number of tourists resting on the lake in 2020 is 336 thousand people, and the number of accommodations is 370 units\*\*. If we divide the region based on two regions, then the indicator for 2020 is shown in the following table 3.

Table 3. Number of visitors to the Alakol resort area in 2020\*\*

| Alakol resort area     | Number of visits and internal visitors | Accommodations, units | Accommodation stops | Number of rooms, units | One-time capacity, bed | Recommended bed per day |
|------------------------|--|-----------------------|---------------------|------------------------|------------------------|-------------------------|
| East Kazakhstan region | 113 092                                | 171                   | 42 551              | 4 353                  | 12 115                 | 99 044                  |
| Almaty region          | 225 206                                | 199                   | 225 206             | 3 873                  | 10 852                 | 285 422                 |

\*\*Note – Agency for Strategic planning and reforms of the Republic of Kazakhstan

The poor quality of accommodation facilities and the lack of 4\*, 5\* star hotels make it difficult to analyze the level of infrastructure and assess the quality of services provided. In the following years, the number of visitors to the Alakol resort area is increasing. For more than a decade, attention has been paid to the development of tourism in the region (Dunets, 2020; Kochurov, 2003; Ozgeldinova et al., 2017). Currently, the construction of modern roads is underway. There is an airport in Usharal, and a railway service is established.

The water of Alakol lake, with the exception of estuarine areas of rivers, is brackish, very hard (19-32 mg-eq/l), and unsuitable for drinking. The pH value during the year ranges from 7.6-9.2. Water transparency increases from 0.6-0.8 m in the shallow northwestern part to 6 m or more in the central part of the reservoir (Petr, 1998).

The water mineralization and ionic composition of Alakol Lake are noticeably changing in the water area of the reservoir. The overall increase in mineralization occurs towards the center of the lake, the smallest value is observed in the northwestern part of the lake (near the mouth of the Urjar River), as well as in the estuaries of other tributaries. The Barlyk-Arasan underground mineral water deposit is located on the northwestern branch of the Barlyk ridge, on the right bank of the Arasan River, 16 km east of the village of Zharbulak, located on the eastern shore of the Alakol Lake.

The deposit is confined to the main Barlyk fault, traced along the right bank of the Sanarka River, where mineral waters come out of tectonic cracks. There are up to 13 warm springs concentrated along the gorge for 1.5 km (Mamilov, 2022). Their flow rates vary from a tenth to 0.34 l/s. The water temperature in various sources varies from 20 °C to 42 °C, and its mineralization ranges from 1.4 to 1.8 g/l. The water contains (mg/l): silicic acid (12-44), boric acid (from traces to 1.8), and bromine (up to 0.5), as well as radon (0.6-2.5 mg/l).

According to the results of hydrogeological work, the reserves of underground thermal mineral waters of the deposit were calculated and approved in the amount of 3.95 l/s (340 m<sup>3</sup>/day). Today, an important role in the healing process is played by natural factors (clean air, a peculiar landscape, steppe grasses), as well as balneological procedures and bathing in the bitterly salty lake Alakol. The favorable period is May to October. The popularity of the resort on Lake Alakol is growing. The water of the springs is similar in chemical composition and low radioactivity to the mineral waters of the Tskaltubo health resorts (Georgia). In the area adjacent to the sanatorium, there are 12 exits to the surface. The water temperature in the two main sources is 43 °C. Water gives a high effect both for external and internal use. Aquariums and sanatoriums on the shore of Lake Alakol have equipment for various procedures, including baths and shower installations. There are physiotherapy, massage, and gynecological rooms, as well as a therapeutic gym.

The total coefficient of recreational fitness of lake Alakol was calculated using Formula 1 as follows:

$$\sum RFC=(S)1+(Bs)1+(Bo)1+(Bm)1+(Fb)3+(Fs)2+(Fi)1+(Hw)1+(Ew)2+(Ed)1+(Annex)2+(Es)1 =12+25/3= 20.3.$$

That is, the coefficient of recreational suitability of lake Alakol ( $\sum RFC$ ) is 20.3. If we open the formula, we will find a very good diving position (S3), a satisfactory sailing position (Bs1), a good rowing position (Bo2), a very good motorboat position (Bm3), a very good fishing position (Fb3), a satisfactory coastal fishing position (Fs1), a very good waterfowl hunting position (Hw3), and a good and satisfactory position for extreme sports (Ew)2, (Ek)2, (Ed)1, (Es)1.

Lake Sasykkol belongs to the Balkhash-Alakol basin and is located on the border of Almaty and East Kazakhstan regions, in the eastern part of the Balkhash-Alakol basin in southeastern Kazakhstan, at an altitude of 350 m above sea level.

Sasykkol is located northwest of Lake Alakol. Between these lakes, there is a small flowing lake – Koshkarkol. Lake Sasykkol is also flowing, fresh has a tectonic origin. The surface area of Sasykkol reaches 736 square kilometers (together with the islands – 747 km<sup>2</sup>, length – 49.6 km, width – up to 20 km, average depth – 3.3 m, water volume – 2.43 billion cubic meters. The shores are low, indented by bays, and bordered by reed thickets. The lake is fed by several small rivers – Tentek, Karakol, Ai, and Urjar. Moreover, the Urjar River, which flows into the lake from the northwest, dries up in summer. Only the Zhenishkesu River flows from Sasykkol. At the end of July, the water temperature in the lake is 29 ° C. Water mineralization from 0.27 g/l to 2.16 g/kg, long-term - 0.38 g/l. The approximate reserves of dissolved salts in the lake are 925 thousand tons. By chemical composition, water belongs to the bicarbonate class. Various species of ducks, geese, loons, cormorants, pelicans, swans, gulls, herons, and sandpipers live in the coastal zone. Wild boars, foxes, and spotted cats are found in the reed thickets. Carp, pikeperch, marinka, perch, and other commercial fish inhabit the waters of Sasykkol. The muskrat is acclimatized. If we determine the coefficient of Lake Sasykkol:

$$\sum RFC = (S)1 + (Bs)1 + (Bo)3 + (Bm)2 + (Fb)3 + (Fs)2 + (Fi)3 + (Hw)3 + (Ew)1 + (Ed)1 + (Ek)1 + (Es)1 = 12 + 22/3 = 19.3$$

In the area of lake Sasykkol, there is a satisfactory condition for swimming (S1), sailing (Bs1), excellent rowing (Bo3), excellent motorboat (Bm2), excellent fishing (Fb3), excellent coastal fishing (Fs2), excellent waterfowl hunting (Hw3), and satisfactory conditions for extreme sports (Ew1, Ek1, Ed1, Es1).

Lake Zhalanashkol in translation from the Kazakh language means a naked lake. Height - 433 m above sea level. Near the lake are the settlement of the same name and the railway station. Balneological resort. The infrastructure is practically non-existent. Recreational fitness coefficient of Zhalanashkol lake:

$$\sum RFC = (S)3 + (Bs)1 + (Bo)2 + (Bm)1 + (Fb)2 + (Fs)2 + (Fi)1 + (Hw)2 + (Ew)1 + (Ed)1 + (Ek)1 + (Es)1 = 12 + 18/3 = 18$$

In the area of the Zhalanashkol lake there is a very good condition for swimming (S3), satisfactory sailing (Bs1), good rowing (Bo2), satisfactory motorboat (Bm1), excellent fishing (Fb2), good coastal fishing (Fs2), good waterfowl hunting (Hw2), and satisfactory conditions for extreme sports (Ew1, Ek1, Ed1, Es1).

Lake Koshkarkol (Uyaly) is a fresh lake in the south-east of Kazakhstan, in the Alakol basin, at an altitude of 350 m above sea level, is part of the Alakol group of lakes. The area with high filling is up to 120 km<sup>2</sup>, length - 18.3 km, maximum width - 9.6 km, average depth - 4.1 m, maximum - 5.8 m, volume - 0.5 km<sup>3</sup>. The main feeding watercourse is the Zhenishkesu River (from Lake Sasykkol), a drain into Lake Alakol. Mineralization of water - 945 mg / l, composition - sulfate-chloride-magnesium. Recreational fitness coefficient of Koshkarkol lake:

$$\sum RFC = (S)1 + (Bs)1 + (Bo)2 + (Bm)1 + (Fb)1 + (Fs)1 + (Fi)1 + (Hw)1 + (Ew)1 + (Ed)1 + (Ek)1 + (Es)1 = 12 + 13/3 = 16.3$$

A lake with a low tourist and recreational potential has a total recreational fitness coefficient of less than 10, a lake with a good potential from 10 to 20, and a lake with a very good tourist potential of more than 20. The maximum indicator of the coefficient of total recreational fitness is 23. At the same time, excellent conditions for all types of recreational activities should be created (Goossen, 2006).

## CONCLUSION

According to the coefficient of recreational suitability, the main recreational load falls on the beach of Lake Alakol (Koktuma, Kabanbai, Akshi). Alakol Beach has the most favorable conditions for the development of a health resort, beach economy, and many types of recreation and tourism. This is due to the favorable natural and climatic, economic, and geographical conditions. Tourism and recreation occupy an important place in the economy of Alakol.

To increase the tourist and recreational potential of the Alakol Lake Basin region, it is possible to propose the following measures: repair of the road system; opening of air routes to Usharal; development of cross-border tourism with China; monitoring the environmental situation, construction of a floodplain against coastal destruction, marking of beach lines; organization of landfills for solid and liquid household waste, cleaning; digitalization of the labor market and statistical indicators (Tanguay, 2013). The materials of the expedition studies conducted by the authors on the territory of the water objects of the studied area (lakes Alakol, Sasykkol, Koshkarkol, Zhalanashkol) allowed to determine the main criteria for the development of recreational water use:

1. For amateur fishing – a variety of commercial biota; an accessible approach from the shore to the water; the thickness of the freezing of water masses in winter.
2. For swimming and beach holidays - temperature indicators of the aquatic environment, sanitary and hygienic indicators, sand beach.
3. For kayaking tourism – the width of the water space, its depth, the presence of aquatic vegetation, the absence of structures on the water and other obstacles on the way, pleasing to the eye landscapes, accessible parking places.
4. For motor boating - extensive water spaces, sandy and gently sloping shore.
5. For amateur hunting of waterfowl – shallow rivers, swampy areas, the presence of thickets.

Lake water, with its exceptional purity, has very valuable balneological qualities, is the main factor attracting tourists to the region and can be the basis for the functioning of medical and preventive institutions of a wide profile with a year-round cycle of public services. Taking into account transport accessibility and infrastructure equipment, the southeastern



coast has good prospects for development today. It is ideal for swimming, as it has a gently sloping shore with a gradually increasing depth, which is important for the organization of beaches. This factor increases the attractiveness of the construction of recreation centers for family visitors.

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## EXPLORING THE DRIVERS OF TOURISTS' REVISIT INTENTION: DOES DIGITAL PAYMENT ADOPTION AND TOUR GUIDE PERFORMANCE MATTERS?

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**Abstract:** This study is conducted with the aim to understand the factors that encourage the revisit intention of visitors to a tourist place. We consider several aspects such as tourist satisfaction, tour guide performance, destination attachment, and digital payments adoption in tourist destinations. This study uses quantitative methods through a survey of 294 tourists which is chosen by incidental sampling, who visited tourist destinations in West Java Province, Indonesia. The data obtained were processed using the Structural Equation Model with the help of AMOS 7 software. This study indicate that tour guide performance, digital payments adoption, and destination attachments positively influence visitor satisfaction. We also proved that tour guide performance, destination attachment, and tourist satisfaction positively influence revisit intention. Tourist satisfaction mediates the relationship between tour guide performance, destination attachment, and revisit intention.

This study justifies the factors that determine the high intention to visit tourist destinations in West Java Province, Indonesia. It sheds lights on tourism literature by identifying factors that influence tourist satisfaction, namely tour guide performance, digital payments adoption, and destination attachments

**Key words:** Tour Guide Performance, Destination Attachment, Digital Payment Adoption, Tourist Satisfaction, Revisit Intention

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### INTRODUCTION

The development trend of the tourism sector currently becomes an alternative in various countries to increase regional income. According to Sugandi et al. (2019), in the Southeast Asia region, Indonesia ranks fourth after Thailand, Malaysia and Singapore. The tourism sector, as one of the strategic sectors in national development, over the last decade has continued to show a significant contribution to supporting the national economy, especially in earning foreign exchange (Suryanto and Kurniati, 2020). Some of the destinations that get the most visits in Asia, especially Indonesia on the island of Java, are Central Java and West Java Provinces. These two provinces get a lot of attention for tourists, both domestic and foreign tourists. However, a study conducted by Hughes-Freeland (2018) showed that these provinces in Indonesia is not a single destination, and the increase in the number of tourist visits has not induced visitors to make return visits.

Revisit intention, according to Han et al., 2009; Abdulla et al., 2019, can be defined as a strong possibility to revisit a tourism destination both with or without a positive attitude towards the service provider. Repeat visitors constitute a stable market for a destination because they provide free advertising in the form of word-of-mouth recommendations from family members and friends (Konuk, 2019; Lau and McKercher, 2006). The studies conducted by Alegre and Cladera, 2006; Yoon and Uysal, 2005; Ajayi and Tichaawa, 2021) indicated that tourist satisfaction has a positive influence on their likelihood to revisit a tourism destination. However, how this satisfaction can be built is still something that needs to be reexamined. Previous studies have shown that the contribution of different aspects of a destination can led to different levels of satisfaction (Kozak and Rimmington, 2000; Alegre and Cladera, 2006; Back et al., 2021), therefore it is appropriate to explain tourist satisfaction with various aspects based on tourist perceptions. such as the ease of making transactions, tour guide performance, and the tourist's sense of attachment to the destination. Waheed and Hassan (2016) show that there is a relationship between quality, satisfaction, and tourists' revisit intention. If the number of previous visits affects the image of a destination (Lu et al., 2020; Nghiêm-Phú et al., 2021), this will also affect their satisfaction and revisit intention.

In recent years, with the increasingly tight integration of information digital technology and financial services, various industrial sectors, including the tourism sector, have implemented digital transactions within their business. The

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convenience obtained from technological developments has now been felt in various aspects, including the ease of conducting transactions (Suryanto and Dai, 2020). The digital financial system consisting of payments via mobile, QRIS, and m-Banking is not only changing the financial format but also people's daily lives (Bagla and Sancheti, 2018; Dzogbenuku et al., 2022). Among them, mobile payments, is a means of payment that is closely related to economic activity. A report on the tourism context shows that in 2019, more than 47% of consumers used digital payments in their transactions, thereby reducing the risk of losing money. The mobile payment application is one of the categories of financial technology that has begun to be developed in Indonesia as the use of financial technology that can be used to obtain products or services with technological sophistication and the use of new business models that have an impact on efficiency (Suryanto et al., 2022). It provides a more secure system through the existence of a reliable payment system (Jiang et al., 2021; Larina and Akimov, 2020).

The number of smartphone users in Indonesia has triggered the growth of payment instruments. Although in Indonesia, digital payment transactions are still in the development stage, their users have been active and have grown significantly. This phenomenon is also applied to the tourism business in Indonesia. Ease of payment, fast transactions, and financial security when visiting tourist sites are factors that increase tourist satisfaction (Lou et al., 2017). A number of prior research have linked antecedents to tourist satisfaction and revisit intention such as perceived quality, tourist expectation, perceived value, and service quality (Back et al., 2021; Konuk, 2019; Abdulla et al., 2019; Ahn and Kwon, 2020). Even so, the process of choosing a destination by tourist, both domestic and international, is still quite complicated and vague, in the sense that it is not well acknowledged (Soliman, 2022). In addition to the adoption of digital payments by tourism managers, other aspects such as destination attachment also have a positive influence on their intention to revisit the destination (Clarke et al., 2018; Kim et al., 2018a). The performance of tour guides, such as their ability to provide complete and comprehensive information to visitors, also determines revisit intention (Yang et al., 2020; Guan and Huan, 2019).

Similar researches have also been conducted by a number of scholars. For example, Syakier and Hanafiah (2022) examined the influence of tour guide performance on tourists' satisfaction and their behavioral intention, and found that tour guide performance can predict tourists' satisfaction and positive behavioral intention. In addition, Mohamed et al. (2022) developed a model of tourist' destination attachment and highlighted its influence on tourists' revisit intention. Finally, Bagla and Sancheti (2018) analyzed how the adoption of digital payment using digital wallets can lead to customer satisfaction, which in this study, is translated into the use of digital payment adoption in tourism context. However, the mechanism by which some of these factors influence tourist intention to visit is still not known with certainty, and further research still needs to be done (Halimi et al., 2021; Soliman, 2021). Therefore, this study is conducted to fill the gap in the literature. Specifically, we aim to identify the drivers of tourists' satisfaction and revisit intention in the context of tourism in West Java Provinces, Indonesia, by examining the role of tour guide performance, destination attachment, and digital payment adoption. We also consider the mediating role of tourists' satisfaction in linking the relation between these variables.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Tour Guide Performance as Antecedent

In the literature on the Annals of Tourism Research, Cohen (1985) explained that tour guide performance has two main tasks, namely pathfinders and mentors (Al-Okaily, 2021; Anđelković et al., 2022). These two antecedents function as someone who shows the way to tourists regarding the destination or place to be visited (Hansen and Mossberg, 2017; Stroh et al., 2002; Tan et al., 2012). In general, that in cross-cultural settings, many tourists still need guides due to ignorance of a destination (Anđelković et al., 2022; Guan and Huan, 2019; Kuo et al., 2018; Syakier and Hanafiah, 2022). A tour guide, according to Syakier and Hanafiah (2021), is a person or group who plays an important role in providing tourist experiences to consumers. In addition, they also function as someone who provides information related to cultural, historical, and contemporary heritage to a group of tourists or individuals (Al-Okaily, 2021). In the tourism industry, tour guides are the main service provided by the organizers to lead tourists to fulfill their adequacy while in a tourism area. Cohen (1985) proposed that the role of tour guide consists of the four components described in Table 1.

Table 1. Four Components of Tour Guide (Source: Syakier and Hanafiah, 2021; Caber et al., 2018; Cohen, 1985)

| Component      | Description  | Example  |
|----------------|--|--|
| Selection      | Planning a tour itinerary offered by the company with varying levels of input from the guide               | Nature, culinary, recreation, shipping center, and religious tourism.  |
| Information    | Providing correct and precise information, so that tourists or visitors have knowledge of the destination. | Knowledge of traditional and cultural values, spiritual values, and even characteristics of the destination. |
| Interpretation | Effective communication established between tour guide and tourists as a means of transferring knowledge.  | Asking question to the tourists and answering every question from them.                                      |
| Fabrication    | Showing or taking tourists to a location and claims that the place is included in the tour brochure        | Taking tourists to a destination even though the place is not in the brochure.                               |

As mentioned by Cohen (1985), the role of pathfinder for tour guide also serves to provide a sense of security for tourists when they are in a different environment (Hansen and Mossberg, 2016; Caber et al., 2018; Guan and Huan, 2019). Mentors, meanwhile, function as spiritual and intellectual guides by providing information about the values that exist in the destination. Both of these factors were found to increase tourist satisfaction. In addition, according to Cheng et al. (2019) tour guide performance is an important antecedent for tourist satisfaction and revisit intention. In Ballantyne and Uzzell's (1999) interpretation theory, tourist satisfaction is divided into three domains, namely tourist cognition (what tourists think), tourist affective states (what they feel), and tourist conative tendencies (what they do) (Ballantyne and Uzzell, 1999;

Andelković et al., 2022; Hansen and Mossberg, 2017). Tourist satisfaction has been applied to measure intention to revisit a destination (Lu et al., 2020; Chia et al., 2021). This is because tour guide performance is a crucial factor in explaining tourist satisfaction (Gratch, 2020). Emotional tendencies in tourism can increase when the tour guide provides credible information in explaining historical places (Yang et al., 2020). The perceived positive experience can be a dimension of satisfaction for tourists when they are undergoing religious tourism. If the individual is satisfied with his trip and the guide service provided is very good, then he will feel satisfaction and intention to revisit that destination. Based on this, the following hypothesis is proposed:

H1. Tour guide performance positively influences tourist satisfaction

H2. Tour guide performance positively influences revisit intention

### **Digital Payment Adoption and Tourist Satisfaction**

Financial technology (fintech) refers to the use of technology to produce financial solutions in conducting transactions (Lou et al., 2017). The term fintech is not only specific to one particular sector, but covers various sectors including tourism. Susanto et al. (2022) stated that debit and credit cards and m-banking are the most popular digital payment methods around the world today. The use of mobile payments refers to paying for goods and services using mobile devices that are connected via the internet (Firdaus and Aziz, 2021; Seldal and Nyhus, 2022). According to Singhal et al. (2020), digital payment allows tourists to carry out various payment activities using their mobile devices. Digital payments are defined as transaction activities carried out using mobile internet technology (Tang et al., 2021; Firdaus and Aziz, 2021; Jiang et al., 2021). Digital payments were originally issued by social media networks to allow platform users to make peer-to-peer transfers (Larina and Akimov, 2020; Oentoro, 2020). In a number of developed countries, digital wallets have now developed, which allow users to store digital money, thus making it easier to make transactions (Farkas et al., 2022; Larina and Akimov, 2020; Mukhopadhyay and Upadhyay, 2022; Oentoro, 2020). According to Jia et al. (2022), mobile payments effectively unify the Internet, terminal devices, and financial institutions to form a new type of payment system. Currently, the tourism sector has implemented many digital payments to make it easier for tourists to make transactions (Firdaus and Aziz, 2021; Susanto et al., 2022). The study from Dzogbenuku et al. (2022) and Susanto et al. (2022) suggested that consumers feel satisfied when using digital payments, as it can provide convenience for consumers, especially tourists when traveling. Based on this explanation, the hypothesis is proposed as follows:

H3. Digital payment adoption positively influences tourist satisfaction

### **Destination Attachment and Tourist Satisfaction**

According to Crespi-Vallbona et al. (2022), attachment is often defined as an emotional bond that can last a long time in a person's mind. For example, a person who goes on a religious trip (umrah or hajj) will always remember the experience and the destination they visited, thus it influences them to visit again. This definition explains that a person can experience a bond with a particular place or destination (Lam and Ryan, 2021; Pratminingsih et al., 2022; Rasoolimanesh et al., 2022). In this sense, destination attachment is defined as a bond between the individual and the place (Reitsamer et al., 2016; Turki and Amara, 2017; Kim et al., 2018b; Jee et al., 2019; Wang et al., 2020; Zhou et al., 2021). Destination attachment in tourism studies resembles loyalty in consumer behavior research as both concepts are related to repeat visits (Ajayi and Tichaawa, 2021; Li et al., 2022; Zou et al., 2022). Previous studies have classified destination attachment into two dimensions: place identity and place dependence (Crespi-Vallbona et al., 2022; Li and He, 2022; Pratminingsih et al., 2022). Place identity is the emotional aspect of attachment and it refers to the symbolic importance of a place (Kim et al., 2022; Rasoolimanesh et al., 2022). In contrast, place dependence is a functional attachment that reflects the importance of a place in providing conditions and features that support the needs of a particular activity (Hamid et al., 2021; Li et al., 2022).

In the tourism literature, destination attachment has received great attention as it can lead to satisfaction and loyalty to destinations (Clarke et al., 2018; Boley et al., 2021) and ongoing return visits (Peštek and Savan, 2020; Eger et al., 2022;). To predict destination attachment, many potential determinants have been explored such as image (Hansen and Mossberg, 2017; Boley et al., 2021; Mohamed et al., 2022), involvement (Rasoolimanesh et al., 2019), experience (Seyfi et al., 2020; Nugraha et al., 2021; Rasoolimanesh et al., 2022), and shared beliefs (Lee and Jeong, 2021). Destination attachment theory asserts that positive emotions and happiness are associated with bonds between people and places (Hansen and Mossberg, 2017; Lee and Jeong, 2021). However, Lam and Ryan (2021) stated that although a person may experience positive emotions and attachment to a particular place at the same time, many cases show that purely hedonic experiences do not always lead to attachment to a place. For example, even if someone visits an amusement park and enjoys some thrilling rides, he or she may not always feel attached to the park (Rasoolimanesh et al., 2019; Boley et al., 2021). There is a strong theoretical background showing that destination attachment is a direct determinant of satisfaction and revisit intention (Kim et al., 2018a; Nghiêm-Phú et al., 2021; Cifci, 2022). This can be implied in the context of tourism as when tourists have experience at a particular destination, they tend to identify themselves with that place. Destination attachment theory also argues that places become meaningful from personal experience. Based on this, the hypothesis is proposed as follows:

H4. Destination attachment positively influences tourist satisfaction

H5. Destination attachment positively influences revisit intention

### **Tourist Satisfaction and Revisit Intention**

In the marketing literature, satisfaction is an outcome that is considered the key to business success. Consumer satisfaction arises from evaluation results while using a product or service by comparing expectations with performance.



Zeng and Li (2021) defined satisfaction as an affective state, namely an emotional reaction to the experience provided either from a product or service. Thus, the quality of products and services plays a key role in consumer satisfaction and intentions (Rasoolimanesh et al., 2022). In the tourism literature, tourist satisfaction is defined as the aggregate feelings of tourists considering what they experience and how they are served at a destination (Shi et al., 2022; Siregar et al., 2021). This indicates that tourist satisfaction is perceived at a visit to the places and services provided. Tourist satisfaction is the most important factor for business competition in the tourism service industry. Satisfaction with destinations, places, or islands has been extensively researched and shows positive results on revisit intention (Pratminingsih et al., 2022). According to Guan and Huan (2019), intention to return is an important factor for growth and the continuity of the travel business. Several previous studies have found that destination image, guide performance, service convenience, and facilities can affect revisit intention. Based on this, the hypothesis proposed is as follows:

H6. Tourist satisfaction positively influences revisit intention

### Tourist Satisfaction as Mediating Variable

As previously stated, there are many factors that can affect tourist satisfaction when traveling. Tourist satisfaction is defined as an individual's assessment of the feelings he feels for a product or service received (Lu et al., 2020; Rasoolimanesh et al., 2022; Syakier and Hanafiah, 2022). According to Siregar et al. (2021), in the context of tourism, satisfaction refers to a function of expectations before the trip and post-trip experience, as when the experience is compared with the expectation to produce a feeling of pleasure, the tourist is satisfied. However, when the experience shows feelings of displeasure, tourists are dissatisfied (Chia et al., 2021; Abbasi et al., 2021; Zhang et al., 2022). Historically, studies of tourism and destination management have considered satisfaction as one of the most important variables that can cause a person to exhibit positive post-visit behavioral outcomes, such as repeat visits or recommendations (Mitala et al., 2022).

The relationship between tour guide performance and revisit intention will be strong if the level of customer satisfaction is high (Cheng et al., 2019; Al-Okaily, 2021). Similarly, it will weaken if the perceived level of tourist satisfaction is weak (Al-Okaily, 2021). Tourists who feel satisfied can influence their intention to revisit that destination (Bagla and Sancheti, 2018). This can happen if the service provided by the guide is very good. Besides that, according to Syakier and Hanafiah, (2022) a pleasant experience can also be an important factor in explaining the revisit intention. As a form of religious tourism, satisfaction can be generated from positive feelings that are felt through spiritual experiences guided by a mentor.

The findings from prior research indicate that, overall, tourist satisfaction is influenced by tourism products (Bagus et al., 2020; Siregar et al., 2021) service quality at tourist destinations, as well as experiences encountered when tourists participate in activities. The results of the study from Back et al. (2021) suggested that tourist experience satisfaction has a positive and significant influence on revisit intention, and this will be strong if the guide's performance is good. Likewise, it is similar to place attachment, namely the consumer's intention to revisit will be stronger if the perceived satisfaction is very high. Conversely, the revisit intention will be low if the perceived satisfaction is low. Thus, the hypothesis is proposed as follows:

H7. Tourist satisfaction mediates the relationship between tour guide performance and revisit intention

H8. Tourist satisfaction mediates the relationship between destination attachment and revisit intention

## MATERIALS AND METHODS

### Sample and Data Collection

This study is conducted using a quantitative approach, with the aim of measuring and understanding the causal relationships between variables. The population of this study is tourists who were selected through incidental sampling, with the total number of 300 respondents. The respondents are selected within 1 week at several tourist attractions in West Java Province, Indonesia. We chose the province of West Java for two reasons. First, West Java is a province that has various types of tourism. Second, the province has good economic development and becomes an attraction for local and foreign tourists. The data collection is as

carried out using survey, and the questionnaires are distributed using Google Forms. The final number of questionnaires returned and used for data processing was 294, since the remaining 6 respondents did not completely fill the data listed in the questionnaire. Following the recommendation of Sekaran and Bougie (2016), that when questionnaire items are not answered or when the questionnaire includes values that are not part of the original question sheet, then this questionnaire is rejected. A sample of 294 respondents is considered relevant according to Hair et al. (2019). The consent form assures participants that their responses will be kept confidential and used for academic purposes only. Respondent descriptive analysis, validity and reliability were analyzed using SPSS and then the hypothesis test is continued using the Structural Equation Model with AMOS 7 software.

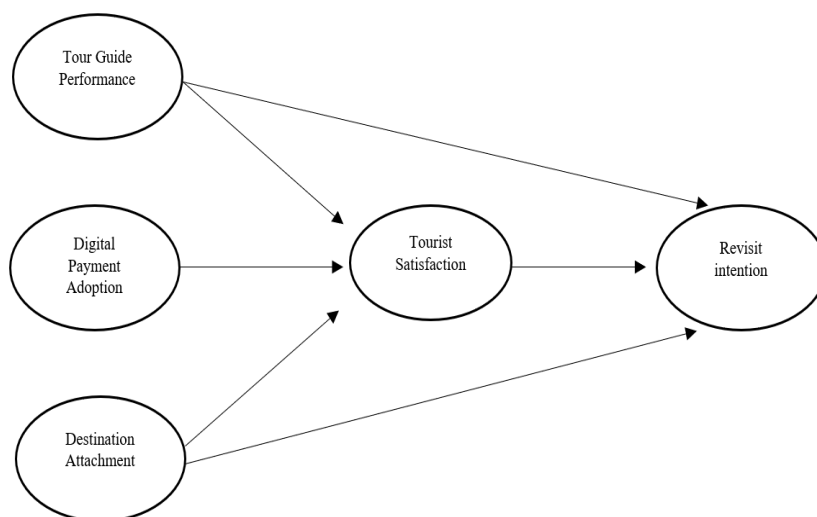


Figure 1. Conceptual Framework and Hypothesis Development

**Variable Measurement**

Each questionnaire item is measured using a 5-point Likert scale, ranging from 1-5, with point 1 indicating that the respondent strongly disagree, while point 5 indicating that the respondent strongly agree with the statement. This study uses three independent variables, namely tour guide performance, digital payment adoption, destination attachment, one mediating variable, namely tourist satisfaction, and one dependent variable, namely revisit intention. Research instruments in data collection are developed from relevant previous studies. Tour guide performance is measured by fifteen items adopted from Syakier and Hanafiah (2022). Digital payment is measured by four items adopted from the research of Dzogbenuku et al. (2021). Destination attachment is measured by eight items adopted from the research of Wang et al. (2020). Tourist satisfaction is measured by five items adopted from the research of Biswas et al. (2020), and revisit intention is measured by five items developed from the research of Cakici et al. (2019).

**RESULTS AND DISCUSSION**

**Respondents' Characteristics**

This study is carried out in several cities in West Java Province, Indonesia, to 294 respondents within 1 week by visiting several destinations. Respondents were selected based on their characteristics in order to meet the criteria in this study, namely using tour guide services, using digital payments and attachment to a destination. The results of the 294 respondents who were collected within 1 week showed that the majority of respondents were dominated by men (176 respondents), has the age around 21-30 years old (132 respondents), graduates and had jobs, and they frequently visit a tourism destination. More details of the respondent's characteristic are presented in Table 2.

Table 2. Respondents' Profile (Source: Processed Data, 2022)

| Characteristic                    | Result  |
|-----------------------------------|---|
| Gender                            | Male: 176 respondents<br>Female: 118 respondents  |
| Respondents Age                   | Below 20 years old: 35 respondents.<br>21 -30 years old: 132 respondents.<br>31-40 years old: 112 respondents.<br>More than 40 years old: 15 respondents. |
| Respondents' Education Background | Senior High School: 78 respondents.<br>Bachelor: 187 respondents.<br>Master: 22 respondent.<br>Doctor: 7 respondent.                                      |
| Respondent's job                  | Don't have a job: 107 respondents<br>Have a job: 187 respondents  |
| Tourism intensity                 | Often: 179 respondent<br>Not often: 115 respondent  |

Table 4. Model Fit Test Result (Source: Processed Data, 2022)

| Statistical Test                                | Critical Value | Results | Conclusion |
|---|----------------|---------|------------|
| Chi Square                                      | -              | 316.539 | -          |
| Degree of Freedom                               | -              | 622     | -          |
| p-Value   | > 0.05         | 0.052   | Fit        |
| CMIN/DF   | < 2.00         | 1.965   | Fit        |
| Root Mean Square Residual (RMR)                 | > 0.05         | 0.053   | Fit        |
| Root Mean Square Error of Approximation (RMSEA) | < 0.08         | 0.063   | Fit        |
| Goodness of Fit Index (GFI)                     | ≥ 0.90         | 0.943   | Fit        |
| Adjusted Goodness of Fit (AGFI)                 |                | 0.907   | Fit        |
| Comparative Fit Index (CFI)                     |                | 0.929   | Fit        |
| Tucker Lewis Index (TLI)                        |                | 0.905   | Fit        |

**Data Reliability Test**

Based on the results of the significance test of the standard loading estimate on the measurement model, objective information is obtained that all indicators contained in the latent variable show a very significant value with  $p < 0.001$  and the value of each loading indicator is greater than 0.50. With results like this, all indicators are valid in measuring latent variables. Cronbach's Alpha ( $\alpha$ ) reliability test was calculated using SPSS version 23 program, with acceptance parameter  $> 0.70$ . Meanwhile, Construct Reliability (CR) and Average Variance Extracted (AVE) are calculated manually with the following equation (Colwell, 2016):

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n e_i)}$$

$$AVE = \frac{(\sum_{i=1}^n \lambda_i^2)}{n}$$

Details:  $\lambda$ : standardized factor loading for item  $i$   
 $e$ : respective error variance for item  $i$   
 $n$ : number of indicators

Table 3. Reliability Test Results (Source: Processed Data, 2022)

| Latent Variable          | Indicator Measurement | Standard Loading | C $\alpha$ | CR    | AVE   |
|--------------------------|-----------------------|------------------|------------|-------|-------|
| Tour Guide Performance   | TGP 1                 | 0.662            | 0.748      | 0.942 | 0.522 |
|                          | TGP 2                 | 0.651            |            |       |       |
|                          | TGP 3                 | 0.725            |            |       |       |
|                          | TGP 4                 | 0.764            |            |       |       |
|                          | TGP 5                 | 0.799            |            |       |       |
|                          | TGP 6                 | 0.707            |            |       |       |
|                          | TGP 7                 | 0.665            |            |       |       |
|                          | TGP 8                 | 0.670            |            |       |       |
|                          | TGP 9                 | 0.701            |            |       |       |
|                          | TGP 10                | 0.694            |            |       |       |
|                          | TGP 11                | 0.786            |            |       |       |
|                          | TGP 12                | 0.710            |            |       |       |
|                          | TGP 13                | 0.752            |            |       |       |
|                          | TGP 14                | 0.786            |            |       |       |
|                          | TGP 15                | 0.742            |            |       |       |
| Digital Payment Adoption | DP 1                  | 0.746            | 0.770      | 0.863 | 0.613 |
|                          | DP 2                  | 0.871            |            |       |       |
|                          | DP 3                  | 0.781            |            |       |       |
|                          | DP 4                  | 0.726            |            |       |       |
| Destination Attachment   | DA 1                  | 0.790            | 0.746      | 0.905 | 0.544 |
|                          | DA 2                  | 0.744            |            |       |       |
|                          | DA 3                  | 0.772            |            |       |       |
|                          | DA 4                  | 0.645            |            |       |       |
|                          | DA 5                  | 0.700            |            |       |       |
|                          | DA 6                  | 0.789            |            |       |       |
|                          | DA 7                  | 0.733            |            |       |       |
|                          | DA 8                  | 0.718            |            |       |       |
| Tourist Satisfaction     | TS 1                  | 0.777            | 0.715      | 0.846 | 0.524 |
|                          | TS 2                  | 0.699            |            |       |       |
|                          | TS 3                  | 0.683            |            |       |       |
|                          | TS 4                  | 0.702            |            |       |       |
|                          | TS 5                  | 0.759            |            |       |       |
| Revisit Intention        | RI 1                  | 0.778            | 0.790      | 0.893 | 0.626 |
|                          | RI 2                  | 0.878            |            |       |       |
|                          | RI 3                  | 0.828            |            |       |       |
|                          | RI 4                  | 0.766            |            |       |       |
|                          | RI 5                  | 0.694            |            |       |       |

The Construct Reliability (CR) parameter must have a value greater than 0.7 so that the indicator can be said to be reliable for measuring latent variables. The recommended value for the Average Variance Extracted (AVE) parameter must exceed 0.5. From the results of data processing the parameters Cronbach's Alpha, Construct Reliability (CR) and Average Variance Extracted (AVE) meet the acceptance criteria, so that the indicators used can be declared reliable.

**Model Fit Test**

Each questionnaire item is measured using a 5-point Likert scale, ranging from 1-5, with point 1 indicating that the respondent strongly disagree, while point 5 indicating that the respondent strongly agree with the statement. This study uses three independent variables, namely tour guide performance, digital payment adoption, destination attachment, one mediating variable, namely tourist satisfaction, and one dependent variable, namely revisit intention. Research instruments in data collection are developed from relevant previous studies.

**Convergent Validity Test**

This test is conducted to determine the validity of each of the estimated indicators by measuring the dimensions of the concepts tested in the study. If each indicator has a critical ratio (C.R.) value that is greater than twice the standard error (S.E.), it means that a set of indicators can represent one latent variable that underlies the latent variable. From the test results, the regression weight value shows that the critical ratio (C.R.) is greater than twice the standard error (S.E.), which means that all indicators in the study are valid for each latent variable. The regression weight values for each construct are shown in Table 5.

Table 6. Model Fit Test Result (Source: Processed Data, 2022)

|              |      |                | Estimate | S.E. | C.R.   | P   |
|--------------|------|----------------|----------|------|--------|-----|
| TouristSatis | <--- | TourGuidePer   | .511     | .092 | 5.554  | *** |
| RevisitInt   | <--- | TourGuidePer   | .633     | .050 | 12.660 | *** |
| TouristSatis | <--- | DigitalPayment | .448     | .152 | 2.947  | *** |
| TouristSatis | <--- | DestAttachment | .691     | .065 | 10.631 | *** |
| RevisitInt   | <--- | DestAttachment | .743     | .057 | 13.035 | *** |
| RevisitInt   | <--- | TouristSatis   | 1.115    | .133 | 8.383  | *** |

**Model Causality Test**

This test is conducted to determine the causal relationship between variables by measuring the strength of the relationship between two or more latent variables. The results of calculations with AMOS can be seen in Figure 2, Tables 6, and 7.

Based on the t-count significance in Table 6 with a probability value (p) = 0.05, it is found that the latent variables have a significant influence because they have a probability value less than 0.05. It can be explained more clearly as follows:

1. Tour Guide Performance has a positive influence on Tourist Satisfaction of 0.511 with a CR value of 5.554 and a probability value less than 0.05 (H1 is accepted).
2. Tour Guide Performance has a positive influence on Revisit Intention of 0.633 with a CR value of 12.660 and a probability value less than 0.05 (H2 accepted).
3. Digital Payment Adoption has a positive influence on Tourist Satisfaction of 0.448 with a CR value of 2.947 and a probability value less than 0.05. (H3 accepted).
4. Destination Attachment has a positive influence on Tourist Satisfaction of 0.691 with a CR value of 10.631 and a probability value less than 0.05 (H4 is accepted).
5. Destination Attachment has a positive influence on Revisit Intention of 0.743 with a CR value of 13.035 and a probability value less than 0.05 (H5 is accepted).
6. Tourist Satisfaction has a positive influence on Revisit Intention of 1.115 with a CR value of 8.383 and a probability value less than 0.05 (H6 is accepted).

**Mediator Variable Test**

This test is conducted to determine the role of the mediator variable in providing a mediating effect for the causal relationship between exogenous variables and endogenous variables. This test is carried out using the Sobel test with the following results.

Table 5. Model Fit Test Result (Source: Processed Data, 2022)

|       |      |                | Estimate | S.E. | C.R.   | P    |
|-------|------|----------------|----------|------|--------|------|
| TGP1  | <--- | GuidePerfo     | 1.000    |      |        |      |
| TGP2  | <--- | GuidePerfo     | 1.178    | .114 | 10.308 | ***  |
| TGP3  | <--- | GuidePerfo     | .790     | .099 | 8.015  | ***  |
| TGP4  | <--- | GuidePerfo     | 1.106    | .154 | 7.171  | ***  |
| TGP5  | <--- | GuidePerfo     | .570     | .123 | 4.649  | ***  |
| TGP6  | <--- | GuidePerfo     | .821     | .131 | 6.273  | ***  |
| TGP7  | <--- | GuidePerfo     | 1.005    | .103 | 9.797  | ***  |
| TGP8  | <--- | GuidePerfo     | 1.216    | .124 | 9.837  | ***  |
| TGP9  | <--- | GuidePerfo     | .728     | .123 | 5.934  | ***  |
| TGP10 | <--- | GuidePerfo     | 1.275    | .147 | 8.669  | ***  |
| TGP11 | <--- | GuidePerfo     | .894     | .129 | 6.940  | ***  |
| TGP12 | <--- | GuidePerfo     | 1.303    | .131 | 9.956  | ***  |
| TGP13 | <--- | GuidePerfo     | 1.125    | .121 | 9.313  | ***  |
| TGP14 | <--- | GuidePerfo     | .965     | .121 | 7.958  | ***  |
| TGP15 | <--- | GuidePerfo     | .811     | .112 | 7.251  | ***  |
| DP4   | <--- | DigitalPayment | 1.000    |      |        |      |
| DP3   | <--- | DigitalPayment | 2.532    | .525 | 4.820  | ***  |
| DP2   | <--- | DigitalPayment | 2.641    | .785 | 3.365  | ***  |
| DP1   | <--- | DigitalPayment | .703     | .275 | 2.558  | .011 |
| DA8   | <--- | DestAttachment | 1.000    |      |        |      |
| DA7   | <--- | DestAttachment | .818     | .069 | 11.814 | ***  |
| DA6   | <--- | DestAttachment | .837     | .096 | 8.760  | ***  |
| DA5   | <--- | DestAttachment | .712     | .067 | 10.617 | ***  |
| DA4   | <--- | DestAttachment | .805     | .099 | 8.137  | ***  |
| DA3   | <--- | DestAttachment | .629     | .086 | 7.326  | ***  |
| DA2   | <--- | DestAttachment | .637     | .054 | 11.796 | ***  |
| DA1   | <--- | DestAttachment | .573     | .052 | 11.019 | ***  |
| TS5   | <--- | TouristSatis   | 1.000    |      |        |      |
| TS4   | <--- | TouristSatis   | .413     | .089 | 4.663  | ***  |
| TS3   | <--- | TouristSatis   | 1.040    | .120 | 8.663  | ***  |
| TS2   | <--- | TouristSatis   | .948     | .103 | 9.205  | ***  |
| TS1   | <--- | TouristSatis   | .683     | .151 | 4.523  | ***  |
| RI1   | <--- | RevisitInt     | 1.000    |      |        |      |
| RI2   | <--- | RevisitInt     | 2.173    | .267 | 8.126  | ***  |
| RI3   | <--- | RevisitInt     | 2.080    | .264 | 7.884  | ***  |
| RI4   | <--- | RevisitInt     | 1.410    | .213 | 6.630  | ***  |
| RI5   | <--- | RevisitInt     | 1.387    | .223 | 6.214  | ***  |

1. Tourist Satisfaction can be a mediator that has a positive and significant influence on the causal relationship between Tour Guide Performance and Revisit Intention with a Sobel test value of 4.630 which is greater than z table 1.96 with a smaller probability value of 0.05. (H6 accepted).

2. Tourist Satisfaction can be a mediator that has a positive and significant effect on the causal relationship between Destination Attachment and Revisit Intention with a Sobel test value of 6.583 which is greater than z table 1.96 with a probability value of 0.05 less. (H7 accepted).

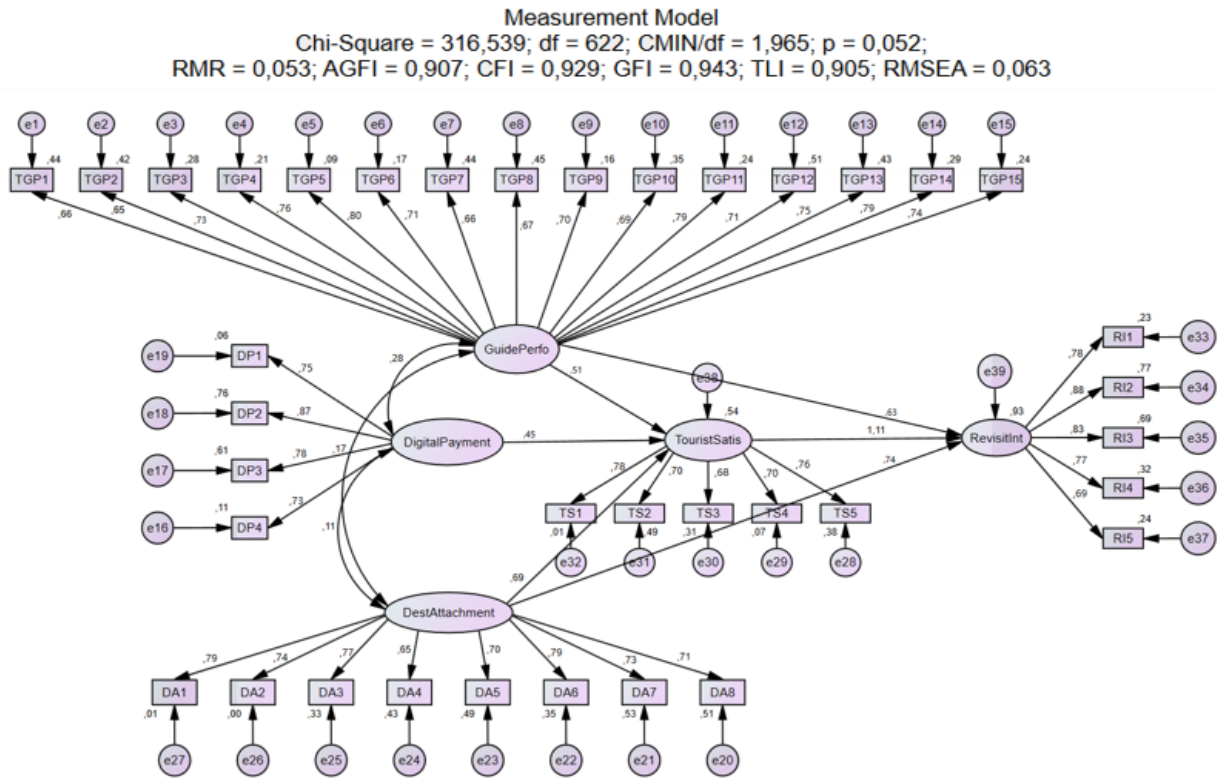


Figure 2. Results of Hypothesis Test

Table 7. Results of Mediating Test with Sobel Test (Source: Processed Data, 2022)

| Variable  | Sobel Test Statistics | p     |
|---|-----------------------|-------|
| Tour Guide Performance --> Tourist Satisfaction --> Revisit Intention | 4.630                 | 0.000 |
| Destination Attachment --> Tourist Satisfaction --> Revisit Intention | 6.583                 | 0.000 |

## DISCUSSION

This study is carried out to explore the factors that influence tourists or visitors in having the intention to revisit a tourist destination. It highlights the literature on tourism, especially by identifying the factors that drive tourist satisfaction and their intention to revisit, namely tour guide performance, digital payment adoption, and destination attachment. We propose five hypotheses with five direct influences and two indirect influence of tour guide performance and destination attachment on tourist revisit intention. Based on the hypothesis testing that has been done, it can be seen that all hypotheses in this study are significantly accepted. In the first and second hypotheses, we consider tour guide performance as an aspect that determines tourist satisfaction and their intention to revisit to tourist attractions. From the results obtained, it can be seen that tour guide performance has a significant influence on tourist satisfaction and revisit intention. This finding supports the results of previous studies conducted by Syakier and Hanafiah, 2022; Al-Okaily, 2021; Gratch, 2020; Yang et al., 2020. Tour guides have roles as pathfinders and mentors (Guan and Huan, 2019; Andelković et al., 2022). Both of these roles can be seen in the activities of tour guides in providing information to ensure the sense of security perceived by visitors.

The positive attitude of a tour guide, such as a good personality, friendliness, to their knowledge of a destination can be a factor that encourages visitors to feel satisfied. In addition, the ability of tour guides in managing visiting times, collaborating with other parties, and their ability to explain about a destination can also encourage visitors to have the intention of visiting the destination again. For tourists, having a capable person to guide them during their visit in a destination will be a joyful experience that is not easy to forget. Therefore, when tour guides have an excellent performance and able to provide information that is complete and beneficial to the tourists, this will make them become more satisfied with their trip, and make them want to revisit the destination again. Thus, the better the performance of the tour guide, the higher the satisfaction of tourist and their revisit intention to the tourist destination. Furthermore, in the third hypothesis, the researcher examines the direct influence of digital payment adoption on visitor satisfaction. The findings show that the adoption of digital payments has a positive and significant influence on tourist satisfaction. This is in line with several previous studies that has been carried out (Dzogbenuku et al., 2022; Susanto et al., 2022). Technological developments



have penetrated various aspects, including finance, and have now been widely used in the tourism sector. The existence of facilities for digital payments at tourist sites makes it easier for consumers to make payments, because they are able to save money digitally and have higher flexibility. Visitors at tourist sites do not need to bother to save money in the form of 'cash', so they also feel more secure and comfortable when on vacation. In addition, digital payment platforms also require users to provide passwords, which increases the security of these payments. Therefore, tourists or visitors who see that the adoption of digital payments are applied at tourist destination will feel satisfied. Digital payment adoption is considered easy to adopt and utilized by both the providers of tourist destination and the tourists itself. With digital payment, tourists can choose between making payments to fulfill their needs while traveling with their e-wallet, internet banking, m-banking, or even scanning QR code, all done only using their phones. Visitors or tourists do not need to be worried about bringing too much cash and securing it while enjoying their holiday. When the providers of tourism destination adopt digital payment in their business, this will lead to increased visitor satisfaction due to its flexibility, convenience, accessibility, and security.

In the fourth and fifth hypotheses, the researcher examines the direct influence of destination attachment on tourist satisfaction and revisit intention. The results of this study support the findings of previous studies which confirm that destination attachment has a positive and significant influence on tourist satisfaction and revisit intention (Clarke et al., 2018; Boley et al., 2021; Peštek and Sarvan, 2020; Eger et al., 2020). This means that destination attachment can increase tourist satisfaction and revisit intention. Tourists who already have an attachment to a place tend to be more satisfied when on vacation to that destination. In addition, they also have a special memory of the experience, vibes, and meaning of a destination, thus encouraging the desire to visit it again. For tourists, a destination has its own meaning or identity, as well as a place that provides facilities for them with certain conditions and features. At times, tourists are more inclined to visit certain destination because they form some bonds with the destination. This attachment or bonds can grow from tourists' previous memories, or grow as a new one based on what they see, think, feel, and experience during their visit to certain places. To build destination attachment for visitors, the managers or providers of tourism destination must create and highlight the importance of the destination and assert value into the tourists during their trip.

When tourists are attached towards a destination, this will strongly influence their behavior, including their satisfaction and intention to revisit the destination in the future. Next, the researcher examines the influence of tourist satisfaction on revisit intention in the sixth hypothesis. The results of data analysis indicate that tourist satisfaction has a positive influence on revisit intentions. This supports the results of previous research conducted by Pratminingsih et al. (2022; Shi et al., 2022; Guan and Huan, 2022). Tourists who are satisfied with their visit will have the intention or desire to come back to the tourist destination. In the consumer-oriented service industry, including the tourism industry, customer satisfaction is a factor that determines the success of a business or tourist destination. Consumers who are satisfied with the experience they get while on vacation and are able to enjoy their vacation time will have the desire to return to that destination in the future. High satisfaction from tourists will also increase their intention to visit again. Tourists who are satisfied with their trip to a destination are more likely to come back to experience the place again. When tourists are served well, obtain useful information, feel positive emotions during their trip, and able to enjoy various services offered by the destination, it increases their satisfaction and likelihood to have the intention to revisit the destination in the future.

Finally, the researcher examines the mediating role of visitor satisfaction in the seventh and eighth hypotheses. More specifically, the researchers looked at the indirect influence of the tour guide performance and destination attachments on the revisit intention through tourist satisfaction. The results of hypothesis testing show that these two hypotheses are accepted. That is, this mediation occurs partially, because in this study we also have confirmed the direct influence of the performance of tour guides and destination attachments on the intention to revisit. This finding supports the previous research conducted by Cheng et al., 2019; Al-Okaily, 2021; Syakier and Hanafiah, 2022. Tour guides who have the ability to provide knowledge and information about a destination, and have a friendly, open, polite, and respectful attitude to visitors will increase the satisfaction of visitors, thus encouraging them to have the intention of visiting again. In line with this, visitors who already have an attachment to a destination will feel satisfaction, which also ultimately leads to the revisit intention.

## CONCLUSION

This study justifies the factors that determine the high visitor intention to visit tourist destinations in West Java Province, Indonesia. This province is specifically chosen because it has various types of tourism, such as maritime tourism, culture, agriculture, nature reserves, to education. From the results of the analysis and hypothesis testing that has been carried out, this study proves that the tour guide performance, digital payments adoption, and destination attachments can increase tourist satisfaction. Then, the researcher also proves that the tour guide performance, destination attachments, and tourist satisfaction can influence revisit intention. Finally, this study confirms the mediating role of tourist satisfaction in the relationship between tour guide performance, destination attachment, and revisit intention.

This study contributes to the practice and theory of tourism literature. First, regarding the literature, this research expands on previous tourism studies by identifying factors that influence visitor satisfaction, namely the performance of tour guides, adoption of digital payments, and destination attachments. In addition, this study also looks at visitor satisfaction as a mediator, to find out more about the mechanism of the factors that drive visitor's revisit intention.

Furthermore, this study also contributes to tourism practice, especially for managers of tourist attractions. Managers of tourist attractions need to pay attention to the abilities and performance of their tour guides, so as to increase satisfaction. In addition, managers of tourist attractions must also start facilitating digital payments for visitors, making it easier for them to make transactions. Then, the manager also needs to increase the destination attachment of visitors, and ensure that visitors have satisfaction when they come to these tourist attractions. This will ultimately increase their revisit intention.

This study has several limitations that should be addressed and noted by the future researchers. The first limitation is regarding the geographical scope of this study, which is only focused on one province in Indonesia, namely West Java. Although this area is chosen due to its various types of tourism and the large number of visitors, there is still a need to widen the research area and add the number of samples, in order to assure the generalizability of the results. Furthermore, this study has not yet grouped the type of tourism, thus it is suggested for future studies to focus or distinguish the type of tourism in order to obtain a more thorough findings for how tourists' behavior differs based on the type of destination they visit. Finally, we have not considered the moderator that can be a condition to strengthen or weaken the relationship between constructs. Therefore, we suggest future scholars in this line of research to employ a moderating variable and conduct a moderated-mediation analysis, for example by using group familiarity, destination familiarity, or demographic variables.

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## THE IMPACT OF THE CRIME RATE ON THE HOSPITALITY AND TOURISM INDUSTRY IN THE EU COUNTRIES

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**Abstract:** Tourism is the largest service industry in the world. The direct and reverse relationship between crime and tourism significantly affects the economy, society and individuals. Studying this impact is necessary for the state policy making and the organization of law enforcement agencies. The aim of this study was to determine the specifics of the criminal situation in the hospitality and tourism in the EU. The research involved system approach, descriptive analysis, systematic sampling, doctrinal approach, statistical analysis and forecasting as research methods. The results of specialized studies were summarized, and the lack of a comprehensive background for effective law enforcement was revealed. The main trends of the European tourism industry were identified. General European trends regarding the impact of crime on the tourism industry were revealed: a positive correlation of the security index with terrorist attacks; the relationship between the statistical significance of migration processes and the peculiarities of human trafficking in particular EU countries. The theoretical and practical problems of imperfect statistics on tourism-related crimes were confirmed. An approach to the preventive policy principles in the tourism industry was presented. The impact of crime on the hospitality and tourism is a multidimensional problem that requires the development of special preventive policies. The prospects for improving crime prevention in the tourism sector are related to the improvement of the practice of registering crimes and attracting additional opportunities for the public and subjects of the tourism industry. Prospects for further research include identifying the relationship between crime and various types of tourism.

**Key words:** crime, victimization, tourist industry, crimes against tourists, migration, criminal statistics

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### INTRODUCTION

The hospitality and tourism industry occupies one of the most important places among the areas of economic activity. Tourism acts as a catalyst for economic development, a stabilizer, and a connecting link for society through direct and indirect connections with agriculture, manufacturing, transportation, trade, and other areas (Zhang and Xiang, 2021: 21). The tourism sector accounted for 10.6% of all jobs and 10.4% of global GDP before the pandemic. The share of tourism in global GDP exceeds 5.5%, although it decreased in 2020 because of COVID-19 (Roman et al., 2022).

Travelers are rational consumers of tourist services (Cró et al., 2020: 142). Therefore, their perception of risks, primarily security-related ones, is the most important factor in making travel decisions (Fourie et al., 2020: 216). In particular, many countries are unable to develop their tourism sectors despite their potential cultural and environmental opportunities because of ineffective crime prevention (Santana-Gallego et al., 2016). The reason is the close relationship

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between tourism and crime, as tourists are at a particular risk of crime (Mawby, 2017: 81). Europe is the most visited region of the world. It accounts for more than 50% of tourist flows. The tourism sector directly provided 3.9% of the EU GDP and 5.1% of the employment market. Considering the tourism-related sectors of the economy, their combined contribution was 10.3% of GDP and 11.7% of their total employment (Pernice, 2022).

Tourism is one of the branches of the service sector, which is significantly affected by the integration processes. Although France, Spain, Italy, and Germany are the leaders in terms of tourist flows (Florek, 2018: 42-43), international tourist flows increased three times in the states that later joined the EU (Ana, 2017: 493-494). The importance of the tourism industry for the EU economy will increase year by year (Florek, 2018: 44, 49).

The mass movement of tourists and the growth of the tourist economy entails, however, increasing crime rates. Crime, as a negative external side of tourism, is the joint result of three main components: appropriate targets, motivated offenders, and lack of adequate protection against violations (Zhang and Xiang, 2021: 20-21). The development of tourism provided criminals with increased mobility and opened up new opportunities for criminal enterprises (Norio, 2021: 39). On the other hand, the increasing crime rates become a negative factor for the tourism industry, as tourists to refuse to travel to dangerous areas because of illegal migration, drug smuggling, acts of terrorism, and other crimes (Kordić et al., 2019).

So, the analysis of the impact of crime on the tourism industry is a relevant issue both for the development of tourism in European countries and for prevention in EU.

In view of the foregoing, the aim of this study is to consider the specifics of the impact of crime on the tourism sector in EU countries with the identification of general trends. This aim provided for the following research objectives:

- creating a theoretical background for the study of the impact of crime on the hospitality and tourism industry in the EU;
- identifying legal, criminological and organizational components of crime impact on the tourist sector;
- determining prospects for improvement of prevention in the field of hospitality and tourism in the EU with regard to the identified trends.
- formulation of proposals for improving preventive activities in the field of hospitality and tourism in the EU

## LITERATURE REVIEW

The relationship between crime and tourism has been studied for over 40 years (Khalilzadeh, 2020). However, the increased mobility of the world's population has made the problem more urgent, as Europe is the most popular tourist destination in terms of both inbound and outbound tourism. Experts identified the following special trends in European tourism:

- changes in the demographic structure of EU countries, which determines the growing share of tourists aged over 50;
- changes in the demand for tourist services, in particular, in the growth of scientific, educational and medical tourism;
- increased competition in the global tourism market (Florek, 2018: 49);
- growing share of leisure tourism to 70% of the total tourism volume (Santana-Gallego et al., 2016).

Despite current trends, security is still one of the global forces affecting the tourism industry (Cró et al., 2020: 142). In the author's opinion, it is rightly emphasized that safety and security are the most important aspects of tourism for consumers of tourist services. Guaranteed security increases the probability of visiting a certain location and, as a result, determines the competitiveness of the tourism sector (Kordić et al., 2019). The reason is that every risk factor perceived by tourists can be a reason to change a certain destination for an alternative option (Cró et al., 2020: 142).

As Europe in the world's number one tourist destination, tourist countries seek to establish a single security-related legal space (Gheorghe, 2020). However, the EU institutions are currently playing a supporting role in tourism policy, supporting and coordinating the actions of the Member Countries (European Court of Auditors, 2021: 4). Therefore, individual states should determine tourism-related crime prevention policy. At the same time, national legislators and law enforcement agencies should consider the interrelation of crime and tourism:

- 1) on the one hand, tourism causes the commission of crimes;
- 2) on the other hand, crime inhibits the development of tourism (Recher and Rubil, 2020: 651; Zhang and Xiang, 2021: 6, 7).

As regards the theoretical background of the study of this issue, one cannot agree with the opinion that most studies focus on the differentiation of crimes against tourists and against the local population (Khalilzadeh, 2020). Three main methodological approaches to assessing the relationship between crime and tourism were identified on the basis of the literature review: they are tentatively defined as "personal", "spatial", "consequential and temporal". Each of these approaches involves conclusions of different levels of generalization, which can be used both for practical activities and for further research.

1. The "personal" approach is focused on the study of criminality and victimization of tourists (Montolio and Planells-Struse, 2016: 1601, 1602, 1603); attention is also paid to the tourists' choice of certain locations, which is based on such factors as safety and personal experience of encountering manifestations of crime.

In particular, the author team of Santana-Gallego, Rosselló-Nadal and Fourie made interesting conclusions in their 2016 and 2020 studies. They emphasized the differentiation of tourists depending on:

- a) the country of origin (countries with a stable or unstable situation);
- b) purposes of tourism (leisure or business);
- c) the direction of tourist flows (inbound or outbound).

For example, tourists from unstable countries have been found to be more tolerant of various forms of crime in the destination countries (Santana-Gallego et al., 2016). In turn, tourists from stable countries prefer to travel to countries with the same conditions. The more information tourists have about the destination country, the smaller is the negative impact of crime on inbound tourism (Fourie et al., 2020: 217). Correlation of certain types of offences and tourism is practically oriented. The authors noted that corruption only affects business tourism and does not affect leisure tourism. In contrast, a

1% increase in general crime rates reduces the number of leisure tourists by 0.07% but has no effect on incoming business tourist arrivals. Terrorism, crime, and corruption have a negative impact on the destination country's tourism sector, but do not affect outbound tourists (Santana-Gallego et al., 2016).

2. The "spatial" approach focuses on localities, regions or countries that are popular among tourists, so the geographic distribution of crime is studied; "hot spots" are distinguished, that is places with an increased risk for tourists to become victims of crime (Lisowska, 2017: 32). In general, countries with high crime rates will receive fewer foreign tourists (Lisowska, 2017: 31). This factor has, however, less impact on tourist flows in countries that are more attractive to tourists. In such a case, it may be difficult for tourists to find a substitute for travel (Santana-Gallego et al., 2016). In this context, the opinion was expressed that tourism can indirectly reduce criminal activity through the development effect. An area which is frequently visited by tourists is more likely to modernize and develop, which can make it less attractive to crime (Zhang and Xiang, 2021: 21). However, the same authors contradict their own thesis when they emphasize that the development of tourism in a famous tourist destination attracts criminals from neighbouring regions. Accordingly, the development of tourism can cause a decrease in the crime rates, but in the surrounding areas, not in the tourist location itself (Zhang and Xiang, 2021: 22). These findings are contradicted by the results of studies that have revealed that the resorts have higher crime rates than the average in the region where they are located. The maximum increase in crime rates in resort areas is observed at the peak of the tourist season (Vakhitova et al., 2022: 6, 21). This is confirmed by law enforcement practice of the EU. Transnational organized groups often use the developed tourism infrastructure of resorts as physical and functional spaces to pursue criminal goals (Norio, 2021: 38, 39). Some researchers note that criminal activity tends to be concentrated in areas with lower seasonality (Montolio and Planells-Struse, 2016: 1618).

3. Consequential and temporal approach is because crime affects the tourism industry as a whole and specific consumers of tourism services. At the same time, the duration of changes because of the impact may be short-term (up to several weeks); medium-term (up to 4 months); long-term (duration of more than one tourist season) and indefinite (Mataković and Mataković, 2019: 11, 12). In this context, the expenditures of the tourism industry are of particular importance in connection with the increased crime rates. For example, the scope of organized crime in the EU is estimated at almost EUR 300 per year. Besides, from 0.7% to 1.28% of the EU's annual GDP is involved in suspicious financial activity (European Parliament, 2020). The opinion regarding the use of the tourist sector by organized crime is the ground for stating that a certain part of criminal income is laundered in tourist regions. This entails additional direct costs for the population and economy of the host country, and the travellers themselves (Recher and Rubil, 2020: 651).

In general, these methodological approaches do not contradict each other, so they can be used concurrently. This conclusion can be reached upon systematization of the results of research on the mutual influence of crime and tourism. With all the diversity of studies, they are reduced to several contexts detailed below.

1. Features of the structure and trends of tourism-related crime. Research shows that tourists most often encounter property crimes thefts from the places of their accommodation (Vakhitova et al., 2022: 3). Even a relatively rapid increase in the tourist rates can entail a significant increase in property crimes within ten years in the absence of effective preventive factors (Recher and Rubil, 2020: 651). Although violent crime discourages both local and foreign tourists, its impact on international tourists' sense of security appears to be stronger (Malleka et al., 2022: 47). A 1% increase in the number of murders per 10,000 inhabitants reduces tourist flows by 0.06% (Santana-Gallego et al., 2016). Drug trafficking and prostitution, in which tourists can be involved as consumers of criminal services, are also statistically significant (Lisowska, 2017: 33).

2. Peculiarities of the criminal behaviour of tourists. The problem of analysing the situation in this regard is related to the inadequacy of official statistics. Police data are rarely informative on the status of victims or offenders: whether they are local residents or tourists (Mawby, 2017: 83). However, tourists can also commit crimes against tourism infrastructure and personnel (Lisowska, 2017: 33). Of course, there is a difference between tourists who accidentally break the law while on vacation, and tourists who are attracted to tourist locations because of the opportunities to commit offences (Mawby, 2017: 85). Therefore, the classification of deviant tourists is interesting:

- accidental deviant – a person who accidentally commits an offence. An example of this type is individuals who abuse alcohol and have aggressive behaviour. In particular, the use of alcohol and drugs as a form of "leisure" in certain tourist destinations may cause, at least in part, the commission of crimes by tourists (Montolio and Planells-Struse, 2016: 1602-1603);
- situational deviant – a person who commits an offence because of the availability of certain goods and services (for example, drug trafficking or use of sex industry services);
- intentional deviant – a tourist who plans to commit a crime. Such persons can also commit severe crimes (Mataković and Mataković, 2019: 10-11). This type includes "traveling" criminals who come to certain regions for the purpose of committing a crime (Mawby, 2017: 85).

In view of the foregoing, we can agree with the general conclusion that tourism-related crime is a problem that manifests itself in different ways. Tourists may encounter high levels of property or vehicle crime in some locations. In other places local residents may suffer from increased crime rates and unrest, often associated with young single tourists. So, the impact of crime in tourist locations affects tourists, the local population, and the tourism industry itself (Cohen, 1997; Mawby, 2017: 82).

It seems controversial to study the relationship between tourism and crime in isolation from the issues of the impact of terrorist threats on the tourism industry. Although terrorism as a phenomenon has a large number of components, it manifests mainly through crimes, in particular, those committed in tourist locations — terrorist acts, hostage taking, etc. There were cases when tourists were used as a political tool to gain more publicity. Besides, tourist attacks can damage tourism-related infrastructure (Santana-Gallego et al., 2016). In general, four types of research on the relationship between terrorism and tourism can be distinguished (Zeman and Urban, 2019: 76-78):

- thematic studies or overviews, which most often assess the impact of individual terrorist attacks. For example, a general decrease in the tourists' willingness to visit a number of tourist regions, including EU countries (Cyprus, Greece) was established after September 11, 2001;

- studies that compare data on tourism and terrorism from a number of countries for certain periods. They showed that both domestic and international terrorism have a significant negative impact on the tourist flow;

- country-specific studies that assess the impact of terrorism on tourism for certain periods. For example, similar studies were conducted for Greece for the period from 1977 to 2012. They showed that terrorism has a negative effect on tourism in any period, and this relationship is unidirectional — from terrorism to tourism only.

However, experts came to ambiguous, sometimes opposite, conclusions. In particular, some authors emphasize that the demand for international tourism is generally resistant to the terrorism factor. In general, it is difficult to talk about the terrorism factor separately from political stability, income level, intrastate population movement, etc. (Liu and Pratt, 2017).

At the same time, other experts note that the terrorism make tourists to change the destination for other, safer countries. This means that tourists do not stop traveling during periods of danger. They also choose internal directions, which they consider to be much safer. Terrorist attacks in France, Greece and Spain significantly affect Portuguese domestic tourism (Seabra et al., 2020: 9). So, the only consensus is that acts of terrorism have direct, indirect, and contextual impact on international tourism (Dory, 2021). The consideration of migration issues is a peculiarity of the study of the impact of crime on tourism and hospitality. Migration and tourism are similar because they are related to large-scale movements of people. They feed each other and constantly intersect, sometimes within the same person. Although tourists and migrants are intertwined, their mobility and experiences differ significantly. Most countries and regions strive for supporting tourists, but migration has a somewhat negative socio-political connotation (Choe and Lugosi, 2022: 2, 6). Therefore, research on the impact of crime on the hospitality and tourism industry must take into account the complex issue of migration. It includes:

- a) positive and negative aspects of legal migration in the context of tourism;
- b) illegal migration as a sphere of organized criminal activity;
- c) crimes committed by migrants;
- d) crimes against migrants.

The survey of specialised studies gives reason to emphasize that there are different views on the issue and partly controversial conclusions. These views can be arranged primarily because of evaluative judgments regarding the mutual influence of migration and tourism:

1. The positive perception of the impact of migration on tourism demand is since people who are refugees, displaced persons or otherwise forced to leave their homes and seek refuge cannot be considered tourists. However, their stay can make a significant contribution to the development of tourism and cultural enrichment of the recipient country (The World Tourism Organization, 2009: 4). Migrant communities enrich the local cultural diversity, thereby making an additional contribution to the tourist attractiveness of particular territories (Dragičević et al., 2019: 215). In particular, immigrant neighbourhoods with thriving tourist-oriented businesses are attractive tourist locations (Kubrin et al., 2019: 182).

The role of diasporas is an important element of the positive perception of migration in the context of tourism. In particular, this issue is considered in the analytical summary of the International Organization for Migration "Migration in the 2030 Agenda". The matter is about the human, financial and social capital of diasporas in the countries of residence. Diaspora tourism includes family visits, business trips, leisure tours, medical and educational tourism, etc. Migrants often act as tourism ambassadors and demonstration agents for friends and family back home, promoting travel. Involvement of diasporas in tourism can help fight poverty and contribute to economic growth and have a positive impact on marginalized regions of the host country (International Organization for Migration, 2017: 2, 5, 12). Accordingly, migration is a direct and indirect cause of a significant increase in tourism both in the countries of origin and in the countries of destination. This results in the development of new tourism infrastructure and transport routes within and between countries. Migration from the countries of Central and Eastern Europe can be an example. It has played a positive role in filling vacancies in the tourism sector in Western Europe (The World Tourism Organization, 2009: 7).

2. The negative perception of the impact of migration on the tourism industry is associated with socio-political instability, which is caused by the influx of the population, including economic migrants and refugees. Illegal migrants are very difficult to quantify in migration policy and statistics because migrants arrive as tourists in many cases (The World Tourism Organization, 2009: 4). Migrants are involved in illegal drug trade, robberies, etc. A "parallel system of justice" is introduced with the participation of mediators from among representatives of the diaspora. Ethnic groups maintain corrupt ties with law enforcement officers. This is reasonably perceived as a threat to the security of individual EU countries (Grenda, 2017: 201, 205). The number of hate crimes against migrants is growing. For example, Germany registered 6% more crimes against migrants and refugees in 2021. But even in such cases, the victims are usually consumers of criminal services in the field of organizing illegal migration (Persak, 2022: 92, 114).

Europol expects an increase in illegal migration flows, an increase in organized crime and the threat of terrorism in the medium term as a result of the COVID-19 crisis (Grenda, 2017: 211; European Parliament, 2020).

The socio-psychological characteristics of tourists as consumers of services are another factor that directly affects the interaction between tourism and crime. In particular, the matter is about the specifics of their victimization. This issue is partially covered in the specialized literature. The culture of tourism as such determines a high level of victimization of tourists in the context of their "special vulnerability" (Moore and Berno, 1995: 7). This is due to such features as:

- a) a significant number of visitors are in a certain location for a very short time;
- b) lack of stable relations between tourists themselves, and tourists with staff and local residents;



c) peculiarities of tourists' behaviour associated with significant spending and a tendency to risky behaviour (Mataković and Mataković, 2019: 9). Much attention is paid to individual characteristics of tourists and establishing the connection between these characteristics and their victimization. For example, the location of a crime scene and the victim's status as a foreign or domestic tourist influence the victimization rate. On the contrary, time of day and gender do not have a significant effect. At the same time, age is more significant. For example, the over-64 age group is more vulnerable to pickpocketing (Paliska et al., 2020: 24, 25). These considerations are supplemented by the findings about gender characteristics: almost 50% of women consider themselves vulnerable to crime, while this figure was 37.2% for men (Mataković and Mataković, 2019: 14).

Considering criminality and victimization through the prism of latency is an important methodological technique for studying the relationship between crime and tourism. Experts emphasize the objective and subjective conditions of increased latency of tourism-related crime:

1. Objective conditions include the deliberate policy of the authorities or travel companies to hide the real criminal situation (Norio, 2021: 40). Although maintaining the image of a crime-safe tourist destination or location is quite a difficult task in the era of digital media and social networks (Paliska et al., 2020: 16).

2. The subjective factors of not taking into account a significant number of crimes against tourists are the following:

- a) most tourists do not immediately realize that they have become victims of crimes (for example, theft);
- b) often the victims do not know what to do, especially not knowing the local language;
- c) victims are often convinced that it is useless to report what happened (Lisowska, 2017: 33).

In general, the study of crime and victimization in the context of latency is to ensure appropriate standards of tourist safety while not compromising the level of service that the customers expected (Cró et al., 2020: 142; Moore and Berno, 1995: 7).

The studies that deal with individual EU member states are a separate component of the discourse on the impact of crime on the tourism and hospitality industry. The European countries are the most popular among international tourists, but domestic tourism also accounts for a significant share of trips. In particular, the literature outlines the general characteristics at the EU level (Mawby, 2017: 82), the specifics of the criminal situation in the tourism industry in Spain (Choe and Lugosi, 2022: 4; Montolio and Planells-Struse, 2016: 1617, 1618; Norio, 2021: 40), Italy (European Union, 2022: 20; Zhang and Xiang, 2021: 5-6), France (Norio, 2021: 39; The World Tourism Organization, 2009: 41), Slovenia (Paliska et al., 2020: 15), etc. In general, experts reached the following main conclusions:

- there is a direct correlation between the growth of tourism volumes and the crime rate, however, the increase in crime rate is not significant and does not have a significant share in the overall criminal situation. In particular, a 1% increase in the number of incoming tourists leads to a less than 0.02% increase in crime rate. However, this has become a trend that is characteristic of both traditional (Italy, Spain) and relatively new (Croatia) European tourist destinations;

- the structure of crime in the tourism sector indicates that property-related crimes prevail. At the same time, the increase in tourist flows affects, first of all, the commission of serious property crimes;

- although crime in the tourism industry is mainly self-interested, the increase in tourist flows causes a greater increase in violent rather than in property crimes;

- a significant share of crimes committed by organized groups, primarily at resorts. Actions are mainly committed in the field of illegal drug trafficking. There is also illegal migration under the guise of legal tourist transportation.

So, there is a significant literature pool which elaborates the theoretical and applied aspects of the impact of crime on the tourism and hospitality industry. However, the following research gaps regarding the European dimension of the problem should be noted:

- the studies are mostly of a general nature, they only partially cover the situation in EU member states, especially in the post-pandemic period;

- the problem of human trafficking in the context of illegal migration is partially considered, although labour exploitation in the tourism business is a problematic issue for EU countries;

- only some researchers noted the peculiarities of preventive activities in the field of hospitality and tourism in the EU, in particular, overcoming the latency of crime.

## METHODOLOGY AND METHODS

The stages of conducting the research are presented in Figure 1.

In order to achieve the aim and fulfil the objectives set in the article, theoretical literature was selected, which cover the legal, criminological and organizational components of the impact of crime on the hospitality and tourism industry in the EU. The survey of this literature was the basis for the formulation of the main aspects of the research subject, which reflect the importance of the hospitality and tourism industry as an important economic sector.

The article summarizes statistics on economic activity in tourism, crime rates in this industry in EU member states. This enabled outlining the specifics of the criminal situation in the hospitality and tourism industry in some EU countries, identifying general European trends in the impact of crime in this field, and determine the main prospects for increasing the effectiveness of preventive activities based on the existing experience of law enforcement agencies in EU countries.

The study involved the following methods (see Figure 2): *the systemic approach* was used to determine crime as one of the security threats to tourism in the EU; *the descriptive analysis* was applied to identify and study the specifics of the criminal situation in the context of its impact on the hospitality and tourism industry in EU countries; *systematic sampling* and *doctrinal approach* defined and described tourism and migration as mass phenomena in the context of criminal influence; the statistics characterizing the criminal situation in the EU member states was processed with the help of the

statistical analysis; the forecasting method was used to determine the prospects for improving the effectiveness of preventive activities in the hospitality and tourism industry.

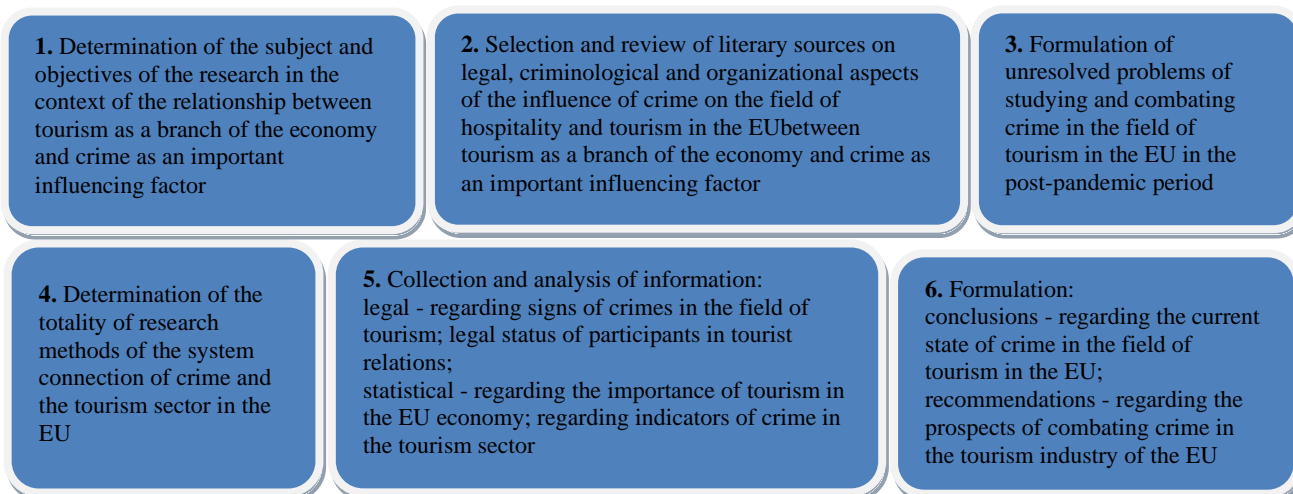


Figure 1. Flowchart of the study

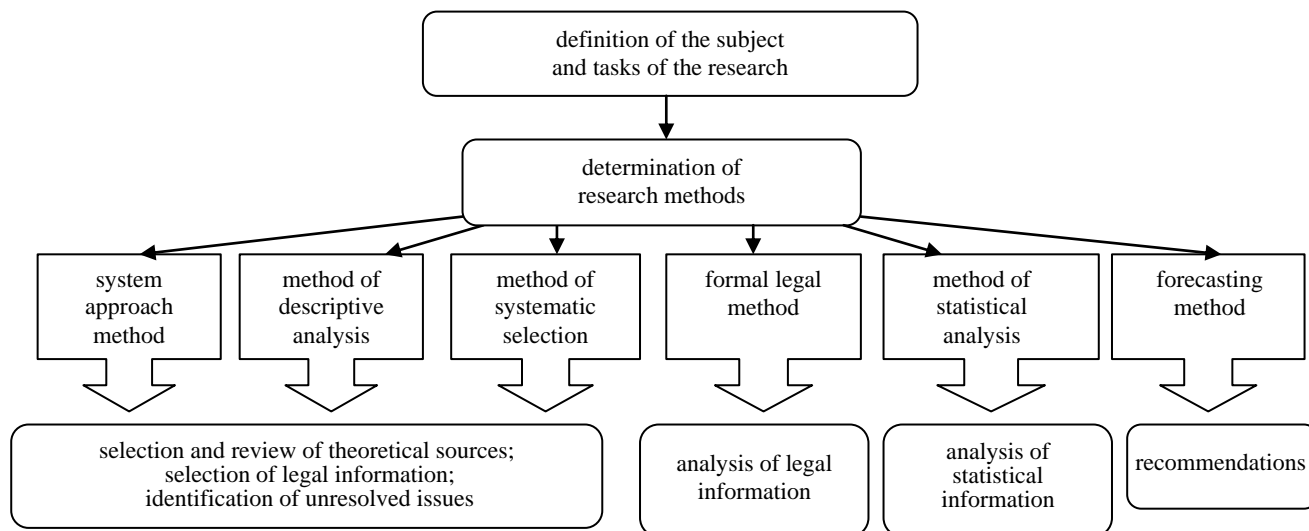


Figure 2. Block diagram of the methodology

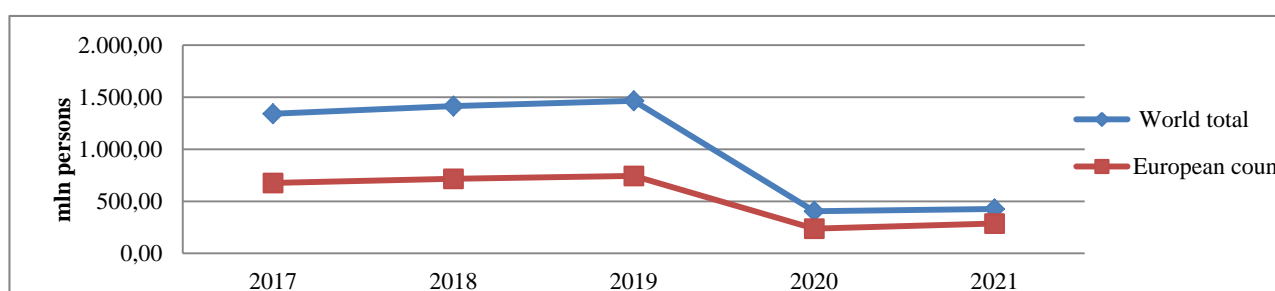


Figure 3. Share of European countries in international tourist flows (million people) (Source: Statista, 2022a)

## RESULTS

It is appropriate to study the indicators that reflect the dynamics of the situation in the European tourism in order to identify current trends in the influence of crime on the tourism industry in the EU member states.

Regarding the share of tourist flows in the European direction in world tourism, statistics indicate that:

- because of the COVID-19 pandemic, the volumes of the European tourism market dropped almost by 3/4 of the pre-pandemic period. However, this fully corresponded to the global processes of reducing the population mobility because of the restrictions imposed on international and domestic tourism;

- if before the COVID-19 pandemic, the European tourism segment accounted for about 50% of the world market, while it was already 2/3 during the pandemic and at its end. This indicates the preservation of the tourist market potential in the European direction;

- in general, one cannot agree with the statement about the negative trends in the development of the European tourist market in the post-pandemic period (Roman et al., 2022).

Figure 3 presents the trends of the European direction of tourism in the context of world tourist flows. However, the impact of the COVID-19 pandemic on the tourism industry is manifested not only in a decreased total volume of tourist trips in Europe, but also in changes in the share of tourism revenues in GDP and employment in the EU. The dynamics of tourism contributions to the EU GDP show that the drop in tourism industry revenues caused by the pandemic was significant, but relatively smaller compared to the tourist trips volume — less than 50%. At the same time, there was an increase in income by 28% in the period from 2020 to 2021 (Figure 4A).

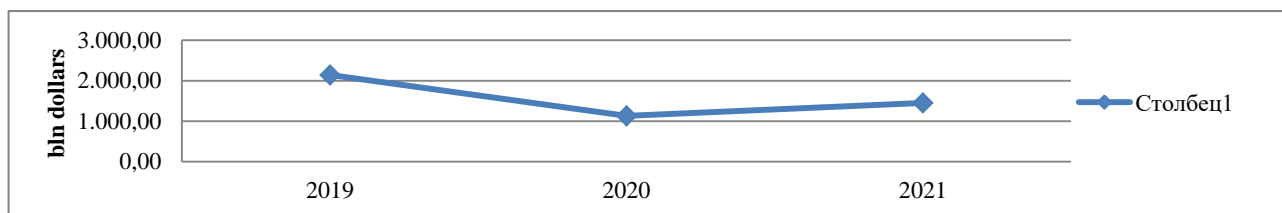


Figure 4A. Total contribution of tourism to EU GDP (\$ billions) (Source: Statista, 2022b)

In turn, the dynamics of the share of tourism in the EU employment demonstrated relative stability: while in 2020 it amounted to 87.5% of employment in 2019, in 2021 it became 91.6%. Despite certain pandemic restrictions were still in force, employment in the EU tourism industry increased by more than 4% (Figure 4B).

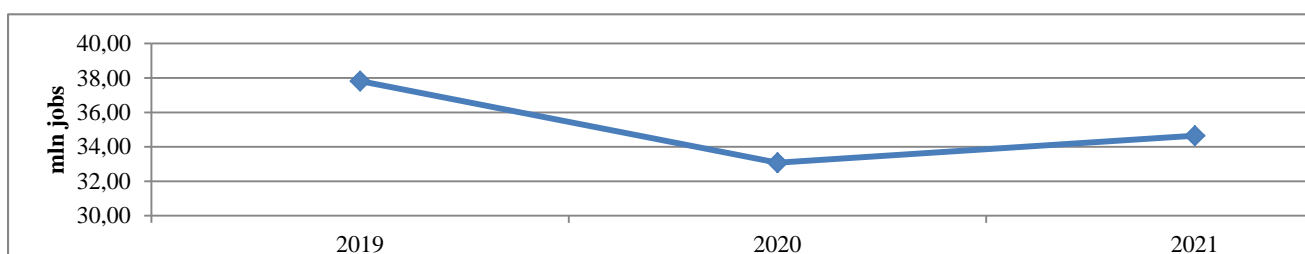


Figure 4B. The overall contribution of tourism to the EU employment market (in million jobs) (Source: Statista, 2022c)

Table 1. Comparison of the share of revenues from domestic tourism and trips within the EU in 2019 and 2021 (percent) (Source: World Travel & Tourism Council, 2022)

| Countries      | Revenues from domestic tourism |      | Revenues from EU resident tourists |      |
|----------------|--------------------------------|------|------------------------------------|------|
|                | 2019                           | 2021 | 2019                               | 2021 |
| Austria        | 43                             | 63   | 57                                 | 37   |
| Belgium        | 65                             | 67   | 35                                 | 33   |
| Bulgaria       | 12                             | 20   | 88                                 | 80   |
| Croatia        | 14                             | 17   | 86                                 | 83   |
| Cyprus         | 9                              | 12   | 91                                 | 88   |
| Czech Republic | 44                             | 64   | 56                                 | 36   |
| Denmark        | 57                             | 75   | 43                                 | 25   |
| Estonia        | 27                             | 53   | 73                                 | 47   |
| Finland        | 70                             | 91   | 30                                 | 9    |
| France         | 66                             | 70   | 34                                 | 30   |
| Germany        | 86                             | 90   | 14                                 | 10   |
| Greece         | 32                             | 37   | 68                                 | 63   |
| Hungary        | 20                             | 31   | 80                                 | 69   |
| Ireland        | 22                             | 48   | 78                                 | 52   |
| Italy          | 70                             | 84   | 30                                 | 16   |
| Latvia         | 48                             | 76   | 52                                 | 24   |
| Lithuania      | 44                             | 67   | 56                                 | 33   |
| Luxembourg     | 18                             | 17   | 82                                 | 83   |
| Malta          | 10                             | 20   | 90                                 | 80   |
| Netherlands    | 72                             | 81   | 28                                 | 19   |
| Poland         | 33                             | 33   | 67                                 | 67   |
| Portugal       | 34                             | 42   | 66                                 | 58   |
| Romania        | 53                             | 70   | 47                                 | 30   |
| Slovakia       | 49                             | 73   | 51                                 | 27   |
| Slovenia       | 34                             | 49   | 66                                 | 51   |
| Spain          | 43                             | 60   | 57                                 | 40   |
| Sweden         | 67                             | 75   | 33                                 | 25   |

It is informative to consider the situation in the tourism industry in EU member states in view of general European trends. In this context, it is appropriate to compare the income that the states received from tourist flows within the state

and from foreign visitors. In general, it can be concluded that tourists fundamentally changed their destinations in favour of domestic tourism during the pandemic in the EU. In 2019, domestic tourism exceeded foreign tourism in 1/3 of the EU countries. These countries, however, include the most developed countries of “old Europe”. Since the beginning of the pandemic, only Luxembourg and Poland have retained the usual structure of income from foreign and domestic tourism. Besides, Greece managed to avoid significant loss of revenues from foreign tourism. The pandemic has become a serious challenge for the tourism industry in Italy, Spain, and Portugal (Table 1). Statistics on the share of the EU residents among foreign tourists for EU member states are also informative. The analysis leads to the conclusion that the general European trend is the growth of the share of tourists from the EU traveling within the European region. This trend is the most pronounced for such countries as the Czech Republic, Germany, the Netherlands, Portugal. The only exceptions are Ireland and Sweden, where this indicator decreased compared to 2019, as well as Bulgaria, where it did not change (Figure 5).

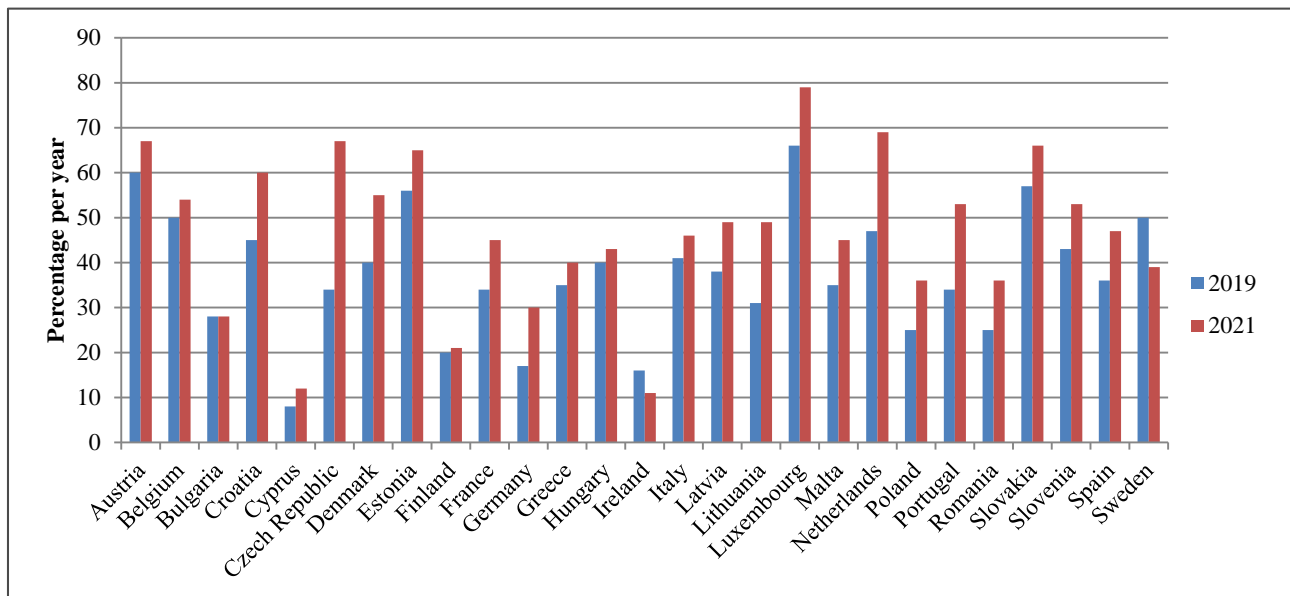


Figure 5. The share of tourists from the EU in the tourism of EU member countries (percent) (Source: World Travel & Tourism Council, 2022)

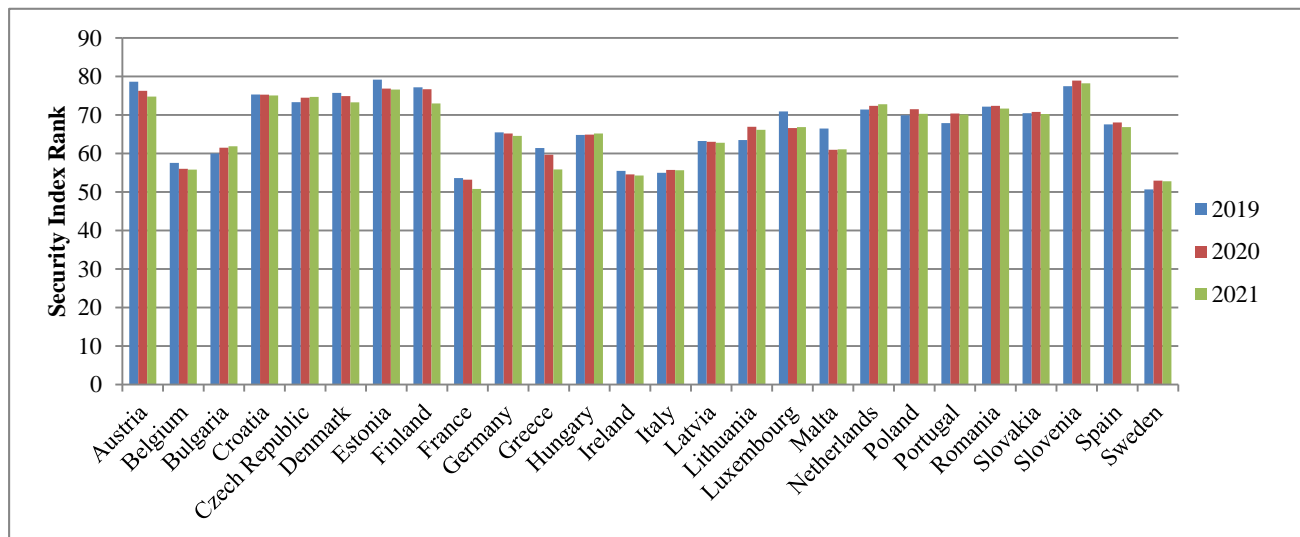


Figure 6. Comparison of EU member states according to the security index for 2019-2021 (Source: Numbeo, 2021)

The given data lead to the conclusion that the tourism industry in the EU in the post-pandemic period mainly revived due to increased mobility among EU residents. This trend also affects the overall security index of the EU countries. It gives an idea of the sense of security in a particular country, which is a significant factor in the attraction of tourists. As it was mentioned, safety is one of the priorities for tourists choosing a certain direction for travel. Besides, this indicator includes the effectiveness of policing (Kordić et al., 2019), which is perceived by the population as protection from illegal encroachments. Therefore, it is expedient to describe it. It can be considered in a spatial dimension — when comparing countries, or probably in a temporal dimension, which enables evaluating the temporal changes of the index both for one country and for the region as a whole. In general, the analysis of statistics gives reason to state a fairly high safety index in the EU countries. However, it is relatively lower in the EU countries most popular among tourists — France, Germany, Italy, Spain — compared to other states. At the same time, no significant fluctuations in this indicator were recorded during the



pandemic period, although there was a certain decrease in 2020-2021 compared to 2019 (for example, in Austria, Estonia, Luxembourg, Malta) (Figure 6). As regards the establishment of a lower security index in popular EU tourist countries, it is advisable to consider this issue in the context of terrorist threats and human trafficking as a manifestation of illegal migration:

- terrorist acts are the most dangerous violent manifestations, which are often directed against foreign tourists.

However, even when terrorist acts are directed against other categories of the population, they still significantly affect the tourist attraction of the area;

- human trafficking as a type of organized criminal activity is closely related to migration and tourism, because it is about importing victims of human trafficking to other countries, often under the guise of legal tourist trips in the vast majority of cases.

As for terrorist manifestations, experts note that terrorist acts affect not only the country where they are committed, but also neighbouring states. For example, the attacks in Spain scare away tourists who were planning to visit Portugal. Terrorist attacks committed in Greece, Germany and France generally affect tourist flows within the EU. It is about the so-called generalization effect, which assumes the similarity of neighbouring countries, strengthens the causal relationship between terrorist attacks and the arrival of tourists. For example, Spain and Portugal are neighbouring countries, so terrorist attacks in Spain seriously affect tourists who come to Portugal from other European countries (Seabraa et al., 2020: 9, 10). Those countries that were identified with a slightly lower security index — France, Germany, Italy, Spain — had statistically significant terrorist manifestations, which were accompanied by injuries and deaths of victims. In general, Belgium does not contradict this trend, the safety index of which is also relatively low compared to other European countries (Figure 7).

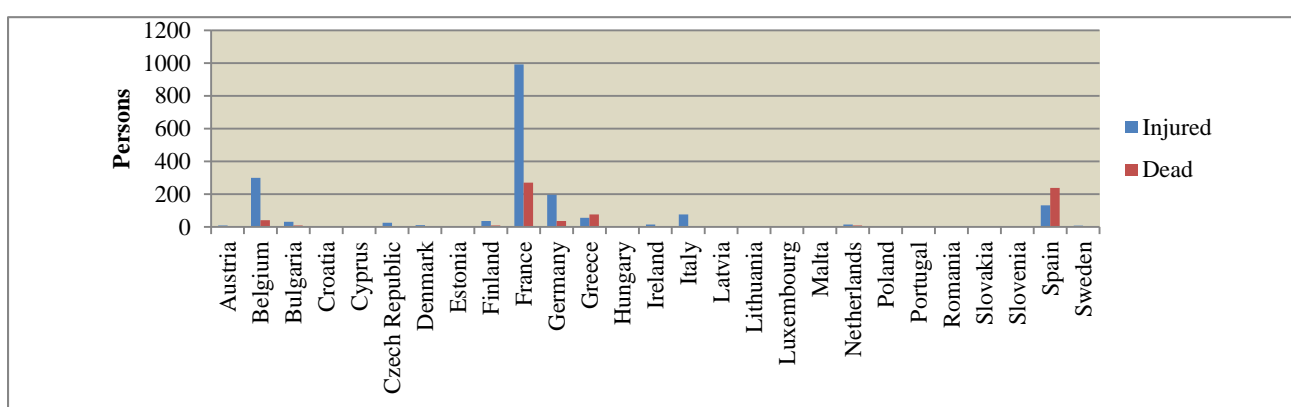


Figure 7. Injured and dead as a result of terrorist acts in EU countries (2002-2016) (Source: Seabraa et al., 2020: 7)

In turn, it is appropriate to refer to the situation with migration in EU countries in the context of human trafficking. As experts note, since EU countries are the largest in the world in terms of migration and tourism, migration is a significant factor influencing the tourism industry. EU countries account for up to 1/3 of world migration. Among others, the countries of Western Europe are the most attractive destinations for migrants. It is noted that the greater the number of migrants in the country, the greater the flow of incoming tourists (Dragičević et al., 2019: 211-214). The clustering of EU countries in view of the statistical significance of the impact of migration processes in a particular state can be applied in order to generalize information. At the same time, migration flows can be both incoming and outgoing in relation to a certain country (Table 2).

The problem of migration is most acute in its illegal aspect - human trafficking. Analysis of the situation in the EU gives grounds for the conclusion that this phenomenon is significantly spread in Europe. EU countries demonstrate different levels of involvement in the human trafficking. Most often, these are transit countries and territories where victims are exploited. However, a number of countries, in particular, Southern and Eastern Europe, belong to the territories of origin of victims of human trafficking. Accordingly, not only foreigners, but also EU residents are subject to exploitation on the EU territory. In this regard, the proposed clustering of European countries emphasizes that the statistical significance of migration processes is closely related to the prevalence of human trafficking in the country. Another important aspect is that the problem of human trafficking

is relatively objectively reflected in statistical summaries not only of particular countries, but also of external observers, for example, the US State Department. This is determined by the inclusion of EU countries in the lists regarding the effectiveness of combating human trafficking. So, Level 1 (of the list) includes Austria, Belgium, the Czech Republic, Estonia, Finland, France, Lithuania, Luxembourg, the Netherlands, Slovenia, Spain, Sweden. Level 2 — Bulgaria, Croatia, Cyprus, Denmark, Germany, Greece, Hungary, Italy, Latvia, Malta, Poland, Portugal, Slovakia. Only two EU countries — Ireland and Romania — demonstrate insufficient efforts to prevent, detect and combat human trafficking (The US Department of State, 2021: 67).

Table 2. Comparison of the share of revenues from domestic tourism and trips within the EU in 2019 and 2021 (percent) (Source: Dragičević et al., 2019)

| Cluster  | Countries   | Correlation     |
|----------|-------------|-----------------|
| Western  | France      | Strong positive |
|          | Belgium     | Strong positive |
|          | Netherlands | Strong positive |
|          | Germany     | Strong positive |
|          | Austria     | Medium positive |
| Northern | Latvia      | Strong positive |
|          | Lithuania   | Strong positive |
|          | Finland     | Strong positive |
|          | Sweden      | Strong positive |
|          | Estonia     | Medium positive |
| Eastern  | Hungary     | Strong positive |
|          | Poland      | Strong positive |
|          | Slovakia    | Medium positive |
| Southern | Spain       | Strong positive |
|          | Italy       | Strong positive |
|          | Slovenia    | Strong positive |
|          | Malta       | Strong positive |
|          | Croatia     | Strong negative |

Sexual and labour exploitation remain the main types of exploitation. This is directly related to the tourism industry. As noted in the US State Department’ Trafficking in Persons Report, the hotel business, service at seaside and ski resorts, farming, included in the provision of tourists are the areas of increased risk for attracting victims of human trafficking (The US Department of State, 2021). Besides, the sex industry, in particular, the shameful phenomenon of child sex tourism is also part of this context. According to Directive 2011/93/EU of 13 December 2011, child sex tourism is a crime throughout the EU. Article 21 of this Directive provides for national measures to prevent the organization of movements for the purpose of committing such crimes (Pernice, 2022). Table 3 presents summary data on human trafficking in EU countries.

Table 3. Comparison of human trafficking in EU member states (Source: The US Department of State, 2021)

| Country        | Role in the traffic |         |             | Purpose of exploitation of victims                                       | Countries of origin of the victims  |
|----------------|---------------------|---------|-------------|--|---|
|                | Origin              | Transit | Destination |  |   |
| Austria        |                     | +       | +           | labour, sexual, involvement in criminal activity                         | Romania, Bulgaria, Hungary, China, Nigeria  |
| Belgium        |                     |         | +           | sexual - 51%; labour - 44%   | Romania, Slovakia, Spain, Portugal  |
| Bulgaria       | +                   | +       | +           | labour, sexual   |   |
| Croatia        | +                   |         | +           | labour- 47%<br>sexual – 53%  | Bosnia and Herzegovina, Romania, Hungary, Afghanistan, Pakistan, Thailand                     |
| Cyprus         |                     |         | +           | sexual, sexual   |   |
| Czech Republic | +                   | +       | +           |  | Romania, Bulgaria, Slovakia, Hungary, Ukraine, Vietnam, Thailand, Philippines                 |
| Denmark        |                     |         | +           | sexual – up to 75%   |   |
| Estonia        |                     |         | +           | sexual, sexual   |   |
| Finland        |                     |         | +           | sexual, sexual, forced marriage  | Nigeria, Somalia, Iraq, Afghanistan   |
| France         |                     |         | +           | labour, sexual, involvement in criminal activity                         | North and West African countries, Eastern and Southern European countries                     |
| Germany        |                     |         | +           | sexual, labour   | Romania, Bulgaria, Poland, Hungary, Nigeria, Vietnam, Thailand                                |
| Greece         |                     | +       | +           | labour, sexual, involvement in begging                                   | countries of Eastern Europe, Nigeria, Somalia   |
| Hungary        | +                   | +       |             | sexual, labour   | Hungary, Romania  |
| Ireland        |                     |         | +           | labour- 33%; sexual – 66%  | Latvia, Lithuania, Romania  |
| Italy          |                     |         | +           | sexual – 70%   | Nigeria, Egypt, Morocco, Tunisia, China, India, Pakistan, Romania, Albania, Moldova, Bulgaria |
| Latvia         | +                   |         |             | labour, sexual   |   |
| Lithuania      | +                   |         |             | labour, sexual, forced marriage, involvement in criminal activity        |   |
| Luxembourg     |                     |         | +           | sexual   | Eastern European countries, Brazil, China   |
| Malta          |                     |         | +           | labour, sexual   | Philippines   |
| Netherlands    | +                   | +       | +           | sexual – 54%   | Romania, Bulgaria, Poland, Nigeria, Uganda, Guinea  |
| Poland         | +                   | +       | +           | labour, sexual   | Romania, Bulgaria, Ukraine, Vietnam   |
| Portugal       | +                   | +       | +           | labour- 70,6%; sexual – 17,3%  | Romania, Moldova, Brazil, Nigeria   |
| Romania        | +                   |         |             | sexual – 72%   |   |
| Slovakia       | +                   |         | +           | sexual, labour, involvement in begging                                   |   |
| Slovenia       |                     | +       |             | sexual   | Ukraine, Moldova, Bulgaria, Romania, Slovakia, Czech Republic, Hungary, Dominican Republic    |
| Spain          |                     | +       | +           | sexual – 90% of women<br>labour- up to 80% of men                        | Romania, China, Portugal, Vietnam, Moldova, Pakistan, Morocco                                 |
| Sweden         |                     |         | +           | labour, sexual, involvement in criminal activity, involvement in begging |   |

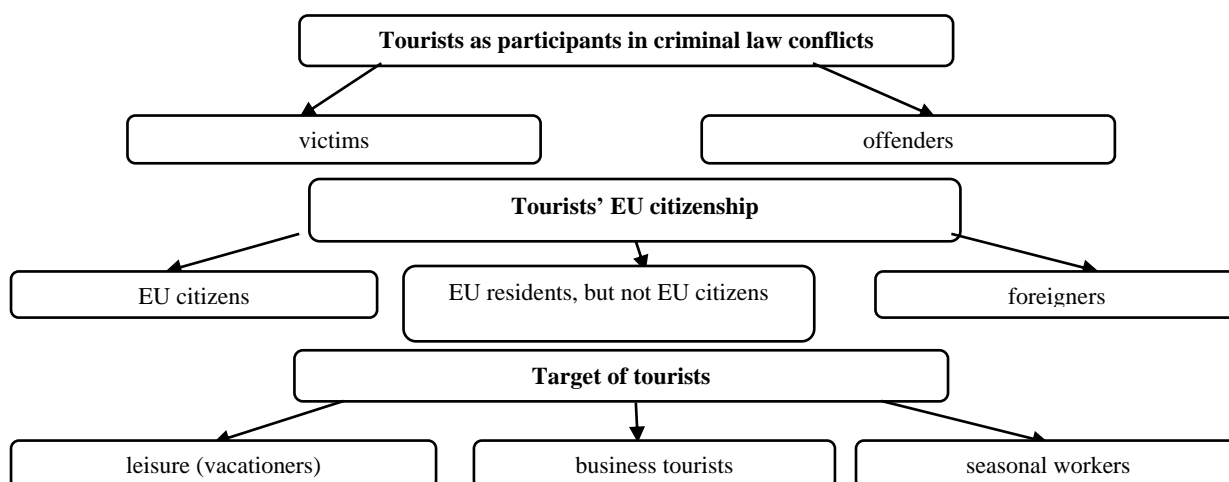


Figure 8. Specific characteristics of tourists as the central link of the tourism industry

The identified trends of the criminal situation in the hospitality and tourism industry are realized through individual acquisitive and violent crimes committed against tourists and by tourists themselves. The situation is, however, significantly complicated by the lack of high-quality official statistics. Police statistics should provide more systematic detailed information on the status of victims and offenders in order to understand the relationship between crime and tourism and develop appropriate policies (Mawby, 2017: 86). Available data, although incomplete and somewhat fragmentary, suggest that there are no significant differences in victim characteristics between domestic and foreign tourists. Foreigners are, however, more likely to experience theft in places of entertainment and places of residence. In turn, car thefts are the most common among domestic tourists (Lisowska, 2017: 34). As already mentioned, there are both violent crimes and crimes in the field of consumption of illegal goods and services (drug trafficking, sex industry, etc.) in the structure of tourism-related crime. Accordingly, it is necessary to form a clear idea about the characteristics of tourists in order to detail the preventive policy (Figure 8).

In view of the foregoing, the nearest prospects for improving the crime prevention system in the tourism sector are primarily related to improving the crime registration practices. This will improve the preventive practices of law enforcement agencies. It is considered appropriate to add special surveys (Mawby, 2017: 88), sources of user-generated online content (Paliska et al., 2020: 29) to the traditional sources of crime statistics. More informative statistics will enable to more clearly determine resources for ensuring law and order in regions with a large number of tourists. In particular, it is appropriate to increase the probability of arresting offenders, since it is known from the theory of rational choice that the certainty of arrest is more effective in deterring crime than the severity of punishment (Montolio and Planells-Struse, 2016: 1618). In the same context, it is also necessary to improve the work of law enforcement officers with the local population, which will enable using the potential of the public in detecting and preventing tourism-related crimes (Khalilzadeh, 2020), as well as to involve travel companies in ensuring the security of the tourism industry (Malleka et al., 2022: 48). So, there are prospects for developing principles of the preventive policy in the hospitality and tourism industry, which is based on the identified general European trends in the impact of crime on the tourism industry (Figure 9). This policy shall include the improvement of the system of statistical accounting of crimes, the introduction of new sources of statistical information. It is also important to involve non-state actors - civil society and representatives of the tourism industry - in preventive activities.

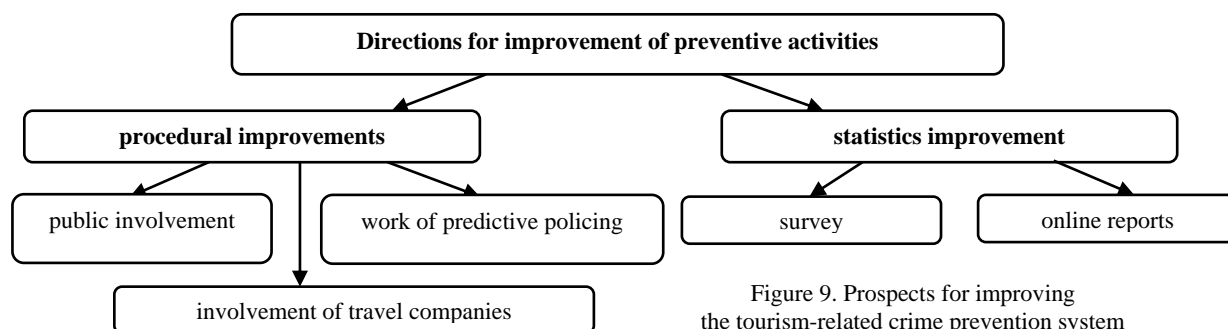


Figure 9. Prospects for improving the tourism-related crime prevention system

## DISCUSSION

The methodological principles of studying the relationship between tourism and crime determine the leading trends of tourism as a sector of the economy. We do not share a pessimistic view of the prospects for the recovery of European tourism (Roman et al., 2022) based on a comparative analysis of statistics on the tourism industry before and after the pandemic. We also showed that the post-pandemic revival of the tourism industry in the EU is mainly determined by increased mobility among EU residents. Specialists rightly point out that the study of the impact of crime on the hospitality and tourism industry in the EU is part of the global discourse. In general, studies can relate to:

- general issues and trends (for example, Cró et al., 2020; Kordić et al., 2019);
- the situation in the EU (for example, Gheorghe, 2020; Vakhitova et al., 2022);
- the situation in particular EU member states (for example, Choe and Lugosi, 2022; Norio, 2021; Paliska et al., 2020).

One can agree with the conclusion that crime and tourism are mutually dependent (Recher and Rubil, 2020; Zhang and Xiang, 2021). However, we believe that the globality of the European tourist market shifts the focus to the general European trends in the development of the criminal situation in this area. This makes complex studies more relevant compared to detailing the situation in individual countries. Expert opinion on the sensitivity of tourism to various manifestations of crime is fruitful (for example, Mataković and Mataković, 2019; Mawby, 2017). However, the vast majority of authors did consider the security index as an integrative indicator of the perception of the criminal situation in individual states. This led to an original conclusion about the comprehensive value of the security index of the EU countries for the purpose of our research. In general, the opinion about productive research on the relationship between terrorism and tourism (for example, Seabra et al., 2020; Zeman and Urban, 2019) and the specifics of the impact of terrorist acts on international tourism (for example, Ali et al., 2018; Dory, 2021) is worth sharing. However, one cannot agree with a separate analysis of terrorism and crime. This assumption enabled proving that statistically significant terrorist manifestations are characteristic of those EU countries that have negative dynamics of the security index.

The results of our research confirmed the importance of studying migration issues in the context of tourism (for example, Grenda, 2017; Persak, 2022). However, this discourse does not touch upon human trafficking, although it is a complex problem for the tourism business. Therefore, we tried to eliminate this gap, and showed how the statistical significance of migration processes is related to the abundance of human trafficking in the country. In general, we agree

with the findings regarding the structure of crime in the tourism industry (e.g., Malleka et al., 2022; Vakhitova et al., 2022). The statement that crime in tourism is a problem that affects tourists, the local population and the tourism industry itself has found to be true (Mawby, 2017). However, the situation is significantly complicated by the lack of high-quality official statistics. Therefore, it seems appropriate to study the general European trends for the purpose of developing the principles of preventive policy in the hospitality and tourism industry.

### Limitations

Research on the impact of crime on the hospitality and tourism industry in the EU is naturally limited due to the variety of criminal manifestations, the complex factors that generate them, as well as the institutional and structural complexity of the European tourism industry. Therefore, even a consideration of the indicators that generally describe the development of tourism and the state of crime in all EU countries reveals only main general European trends. A detailed analysis of the situation in individual European countries is limited due to the incompleteness of statistical data and the latency of crime.

### CONCLUSION

The conducted research lead to a number of conclusions regarding the impact of crime on the tourism and hospitality industry in the EU countries. It was established that numerous theoretical studies in this field do not provide a comprehensive picture of the problem, do not fully take into account the connection between tourism and illegal migration (first of all, human trafficking) as a criminal manifestation. The generalization of the results of professional research stated the absence of a theoretical background for an effective preventive policy in the tourism industry. The main trends of the European tourism industry were identified based on the generalization of statistical information for individual countries and the EU as a whole. They testify to the preservation of the tourist potential of the European direction, which is confirmed by the relatively rapid growth of employment in this market sector. The trend of reorientation of tourist destinations in favour of domestic tourism was identified. The general European trend is the growth of the share of EU tourists traveling within the European region.

In the spatio-temporal dimension, the security index was analysed and its positive correlation with terrorist attacks that took place on the territory of individual EU countries was shown. Four clusters of EU countries were selected to analyse the statistically significant impact of migration. The relationship between the statistical significance of migration processes and the abundance of human trafficking in the country is shown. The data on human trafficking in the EU countries are summarized with the identification of European trends in this area: it is established that most often these are transit countries and territories where exploitation takes place, while not only foreigners, but also EU residents are exploited on the EU territory. It is shown that the prospects for improving crime prevention in the European tourism industry are primarily related to improving crime registration practices. The solution to this issue will entail an increase in the effectiveness of preventive activities through the involvement of additional opportunities for the public and subjects of the tourism industry.

### Recommendations

The foregoing leads to a number of recommendations:

- In the law enforcement activities: the improvement of the practice of detection and registration of crimes in the tourism industry of the EU through the introduction of alternative sources of notification of committed acts is considered a priority. Electronic forms of such messages, victimological surveys are promising. Sensing large groups of people using sensor devices can provide information on the dynamics and criminalization of tourist flows. It is appropriate to process the received data using modern technologies, for example, Big Data and Data Mining. This will provide an opportunity to effectively distribute the resources of the law enforcement system, in particular, with the use of predictive policing tools;
- In ensuring the safety of local communities and tourist locations: it is appropriate to intensify the involvement of representatives of civil society and the tourism industry in the preventive activities of the EU countries. In particular, it will enable reducing the latent crime rates while saving state resources;
- In the research field: the relationship between crime and various types of tourism, as well as forecasting trends of criminal influence on the tourism industry in the context of security threats (armed conflicts, pandemics, climate changes, etc.) require further studies. The implementation of the provided recommendations will contribute to the effectiveness of a preventive policy in the hospitality and tourism industry of the EU countries, which is based on the identified general European trends in the impact of crime on the tourism industry.

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## THE ATMOSPHERIC ELEMENTS OF THE EGYPTIAN MUSEUMS AND THEIR EFFECT ON THE EGYPTIANS' INTENTIONS TO REVISIT

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**Abstract:** This study aims to fill the salient gap in the area of museums' atmospheric elements by examining their effect on the Egyptian visitors' behavioral outcomes and the resulting effect on their intention to revisit the museum. An online questionnaire was distributed to a convenient sample of the Egyptian museums' visitors (346 respondents) to gather and analyze primary data along with analyzing the secondary data (literature). The results confirmed that museum's atmospheric elements have a positive and significant effect on the visitors' experiences. This resulted in positive behavioral outcomes that consequently affected the Egyptian visitors' intention to revisit the museum. This study investigates the importance of taking the physical design and atmospheric elements into consideration by the museum curators and managers, especially during the current phase in Egypt where various museum renewals and constructions are being held.

**Key words:** Atmospherics, museum visitors, visitor experience, Egyptian museums, exhibition design, intention to revisit

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### INTRODUCTION

The "atmospherics" concept in marketing was first mentioned by the marketing author Philip Kotler in 1974, who stated that customers' decision-making is greatly influenced by the setting and environment of the place (Kotler, 1974; Forrest, 2015). The main principle of atmosphere elements is that the environment has the ability to influence people's behavior; this influence can be manipulated in noticeable and predictable ways through the area's ambience design choices (Biswas et al., 2014; Forrest, 2015; Elvekrok and Gulbrandsy, 2021). Today, the museum is both an aesthetic emotion producer and an intercultural mediator. The overlapping of the physical, social, and personal context results in the overall museum visitors' experience (Harada et al., 2018), since they establish a multi-sensory impressions of exhibition design that creates an aesthetic and emotive experience for museum visitors (Gobbato, 2022). Atmospheric elements can have significant importance in conveying the intended message to visitors and establishing sensory perception and satisfaction (Ozkul et al., 2019; Elkadi et al., 2021), because it has the ability to enrich cultural institutions, impact visitors' satisfaction, which leads to repeat visits (Piancatelli et al., 2021). Despite its importance, in the context of museums, atmosphere seems rarely considered. Accordingly, the current study contributes to the existing literature by examining the effects of the atmospheric element on the visitors' experiences and the resulting effect on their intention to revisit. Finally, the study provides implications for museums curators and managers to enhance visitors' experiences.

### LITERATURE REVIEW

#### Ambience elements in the museum and their effect on visitor impression

Lighting, sound, temperature, color, and scent are some of the components that make up an environment's ambience. Since the majority of the objects in museums are connected to the visual arts, lighting is crucial in fostering visitors' interaction with the exhibits (Hyun et al., 2018). Therefore, museums and exhibits aim to construct an interior space that enriches human perception and visual qualities (Kaya and Afacan, 2018), while simultaneously affecting visitors' impressions. Interior lighting given evidence that it has an impact on people's mood, comfort, and behavior (Faerber et al., 2021). Regarding ambient sounds, music can shape visitors' emotions and their resulting behavior from these emotions (Rodgers et al., 2021). Numerous studies have demonstrated that music affects consumer mood, the amount of time spent in

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a site, awareness of the amount of time spent, and spending in the facility (Juslin, 2019; Jin and Zhang, 2022), it is used to create a pleasant ambience and a positive mood, encouraging visitor satisfaction (Walsh et al., 2011; Rodgers et al., 2021), in addition to ambient background noise, modern museums usually offer guests audio guides (Salmouka and Gazi, 2022). Despite being important in contributing to the visitor's experience, music is rare in museums, because museums are known for their quiet atmosphere (Shao et al., 2019). Moreover, to further enhance visitor satisfaction, museum designers need to pay greater attention to creating a comfortable environment by managing the museum temperature (Dragija and Jelinčić, 2022). Mishra et al.'s (2016) study revealed that thermal comfort is an acknowledged parameter that influences people to appreciate the museum experience. Ambient color can have a significant impact on consumers' emotional and mental impressions if used wisely and accurately in physical environment design (Ozkul et al., 2019). Moreover, one of the most crucial component of every design is color. It is well known that colors have a significant effect on people's feelings and thoughts as color elicits an instant, subconscious reaction from the viewer by stimulating the eye and brain (Kim and Lee, 2022). Forrest (2015) revealed that wall color vibrancy is the strongest predictor of both cognitive and affective engagement, nonetheless, this disagrees with Gorton (2017), who stated that when visitors don't notice the wall color of the exhibit, it is usually a good sign. Since wall colors in a museum are not meant to be a distraction, this would increase visitor engagement with the artifacts instead of being preoccupied by the bold colors. This is a reason behind museums painting their walls with neutral colors. Furthermore, because the brain's emotional and memory-related regions are closely linked to the sense of smell (Berčík et al., 2021), smell has been shown to have a longer-lasting impact on people than other senses (Verbeek et al., 2022). Elvekrok and Gulbrandsy's study from 2021 states that smell is the most sensitive sense; it can be induced without direct contact with the source and can be remembered with 65% accuracy after a year. But it is important in the case of museums to avoid incorporating intense smells, even if it were meant to be pleasant, as revealed by Spence (2020) while it has been demonstrated that the use of ambient scent increases visitors' motivation to return to a museum, there is a risk that it could distract from the pieces on display. Accordingly, the following hypothesis is suggested:

**H1:** The visitors' impression of the museum's ambience positively affects their intention to revisit.

#### **Design elements in the museum and their effect on visitor impression**

The cultural significance of museums is being found in classifying the museum's spaces and designing it according to the artifacts stored within (Lindsay, 2020), exhibition design is also about creating a link between the audience and the exhibit (Kamaruddin, 2020). It is worth mentioning that the main objective of following a human-centered museum design is to fulfil visitors' psychological and physical needs and induce a positive atmosphere (Guo et al., 2022). Labels and textual information are a significant part of a museum's design, as they play a crucial role in communicating information to visitors in addition to stimulating conversations between them (Kamaruddin, 2020). It has been also demonstrated that object placements, particularly labels, influences visitor movement patterns (McMurtrie, 2022). Museum seating is also a vital element in museum design since museum visits require lots of walking and standing to observe artifacts. Usually, museums don't want visitors to stay in the same place for too long, that's why comfortable furniture is rarely offered (Linderheim, 2020). Temple and Gan's (2020) study revealed that the need for more and appropriate museum seating was expressed by all visitors in the museum, stating that availability of seats is considered one of the main elements impacting the visitors' experience, emotions and satisfaction levels. Modern technology is similarly important in improving the experience of the visitor while positively affecting their impression since it has the ability to increase engagement without compromising the authenticity of the artifacts (Hammady et al., 2020; Zaher, 2021). Successful museum design cannot be complete without clear and easy-to-follow maps, they serve as a heritage intermediary between viewers and cultural artifacts (Nikolakopoulou et al., 2022), categorize and organize the museum space (Madsen and Madsen, 2016), keep people engaged and entertained along the busy queues in order to make their wait more enjoyable and informative (Su and Teng, 2018), and has the ability to organize the artifacts as a journey using smart maps (Wang et al., 2022). Therefore, the following hypothesis is suggested:

**H2:** The visitors' impression of museum design positively affects their intention to revisit.

#### **Layout elements in the museum and their effect on visitor impression**

Museum layout heavily affects visitors' way-finding in space, understanding of the exhibition, whether they visit various segments in the museum, as well as leading visitor direction (Filová et al., 2022). And since informal learning is one of the main duties of museums (Li, 2022), the content layout of the exhibition, the space scene presented, and the exhibit display style must all be taken into consideration for the museum learning experience based on the visual evaluation of visitors (Zhang and Hu, 2022). It also influences how long visitors spend looking at the artworks, how long they spend reading the labels, and how engaged they are with the exhibits, which affects their overall experience (Reitstätter et al., 2022). For example, if glass display cases are extremely lowered or raised to a height that is inaccessible to visitors using wheelchairs, it could create a barrier for museums in giving visitors a satisfying museum experience (Rieger et al., 2019). That being said, museums recently experienced a shift from being "collection-centered" to becoming "audience-centered," meaning that creating a welcoming and accessible museum layout for elders and people with disabilities is a must (Zakaria, 2020), because they run the danger of being denied access to travel and tourist attractions (Giammanco et al., 2022). Museums have the ability to play a significant role in assisting elders with their needs as they age. Although their interests and obstacles may differ from those of younger generations, some elderly are able to use museums for leisure, informal learning, social connection and participation (Hernández and Toney, 2021). The museum experience is also highly affected by amenity areas, which include restrooms and gift shops (Su and Teng, 2018). There are suggestions to pay more attention

to the atmospheric elements of museum retail environments since the gift shop within the museum is increasingly seen as a part of the total visitor experience (Forrest, 2015). Therefore, the following hypothesis is suggested:

**H3:** The visitors' impression of museum layout positively affects their intention to revisit.

### Social dimensions in the museum and their effect on visitor impression

Social dimensions in museums include interaction with other visitors, interaction with museum staff, and congestion. The main objective in contemporary museums should be creating high levels of communication between the audiences, which can be achieved by implementing visitor orientation techniques and responding to the development demands of society (Chen et al., 2022), this is because interacting with other visitors co-creates and enhances experience and learning, it also fosters a welcoming environment, which enhances the overall experience. And time spent may pass more quickly or more pleasantly (Antón et al., 2018). Moreover, according to Trabskaya et al. (2022), among the affective dimensions, museum staff responsiveness and empathy are the highest forecasters of visitor's intention to revisit a museum. Thus, staff service needs to be enhanced. It is worth mentioning that all heritage management activities was majorly affected by the outbreak of the COVID-19 pandemic (Ambaw et al., 2022), and museums are revising their safety and health protocols to reduce COVID-19 virus contamination by using protective measures, and ensuring that staff are equipped with masks, gloves and transparent anti-virus helmets (Deb and Ahmed, 2022). Lastly, congestion in museums is one of the major difficulties and challenges that has a direct impact on visitor impressions (Thanou et al., 2019), according to McMurtrie (2022), it was confirmed that visitor movement convenience has a high influence on pleasure, Conti et al. (2020) demonstrated that exhibition spatiality is the first most important factor having a significant positive effect on visitor satisfaction and accounting for the highest likelihood of visitor positive word of mouth, identifying it as the most crucial museum space attribute influencing museum visitors' intention to recommend. Consequently, the following hypothesis is suggested:

**H4:** "The visitors' impression of museum social dimensions positively affects their intention to revisit."

### The effect of atmospheric elements on the intention to revisit a museum

Bonn et al. (2007) proved a direct effect between the cultural and heritage attractions' atmosphere, layout, design, and social elements on the intention to revisit, it is worth mentioning that the social elements had the least effect compared with the other elements. Color and lighting, can influence the satisfaction of customers and lead to revisiting intentions in a museum (Ozkul et al., 2019). Beseda (2013) revealed that in cases where museums implement music programs, some visitors attend primarily for the music playing more than once, which proves that music encourages repeat visits. Vega-Gómez et al. (2020) revealed a direct influence of scent on the intention to revisit a museum. Furthermore, the effect of demographics on repeated visits to the museum was demonstrated by Aksöz and Çay (2022), stating that each visitor's age, gender, marital status, income levels, and level of education, has different effects on revisit intentions.

## MATERIALS AND METHODS

This study aims to explore the effect of the atmospheric elements applied in Egyptian museums on visitors' intention to revisit. In order to do so, research aims and questions were first identified, followed by the literature review; a questionnaire was then distributed in order to collect primary data from the sample; both primary and secondary data were analyzed and results were discussed, and finally, a conclusion was made (Figure 1).

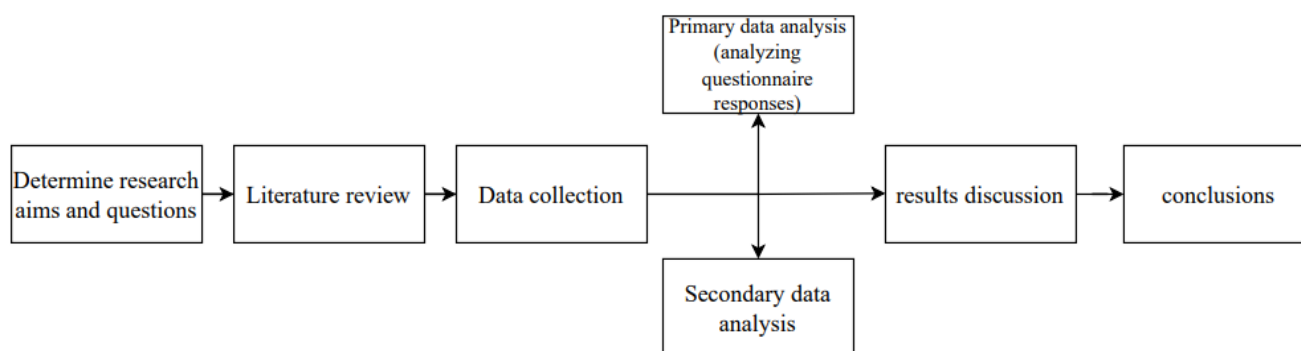


Figure 1. Research flowchart (Source: Authors)

The current study uses quantitative methodology, involving systematic inquiries into quantitative data that enable analyzing, interpreting, and presenting results in numerical form. The population is the visitors of Egyptian museums. Convenient sampling technique was used, Stratton (2021) simply describes convenient sampling as people choosing if they want to participate in a study after the researcher makes the research announcement. It was used in the study for its various benefits: samples are affordable to make, simple to execute, useful for developing hypotheses and pilot investigations, and they allow gathering information in a remarkably brief period of time (Bhardwaj, 2019).

During the months of August and September of 2022, an online questionnaire was distributed on various social media platforms using Google Form, such as Facebook and WhatsApp groups relating to tourism and museums in Egypt, named "Ancient Egypt (Ancient Egyptian Arts, Culture, and History)," "Arts and Culture in Egypt," "Egyptian Pharaohs, History, and Religion," "Egyptomenia: Ancient Egypt in Modern Cultures," and "Egypt Tourism". From 381 questionnaires, 346



questionnaires were valid. 16 questionnaires were excluded from the analysis because they did not complete most sections, and 19 questionnaires were classified as outliers. All these respondents were excluded from the study.

The questionnaire used included three parts: the first part was regarding the demographic information, which included gender, age, nationality, and the number of times they visited an Egyptian museum.

The second part of the questionnaire measured the visitors' impression. This part had four different constructs; the first, titled "ambience impression," included six statements that investigated the visitors' impressions regarding the atmospheric elements such as museum lighting, scent, and wall color. The second construct, titled "design impression," included five statements about museum design aspects such as museum spatiality, availability of maps, and object placement.

The third construct, titled "layout impression," included four statements about the effects of museum layout elements on visitor impressions at the Egyptian Museum, such as ease of artefact observation and the availability of restrooms and gift shops. The fourth construct, titled "social dimensions impression," included three statements about museum staff, museum visitors, and the crowding effect on the Egyptian Museum's visitor impression. The third and final part of the questionnaire measured the effect of visitors' experiences on the intention to revisit the Egyptian museums, and it included three statements focusing on visitors' intentions to revisit. These statements were adapted from Piancatelli et al., (2021), Vega-Gómez et al., (2020), Ozkul et al., (2019), Forrest, (2015), and Bonn et al., (2007). A five-point Likert scale of agreement was used in the questionnaire, and the data was processed with the Statistical Package for the Social Sciences (SPSS) for Windows version 20.0. The data was checked and verified for recording error and accuracy of data entry before further analyses were performed (with a 5% margin of error and a 95% confidence interval). Outliers were discarded from the database before the analysis was made using Mahalanobis Distance. Outliers are described as observations with a unique combination of characteristics that are identifiable as distinctly different from other observations (Yan et al., 2018). The criterion for identification of multivariate outliers is Mahalanobis's distance at  $p > 0.001$ . In this current study, Mahalanobis's distance is evaluated with a degree of freedom of 21 items.

Any case with a Mahalanobis Distance greater than 46.797 is considered a multivariate outlier and therefore is deleted from the database. Mahalanobis Distance identified nineteen cases with a distance greater than 46.797, which were discarded from the database before the analysis was made. Furthermore, to ensure that the collected data was free of response bias, a comparison of mean values was used. Response data were divided into two parts (173 respondents). The results indicated no significant differences existed between the two groups.

## RESULTS AND DISCUSSION

As shown in Figure 2, out of 346 respondents, 81.2% were female and 18.8% were male. Regarding the age of respondents, the age segments from 17 to 29 years had the greatest number of respondents by 60.1%, followed by the age segments from 30 to 49 years by 36.1%, and finally the age segments from 50 to 69 years by 3.8%. Additionally, the majority of respondents are Egyptian (98%), followed by one response from each of the following nationalities: Sudanese, Iraqi, Moroccan, German, Palestinian, Libyan, and finally, Bahraini. Each response counts for 0.3%. The majority of respondents visit museums infrequently, accounting for 54% of total responses. followed by visiting Egyptian museums more than three times a year, accounting for 25.7%; respondents who visit Egyptian museums at least two or three times a year, accounting for 10.1%; and the last 10.1% of respondents stating that they visit Egyptian museums about every year or so.

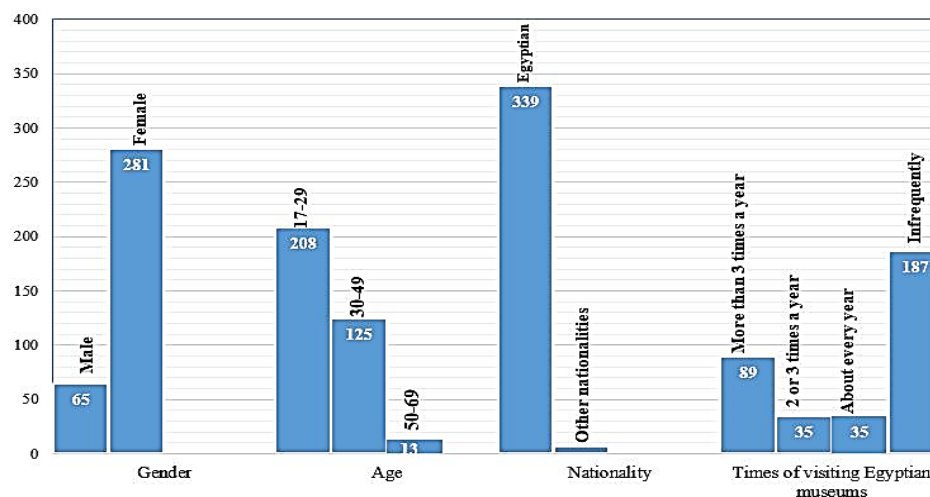


Figure 2. The profile sample (Source: Authors)

The Cronbach alpha correlation coefficient was calculated to determine the internal consistency of the scale. The computation of Cronbach's alpha is based on the number of items in the survey and the ratio of the average inter-item covariance to the average item variance. A reliability coefficient of 0.70 or higher is considered acceptable in most social science research situations (Taber, 2018). The Cronbach alpha reliability was computed, and the tests indicated that the reliability coefficient for all the instruments was above 0.70. Thus, it can be stated that all constructs employed in this study have sufficient reliability. Cronbach's alpha for all variables is presented in Table 1. The results indicated

that, regarding the ambient impression construct, the applied temperature in a museum's environment had the highest influence on visitors' impression ( $m = 4.38$ ). This finding agrees with Sihvonen and Turunen (2022), who stated that if the organizer can guarantee a comfortable environment temperature, guests are likely to be more satisfied by the experience. On the other hand, music applied in the Egyptian museums had the lowest influence on the visitors' impression ( $m = 3.95$ ). Despite being the lowest mean, the respondents' attitude was still settled at "agree."

Table 1. Construct measurements and reliability (n=346)

| Items   | Mean | SD    | attitude                   | ( $\alpha$ ) |
|---|------|-------|----------------------------|--------------|
| <b>Ambience impression</b>  | 4.22 | 0.540 | Strongly agree             | <b>.731</b>  |
| My impression of applied light influenced my positive behavioral outcomes in the Egyptian museums.  | 4.25 | 0.766 | Strongly agree             |              |
| My impression of the applied wall and display colors influenced my positive behavioral outcomes in the Egyptian museums.  | 4.13 | 0.843 | agree                      |              |
| My impression of applied music influenced my positive behavioral outcomes in Egyptian museums.  | 3.95 | 0.954 | agree                      |              |
| My impression of applied air quality influenced my positive behavioral outcomes in the Egyptian museums.  | 4.30 | 0.773 | Strongly agree             |              |
| My impression of applied temperature influenced my positive behavioral outcomes in the Egyptian museums.  | 4.38 | 0.760 | Strongly agree             |              |
| My impression of applied smell and scent influenced my positive behavioral outcomes in the Egyptian museums.  | 4.35 | 0.759 | Strongly agree             |              |
| <b>Design impression</b>  | 4.29 | 0.509 | Strongly agree             |              |
| My impression of applied design and spatiality influenced my positive behavioral outcomes in Egyptian museums.  | 4.40 | 0.662 | Strongly agree             |              |
| My impression of the clarity of the textual information and labels on the artifacts in the Egyptian museums influenced my positive behavioral outcomes in the Egyptian museums. | 4.39 | 0.739 | Strongly agree             |              |
| My impression of seating areas in various places influenced my positive behavioral outcomes in the Egyptian museums.  | 4.38 | 0.787 | Strongly agree             |              |
| My impression about the availability/unavailability of modern technology facilities influenced my positive behavioral outcomes in the Egyptian museums.                         | 3.93 | 0.994 | agree                      |              |
| My impression of the existence of detailed and easy-to-follow maps influenced my positive behavioral outcomes in Egyptian museums.  | 4.35 | 0.739 | Strongly agree             |              |
| <b>Layout impression</b>  | 4.07 | 0.554 | agree                      |              |
| My impression of the ease of observing the artifacts influenced my positive behavioral outcomes in the Egyptian museums.  | 4.45 | 0.646 | Strongly agree             |              |
| My impression of availability of facilities for elders and people with disabilities in various places influenced my positive behavioral outcomes in the Egyptian museums.       | 4.20 | 0.854 | agree                      |              |
| My impression of the existence of restrooms in various places influenced my positive behavioral outcomes in the Egyptian museums.   | 4.25 | 0.906 | Strongly agree             |              |
| My impression of the existence of gift shops in various places influenced my positive behavioral outcomes in the Egyptian museums.  | 3.40 | 1.029 | Neither agree nor disagree |              |
| <b>Social impression</b>  | 4.08 | 0.605 | agree                      |              |
| My impression of social interaction with other visitors influenced my positive behavioral outcomes in the Egyptian museums.   | 3.83 | 0.936 | agree                      |              |
| My impression of the attitude, knowledge, and interactions with the staff influenced my positive behavioral outcomes the Egyptian museums.                                      | 4.14 | 0.920 | agree                      |              |
| My impression of the crowding influenced my positive behavioral outcomes in the Egyptian museums.   | 4.27 | 0.827 | Strongly agree             |              |
| <b>Intention to revisit</b>   | 4.28 | 0.525 | agree                      | <b>.742</b>  |
| I have the intention to consider revisiting the Egyptian museums once I have positive behavioral outcomes towards it.   | 4.31 | 0.766 | Strongly agree             |              |
| When I have positive behavioral outcomes towards Egyptian museums, I intend to revisit them with my family and friends.   | 4.20 | 0.862 | agree                      |              |
| My positive behavioral outcomes is my indicator to revisit Egyptian museums.  | 4.36 | 0.649 | Strongly agree             |              |

$\alpha$ : Cronbach alpha - SD: standard deviation

Rodgers et al. (2021) confirmed that music is a significant environmental stimulus in influencing behavior across different cultures. Concerning the design impression construct, the highest element influencing the visitor's impression is the museum's design and spatiality ( $m = 4.40$ ). Spatial configurations in a museum play a vital role in the creation of diverse walking sequences for visitors, avoiding congestion, and creating a viewing order of artifacts and museum themes (Lee and Kim, 2022). The element concerning the availability or non-availability of modern technology facilities in museums had the lowest mean in said construct ( $m = 3.93$ ). Surprisingly, the middle age range, "30-49," had the highest level of disagreement regarding the statement, compared to the highest age range, "50-69," which had the highest rate of agreement in all age ranges. This finding stands out since older people are less likely to use technology as much as younger generations (Köttl et al., 2021). Regarding the layout impression construct, the ease of observing museum artifacts is the most important physical atmospheric factor affecting the museum visitors' impression ( $m =$

4.45) and has the highest rate of agreement in the whole study. This agrees with Xu et al., (2019) who stated that the way museum objects are displayed can elicit a range of feelings (such as admiration or boredom), which can affect visitors' desire to revisit. Then again, the existence of a variety of gift shops in the museum as a physical atmosphere received the lowest agreement rate from participants, with the lowest mean ( $m = 3.40$ ). This may be a result of the fact that a low number of people visit the gift shops in the museum, as Woude and Gómez's (2013) study revealed. Regarding the social impression construct, the crowding in museums' space has the highest influence on visitors' impressions ( $m = 4.27$ ). According to (McMurtrie, 2022), it was confirmed that visitor movement convenience has a high influence on pleasure. On the other hand, the interaction with other visitors, received the lowest agreement rate in this construct ( $m = 3.83$ ).

### Hypotheses Test

Simple linear regression was used to determine the effect of independent variables (atmospheric elements) on the dependent variable (intention to revisit). Table 2 revealed the outputs of the simple linear regression test of the effect of the visitor's impression on the intention to revisit.

Table 2. Hypotheses testing results

| Variables                                 | Coefficients (B) | t      | Sig. | R <sup>2</sup> | F       | Sig   | result    |
|---|------------------|--------|------|----------------|---------|-------|-----------|
| Ambiance impression→ intention to revisit | .558             | 12.482 | .000 | .312           | 155.795 | .000* | Supported |
| design impression→ intention to revisit   | .516             | 11.161 | .000 | .266           | 124.578 | .000* | Supported |
| layout impression→ intention to revisit   | .357             | 7.550  | .000 | .142           | 57.008  | .000* | Supported |
| social impression→ intention to revisit   | .405             | 8.206  | .000 | .164           | 67.338  | .000* | Supported |

\* P-value < 0.05.

Regarding the effect of ambience impression on the intention to revisit, R<sup>2</sup> was 0.312, which means that ambience impression affects the level of intention to revisit by 31.2%. Accordingly, H1: "The visitor's impression of the museum's ambience positively affects their intention to revisit" is verified. Regarding the effect of design impression on the intention to revisit, R<sup>2</sup> was 0.266, which means that design impression affects the level of intention to revisit by 26.6%. Accordingly, H2: "The visitor's impression of museum design positively affects their intention to revisit." is verified. Regarding the effect of layout impression on the intention to revisit, R<sup>2</sup> was 0.142, which means that layout impression affects the level of intention to revisit by 14.2%. Accordingly, H3: "The visitor's impression of the museum layout positively affects their intention to revisit." Is verified. Regarding the effect of social dimension impression on the intention to revisit, R<sup>2</sup> was 0.164, which means that social dimension impression affects the level of intention to revisit by 16.4%. Accordingly, H4: "The visitor's impression of the museum's social dimensions positively affects their intention to revisit." is verified.

### CONCLUSION

This article discusses the effect of museum atmospheric elements on visitors' impression and the resulting behavioral outcome leading to repeat visit intention, applying it to the Egyptian museums. It also reviews the related literature on the subject from previous studies. The findings of this study stated that there is a positive and significant effect on the intention to revisit resulting from the Egyptian museums' ambience, design, layout, and social dimensions, while breaking down each construct into various elements and measuring their effect on visitor behavior. The findings shed light on the importance of taking the physical design and atmospheric elements into consideration by the museum curators and managers in Egypt, especially during this time where various museum renewals are being held and one of the most important museums in the world, the Grand Egyptian Museum (GEM), is being constructed.

This study was limited to museum visitors in Egypt, so it is geographically and culturally accurate. To provide more extensive results, future research should be conducted by collecting data from museums and exhibits in other countries as well. Future research could also include a comparison of the atmospheres applied in traditional and modern museums and the resulting visitor behavior while using other means of data collection, such as in-depth interviews. This study investigates the effect of atmospheric design in Egyptian museums on the visitors' revisit intentions. Despite the atmospheric elements' importance in practice, there has been no previous research on the subject in Egypt. The findings of this paper have important managerial implications since they prove that visitor experience and intention to revisit are significantly and positively affected by the physical and ambient atmosphere of the museum. This implies that if museums aim to gain loyalty from visitors, which later results in repeat visits, museum managers and curators should provide pleasant environments in order to affect visitors' impressions, behavioral outcomes, and perceptions.

Museum managers could employ experiential ambience, design, and layout methods to enhance the museum's atmosphere in a way that involves visitors' senses and enhances interaction among the museum artifacts and the visitors. It was also discovered that visitor satisfaction is influenced by the entire visit experience, not just the exhibition. Additionally, managers can attract new and different categories of visitors that are usually difficult to attract in traditional museums, which still retain the old atmosphere and design; the physical and ambient atmosphere of the museum could be emphasized in order to begin addressing the demands of many different generations and cultures.

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## PROSPECT AND CHALLENGES WITH PENTA HELIX MODEL FOR UNESCO GLOBAL GEOPARK AND LOCAL ECONOMIC DEVELOPMENT: A LESSON FROM INDONESIA

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**Abstract:** Batur is the first area in Indonesia that is considered worthy of being a geopark by UNESCO. This determination is an acceleration of the progress of the nature and culture-based tourism industry that helps the welfare of the surrounding community with the principle of sustainability. This study aims to examine the role of several parties in enhancing UNESCO global geopark in Batur Bali of Indonesia as well as promoting local economic welfare. The study adopted a qualitative study with case study approach to gain a comprehensive result of the phenomenon. The qualitative content analysis and narrative analysis was used to process various information. This study focuses in UNESCO Global Geopark Batur Bali in Indonesia as the first and most successful in creating a better economic welfare primarily during and post the Covid-19 pandemic. The findings indicate that the Penta helix model can be used to develop Geopark Batur Bali and Indonesia in general in which each party plays their role in this development tourism and local economic development.

**Key words:** local economic development, geotourism, geosites, Penta helix model, community welfare

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### INTRODUCTION

Indonesia has abundant resources in natural, cultural, and human resources that have the potential to promote economic development. However, poverty, household economic fragility, and sustainability have been an Indonesian challenge (Santika et al., 2021). The Indonesian government has responded to these issues by enlarging the tourism sector. Some scholars believe that the tourism sector can drive more job opportunities (Kakoudakis et al., 2017; Adie and Falk, 2021). Additionally, a recent study by Aquino et al. (2018); and Utomo et al. (2020) mentioned a robust correlation between tourism and local community development. The wealth of tourist destinations owned by Indonesia is indeed interesting to visit for local and international tourists. The development of the tourism sector sometimes sacrifices other components primarily related to conservation and sustainability issues (Moneva et al., 2020). Therefore, Geopark being the potential to both manage sustainability concerns and promoting economic wellbeing (Idris and Mansur, 2020; Wadhawan, 2021).

A geopark is a location with exceptional geological features, as well as archaeological, ecological, and cultural qualities, where locals are encouraged to take part in preserving and advancing the role of natural heritage (Ríos et al., 2020). Three components make up the geopark's major components are Geodiversity, Biodiversity, and Cultural-diversity (Catana and Brilha, 2020). The establishment of geopark has two primary purposes: conservation and community enhancement. The creation of the UNESCO Global Geopark (UGG) label at the end of 2015, as part of the UNESCO system, was the outcome of extensive talks between the NGOs Global Geopark Network (GGN), an epistemic group (International Union of Geological Sciences, IUGS) and United Nations Education Science and Culture Organization (UNESCO).

A bottom-up procedure involving all necessary local and regional partners creates geoparks, including local authorities such as community groups, tourism service providers, indigenous peoples, local organizations (Lukáč et al., 2021). Furthermore, Geoparks also need to empower local communities through cohesive partnership activities to promote important geological processes in the area such as features, periods, history related to geology, or extraordinary geological beauty (Dowling and Newsome, 2018). This process requires commitment from the local community, strong

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partnerships, political support, and a plan for showcasing and safeguarding the region's geological heritage that will satisfy all of the community's objectives. The creation of local economic competitiveness can be achieved by optimizing all potential economic resources, including natural, human, artificial, and social resources, to support development financing and local economic independence (Khambule, 2018). For this matter, regional policies are needed that can provide stimulants and encourage the exploration of regional economic potential into a solid form (Sukmawati and Maryanti, 2021). The region will optimize the abundance of resources (resources endowment) as the basis for driving the wheels of regional development. Local economic construction has a strong argument and rationality to be implemented (Rogerson and Rogerson, 2019) various countries that have emerged from adversity, local economic development in practice has succeeded in growing the performance of the national economy (Abrahams, 2018; Fiorentino, 2019; Khambule, 2018; Rogerson and Rogerson, 2019).

Indonesian Geopark is an area with a beautiful landscape that has an essential role in education with science value and comprises rare features (Ardiansyah et al., 2019). The main component of Geopark covers three elements, including geological heritage, biological diversity, and cultural expression. To present, Indonesia has six areas that include to Indonesian geopark: Toba Lake in North Sumatera, Merangin in Jambi, Batur in Bali, Rinjani in West Nusa Tenggara, and Ciletuh in West Java. Indonesia has great potential in developing Geoparks but Indonesia is still lagging behind in terms of numbers compared to other countries. Indonesia already has five UNESCO Global Geoparks/UGG 15 National Geoparks/GN which are being sought to become UNESCO Global Geoparks and approximately 110 locations that have the potential to be developed into Geoparks and the number continues to increase. A new geopark will be built when the area in question has a sustainable development plan for the people who live in it.

Since the important role of Geopark, whether for sustainability, geology, and economy, the study on this theme is on the rise. For Instance, (Cai et al., 2019) noted a correlation between sustainability issues and Geopark in Yimengshan. Another study by (Herrera et al., 2018) showed geotourism potential in the context of Geopark in Educator. However, there is a lack of study in the Indonesian context and its acquaintance with economic welfare. Most studies in the tourism sector are concerned with village-based tourism (Hawkins, 2022; UTOMO et al., 2020). A recent study by Ginting et al. (2017) concerned geotourism development in Toba Caldera Geopark by maximizing public facilities. In other side, large flow of tourism in Rinjani Lombok UGGp cause environmental damage (Hawkins et al., 2022).

Research by (Kastuti and Sulistyadi, 2021), joint management of the Ciletuh UGGp area is the key in achieving world-class tourism in a sustainable manner. Therefore, there is a need for a better understanding on how the role of global geotourism and local economic welfare. This study provides several contributions. First, this research provides a contribution and insight into the field of Geopark and geotourism by providing a collaboration model of Penta Helix as an enhancement model. The study in Indonesia is unique as it has a great potential for geotourism, but it has faced community economic vulnerability. Third, the successful enhancement model can be used to develop geotourism and Geopark in other areas in Indonesia and perhaps in other countries with indifferent geographical conditions.

## MATERIALS AND METHODS

### Methodology

The study adopted a descriptive qualitative study approach to gain a comprehensive result of the phenomenon. The main procedure uses purposeful sampling (to select cases that are considered essential), followed by a holistic analysis of the case through a detailed description of the patterns, context, and settings in which the case occurred. Qualitative data analysis that we use are qualitative content analysis and narrative analysis. Qualitative content analysis is used to analyze various kinds of secondary data, ranging from literature studies, maps, footage, to agency records. Narrative analysis is used to learn how research participants construct stories and narratives from their own points of view. This means that narrative analysis has a dual layer of interpretation. First, the research participants use narrative to interpret their own experiences. The researcher then interprets the narrative's construction. Journals, letters, conversations, autobiographies, transcripts of in-depth interviews, focus groups discussion, and other sources can all be used to create narratives analysis.

### Data collection

In this research, the authors collect data from informants who come from elements of Penta Helix stakeholders, namely, Academics, Government, Business, Community, and Media. The author collects data from these five stakeholders (Figure 1). The feedback that the researchers want to know from these stakeholders is, first, how is their understanding and perception of the Batur Bali Geopark. Second, what roles and efforts have they made for Geotourism. Third, what

are the supporting aspects and the obstacles they face in implementing tourism in the Batur Bali Geopark, and fourth, Cooperation in what fields have been carried out between stakeholders. Primary data and secondary data are the two types of data used in this study. Primary data is information that has come directly from a person, such as the findings of an interview done by a researcher, giving questionnaires, and direct observations. To see the map of geopark development, researchers

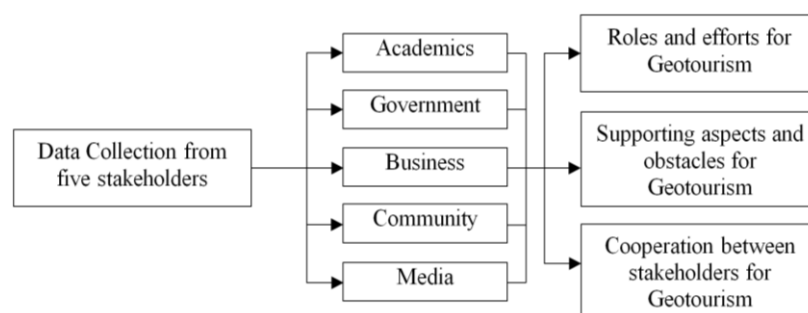


Figure 1. Data collection flow and analytics

made direct observations of the Batur geopark as a basis for understanding the potential and problems faced in geopark development. The interview in question is an in-depth interview with structured questions to understand the object of research.

**Research sites and location**

The research location in this study is conducted in Batur Geopark in Bali of Indonesia. The fundamental rationale is that Batur Bali in Indonesia is the first Geopark that Global Geopark Unesco in Indonesia has acknowledged. In figure 2, we can see the distribution of the area in the Batur Global Geopark which consists of various uses such as conservation areas (geodiversity, culture-diversity, and biodiversity), other utilization areas (utility area and sand quarry area), and hazard risk areas (landslide area). The geodiversity in Batur is unique because it is a strato mountain with two calderas and a freshwater lake. Moreover, the Batur volcano is still active and has several pyroclastic cones due to the past displacement of the eruption point. In addition, Batur has its uniqueness in cultural diversity, especially in Trunyan village, where access to get there can only be by walking or using a boat across the lake for 30 minutes. Trunyan Village is one of the Original Balinese Villages (Bali Aga), so-called because the residents there are Hindus and live side by side with nature on the slopes of the Batur Caldera. In terms of biodiversity, Batur is located in the tropics with an altitude above 1000 meters above sea level, making Batur has not only a beautiful landscape but also biological diversity. One of the most superior Batur biodiversity is the organic civet coffee and the Kintamani dog. Additionally, the community in the close research location has a unique culture and a robust social capital. Bali is also known as a tourism Island that has enormous potential and representative of Indonesia. Furthermore, Bali is a tourism destination, both local and international.

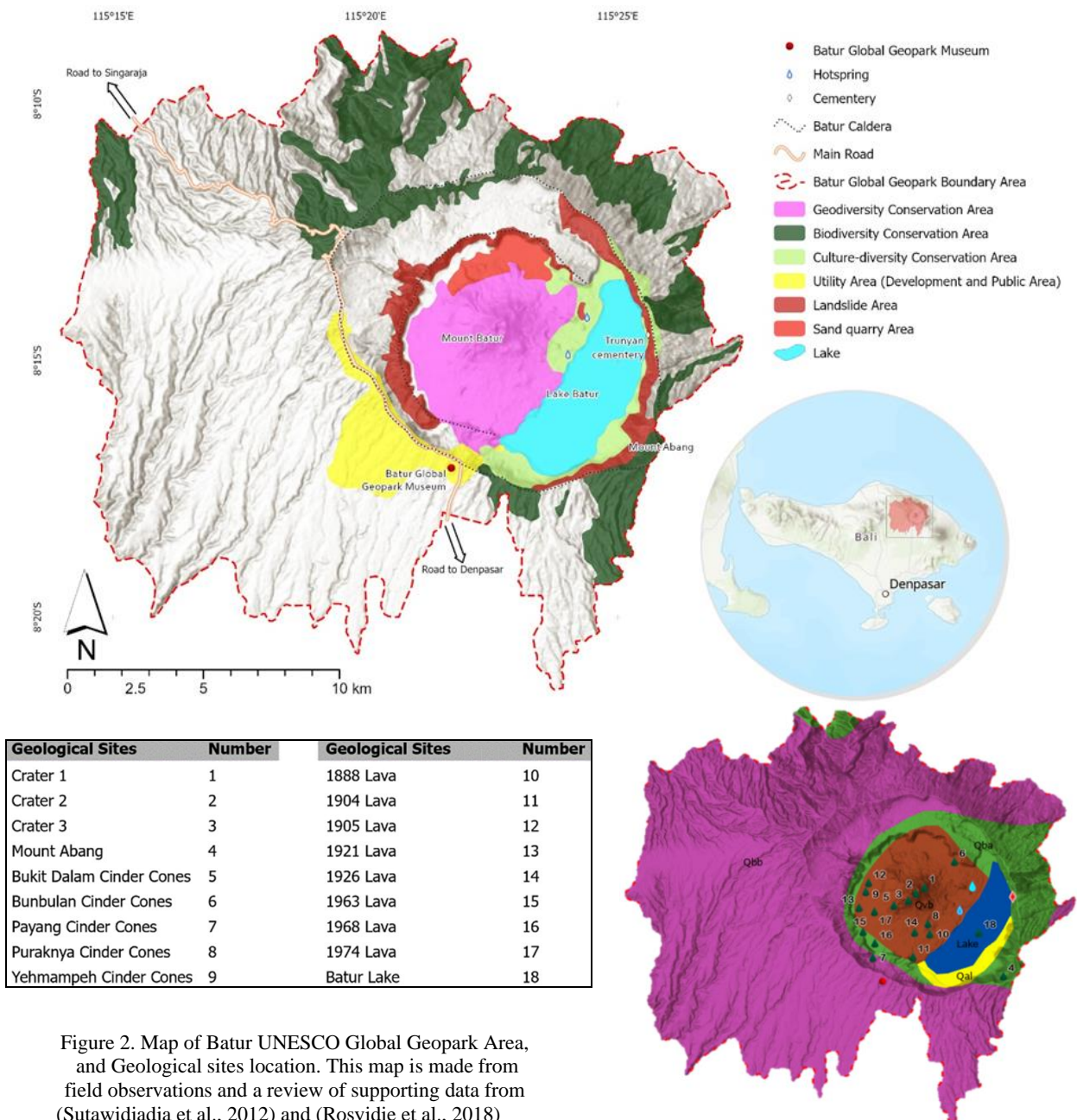


Figure 2. Map of Batur UNESCO Global Geopark Area, and Geological sites location. This map is made from field observations and a review of supporting data from (Sutawidjadja et al., 2012) and (Rosydie et al., 2018)



### **Data Analysis**

This study followed the criteria from Miles and Huberman (1984). Data reduction, display data, and conclusion drawing/verification were used to collect qualitative data. The process of choosing, concentrating on simplification, abstracting from, and altering rough data that results from field notes on paper is known as data reduction. Even before data is collected, this procedure continues throughout the whole research project, as can be seen from the research framework, study issues, and the data collection approach adopted by the researcher. Reducing data undergoing a strict selection of data, summaries, or brief data descriptions and classifying them in a broader pattern.

## **RESULTS AND DISCUSSION**

### **Strategic Issues in Batur Geopark**

Geoparks with various kinds of potential have a very important role in the stability of the development of a region. Environmental factors are the main consideration in ensuring the balance of economic and social development of the community. In addition, Geopark also aims to develop the local economy, develop education, especially knowledge about geology, and protect the environment. However, several issues are generally faced in the development of geoparks, including the limited understanding of various parties about Geoparks. Accessibility to and within the Geopark area is still low. The low quantity and quality of tourism amenities (public infrastructure, public facilities, and services, tourism facilities). Management institutions that have not played an optimal role. There is no clear management system for almost all geosites (Figure 2). The lack of synergy between policies and programs for Geopark development. This is in agreement with some prior studies by (Aquino et al., 2018b; Sulistyadi et al., 2019), which mentioned those issues in managing Geopark.

A preliminary interview showed that the coordination that has been established is still person to person and has been institutionalized due to there being no leading sector regarding the concept of geopark development. Each agency tends to go its own way regarding the implementation of the geopark development plan. At this time, collaboration is an essential part of building mutual understanding and commitment and having a sense of responsibility in the continuity of regional development (Arintoko et al., 2020). Through attempts to incorporate the entire community, the inclusive development paradigm can promote the realization of forms of cooperation in the development process. Community economic development offers a role to build the strength of local communities through alternative economic activities so that the community has greater control over the process of social and economic activities in their area (Utomo et al., 2020).

### **The Perspective of Local Economic Development**

Geopark management currently requires human resources who have the capability and acceptability of natural and cultural resources in the region. Therefore, community empowerment is needed, such as training in natural tourism management, tour guides, and entrepreneurship training to manage geopark areas and increase local community welfare. From the Geotourism perspective, there is a need for a comprehensive approach in ensuring sustainability, not only focusing on environmental conservation but also community empowerment and regional economic development. Consequently, a defined institutional framework is necessary to enable competent management. Professional management is the practice of managing budgets and revenue, facilities management, technical problem-solving, day-to-day management systems, and the coordination of stakeholders including local governments, academic institutions, corporations, entrepreneurs, and community organizations (Yasir et al., 2021). However, several things need to be considered in the management of Geotourism, including the necessity to strengthen the urgency of environmental conservation and its topographical wealth. The rapid development of Geotourism needs to prepare facilities according to the carrying capacity and capacity of the area. Ensuring sustainability through anticipating negative impacts with careful planning and strategy. Empowerment of local communities needs to be carried out continuously and intensively in supporting these tourism activities. Educational value and increase visitor/tourist satisfaction (Schmidt and Uriely, 2019).

Local economic development is a community-centered development model through various programs aimed at self-reliance (Rogerson and Rogerson, 2019). Communities are actors who determine goals, control resources, and direct the process of resource utilization (Manaf et al., 2018). The emphasis is on the community's authority to manage resources in realizing their interests. This activity is designed based on community initiatives and participation with an orientation to the local community's needs, potential, and capabilities, taking into account the variations and differences within the community (Gurău and Dana, 2018). Community Development is a program that seeks to reach people whose socio-economic conditions are still relatively low, and it is difficult to live a life that meets the eligibility and welfare requirements (Van Rooyen, 2014). The creation of local economic competitiveness can be achieved by optimizing all potential economic resources, including natural, human, artificial, and social resources, to support development financing and local economic independence (Khambule, 2018). For this matter, regional policies are needed to provide stimulants and encourage the exploration of regional economic potential into a solid form (Sukmawati and Maryanti, 2021).

The region will optimize the abundance of resources (resources endowment) as the basis for driving the wheels of regional development. Local economic construction has a strong argument and rationality to be implemented (Rogerson and Rogerson, 2019) various countries that have emerged from adversity, local economic development in practice has succeeded in growing the performance of the national economy (Abrahams, 2018; Fiorentino, 2019; Khambule, 2018; Rogerson and Rogerson, 2019). Natural resources, labor, capital, investment, entrepreneurship, transportation, communication, industrial composition, technology, size, export market, international economic situation, local government capability, federal and state government spending, and development assistance are all included in local economic development (Abrahams, 2018). However, the economic development practitioner is never particular which

factor has tremendous weight in any given situation. Furthermore, Barraket et al. (2019) stated that The hallmark of locally-based economic development is endogenous growth, which emphasizes the use of available human and natural resources to generate new job opportunities and jump-start local economic development activity.

According to Pike et al. (2015), Local economic development (LED) is a process that aims to establish development institutions in the area, improve human resources' ability to produce better products, and promote industry and business activities on a local level. Thus, regional development is viewed as an endeavor by the local community and regional government to create economic opportunities that are consistent with human resources and maximize the utilization of local institutions and natural resources (Saleh et al., 2020). Such is the strategic concept of local economic development (LED) in optimizing the potential of local resources built based on industrial clusters, which are expected to encourage further regional economic growth. From the community side, Local Economic Development is defined as an effort to free the community from all the limitations that hinder their efforts to develop welfare (Maolani, 2019).

**Penta Helix Model for Tourism Development**

The Penta Helix emphasizes the socio-ecological transitions that societies and economies require in the twenty-first century. Therefore, Penta Helix is ecologically sensitive. The natural environment of society and the economy should be understood within the Penta Helix innovation model framework as a driver for knowledge generation and innovation, hence outlining prospects for the knowledge economy (Putra, 2019). Penta Helix promotes the creation of a condition in which ecological, knowledge, and innovation coexist in harmony while fostering synergies between the economy, society, and democracy (Sumarto et al., 2020). Penta Helix is an innovation paradigm that focuses on social exchange and knowledge exchange inside a certain country or country subsystem, which can be used to address the current concerns of global warming (Yasir et al., 2021). Penta Helix combines knowledge and natural environmental systems into a framework that is interdisciplinary and transdisciplinary and may offer a step-by-step methodology for understanding effective development quality-based management, reestablishing harmony with nature, and letting future generations live a pluralistic and diverse existence on the planet (Chamidah et al., 2021; Yasir et al., 2021). In short, the Penta Helix provides a good theoretical and practical model is provided to society to help it understand the relationship between knowledge and innovation and to help it create sustainable development. The Pentahelix model is the first to introduce orchestration and ensures the quality of activities, facilities, and services as well as promoting experiences and benefits for community and environmental sustainability in tourism. As a result, it's crucial to promote the tourism industry by maximizing the contribution of business, government, community, academics, and the media (Figure 2).

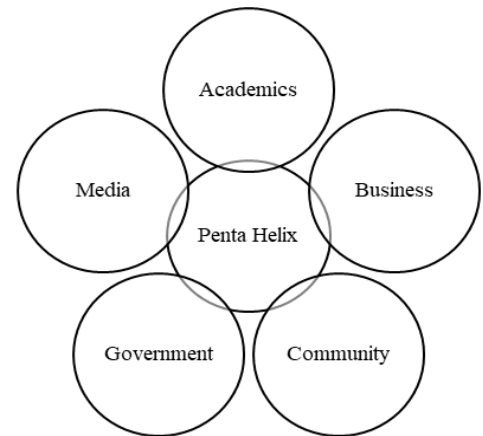


Figure 2. Penta helix Model for Geopark Development

Table 1. The collaboration model for Geotourism Development

| <b>Academics</b>   | <b>Government</b>   | <b>Business</b>                                     | <b>Community</b>  | <b>Media</b>  |
|--|---|---|---|---|
| 1. Provide tourism directions, policies and regulation   | 1. Designers, planners and guides, policies, strategies and regulations | 1. Tourism service provider                         | 1. Tourism industry operator  | 1. Accelerate the delivery of tourism information             |
| 2. Quality Tourism human resources   | 2. Tourism zoning planner   | 2. Investors and implementers of tourism investment | 2. Keepers of activity conducive tourism industry   | 2. Covering and informing stakeholders                        |
| 3. Analysis of tourism concepts, programs and strategies   | 3. Providers and developers of tourism infrastructure and access        | 3. Create markets, services, and jobs               | 3. Social controller in implementation of the tourism industry                              | 3. Educational facilities for the community                   |
| 4. Provider of tourism consulting services for the government, industry and the community.                         | 4. Law enforcement, rules and regulations.                              | 4. Forming tourism communities and entrepreneurs    | 4. Engage in planning, management and decision making and evaluation of tourism development | 4. Channels for feedback and interaction between stakeholders |
| 5. Provide tourism human resources according to societal needs, industrial / business needs and professional needs | 5. Creating a conducive climate for tourism business development.       | 5. Enhance and development program                  | 5. Explore and preserve tourism by developing local culture and the environment             | 5. Providing tourism information and promotion                |

In this case, the development process can be carried out by the campus, where the campus brings together the other four pillars, namely the government as a tourism regulator and facilitator, tourism business companies, tourism industry associations, and the media. In this case, the campus uses information from business actors, industrial associations, and the government as study material and disseminates the results of the study to the other four pillars.

Meanwhile, the government formulates policies by taking into account the results of campus studies and feedback from the other three pillars. The same applies to business actors and industry associations, where they provide feedback to the government and provide information for campus research, as well as implement policies and study results.

Furthermore, mass media moves to all pillars in absorbing and disseminating information. Thus, it is hoped that the interests of stakeholders can be adequately met, and the tourism industry can move in a positive direction.

Based on the chart above, it can be seen that the types of relationships that exist between stakeholders in the Geopark Tourism development program vary. In accordance with the relationship and role that Academics, Community, Business, Academics as drafters have a coordinating relationship with business and community. This is due to the minimal sharing of resources with a moderate time commitment. In detail, the role of each party is provided in Table 1.

## CONCLUSION

This study aims to examine the strategies issues existing in the development of Batur UNESCO Global Geopark in Indonesia and propose a Penta helix model for enhancing Geotourism and improving local economic welfare. The findings indicated that some issues are essential in the development, such as management, coordination, collaboration among parties. For example, the regulatory process that the government has set in its manufacture requires input from the five stakeholders. Once established, it needs to be coordinated effectively with the wider community, and business. Can directly and also use the role of the media. Furthermore, the implementation results in the field need to be followed up periodically by the five stakeholders to be redeveloped.

Therefore, the Penta helix model proposed can be used to develop the Geotourism that can be expected to drive community welfare. In the model, it can collaborate with many parties, including academics, business, government, community, and media. However, this study considers a limitation in one area's geographical location that can further be enlarged to other Geoparks in Indonesia and other countries to fully comprehend the phenomenon.

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## FACTORS AFFECTING THE POLICY OF TRAINING AND FOSTERING CIVIL SERVANTS OF KHMER ETHNIC MINORITIES IN THE MEKONG DELTA, VIETNAM

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**Abstract:** The Khmer ethnic minority civil servants in the Mekong Delta have an important role. They are the ones who deploy and implement the state's policies and laws for the people, and they directly manage the society in the region with order, stability, and development. Cadres and civil servants of Khmer ethnic minorities are the bridge between the state and the people, they reflect the people's legitimate thoughts and aspirations for the state. The study aims to explore the factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam. Research data were collected from survey results by questionnaires from 875 survey samples in the Mekong Delta, Vietnam. Research results in the SEM model show that there are six factors affecting the policy of training and fostering civil servants of ethnic Khmer people in the Mekong Delta, Vietnam, including Objectives and content of the policy; Resources for policy implementation; Coordinate policy implementation; The capacity of policy enforcement agencies; Economic, political, cultural, and social environment; Awareness and capacity of policy beneficiaries. From the research results, a number of contents are discussed and proposed to contribute to improving the quality of implementation of policies on training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam.

**Key words:** Factors affect; the policy; training and fostering; civil servants; Khmer; the Mekong Delta

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### INTRODUCTION

Ethnic minority civil servants play an important role in the implementation of socioeconomic development plans. They contribute to maintaining the spirit of solidarity of the whole people, ensuring political security, social order, and safety in ethnic minority areas (Kleiman et al., 2021). Ethnic minority civil servants directly organize and implement state policies and laws. They are the receivers of the people's and ethnic minority's reflections to the state to adjust, supplement, and perfect policies (Pham and Vu, 2019). Ethnic minority civil servants have a positive influence on ethnic minorities through customs, practices, and community activities. They are leaders and managers in ethnic minority communities, their ideas and actions are persuasive and can attract people to implement (Hang, 2022). The Khmer ethnic group in the Mekong Delta, Vietnam has a fairly large number, living in most of the provinces and cities in the region, with nearly 1.3 million Khmer people, accounting for nearly 7% of the population (Nguyen, 2022). By 2020, Khmer civil servants in the political system from provincial to commune levels in the Mekong Delta provinces with a large number of Khmer people such as Tra Vinh, Soc Trang, Kien Giang, An Giang, Bac Lieu, and Ca Mau 14,701 people, accounting for 11.01% of the total number of civil servants in the region. Specifically, Tra Vinh province has 4,424 Khmer civil servants in the political system, accounting for 20.4% of the total number of civil servants in the province. Soc Trang province has 5,125 Khmer civil servants, accounting for 18.9% of the total number of civil servants in the province. Kien Giang province has 2,232 Khmer civil servants, accounting for 18.81% of the province's civil servants. An Giang province has 1,428 Khmer civil servants in the province, accounting for 3.21% of the total number of civil servants in the province (Hai et al., 2021).

Civil servants of Khmer ethnic minorities in the Mekong Delta are those who implement the State's policies and laws for the people. The Vietnamese government has paid attention to implementing the policy of training and fostering civil servants of Khmer ethnic minorities. The Government has issued Decision No. 402/QĐ-TTg dated March 14, 2016, of the Prime Minister approving the Project "Development of ethnic minority cadres, civil servants and public employees in the new period". Legal documents are used as a basis for ministries, specialized committees, and local authorities to deploy and

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implement policies on training and fostering civil servants of Khmer ethnic minorities (Prime Minister, 2016). The Committee for Ethnic Minority Affairs issued Decision 162/QĐ-UBND dated March 26, 2018, approving the Plan to develop the Project “Preferential policies for socio-economic development for ethnic minority areas; Training and fostering cadres of Khmer ethnic minorities in the Mekong Delta” (Ethnic Committee, 2018). The policies under this project are implemented for Khmer ethnic people, the main policies in the scheme include vocational training and job creation, education and training, and building a contingent of civil servants. Training and fostering state management knowledge for civil servants of Khmer ethnic minorities, including specialist programs, key experts, and senior experts; fostering and updating knowledge and skills in informatics and foreign languages. Many civil servants of Khmer ethnic minorities are interested in sending them to study professional skills at universities. Civil servants of Khmer ethnic minorities are entitled to participate in training and retraining abroad according to training programs of localities, and departments (Nguyen et al., 2019). From the implementation of policies on training and fostering ethnic minority civil servants, the quality of Khmer ethnic civil servants in the provinces in the region has been improved quite well. They operate effectively, contributing to the consolidation and development of the great unity bloc of nations, promoting economic, social development, and political stability in the Mekong Delta.

However, the implementation of the policy on training and fostering civil servants of Khmer ethnic minorities has a number of limitations, including the development of training and retraining plans for cadres and civil servants that are not suitable to the needs of the regulations; training structure not yet responsive to reality; the link between planning and training and retraining is not close; organization of training and retraining lacks focus and focus (Hai, 2022). In addition, the content of training and retraining programs for Khmer ethnic minorities is slow to innovate, it has not met the needs; The training method is not flexible, and it has not created favorable conditions for civil servants to participate in training and retraining classes. Policies and regimes for learners are still difficult and not suitable for the Khmer ethnic minority people going to school; The state budget for training and fostering cadres and civil servants of Khmer ethnic minorities is still small. We can build a contingent of civil servants from Khmer ethnic minorities who have sufficient professional capacity, ethical qualities, and enthusiasm to serve the community and people in the Mekong Delta, Vietnam. In order to train and foster a good contingent of civil servants, it will depend on factors including the effectiveness of the policy; Policy implementation team; Policy beneficiaries; Energy of trained and fostered subjects; Economic policy support.

## LITERATURE REVIEW

### 1. Policy on training and retraining

Policies are measures taken by powerful actors to solve a problem in order to achieve a set goal. Policies are characteristic of powerful subjects. Policy-makers are those who manage or wield power on the basis of the general political line and the actual situation (Wart and Hondeghem, 2015). The content of the policy includes viewpoints, goals, tasks, and solutions expressed in the form of plans, strategies, resolutions, and action plans; The object of the policy is to solve a certain problem in the fields of economy, politics, culture, and society (Awortwi, 2010). Public policy is a collection of state decisions that are applied in practice to solve problems posed in social life for the common benefit of the community according to defined goals. The specific feature that shows the nature of the public policy is that the subject of public policy promulgation is the state, including the national assembly; government; ministries, and local governments (Huaxing and Qing, 2021). Policy on training and fostering civil servants is a form of public policy. It aims to build a team of qualified civil servants, who meet the requirements of practice (Bui, 2022). Policies for civil servants include policies on training and fostering civil servants; policies on the use and management of civil servants; policies to ensure benefits and motivate public servants' morale. The policy on training and fostering civil servants aims to identify goals and solutions to equip civil servants with knowledge, skills, and methods of performing tasks in public service activities (Dung et al., 2021). It contributes to building a contingent of professional civil servants with good moral qualities and capacity, who can meet the requirements of serving the people and the development of the country (Bourgault, 2011).

According to Acar and Özgür (2004:197) in the study “Training of civil servants in Turkey: Progress, problems, and prospects”. According to the authors, civil servants in Turkey face major challenges, including increasing demands from citizens, increasing globalization, and rapid growth in the use of technology information and communication, as well as the increase in the number and influence of civil society organizations. The study described the basic policies and institutions related to the training and development of civil servants in Turkey; The author discusses the most important and enduring issues related to the training and development of civil servants in the country; Evaluates prospects for developing effective training policies and practices. Research has produced ideas and arguments on the matter around topics including openness, performance, qualifications, and professionalism (Acar and Özgür, 2004).

In the study “Customization in civil service training: Implications for outsourcing human resources management” by Lina (2019:41). According to the author in the public sector, central training institutes have played an irreplaceable role in making training policies and providing training programs for government employees. The adoption of public management has spurred a reform program in human resource management, leading to a shift from centralized training to decentralized or outsourced training; which means making the training of civil servants more on-demand and reducing the role of central training institutes (Lina, 2019). The study explored how the training of civil servants in Hong Kong has been decentralized and customized according to the view of civil servants as trainees. At the same time, evaluate the role of the civil service training and development institute as a centralized training base for Hong Kong civil servants in the modern, decentralized, and consumable personnel management regime. According to James (2021:1) in the study “Singapore-West hybridization: policy learning in the development of leadership training in the Singapore Public Service”. The author acknowledges that policymakers have sought solutions abroad when faced with policy problems. In setting up a leadership training plan in the

Singapore public service, policymakers avoided learning from abroad. Instead, the new center for training administrative service leaders is set in the Singapore context without reference to foreign role models (James, 2021). The local government conducts leadership training in the Singaporean administration at the College of Civil Service.

In the study “Training and fostering civil servants in Hoa Binh province” by Thu (2020:160). The author believes that training and fostering civil servants is one of the activities to improve the quality of the contingent of civil servants and public employees. This activity has always been focused on by localities, especially in recent years. Hoa Binh is one of the localities that will implement the policies of the State in training and retraining (Thu, 2020). The study analyzed the current situation of training and fostering civil servants in Hoa Binh province before the requirements of administrative reform, reform of the civil service regime and civil servants, and implementation of other contents of cadre work.

Research on building and developing a contingent of cadres and civil servants in the innovation period of Vietnam by Van (2022). The author believes implementing planning, training, fostering, arranging, and using the right civil servants is essential. Some issues should be considered to build a contingent of civil servants, including building civil servants with civil service ethics; improving professional qualifications for civil servants; salary reform, improving the working environment for civil servants; encouraging and protecting active and creative public servants; inspect and supervise the observance of regulations by civil servants (Van, 2022). It is the decisive factor for constructing a contingent of civil servants. This study has found many important factors for the construction of civil servants in Vietnam. However, this is a review study, it has not been evaluated quantitatively. On that basis, the author has identified factors that affect the training and retraining of civil servants in order to assess the level of impact in building a contingent of civil servants in the coming time.

## 2. Civil servants of ethnic minorities

Ethnic minority civil servants are used to refer to civil servants who are working in organizations of the political system in which they belong to ethnic minorities (Van Tuan et al., 2023). Criteria to distinguish “ethnic minority civil servants” among civil servants of the political system belong to the group of “ethnic majority” or “ethnic minority”. This criterion is not meant to distinguish the qualifications, capacity, or social status of civil servants (Chokprajakchat and Sumrethphol, 2017). When they are civil servants, they belong to the “majority” or “ethnic minority” group and must undertake the assigned tasks, and must meet the necessary standards and conditions for each public position. Ethnic minority civil servants are a team that has a close relationship with the people, directly enforces state laws, and at the same time, they reflect the people's legitimate aspirations to the State. Ethnic minority civil servants understand the customs, practices, psychology, and activities of ethnic minorities (National Training Policy, Indian Journal of Public Administration, 2012). Thus, they have favorable conditions to carry out the work of propaganda, mobilization, and persuasion of the people to strictly comply with the State's policies and laws, thereby promoting the great unity of the whole people and maintaining security politics, social order, and safety in ethnic minority areas (Elston and Bevan, 2020). Ethnic minority civil servants play a very important role in the implementation of socioeconomic development plans (Cameron, 2022).

According to Law No. 52/2019/QH14 on amending and supplementing a number of articles of the Law on Cadres and Civil servants of the Socialist Republic of Vietnam (Congressional, 2019). Civil servants are Vietnamese citizens, recruited and appointed to ranks, positions, and titles corresponding to employment positions in state agencies, and socio-political organizations at central and provincial levels, at the district level, they receive their salary from the state budget.

Ethnic minority civil servants are citizens of the Socialist Republic of Vietnam. They are a group of ethnic minorities who are elected and recruited to hold positions and titles according to the term of office for positions in the political system and receive salaries from the state budget country. The difference between ethnic minority civil servants and general civil servants is based on the background of the civil servant. They belong to the “majority” or “minority” group. This criterion is not to distinguish the qualifications, capacity, or position in society of each civil servant. Civil servants must perform the same tasks and ensure specific standards and conditions for each position and title as prescribed in the legal documents of the state.

According to Pho et al., (2019) in the study “Training for ethnic minority groups to meet the demands of industry 4.0”. The author believes that the industrial revolution 4.0 has created a great change in the structure of human resources, including ethnic minority intellectuals. High-quality human resources can meet the change of the industrial revolution 4.0. To be able to master new technologies including artificial intelligence, connected things, big databases, and intelligent robotics, requires a landmark change in resource training (Pho et al., 2019). The fact that there is a limitation in the capacity of ethnic minority human resources has put a demand on training ethnic minority intellectual human resources. The study has proposed solutions to contribute to the orientation of the human resource training process in the current period.

Research “Ensuring rights of ethnic minorities in India and policy implications for Vietnam” by Pham (2020:75). The author identifies India as a country with many diverse ethnic groups. To ensure special rights and benefits for ethnic minorities, the Government of India has provided preferential treatment in terms of policies, funding education, and job opportunities incorporated into the Constitution of the country. In addition to providing legal protection for minorities in the Constitution. The government has implemented national projects to promote socio-economic development in ethnic minority areas, establishing many agencies to manage issues of ethnic minority groups (Pham, 2020). Through the constitution and statutes, the government of India has granted certain privileges to ethnic minorities to promote the development of minorities in all areas of life. The author believes that the lessons of India's experience are a practical basis for Vietnam to orientate and perfect the ethnic policy, build a contingent of civil servants, improve the quality of life and promote peaceful development entry of ethnic minorities. According to Phi and Hoang (2020:33) in the study “Recruiting and using contingent of cadres, civil servants and officials of ethnic minorities in the political system”. The authors consider the need to attract, recruit and use ethnic minority cadres, civil servants, and public employees in the political system.

They consider it to be an important task of the state on ethnic minority cadres, in order to solve urgent problems and meet the requirements of the lack of civil servants in ethnic minority areas (Phi and Hoang, 2020). The research has properly assessed the need for attracting, recruiting, and using ethnic minority cadres, civil servants, and public employees in the political system; Overview of the importance of ethnic minority cadres for socio-economic development in ethnic minority areas.

According to Ha and Nguyen (2020:23) in the study "Management of training and retraining of cadres, civil servants and public employees of ethnic minorities in the current period". According to the authors, the work of training and fostering ethnic minorities has a particularly important position in the construction of the state's cadres. In the new period of change, the State has developed policies, master plans, and plans for training and retraining civil servants and public employees of ethnic minorities. As a result, the contingent of cadres, civil servants, and officials of ethnic minorities has increased in quantity and quality, and they are meeting the requirements of reality. However, besides the achieved results, the management and training of ethnic minority cadres, civil servants, and public employees are still limited. The study analyzed the current situation of management training, fostering cadres, civil servants, and public employees of ethnic minorities. From there, some limitations and causes of those limitations need to be further studied in the future (Ha and Nguyen, 2020).

## **THEORETICAL FRAMEWORK AND RESEARCH STRUCTURE**

### **1. Theoretical framework**

In the study "The policy implementation process" by Smith (1973), the factors affecting the effectiveness of public policy implementation include (1) the quality of the policy, the policy objectives, and the content of the policy, and policy options are feasible; (2) the agency or organization that implements the policy, the capacity of the agency or organization responsible for implementing the policy; (3) policy objects, the degree of policy recipients' acceptance of policies; (4) environmental factors, cultural, social, political and economic environment affect policy implementation (Smith, 1973).

According to Van-Meter and Van-Horn (1975:445) in the study "The policy implementation process: A conceptual framework". The authors believe that there are many factors affecting the effectiveness of policy implementation, these factors include both internal factors and external factors. According to the authors, there are 6 factors affecting the effectiveness of public policy implementation, which are (1) the objectives and content of the policy, the feasibility of the policy; (2) policy resources, resources (human, material, financial, information) for policy implementation; (3) the exchange and coordination between organizations, and members in the organization to implement; (4) the capacity of the policy enforcement agency; (5) economic, political, cultural and social environment; (6) awareness and attitude of policy enforcement staff (Van-Meter and Van-Horn, 1975). According to Paul and Daniel (1980) in the study "The implementation of public policy: A framework of analysis". The authors identify that there are three groups of factors affecting the effectiveness of public policy implementation, including (1) Characteristics of the policy problem (the nature of the policy; the diversity of policy objects; the number of policy objects; the content that the policy needs to adjust); (2) Factors of the policy itself (the correctness of the policy; the specificity of the policy; the adequacy of resources for policy implementation; the arrangement of agencies and staff to implement the policy); (3) Factors external to the policy (support of policy beneficiaries; quality and working attitude of implementers; capacity of policy enforcement agencies; coordination and communication among stakeholders organization; policy monitoring; policy environment) (Paul and Daniel, 1980).

In the study "The challenge of civil servant training in China: A case study of Nanning City" by Yang et al., (2012:169). The authors have analyzed China's civil servant training system with a comparative point of view that proves useful. The authors' analysis shared concerns in the training of civil servants including the balance between political control and professional competence; tension between centralization and decentralization; the choice between internal supply and marketization; management issues related to training planning, motivation, and evaluation. The author argues that countries may adopt different policies to address common challenges depending on their unique contexts (Yang et al., 2012).

According to author Gulimzhan (2016) in the study "Civil service training in Kazakhstan: The implementation of new approaches". The results examined the evolution of the civil service training system in Kazakhstan and explored recent training innovations. There are two new points of additional principles related to the training of civil servants including (1) lifelong learning and capacity development; (2) practical orientation of education and training. According to the author's Law on Civil Service, there is a special provision for the training of civil servants. The Decree on training, retraining, and In-service training for civil servants has specified three training directions for civil servants including Initial training; retraining; training service (Gulimzhan, 2016). According to author Le (2018) in the study "Policies on support of general education for ethnic minorities in Vietnam in the current content". The author believes that the Government of Vietnam has issued many legal documents and policies, and devoted a lot of investment resources to ethnic minorities and mountainous areas. The government has developed a policy on general education for ethnic minorities. These policies have contributed to raising the standard of people's knowledge, the quality of human resources of ethnic minorities, and the socio-economic development of ethnic minority areas in Vietnam (Le, 2018). However, general education for ethnic minorities still faces many difficulties due to many influencing factors. According to the author, the government should consider policy influencing factors to improve policy effectiveness in order to improve the level of human resources in ethnic minority areas to meet the requirements of the country's renewal process.

According to Nguyen et al. (2019) in the study "Building the program of training ethnic knowledge for cadres, civil servants and public employees up to 2030". The authors consider that it is important to prepare curricula and organize knowledge training for civil servants who are ethnic minorities. Current status and job requirements of ethnic minority civil servants, we should strengthen training towards synchronization and standardization. Building a contingent of civil servants



in the political system with ethical qualities, professional qualifications, skills, competencies, professional skills, and knowledge. Building a good contingent of civil servants of ethnic minorities will actively contribute to improving the quality and effectiveness of the state's ethnic policies, it will promote socio-economic development and practice well implementing the project, ensuring sustainable poverty reduction among ethnic minorities in Vietnam. In the study “Training quality for Vietnamese cadres and civil servants in the context of international integration” by Nguyen (2021). According to the author, the training of civil servants is decisive for the operation of the civil service system. However, it is affected by many factors, which affect its effectiveness in practice. According to the author, the factors affecting the quality of civil servant training and retraining include institutions and policies; management; inspection and supervision; education programs (Nguyen, 2021). Therefore, determining the factors affecting the training and retraining work to find appropriate solutions, makes an important contribution to improving the capacity of civil servants and public service efficiency (Halley, 2015).

In the study “Some factors affecting the organization of training ethnic knowledge for cadres, civil servants and public employees” by Han (2021). The author believes that civil servants are an important force in the implementation of the National Target Program for socio-economic development in ethnic minorities and mountainous areas. Before the new requirements, the contingent of civil servants needs to be trained in knowledge. According to the author, the factors affecting the organization of knowledge training for civil servants include training programs and materials; Lecturers participating in teaching; Students' perception of knowledge improvement; The coordination between relevant agencies in the organization of knowledge training; Infrastructure and information technology applications. The identification of these factors will help the organization and training of knowledge for civil servants achieve high efficiency (Han, 2021).

Thus, the study of public policy; policies on training and fostering civil servants; policies towards civil servants of ethnic minorities are rich and diverse. Previous studies have mentioned theory and practical experience in the policy of training and fostering civil servants in many countries. These studies are an important basis to apply to a research model on factors affecting the policy of training and fostering civil servants of ethnic Khmer ethnic people in the Mekong Delta, Vietnam.

## 2. Hypotheses

On the basis of research theories, we propose a model of factors affecting the policy of training and fostering civil servants of ethnic Khmer ethnic people in the Mekong Delta, Vietnam. The following hypotheses have been proposed.

**Hypothesis (H1):** factors affecting the policy of training and fostering Khmer ethnic minority civil servants in the Mekong Delta, Vietnam include (1) Objectives and content of the policy; (2) Resources for policy implementation; (3) Coordinate policy implementation; (4) The capacity of policy enforcement agencies; (5) Economic, political, cultural, and social environment; (6) Awareness and capacity of policy beneficiaries.

**H1.1:** Objectives and content of the policy affect the policy on training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta.

**H1.2:** Resources for policy implementation affect the policy on training and fostering civil servants who are ethnic minorities Khmer in the Mekong Delta.

**H1.3:** Coordinate policy implementation affect the policy on training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta.

**H1.4:** The capacity of policy enforcement agencies affects the policy on training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta.

**H1.5:** Economic, political, cultural, and social environment affects the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta.

**H1.6:** Awareness and capacity of policy beneficiaries affect policy on training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta.

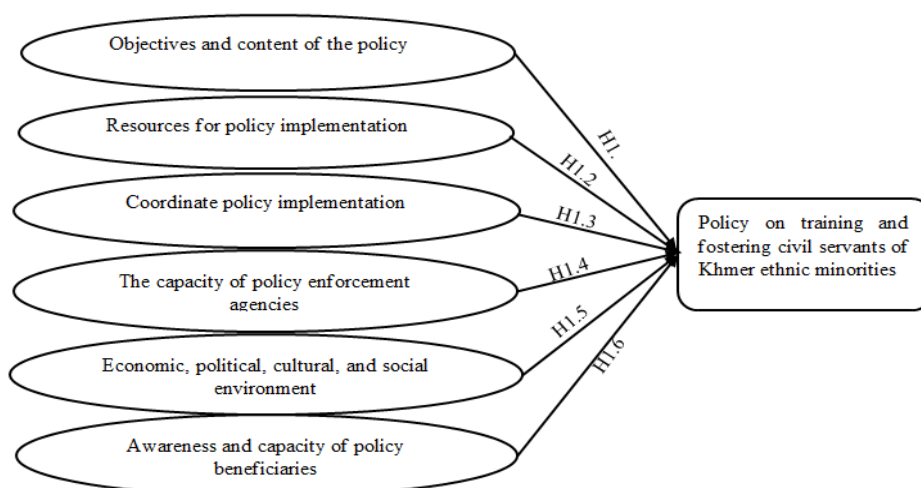


Figure 1. Overview of Research Structure

## 3. Research structure

Based on existing studies, combined with a practical survey on the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta, Vietnam. The initial study hypothesized that there are 6 factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities, including (1) Objectives and content of the policy; (2) Resources for policy implementation; (3) Coordinate policy implementation; (4) The capacity of policy enforcement agencies; (5) Economic, political, cultural, and social environment; (6) Awareness and capacity of policy beneficiaries. We have based on the theoretical framework combined with the literature study to build the research structure in Figure 1.

The factors in the research structure of factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam include (1) Objectives and content of the policy; (2) Resources for policy

implementation; (3) Coordinate policy implementation; (4) The capacity of policy enforcement agencies; (5) Economic, political, cultural, and social environment; (6) Awareness and capacity of policy beneficiaries. It is shown in Table 1.

Table 1. Observed Variables in the Research Structure of the policy of training and fostering civil servants of Khmer ethnic minorities

| Factors in the research structure  | Encode | Observed variables   |
|--|--------|--|
| Objectives and content of the policy                                       | OCP    | (1) The number of policy objects is specified; (2) Policies on training and retraining suitable to the subjects; (3) The specificity of the policy on training and retraining; (4) Feasibility of training and retraining policies.  |
| Resources for policy implementation  | RPI    | (1) Financial resources to implement the policy on training and retraining; (2) Human resources for the implementation of training and retraining policies; (3) Information resources for training and retraining policies; (4) Equipment resources to implement training and retraining policies; (5) Adequate resources for the implementation of the policy on training and retraining.   |
| Coordinate policy implementation   | CPI    | (1) The interaction and exchange between agencies implementing training and fostering policies; (2) Cooperation and coordination among agencies implementing training and retraining policies; (3) The agency in charge of implementing various policies; (4) The leader or head of the agency operating the policy implementation departments; (5) Coordination among staff in charge of policy implementation.   |
| The capacity of policy enforcement agencies                                | CPEA   | (1) Policy enforcers have a clear understanding of the policy on training and retraining; (2) Policy enforcers are responsible, dynamic, and creative; (3) Policy enforcers have management capacity and skills; (4) There are errors, mistakes in policy implementation; (5) Propaganda for policy implementation; (6) The policy enforcer is flexible to implement the policy well.  |
| Economic, political, cultural, and social environment                      | EPCS   | (1) Policy on appropriate training and retraining in economic conditions; (2) Appropriate training and retraining policies in political institutions; (3) Appropriate training and retraining policies in social conditions; (4) Policies on training and retraining appropriate to the culture; (5) The policy of training and retraining in an appropriate environment will be effective; (6) The trend of international integration affects training and retraining policies. |
| Awareness and capacity of policy beneficiaries                             | ACPB   | (1) Policies on training and retraining bring benefits to civil servants; (2) Policy on training and retraining to improve people's service skills; (3) Policies on training and fostering to improve the capacity of civil servants; (4) The support of civil servants with the policy of training and retraining; (5) Civil servants who have training and retraining needs.   |
| Policy on training and fostering civil servants of Khmer ethnic minorities | PTFC   | (1) The policy of training and fostering civil servants is appropriate and feasible; (2) The policy of training and retraining requires resources to implement; (3) Mechanism for coordination in the implementation of training and retraining policies; (4) Capacity of agencies implementing training and retraining policies; (5) Policy implementation environment, and capacity of civil servants.   |

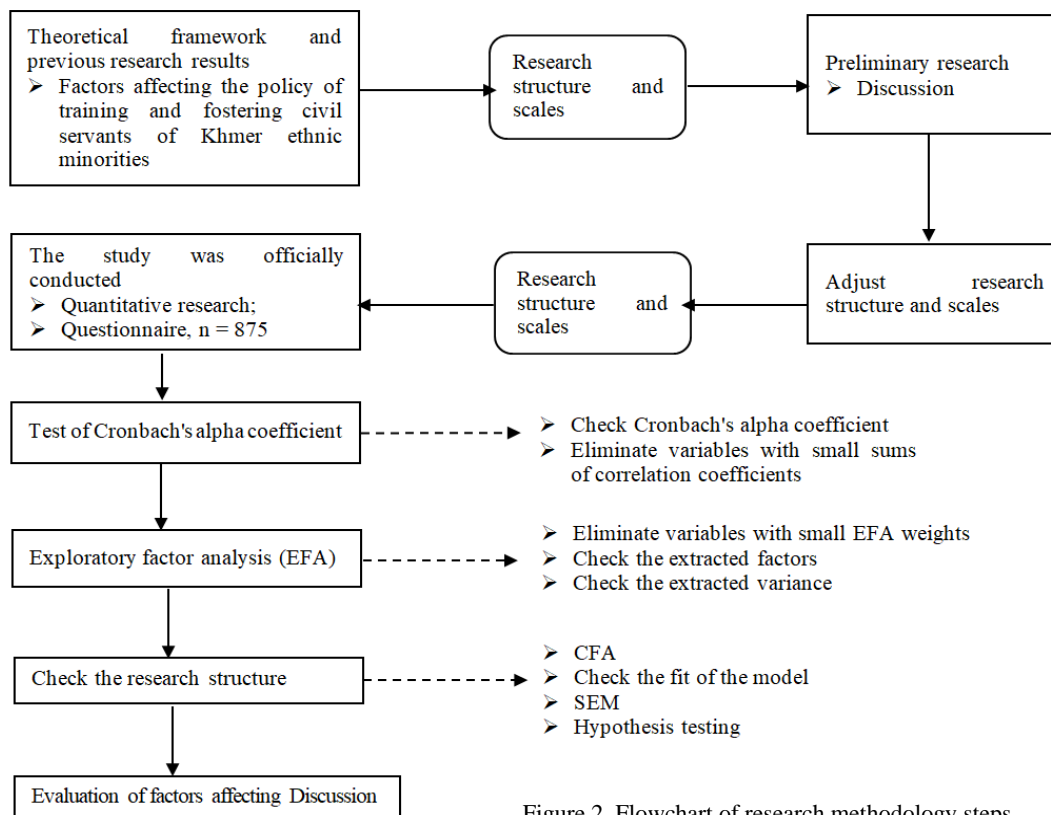


Figure 2. Flowchart of research methodology steps

## RESEARCH METHODS

To research and evaluate the factors influencing the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta, Vietnam. The methods used include descriptive statistical analysis, exploratory factor analysis, and regression analysis to test the research model. The steps of the research method are shown in Figure 2.

### 1. Take a research sample

On the basis of preliminary discussion results, a questionnaire was developed on the factors affecting the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta, Vietnam. The survey questionnaire has 41 Likert items including demographic questions about the survey area, gender, occupation, age, education level, civil servants in the Mekong Delta region; and 7 scales of factors affecting the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta, Vietnam.

The Likert scale is used with a range of values from 1 to 5 to measure the perception of survey subjects (1) completely disagree, (2) disagree, (3) neutral, (4) agree, (5) totally agree. Data collection took place from March to August 2022. Respondents answered directly on the questionnaire. The study was conducted with the subjects of Khmer ethnic civil servants in the Mekong Delta, Vietnam. Questionnaires were distributed to 890 civil servants. There were 875 valid answer sheets collected. It is shown in Table 2.

### 2. Data Analysis

Responses from the survey were coded and analyzed using SPSS software version 20 and AMOS version 24. Evaluation of factors affecting the policy of training and fostering civil servants of ethnic minorities Khmer in the

Mekong Delta, Vietnam with four steps to carry out the analysis including assessing the reliability of the scale using Cronbach's Alpha. The alpha coefficient was developed by Cronbach (1951) to measure the internal consistency of variables within the same group. Accordingly, Cronbach's Alpha coefficient can be used to evaluate the reliability of the scale and remove inappropriate variables from the research model; Exploratory factor analysis (EFA) to evaluate the convergent and discriminant value of each variable in the factor groups; Confirmatory factor analysis (CFA) to check the representativeness of observed variables; evaluated through criteria including reliability; convergence; and distinctiveness;

Hypothesis testing by the linear structural model (SEM), detecting factors affecting the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta; and evaluating the influence of factors affecting the policy of training and fostering civil servants of ethnic minorities Khmer in the Mekong Delta, Vietnam.

## RESULTS AND DISCUSSION

### 1. The results of testing the reliability of the scales

Cronbach's Alpha coefficient is used to check the close correlation of the scales. According to researchers on the scale, it is possible to use Cronbach's Alpha coefficient  $> 0.6$ , the best scale is in the range from 0.8 to 1. In addition, variables with a variable correlation coefficient  $< 0.3$  will be excluded from the research model (Nunnally and Bernstein, 1994).

The results of data processing in Table 3 have shown that all 7 scales have high reliability. Cronbach's Alpha coefficient is  $> 0.8$  and the total correlation coefficient  $> 0.3$  (Cronbach, 1951). It represents the appropriateness of the scale.

Table 3. Results of testing Cronbach's Alpha scales

| Scales of measurement  | Encode | No. of items | Cronbach's Alpha | Corrected Item-Total Correlation range |
|--|--------|--------------|------------------|--|
| Objectives and content of the policy                                       | OCP    | 6            | .913             | .676 - .853                            |
| Resources for policy implementation  | RPI    | 6            | .887             | .628 - .829                            |
| Coordinate policy implementation   | CPI    | 5            | .856             | .593 - .801                            |
| The capacity of policy enforcement agencies                                | CPEA   | 4            | .932             | .795 - .877                            |
| Economic, political, cultural, and social environment                      | EPCS   | 5            | .900             | .691 - .824                            |
| Awareness and capacity of policy beneficiaries                             | ACPB   | 5            | .940             | .752 - .905                            |
| Policy on training and fostering civil servants of Khmer ethnic minorities | PTFC   | 5            | .950             | .797 - .891                            |

### 2. Exploratory factor analysis for the scales (EFA)

The KMO and Bartlett's test results in the KMO and Bartlett's test tables show that the KMO value = 0.873, proving that this discovery factor is suitable for the scale. Bartlett's test, value Sig. = 0.000 ( $< 0.05$ ), proves that the variables are correlated with each other in factors. Parameter Eigenvalues  $\geq 1$  are kept in the analytical model. The analysis results showed that Eigenvalue = 1,389 ( $\geq 1$ ) and 7 factors were extracted with the best meaning of summarizing information. The sum of squares of the cumulative factor loading coefficient (Cumulative) is 74,136% ( $\geq 50\%$ ), showing that the EFA model is appropriate (Hair et al., 2010). Therefore, all 7 factors are kept in the research model, shown in Table 4. The results of the rotation matrix in Table 4 show that 36 observed variables are classified into 7 factors, all observed variables have factor loading coefficients greater than 0.5 and there are no bad variables (Doll et al., 1994). Therefore, all 7 factors are kept in the research model.

Table 2. Demographic Characteristics of the Survey Sample

| Characteristics and Survey Area | Number of visitors | Percentage |
|---------------------------------|--------------------|------------|
| 1. Survey area                  | 875                | 100%       |
| Hau Giang                       | 81                 | 9.3        |
| Soc Trang                       | 117                | 13.4       |
| Can Tho                         | 68                 | 7.8        |
| Bac Lieu                        | 148                | 16.9       |
| Tra Vinh                        | 115                | 13.1       |
| An Giang                        | 144                | 16.5       |
| Ca Mau                          | 89                 | 10.2       |
| Kien Giang                      | 113                | 12.9       |
| 2. The gender                   | 875                | 100%       |
| Male                            | 447                | 51.1       |
| Female                          | 428                | 48.9       |
| 3. Age (years)                  | 875                | 100%       |
| < 30                            | 232                | 26.5       |
| 30 - 40                         | 215                | 24.6       |
| 40 - 50                         | 217                | 24.8       |
| > 50                            | 211                | 24.1       |
| 4. Education                    | 875                | 100%       |
| Master or PhD                   | 102                | 11.7       |
| College or Bachelor             | 329                | 37.6       |
| Professional diploma holders    | 238                | 27.2       |
| Other                           | 206                | 23.5       |
| 5. Civil servant                | 875                | 100%       |
| Commune                         | 393                | 44.9       |
| District                        | 324                | 37.0       |
| Provincial                      | 158                | 18.1       |

**3. Confirmatory factor analysis in the model research (CFA)**

Confirmatory factor analysis (CFA) is a statistical technique of linear structural modeling (SEM). The method of confirmatory factor analysis was used to check the scales and the appropriateness of the research structure. The results of confirmatory factor analysis are evaluated through the following criteria including reliability; convergence; and distinction. We tested Composite Reliability; Convergence; Discrimination. It is shown in Table 5, and Table 6. Convergent validity tests include Composite Reliability, and Average Variance Extracted. The test results show that Composite Reliability (CR) > (0.7) means that the reliability of the scales is guaranteed; All Mean Variances are extracted Average Variance Extracted (AVE) ≥ (0.5), and both indicators show guaranteed Convergence. We then tested Discriminant Validity including Maximum Shared Variance (MSV); The square root of the mean-variance is extracted from the Square Root of AVE (SQRTAVE). The test results in Table 5 show that all Maximum Shared Variance (MSV) < Average Variance Extracted (AVE). In addition, we tested the Discriminant Validity shown in the Square Root of AVE (SQRTAVE) > Inter-Construct Correlations, which is shown in Table 6. Thus, Discriminant Validity is guaranteed (Baumgartner and Homburg, 1996). Thus, the test results of convergence validity and discriminant validity shown in Tables 5 and 6 have shown the combined reliability; discriminant validity is guaranteed at all scales.

**4. Structural model testing (SEM)**

To check the suitability of the research structure, the results of analysis of the linear structural model (SEM) in Figure 2 show that it has Chi-square = 3,247; CFI = .954; GFI = .899; RMSEA = .051; TLI = .947; PCLOSE = .326, the coefficients just shown are acceptable (Doll et al., 1994). The results of the linear structural model analysis (SEM) in Figure 3 show the appropriateness of the research structure.

The results of testing the linear structure of the model, and factors affecting the policy of training and fostering civil servants of ethnic Khmer people in the Mekong Delta, Vietnam are shown in Figures 3, and Table 7. The data show the Sig values of the scales OCP = 0.000 (<0.05), RPI = 0.000 (<0.05), CPI = 0.000 (< 0.05), CPEA = 0.000 (< 0.05), EPCS = 0.000 (< 0.05), ACPB = 0.000 (< 0.05) (Hu and Bentler, 1999). The Sig values, it has been shown that there is an impact relationship between the independent variable and the dependent variable.

Table 4. Rotated component matrix

|       | Component |      |      |      |      |      |      |
|-------|-----------|------|------|------|------|------|------|
|       | 1         | 2    | 3    | 4    | 5    | 6    | 7    |
| OCP5  | .873      |      |      |      |      |      |      |
| OCP6  | .835      |      |      |      |      |      |      |
| OCP3  | .799      |      |      |      |      |      |      |
| OCP4  | .786      |      |      |      |      |      |      |
| OCP1  | .748      |      |      |      |      |      |      |
| OCP2  | .727      |      |      |      |      |      |      |
| ACPB4 |           | .946 |      |      |      |      |      |
| ACPB5 |           | .923 |      |      |      |      |      |
| ACPB3 |           | .917 |      |      |      |      |      |
| ACPB2 |           | .846 |      |      |      |      |      |
| ACPB1 |           | .793 |      |      |      |      |      |
| RPI6  |           |      | .891 |      |      |      |      |
| RPI5  |           |      | .821 |      |      |      |      |
| RPI4  |           |      | .818 |      |      |      |      |
| RPI2  |           |      | .740 |      |      |      |      |
| RPI1  |           |      | .715 |      |      |      |      |
| RPI3  |           |      | .707 |      |      |      |      |
| EPCS5 |           |      |      | .883 |      |      |      |
| EPCS4 |           |      |      | .868 |      |      |      |
| EPCS1 |           |      |      | .822 |      |      |      |
| EPCS2 |           |      |      | .784 |      |      |      |
| EPCS3 |           |      |      | .771 |      |      |      |
| PTFC4 |           |      |      |      | .812 |      |      |
| PTFC2 |           |      |      |      | .809 |      |      |
| PTFC5 |           |      |      |      | .781 |      |      |
| PTFC1 |           |      |      |      | .778 |      |      |
| PTFC3 |           |      |      |      | .683 |      |      |
| CPEA3 |           |      |      |      |      | .907 |      |
| CPEA4 |           |      |      |      |      | .899 |      |
| CPEA2 |           |      |      |      |      | .868 |      |
| CPEA1 |           |      |      |      |      | .834 |      |
| CPI5  |           |      |      |      |      |      | .835 |
| CPI3  |           |      |      |      |      |      | .780 |
| CPI2  |           |      |      |      |      |      | .759 |
| CPI1  |           |      |      |      |      |      | .733 |
| CPI4  |           |      |      |      |      |      | .681 |

Table 5. Results test model validity

| Factors construct   | No. of items | CR    | AVE   | MSV   | MaxR(H) |
|---|--------------|-------|-------|-------|---------|
| Objectives and content of the policy (OCP)  | 6            | 0.914 | 0.641 | 0.276 | 0.932   |
| Awareness and capacity of policy beneficiaries (ACPB)                             | 5            | 0.937 | 0.752 | 0.094 | 0.973   |
| Resources for policy implementation (RPI)   | 6            | 0.888 | 0.574 | 0.137 | 0.920   |
| Economic, political, cultural, and social environment (EPCS)                      | 5            | 0.902 | 0.650 | 0.154 | 0.909   |
| Policy on training and fostering civil servants of Khmer ethnic minorities (PTFC) | 5            | 0.951 | 0.795 | 0.276 | 0.956   |
| The capacity of policy enforcement agencies (CPEA)                                | 4            | 0.933 | 0.778 | 0.169 | 0.939   |
| Coordinate policy implementation (CPI)  | 5            | 0.858 | 0.551 | 0.257 | 0.892   |

Table 6. The square root of AVE with inter-construct correlations

| Encoded factors | OCP          | ACPB         | RPI          | EPCS         | PTFC         | CPEA         | CPI          |
|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| OCP             | <b>0.801</b> |              |              |              |              |              |              |
| ACPB            | -0.011       | <b>0.867</b> |              |              |              |              |              |
| RPI             | 0.250***     | 0.004        | <b>0.758</b> |              |              |              |              |
| EPCS            | 0.253***     | 0.106**      | 0.177***     | <b>0.806</b> |              |              |              |
| PTFC            | 0.525***     | 0.306***     | 0.370***     | 0.392***     | <b>0.892</b> |              |              |
| CPEA            | 0.326***     | -0.017       | 0.138***     | 0.193***     | 0.411***     | <b>0.882</b> |              |
| CPI             | 0.399***     | 0.153***     | 0.258***     | 0.256***     | 0.507***     | 0.250***     | <b>0.743</b> |

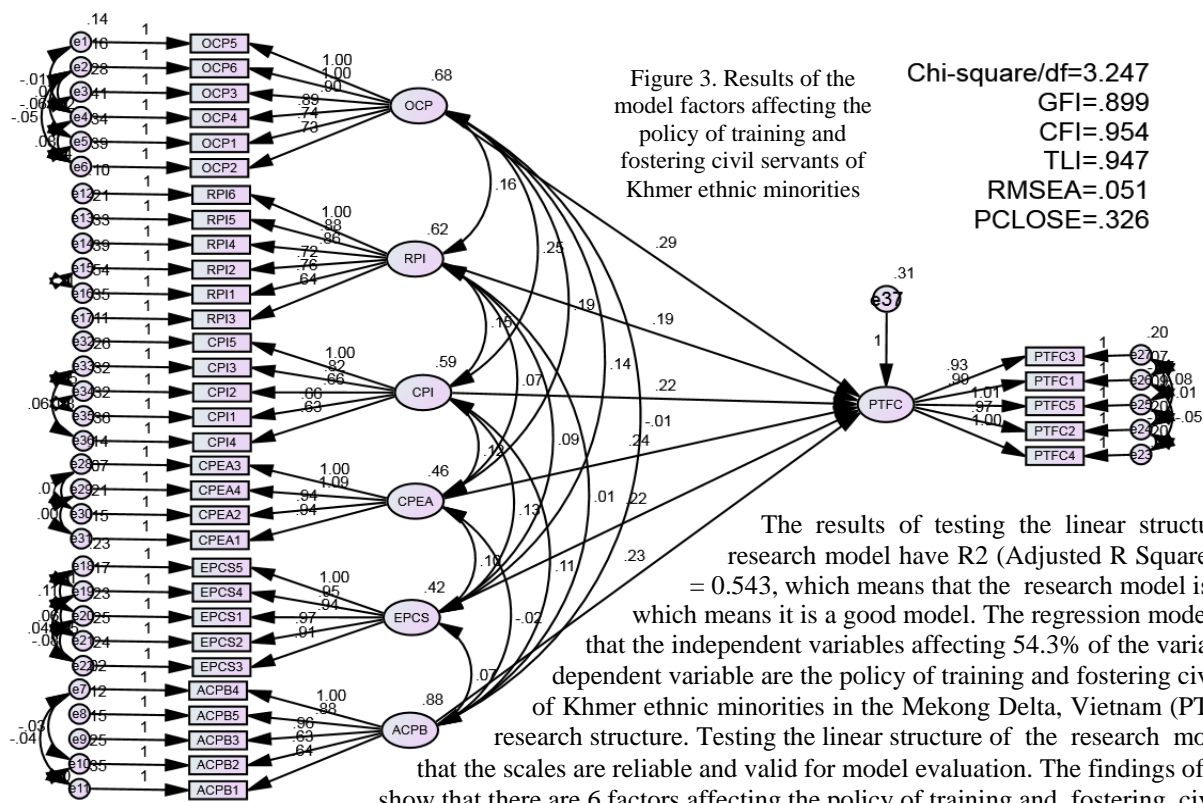
Significance of Correlations: † p < 0.100; \* p < 0.050; \*\* p < 0.010; \*\*\* p < 0.001

Table 7. The influence of factors on the policy of training and fostering civil servants of Khmer ethnic minorities

| The impact of independent variables on the dependent variable | Estimates | Sig  | Standardized estimates |
|---|-----------|------|------------------------|
| OCP -----> PTFC   | 0.290     | .000 | 0.288                  |
| RPI -----> PTFC   | 0.193     | .000 | 0.183                  |
| CPI -----> PTFC   | 0.218     | .000 | 0.201                  |
| CPEA ----> PTFC   | 0.244     | .000 | 0.201                  |
| EPCS ----> PTFC   | 0.221     | .000 | 0.173                  |
| ACPB ----> PTFC   | 0.227     | .000 | 0.257                  |

The results of testing the impact of factors in the research structure are shown in Table 6. It shows that the larger the normalized regression coefficient, the stronger the independent variable. It shows a stronger impact on the dependent variable, which is the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam (PTFC). Factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam include OCP = 0.288, RPI = 0.183, CPI = 0.201, CPEA = 0.201, EPCS = 0.173, ACPB = 0.257.





of Khmer ethnic minorities, including Objectives and content of the policy; Resources for policy implementation; Coordinate policy implementation; The capacity of policy enforcement agencies; Economic, political, cultural, and social environment; Awareness and capacity of policy beneficiaries. On the basis of data analysis of the research model, we would like to discuss some ideas to improve the effectiveness of policies on training and fostering civil servants of Khmer ethnic minorities.

Objectives and content of the policy factor affect 0.288 to the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam. We should improve the quality of the policy on training and fostering civil servants. The quality of the policy is shown as a practical implementation plan; specific and clear policy objectives; feasible policy. Therefore, in order to contribute to improving the effectiveness of policy implementation, we should pay attention to improving policy quality in the direction of studying the theoretical basis of the policy; strengthening the capacity of policy-making agencies, and democratizing the policy-making process. Resources for policy implementation factor 0.183 affects the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta. We should ensure sufficient resources for policy implementation because policies are directly related to the interests and lives of public servants (Tessema et al., 2009). To ensure resources for the implementation of policies on training and fostering civil servants, besides rational and economical use of resources invested by the state, it is necessary for socialization and the participation of civil servants people and society to have more resources for policy implementation (Shaun, 1990).

The factor Coordinate policy implementation affects 0.201 on the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta. We should strengthen interaction and coordination in the implementation of policy on training and fostering civil servants. The lack of coordination between superiors and subordinates, between agencies, and between policy enforcement agencies and policy beneficiaries is the cause of poor policy implementation efficiency (Thakur, 2015). In the relationship between policy enforcement agencies and policy beneficiaries, we should use many measures to enhance interaction and coordination between superiors and subordinates, between agencies at the same level, and between agencies' policy implementation and policy beneficiaries (Wenene et al., 2016).

The capacity of policy enforcement agencies factor 0.201 affects the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta. In order to contribute to improving the efficiency of the implementation of the policy on training and fostering Khmer civil servants, we should improve the quality and capacity of the contingent of cadres and civil servants implementing the policy on training and fostering civil servants. The fact that public policy implementation in Vietnam is not effective is because the capacity and quality of the contingent of civil servants to implement it are not high requirements (Hai and Ngan, 2022). A part of cadres and civil servants has weak policy management capacity and skills, they are not ready to perform their duties, which is a negative factor that greatly affects the effectiveness of policy implementation in training and retraining civil servant care (Witesman and Wise, 2009). Therefore, in order to improve the efficiency of the current implementation of public policies, we should strongly and synchronously renew all stages of cadre and civil servant work in order to build a contingent of cadres and civil servants to ensure in terms of quality and capacity (Hyeon-Suk et al., 2022). Economic, political, cultural, and social environmental factors affect 0.173 the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta. A fundamental factor affecting the effectiveness of policy implementation in training and fostering civil servants is the policy environment, including the economic, political, cultural, and social environment (Nguyen, 2022). The implementation of the policy on training and fostering civil servants is under the influence and contract of many environments. The right environment is conducive to policy implementation (Yuguo and

Hindy, 2018). An inappropriate environment will impede policy implementation (Carrel, 2000). Thus, if the economy, politics, culture, and society are stable and developed, the policy-implementing agency has conditions to implement the policy well; people's cultural level and understanding will facilitate policy implementation; Public opinion and the development of social organizations affect the implementation of policies on training and fostering civil servants (Awang et al., 2020).

The awareness and capacity of policy beneficiaries factor affect 0.257 on the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta. In order to contribute to improving the effectiveness of policy implementation in training and fostering civil servants, we should attach importance to the receptivity of policy beneficiaries (Nguyen, 2022). Respecting and ensuring the legitimate rights and interests of policy beneficiaries will help them participate in the policy; we should innovate the policy propaganda to help them raise awareness and participate in the policy of training and fostering civil servants (Acar and Özgür, 2004). In order to improve the effectiveness of the implementation of the policy on training and fostering Khmer civil servants, we should use many measures to increase the reception and support of the civil servants who receive the policy (Hai, 2022). Practice shows that when there is consensus and support from civil servants, the policy is deployed smoothly, and the implementation of the policy is highly effective.

## CONCLUSION

The hypothetical research structure is tested on the scales showing the appropriateness of the factors. The research results have verified the model of factors affecting the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam. Which, there are six factors showing the degree of influence on the policy of training and fostering civil servants of Khmer ethnic minorities, including Objectives and content of the policy; Resources for policy implementation; Coordinate policy implementation; The capacity of policy enforcement agencies; Economic, political, cultural, and social environment; Awareness and capacity of policy beneficiaries. Thus, the results obtained in the study satisfied the set objectives. Some of the discussed contents have been proposed to help policymakers understand the relationship between independent factors and the policy of training and fostering civil servants of Khmer ethnic minorities in the Mekong Delta, Vietnam. In order to improve the quality of training and retraining of civil servants to meet the requirements of tasks, the Government should accelerate the process of building, consolidating, and restructuring the contingent of civil servants reasonably and suitable for the job position. In addition, inspection should be stepped up to detect limitations in the structure of civil servants. Completing policy regimes and systems institutional system and professional training and retraining institutions from central to local levels. In addition, the findings in the study may help researchers to conduct further studies, they should collect more samples over a larger area for a comprehensive assessment.

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## MORPHOLOGICAL CHARACTERISTICS OF EAST KAZAKHSTAN AS A FACTOR OF GEOTOURISM DEVELOPMENT

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**Abstract:** Due to its innovativeness, geotourism is actively developing all over the world. The article discusses the scientific and educational aspects of the development of geotourism in East Kazakhstan thanks to the geomorphological attractiveness of the region. The formation of a national geotourism market based on unique geological and geomorphological objects is relevant because of its innovativeness and possible profit both as a tourist activity and through the creation of a network of global geoparks in Kazakhstan. The article is devoted to the analysis of the recreational-geomorphological attractiveness of the territory and methodological approaches to awareness in domestic and foreign recreational-geomorphological literature. The development of ideas about the importance of the geomorphological structure and dynamics of the relief for recreational activities has been widely developed. It started in Western European tourism practice first and foremost and since the late 1990s of the last century began to develop in the post-Soviet space (in the CIS countries). The paper describes the unique geological and geomorphological natural monuments of the East Kazakhstan region, and the typology of geomorphological features of the region. The author substantiates the possibility of creating a geopark as a backbone tourist territory, contributing to the development of domestic and inbound tourism in the region. The article describes goals and tasks of creating a geopark in the transboundary region of Altai region.

**Key words:** recreational geomorphology, natural monuments, recreational-geomorphological potential, relief, tourism.

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### INTRODUCTION

The expansion of the range of recreational activities, the increase in its scale, the involvement of new territories in the recreational complex requires a scientifically based assessment of the natural recreational potential of the territory. This has become especially important in recent years, when the processes in the worldwide tourism industry have become global (Erdavletov, 2010; Dunets et al., 2020; Dmitriyev et al., 2021). These trends in the development of modern recreational activities meet the diversification of tourist demand. Recreational activity has recently become one of the most important social and economic factors of territorial development. It has emerged as a new branch of economic activity that relies on a certain combination of resources. It also has its own personnel, connections with other industries and gives a tangible social and economic effect. Recreational activity has a systemic, complex character. There are various

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relationships between tourists, or vacationers, acting as individuals or in the form of groups, and natural complexes with their own recreational set of natural components. During the deployment of scientific research in this direction, the problems of "geographical" recreation were clearly identified, since recreational activities are territorially differentiated and organically linked with the properties of the environment (Berdenov et al., 2021; OZGELDINOVA et al., 2017).

The current state of tourism forces the organizers of recreational activities to attract all new natural components as natural resources, including the relief of the earth's surface. To solve scientific and applied problems of recreation development, it became necessary to study and assess the relief as a condition and factor in the functioning of various types of tourism (Gray, 2004; Coratza and Giusti, 2005; Faccini et al., 2018). After all, the relief underlies the spatial diversity of the territory, and the existing geomorphological processes create conditions that affect the efficiency and safety of tourism. The need for this type of research arises at the initial stages of designing or creating recreational geomorphological systems of various ranks. From single geomorphological monuments of nature to complex spatial systems, based on which large national parks function (Reynard et al., 2011; Reynard et al., 2016). Only after geomorphological analysis and modern relief-forming processes as a condition for the functioning of tourism infrastructure facilities, it is possible to determine the suitability of the territory for tourism purposes and zone it for recreational development (Doran and Hanss, 2016; Dunets et al., 2019; Dmitriyev et al., 2022; Asmelash and Kumar, 2019).

The existing natural differentiation of the recreational space, on the one hand, creates special conditions for the implementation of various recreational goals of vacationers. On the other hand, it forces recreation organizers to take into account information about the various qualities of natural components for the effective and safe organization of recreational activities and sustainable development of the recreational area. The natural properties of the landscape serve as an integral part of the recreational system and one of the foundations of its functioning. Therefore, it has always been the objects of recreational research. The development of recreational geographical research in this direction will require a detailed consideration of the relief as a separate natural component, since each of the elements of the landscape has its own essential properties (Avila-Robinson and Wakabayashi, 2018; Reynard and Coratza, 2013; Berdenov et al., 2015).

The main goal of the study is to show the organizational role of geomorphological features in recreation in order to optimize recreational activities and develop the territory through the effective use of the relief

## MATERIALS AND METHODS

The paper uses the experience of domestic and foreign researchers, which differ in the system of values, views on the problem of formation, and presentation of recreational geomorphological information. The proposed theoretical provisions are based on the results of the authors' own research. Foreign experience. In foreign studies, interest in the recreational properties of the relief manifested itself in connection with the need to create recreational and geomorphological information for the functioning of national parks. Initially, the International Association of Geomorphologists (IAG/AIG)\*\* began to create such information starting in the 1990s. (Reynard and Coratza, 2013). A department for research on geodiversity and geoheritage was created within the organization in 2001. Geoheritage considers natural monuments of various ranks as key recreational objects for their involvement in tourism activities and subsequent protection. Such an experimental group firstly arose in 1999 in Switzerland, a country with the highest density of places of geomorphological interest from tourists, and then spread to other European countries, such as Poland, Portugal, Spain, Great Britain. Subsequently, the work of the group led to the creation of a single network of geoparks in Europe, i.e. parks based on the demonstration of geological and geomorphological heritage (Doran and Hanss, 2019; Rozman et al., 2009). For such areas, research continues on the formation of a perfect set of recreational and geomorphological information materials that meet the needs of various consumers (Cutler et al., 2018; Canteiro et al., 2018).

Almost all research in this direction is carried out according to three main criteria:

- 1) the development of criteria for the assessment of natural monuments, which will subsequently form the basis for the functioning of parks;
- 2) the assessment of specific morphological landscapes as the basis for the functional zoning of the territory and the provision of information on the opportunities implemented on them;
- 3) conservation of natural geomorphological diversity and creation of informational databases about natural monuments and protected objects.

Recreational practice urgently requires the development of a system for assessing the recreational and geomorphological attractiveness of the territory. This is needed for making a decision when choosing a tourist product with given recreational properties by the organizers of tourism activities and potential visitors. On the other hand, the use of the patterns of the structure and development of the relief to identify systemic relationships between the relief and recreation, the identification of new properties, and applied functions of the relief gives an additional impetus to the development of geomorphology. A new direction of applied geomorphological research, aimed at studying the relationship between relief and recreation, arose at the intersection of applied geomorphology and recreational geography. The first one has always been concerned with the application of fundamental geomorphological knowledge to practical life (engineering geomorphology, prospecting geomorphology etc.). Starting with the fundamental work of the team of scientists from the Institute of Geography of the Russian Academy of Sciences, headed by V. S. Preobrazhensky, the relief was one of the natural components included in the natural block of the recreational system. The studies were mainly devoted to issues related to the social and economic aspects of the recreation phenomenon. At the same time, an independent direction of recreational science was developing, affecting largely the natural basis of recreational activities. Eringis and Budryunas (1975) in their works on the recreational assessment of the natural potential of the territory from the position of the landscape as a

whole, proposed an aesthetic assessment of the landscape, in which the relief occupied one of the positions in the landscape with a limited set of properties. Subsequently, V.A. Nikolayev developed this topic in his works (Nikolaev, 1978).

In recent years, scientists started to form ideas about recreational geomorphology as an independent applied area of science (Kuskov, 2008; Evstropieva, 2009), which considers relief as its object as a basic natural component included in the recreational system. The subject of recreational geomorphology is recreational-geomorphological systems and relief functions in them that are manifested in the course of recreational activities and relationships between the relief, TOURISTS and recreation organizers. General geomorphology traditionally considers the main and fundamental properties of the relief, which allow analyzing the relief and describing it. It includes morphology (morphometry and morphography), dynamics, genesis and age. These general basic properties are divided into more particular properties (absolute and relative height, steepness of slopes, dissection, diversity, morphographic severity, type of morpholithogenesis etc.). Some properties have a system of quantitative indicators (morphometric, dynamic, age); others are presented in the form of qualitative characteristics (morphography, origin).

The paper formulated the principles for studying the aesthetic properties of the relief based on the concepts of "morphological landscape" and "morphological scenery". The classification of morphological sceneries was used as a methodological procedure to analyze the territory during recreational geomorphological studies. As the main classification features, we relied on the essential and basic properties of morphological landscapes that determine the diversity of the relief: 1) territorial position, 2) morphology, 3) genesis. As additional features of the classification of morphological sceneries, the features of the visual perception of the territory were: 4) the geomorphological position of the observation deck, 5) the angle and direction of the gaze, which determine the volume and detail of the object (Figure1).

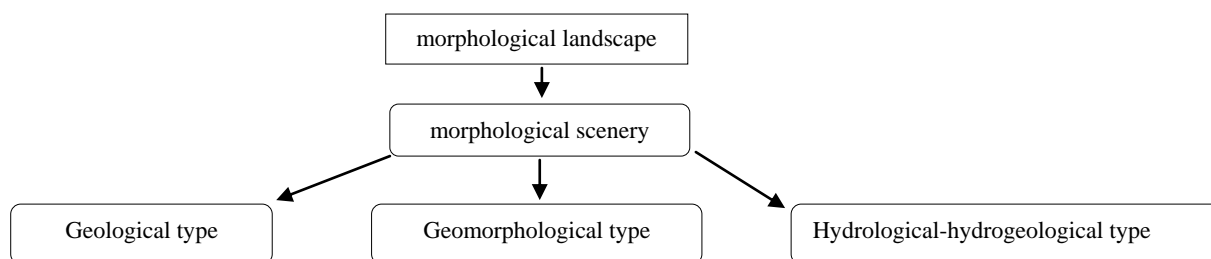


Figure 1. Block diagram of the territory survey method

The study area is located in East Kazakhstan. The territory is part of the Altai Mountain system. The mountainous country called Altai is located between 48° and 53° N, its southwestern part is within our republic and is called the Kazakhstan Altai. Altai is part of the largest mountain system called the Altai-Sayan Mountains, the boundaries of which stretch from Lake Zaisan to Lake Baikal. Kazakhstan includes only its southwestern outskirts. The southern border is the basin of the Black Irtysh River and Lake Zaisan, and the western border is the Kalbinsky Range (Gusev, 2012).

The Kazakh part of Altai occupies almost a tenth of the territory of the entire republic (Figure 2). This is a beautiful region, endowed with amazing natural contrasts. It includes almost all landscape and zonal conditions: from deserted stony peripheral mountains overlooking the Zaysan depression to rocky ridges covered with eternal snows and snowfields, usually hidden under the canopy of clouds circling around them. According to the features of the relief, the Kazakhstan Altai is divided into three parts: the Southern Altai, the Rudny Altai and the Kalbinsky Range.

Southern Altai is located between the Bukhtarma River in the north, Zaisan Lake and the Black Irtysh River in the south. In the west, the Irtysh valley separates it from the Kalbinsky ridge. In the east, the Southern Altai merges with the Ukok plateau. From here, two chains of mountain ranges branch off to the west and southwest. They are separated by the Kurchum and Kargoba rivers. In the south there is a system of ridges Tarbagatai (2739 m), Sarymsakty (3373 m) and Narym (2400 m), which belong to the northern part of the Southern Altai, and its southern part includes the South Altai (3483 m), Kurchum (2644 m), Sarytau (3300 m), and Azutau ridges.

The Markakol depression is located between the Azutau and Sarytau ridges at an altitude of 1449 m. The elevated part of this territory in the east, gradually decreasing to the west, turns into foothills. Between the peaks of the mountains, there are small and shallow depressions - lakes. They lie at an altitude of 2300-2500 m above sea level. The western border of the Southern Altai runs along the Kholzun mountain range. The southern slopes of the mountains are large, strongly dissected. The foothills are relatively flat. Rudny Altai enters the borders of Kazakhstan with western spurs. The main ones are Listvyaga and Kholzun. Rudny Altai also consists of the Ulba (2300 m), Ivanovsky (2775 m) and Ubinsky (2100 m) mountain ranges, which are located in the northeast of the Southern Altai. They extend from the Katun mountain range and the Ukok plateau. The maximum heights are concentrated in the extreme east of the Kazakhstan Altai.

The relief of Rudny Altai is very diverse. The eastern parts of the ranges are strongly dissected and have an alpine character. The mountain slopes are mostly covered with coniferous forests. To the west, the mountains go down, their forms become rounded, and the slopes become gentle. In some places, there are plateaus with leveled surfaces.

The Kalbinsky Range is located on the left side of the Irtysh River. Its highest point is Saryshoky (1558 m). To the west, the ridge goes down and merges with Saryarka. The tops of the mountains are oval, the slopes are strongly dissected, and some areas are flat. The Kazakhstan Altai was formed as a result of the Hercynian orogeny. Repeated uplifts alternated with destruction. The region, which turned into a plain at the end of the Mesozoic era, was subjected to new tectonic uplifts in the Neocene and Anthropocene. As a result, the modern mountain relief of Altai was formed.

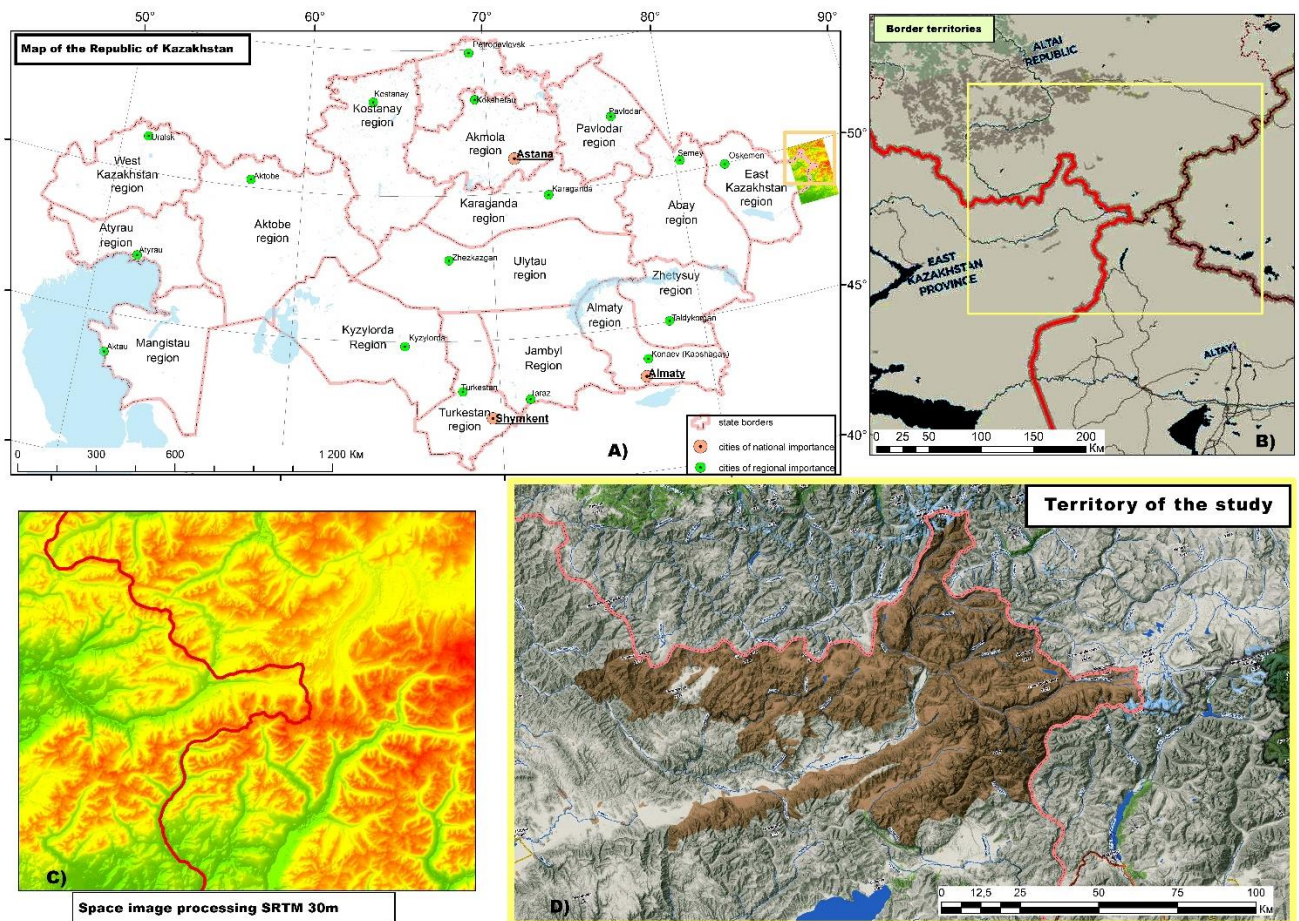


Figure 2. Map of the study area (Source: Author, created in the program ArcGIS.10);  
 A) map of the Republic of Kazakhstan; B) map of transboundary territories; C) relief wash using SRTM satellite image with a resolution of 30m; D) map of the Altai Mountain range on the territory of the Republic of Kazakhstan

## RESULT AND DISCUSSION

The existing natural differentiation of the recreational area creates special conditions for the implementation of various recreational goals of vacationers. Therefore, the natural regional properties of the landscape of the region have always been the objects of recreational research as an integral part of the recreational system and one of the foundations of its functioning. Currently, in the science of recreation, there is a group of questions devoted to the relationship between relief and recreation. A wide range of recreational problems is reflected in the research of various branches of geographical science, including geomorphology, as a scientific direction about the patterns of structure, dynamics, evolution of the relief, and its functions in various types of economic activity. This largely corresponds to modern trends in the development of geomorphology, which consists in considering the relief from the standpoint of the environmental, social and economic life (Pralong and Reynard, 2005). However, the relationship between the relief and recreational activities is currently not fully analyzed and evaluated; the patterns of their mutual influence and development have not been identified. Despite the fact that these relationships are one of the essential foundations for safe, efficient, and sustainable functioning of recreation (Reynard and Panizza, 2005). Occupying a basic position in the landscape, the relief acts as a natural condition that largely determines the structure, condition and evolution of the recreational space.

Another important aspect of considering the correlation between relief and recreation is the resource aspect, which determines the functional typology of the recreational system. It is observed in many recreational areas of the world, where relief is used as one of the main recreational resources that satisfies the diverse recreational needs of vacationers (Zhensikbayeva and Saparov, 2017). At the same time, the attractive properties of the relief are still poorly used in recreational activities due to the lack of scientifically based and adapted for consumers recreational and geomorphological information that reveals the aesthetic, cognitive and cultural significance of the geomorphological structure of the recreational space. The systemic position of the relief lies in the dual role of it in relation to the recreational system. First, it is included as a basic element in its natural components, acting as a natural and information resource aimed at meeting recreational needs. Secondly, the relief acts as an external element in relation to the recreational system, which determines its functioning and often determines the functional type of the system.

The relief as a basic element of the natural complex largely affects the nature of recreational activities. At the same time, the relief determines the recreational specialization of the territory. In some cases, it is the main natural object on the use of which the recreational system is based. The relief in relation to the recreational system acts in various qualities: 1) a natural condition, 2) a natural resource, 3) an information resource. At the same time, the role of relief in the system of



relations "relief-recreation" changes over time and is determined by the relations "object-subject" and the boundary position of the problem "environment-man-society". The resource value of the relief for recreation is currently underestimated. First, the relief should be considered from traditional resource positions. Mountain slopes with their morphological and morphometric indicators, such as absolute height, shape of the longitudinal profile, slope, length, planned outlines, etc., fully appear to be a recreational resource for ski tourism. These indicators largely determine the specialization of ski slopes and the entire ski resort for various groups of vacationers. The relief properties are important for meeting recreational needs. They represent a set consisting of traditional properties: morphometry, morphology, modern dynamics, diversity, origin, age, and additional ones such as the degree of anthropogenic weariness, aesthetic appeal (scenery), historical and cultural significance, uniqueness. It is more expedient to consider recreational-geomorphological functions of the relief within the framework of recreational systems of a certain type. Two groups of relief functions in recreational systems are distinguished: attractive functions and relief functions in the safety and technological efficiency of recreational activities.

Vast differences in the development of tourism rely on the dependence of geographical location of the mountainous regions. The problems of tourism are especially aggravated in mountainous continental transboundary regions, where there is an increase in risks associated with natural, social, economic, and political factors. Since significant mountainous areas belong precisely to such territories, Altai is one of such transboundary regions. Altai is a mountainous country located at the junction of the borders of Russia, Kazakhstan, China and Mongolia. Due to the high level of biodiversity, this territory is part of one of the 200 global ecoregions of the planet. Five natural areas of the Russian part of Altai have the status of the UNESCO World Natural Heritage Site "Golden Mountains of Altai" as an important and unique center of biodiversity of mountain species of plants and animals in northern Asia, a significant part of which are rare and endemic (Figure 3).

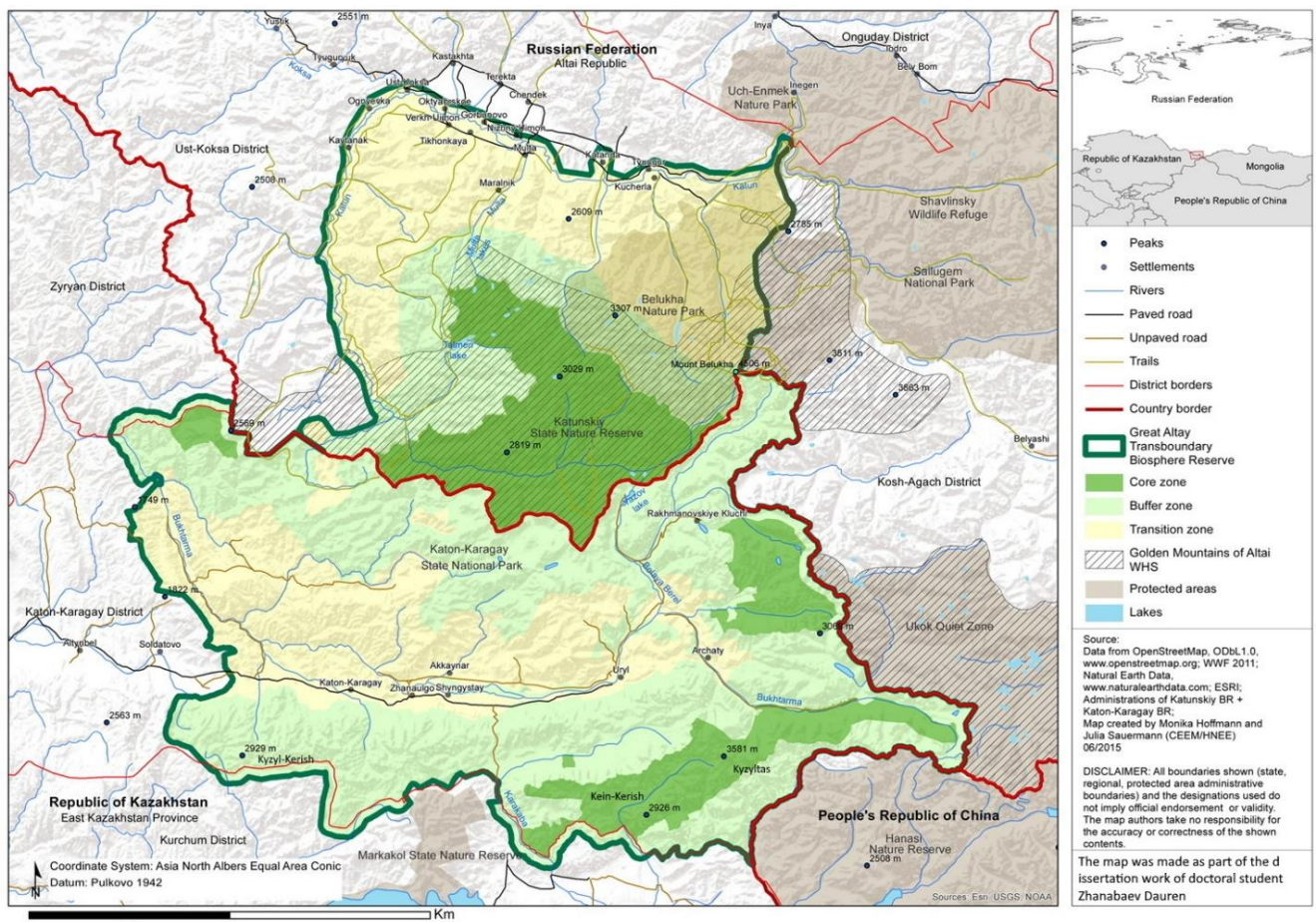


Figure 3. Map of the natural diversity of the Altai Mountains (Source: Author, created in the program ArcGIS.10)

Altai is also a powerful knot of various borders: natural, political, ethno-cultural, and religious.

The cognitive functions of the relief are implemented through geomorphological objects of two types. The first is a geomorphological monument of nature – a geomorphological phenomenon (landform or process). It is unique in its structure or manifestation, origin, location, often associated with cultural and scientific history, has an important cognitive, aesthetic value, and has a compact spatial position. Tourists can perceive a geomorphological monument simultaneously from different distances. Such objects are achievable during one more or less long trip (excursion, trip, etc.). As examples of geomorphological monuments of great cultural significance, one can cite "Kein-Kerish", "Kyzyl-Kerish", "Kyzyltas" located in the Kurchum region of the East Kazakhstan region (Figure 3).

The second is a geomorphological natural monument – a natural or anciently changed type of relief (morphological landscape), which has a special scientific or cultural interest, as well as social (often global) significance, allocated (or



conscious, traditional) as a protected area. Usually this is a vast territory with a unique structure, origin, location, often associated with cultural and scientific history, which has an important cognitive, aesthetic value. As a rule, such a territory cannot be observed simultaneously. In order to be acquainted with such monuments, tourists need a lot of time (specialized tours, multi-day routes). To present recreational-geomorphological information about geomorphological natural monuments, it is necessary to identify them, study their recreational properties, and map based on a classification that takes into account spatial position, genesis, and special attractive properties (uniqueness, cultural significance, etc.). An example of complex objects - recreational and geomorphological natural monuments is the Katon-Karagai natural and recreational area (Figure 2).

No less significant for recreational activities, along with the cognitive function, is the aesthetic function of the relief. The aesthetic properties of natural objects have always attracted people. They become especially important when considering the issue of the aesthetics of the place in recreational research. The beauty and virginity of nature in the conditions of today's strongest anthropogenic pressure on the territory become a scarce aesthetic resource. When assessing the recreational potential of the territory, recreational zoning and zoning of the territory, creating information recreational databases, including recreational GIS of the territory, one of the necessary procedures is the formalization of the aesthetic qualities of the place. The concept of "aesthetics of a place", used in this kind of research, reflects the ability of the territory to influence the psycho-emotional sphere of a person with some of its qualities and is a factor that determines the emergence of positive emotions in a tourist. Tourism is also one of the main links of cooperation in cross-border areas. Regardless of the political system of the country, these territories face specific environmental, social and economic, cultural and political problems. The Russian-Kazakh transboundary biosphere reserve "Bolshoi Altai" was established in 2017, after 19 years of discussions and design of various transboundary initiatives in the Altai region. It includes biosphere reserves "Katunsky" (Russia) and "Katon-Karagai" (Kazakhstan), on a total area of over 1.5 million hectares. In accordance with the principles of the Man and the Biosphere Program, two countries proposed functional zoning of the territory, created a mechanism for managing and coordinating activities, and developed a cooperation strategy for the period up to 2025. Both sides take part in joint activities; however, work aimed at the sustainable development of local communities is not carried out systematically due to gaps in national legislation (Figure 3).

Despite this, cooperation is expanding. The Directorate of Protected Areas of the Mongolian Altai and the Karatal-Zhapyryk State Reserve (Kyrgyz Republic) have joined it. Thus, a model for the development of transboundary cooperation in the field of conservation of natural and cultural values based on specially protected natural areas has been proposed and tested. In addition, the UNESCO biosphere reserves serve as both initiators and "platforms" for the practical implementation of programs and projects of environmental and humanitarian cooperation (Tseng et al., 2018).

In 2017, UNESCO officially approved the creation of Asia's first transboundary biosphere reserve "Great Altai" based on the Katunsky Reserve and the Katon-Karagai National Park (Fig.3). The following types of ecosystems have been identified on the Great Altai territory: mountain-taiga (26% of the area), alpine-type and subalpine meadows (24%), mountain-tundra (17%), nival- glacial (10%), forest-steppe and steppe slopes of mountain ranges (8%) and in intermontane basins (9%) (Mukayev et al., 2020; Tokpanov et al., 2021). Today, new points of attraction appear on the tourist map of the world, which form the tourist interest of society for many years and, as a result, tourist flows. At the end of the XX – beginning of the XXI century, geoparks became such points. Tourist areas that are currently actively developing within the framework of the UNESCO Worldwide Project Global Geoparks Network (GGN). The first geoparks in the world were created in the 90s of the XX century in Germany, later they began to appear in other countries of Europe. By the year of 2002, UNESCO developed a program to create a worldwide network of geoparks.

Each geopark is a public-private project aimed at preserving and improving the value of the Earth's heritage, its landscapes and geological formations, which are the main witnesses of the history of our planet. A geopark should include an area that reflects the entire geographic setting of the region, and should not exclusively include places of geological significance (Feuillet and Sourp, 2010). The geological formations of the Altai territory represent a spectrum of geological phenomena and processes that took place in a wide time interval from the Riphean to the Holocene. They were expressed in oceanic, island-arc, riftogenic, intraplate sedimentation, magmatism, mineralization, karst, etc. A long and complex history of the development of the earth's crust determined the heterogeneity and great complexity of its geological structure, and led to the formation of various minerals. Therefore, minerals of igneous and metamorphic origin (ore metals, ornamental stones) characterize the area of the proposed geopark. Large and medium-sized deposits of iron, copper, lead, and zinc are concentrated here. In the bowels, there are reserves of ores of nickel, cobalt, mercury, molybdenum, tungsten, beryllium, gold.

Based on the existing classifications (Dunets, 2009; Gusev, 2012), compiled taking into account genetic features, their characteristic geological processes and scientific and cognitive significance, natural objects in the region under study can be divided into the following types and subtypes.

**Geological type.** It includes objects that reflect the geological structure of the territory, its tectonic, stratigraphic, petrographic, mineralogical features, manifestations of finds of paleontological remains, etc. (Figure 4).

**Mineralogical subtype.** Separate outcrops, old quarries, mine working dumps, where you can collect a good collection of minerals (Figure 4a) represent it. Gold and rare metals are mined in the Naryn and Kurchum ridges, tin and tungsten are mined in the Kalbi. For the processing of minerals, metallurgical plants were built in Ust-Kamenogorsk, Ridder, Zyryanovsk. In quarries and dumps of gold-sulfide barite-polymetallic deposits, one can find predominant pyrite ores, pyrrhotite with galena, sphalerite, chalcopyrite, bornite, chalcocite, malachite, azurite, chrysocolla. Sometimes such crystals give bizarre intergrowths. Several generations give pyrites, galena, chalcopyrites. There are also iron hydroxides – hematite, goethite in the form of regular concentric zonal banded Liesegang rings in

tuff sandstones and tuffs. It creates iridescent transitions of multi-colored bands from ultraviolet through blue and green to red and yellow (Figure 4B). The sizes of such objects range from five to fifty cm in diameter.



Figure 4. Geological features and finds in the study area (Author's photo) A) gold mining quarries; B) iron hydroxide deposit - hematite, goethite; C) gold-quartz-sulfide deposits; D) ones and fault areas in natural outcrops

**Petrographic subtype.** Represented by outcrops and massifs of distinctive, rare or unique rocks and their associations with a visible manifestation of composition, structure and texture; reference deposits of minerals; specific forms of emplacement, occurrence and relationships between products of intrusive and effusive magmatism; places with rare mineral complexes, individual minerals, their associations and aggregates.

More than 900 endogenous manifestations (large, medium, small deposits and ore occurrences, non-ferrous metals) are known in the Rudno-Altai polymetallic belt, stretching in the northeast. Gold was mined in East Kazakhstan even before the revolution from the richest areas of primary and alluvial deposits. Currently, quartz-vein, stockwork, gold-quartz, metasomatized gold-quartz-sulfide deposits are concentrated in Kalba (Figure 4C).

**Gemological subtype.** Gemology (from Latin Gemma - gemstone) is a collection of information about precious and semi-precious stones, mainly physical properties, chemical composition, decorative and artistic qualities of minerals and mineral aggregates used in jewelry and stone-cutting production.

On the Altai Territory there are deposits and manifestations of colored stones, which can be attributed to:

a) jewelry stones of the I order – emerald; II order – noble green beryl; III order – demantoid, cordierite, polychrome tourmaline, aquamarine, topaz; IV order – chrysoprase, zircon, kunzite, almandine, cacholong;

b) jewelry and ornamental stones of the I order – amethyst-like quartz, carnelian, jade, jadeite, malachite; II order – rhodonite, amazonite, hematite-bloodstone, sapphirine, ordinary opal;

c) ornamental stones – jasper, chalcedony, marble onyx, stichtite, cacholong, serpentine, decorative, colored marble, fluorite.

**Tectonic subtype.** Includes fault zones and areas in natural and artificial outcrops, as well as folded dislocations (Figure 4 D).

**Stratigraphic subtype.** In this subtype, one should consider the detailed studied stratotypes of individual stratigraphic units, which are important for understanding the general issues of stratigraphy and the nature of the development of the Altai region.

**Paleontological subtype.** Various locations of paleontological remains of animal and plant origin represent this subtype.

**Geomorphological type.** Individual landforms or complexes of landforms that most clearly reflect the interaction of endogenous and exogenous processes, as well as landforms that have a special aesthetic, educational, and attractive recreational value (Figure 5) represent it.



Karst subtype. It includes objects with a characteristic manifestation of karst formation processes: surface and underground karst in the form of funnels, wells, caves, grottoes, passages, etc. The study of the area is filled with a wide variety of caves. The outlines of the caves are directly dependent on the tectonic jointing of karst-forming carbonate rocks (limestones, marbles, and dolomites) (Figure 5A). The Konyr-Auliye cave is located at an altitude of 738 meters above sea level in the western part of the Kanchingiz ridge on its western slope in the Abay district of the East Kazakhstan. The cave has a lake 18 meters wide and 25 meters long, the depth is 1.8-2.5 meters, the water is clear (Fig.5B). The lake is deep and the water is amazingly clear. There is a legend that in the 18th century, Kabanbay Batyr took refuge in a cave with a detachment of several thousand people, and after some time suddenly hit the rear of the Dzungar troops. One of the legends says that there is a secret door under the fifteen-meter water column at the bottom of the cave. Therefore, the main cave hides behind this door. That cave became a crypt - the last resting place of the mysterious khan.

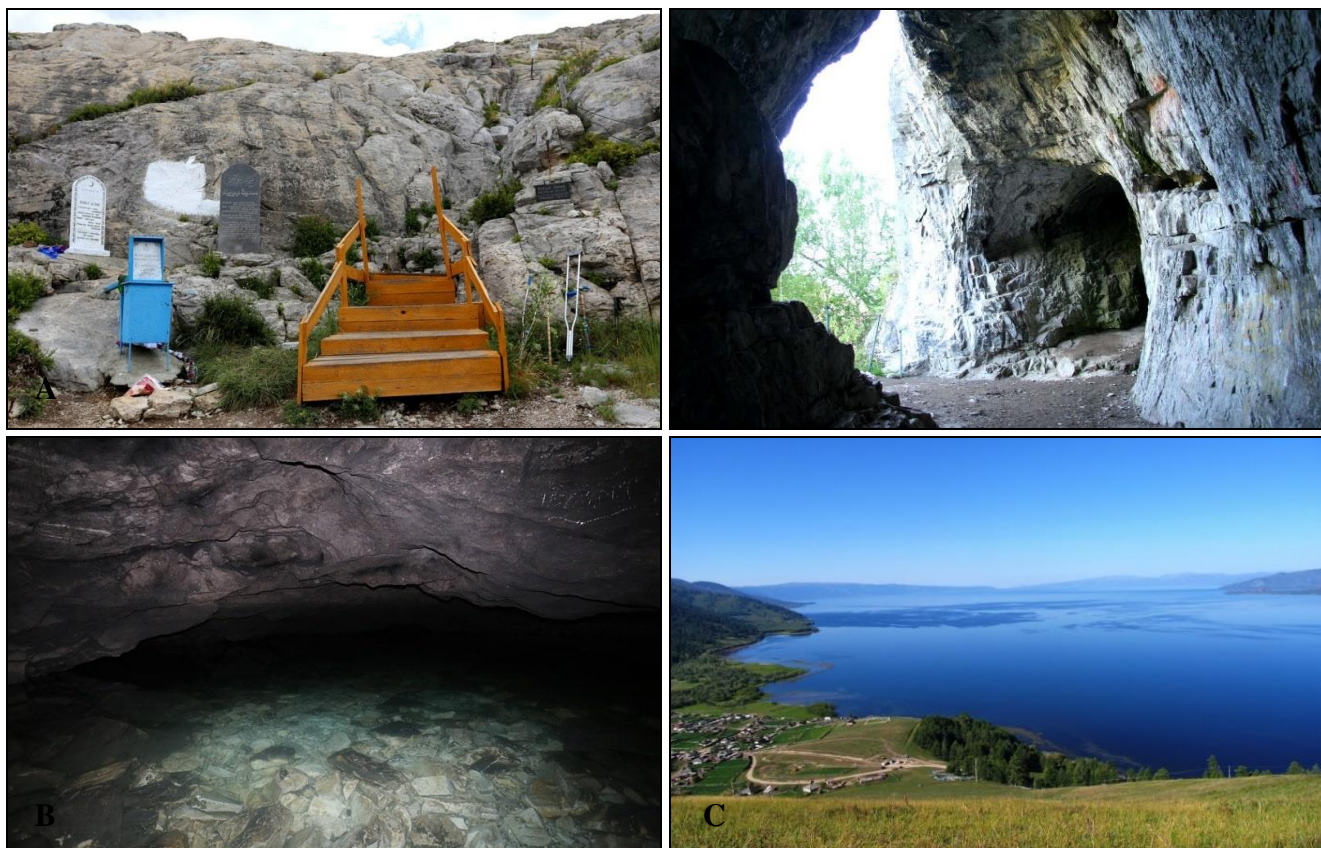


Figure 5. Geomorphological recreational zones (Author's photo)  
A) Konyr-Auliye cave; B) lake in the cave Konyr-Auliye; C) Markakol lake

Deluvial catastrophic subtype. Includes types of landforms of the deluvial morpholithic complex. The most interesting example of the subtype on the Altai Territory is the geological and geomorphological evidence of catastrophic outbursts of giant ice-dammed lakes of the last ice age. Lake Markakol is one of such places (Figure 5C). This is the largest alpine lake in Kazakhstan. To the north of the lake, there is the high-mountain Sarym-Sakty ridge, the maximum height of which is 3373 m. Along the northern coast of the lake there is a medium-altitude Kurchum ridge, in its middle part a massif with a height of 2645 m rises. Along the southern shore of the lake, there is the Azutau ridge with an absolute height of 1800-2300 m.

In the Markakol depression with a lake in the center, surrounded by the mountains of the Kurchum ridge and the Azutau ridge, there is a reserved land. Alpine lake Markakol (1449 m.) is one of the most beautiful in Altai. 2-3 thousand TOURISTS visit every year the Markakol lake area and the Kaldzhir River (during the summer-autumn season). The origin of the lake is tectonic. The southern shore is steep, formed by the edges of the ridge falling directly into the lake. The northern coast is low, formed by the newest deposits. The length of the lake is 38 km, the width is 18 km, and the maximum depth is 27 m. The catchment area is 180 km<sup>2</sup>. The mirror of the lake is located at an altitude of 1485 m. The landscapes of the area are picturesque. Larch forests are predominated, on the northern slopes there is cedar, fir and aspen taiga, and on the southern slopes there are many rocks, between which there are steppe lawns. The Markakol State Nature Reserve was formed on August 4, 1976 on the territory of the Markakol natural and recreational region of the East Kazakhstan region in order to preserve the unique Markakol Lake and its surrounding landscapes.

*Hydrological-hydrogeological type.* It includes unique and rare natural groundwater outlets (sources) of various chemical composition and natural surface water reservoirs. The Rakhmanovskie mineral springs are located in the amazingly beautiful basin of the Rakhmanovskoye Lake (area 1.14 km<sup>2</sup>), on its northeastern shore, on the right side of the Arasan River valley. Thermal springs flow from under the northern side of the site from cracks at the contact of granites with slates in the direction from east to west and almost all along the same line with a total length of about 80 m.

Rakhmanov's springs deserve special state protection, since they are typical representatives of siliceous waters of hydrocarbonate-potassium composition, established in a number of areas of the East Kazakhstan region. The spring water has a temperature of 34° to 43° C and has the lowest mineralization among all the mineral waters of the high mountain regions of Kazakhstan, with 10% of it being silicic acid. In addition to silicic acid, water contains free carbon dioxide (up to 0.03 g/l) and radon (10–35 eman) (Erdavletov and Aktymbayeva, 2012). Rakhmanov springs are widely known both in Kazakhstan and abroad due to the balneological sanatorium "Rakhmanovskie Klyuchi", which has been operating for a long time on their basis. The sanatorium is located on the territory of the Katon-Karagay botanical and mineralogical reserve and the Katon-Karagay State National Natural Park. The Arasan waterfall is one of the largest in the east of Kazakhstan. It has aesthetic value and educational interest as an example of natural formations created by the geological activity of rivers. It is an object of cognitive, ecological tourism. The Arasan waterfall is formed by the Arasan River flowing from the Rakhmanovsky lake. This is a two-stage cascade of five and six meters in height.

After passing through the Small Arasan Lake (1734 m above sea level), the river acquires a rapid character and rushes among shale rocks and huge boulders. Six kilometers below the resort village of Rakhmanovskie Klyuchi, at the eighth kilometer from its source, the hanging valley of the Arasan River opens into the trough valley of the Belaya Berel, the bottom of which lies 250-300 m below the first. Here, approximately on a three-hundred-meter section, the elevation difference reaches 200 m. The Rakhmanovsky waterfall is located 1.8 km southeast of the resort village of Rakhmanovsky Klyuchi. The waterfall forms an unnamed stream, located on the right slope of the basin of Rakhmanovsky Lake. This stream starts from a small alpine (2265 m above sea level) moraine lake and flows into Rakhmanovsky Lake. The stream flows in a deeply incised hollow that separates two nameless mountains with absolute elevations of 2400 and 2280 m, respectively. The stream bed is filled with fluvio-glacial deposits. The bottom of the hollow in the upper part is strongly sloping (up to 15 degrees), and in the lower part it is slightly steep (15-20 degrees). On the sides, the steepness of the slopes reaches 35 degrees. The hollows are covered with dense larch forest, reaching here the upper limit of its distribution. The vegetation of alpine meadows and riverbed phytocenoses occupy the treeless territory. In the middle course of the stream, at the very beginning of the cascades, dense rocks come to the surface in the form of rocky remnants.

The Kokkol waterfall is one of the highest in Altai. In the extreme northeast, it is the most attractive (along with the Belukha massif) among the objects of educational and ecological tourism. The waterfall is located in the lower reaches of the Bolshoy Kokkol river (left tributary of the Belaya Berel), 23 km northeast of the resort village of Rakhmanovskie Klyuchi.

Thus, East Kazakhstan region, Kazakhstan Altai has rich natural recreational resources. The presence of attractive mountain, water, excursion zones play crucial role for organizing various tours. The rivers of the Southern Altai, the tributaries of the Irtysh Kurchum, Bukhtarma are not only sources of energy, but also areas for the development of extreme tourism.

## CONCLUSION

In general, the analysis of the functions of the relief in the recreational system showed that in the process of the interaction of the relief between the individual components and the entire recreational system, the field of geomorphological properties familiar to science expands. The results of the analysis revealed new, recreational properties of the relief - attractiveness (uniqueness, aesthetic appeal, cognitive value, historical cultural significance, natural preservation, recreational diversity). Based on the above aspects of considering the importance of the geomorphological factor for recreation, information about it and its properties is necessary for tourists. At the initial stage of the implementation of the target settings, tourists have a need for information support for making decisions on choosing a place of rest and laying a route. This information can be presented in various forms (booklets, information stands, audio guides, etc.), and it can be called "recreational and geomorphological". Information represents a set of properties of geomorphological phenomena, objects, processes in their relationship with the recreational needs of tourists from the standpoint of relief functions. It is necessary to present this information to the subject in an adjusted form and help meet his target needs.

Well-inventory information is essential for tourism development. It can be used to create geographic images of a territory and then apply them for tourism marketing or geographic branding. The development of geoparks based on a foreign concept might play an important role, which in the future will serve as a system for managing and preserving the diversity of natural components in the territory. Geoparks are an intensive and low-cost way to develop tourism in Kazakhstan and solve problems identified as priorities by the President of the Republic of Kazakhstan.

In connection with the above, this research confirms the importance of the role of geoparks in the development of the tourism industry in Kazakhstan. The geopark will allow uniting rather diverse tourist sites in the mountainous part of the south of the Altai territory into a single system, which will bring the formation and promotion of the tourist product to a higher level due to its complexity. Moreover, it will significantly increase the flow of visitors. The prospects for the development of the planned geopark are also clearly visible. The Republic of Altai (the basin of the Chuya River, the application has already been sent to UNESCO), Mongolia, is planning to create similar structures.

The creation of a local (Altai) network of geoparks will give an additional impetus to the development of integration processes in the Greater Altai region, including in the field of tourism through the possible partial consolidation of geopark resources and popular routes, which will increase inbound tourism to the Altai Territory

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\*\* IAG – International Association of Geomorphologists. <http://www.geomorph.org/>

\*\* Travel community. By car in Gorny Altai. <http://galt-auto.ru/photo/785>

## COASTAL SCENIC ASSESSMENT IN PANGANDARAN DISTRICT, WEST JAVA PROVINCE, INDONESIA

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**Abstract:** This study aims to classify the ten coasts of the Pangandaran District using the Coastal Scenic Evaluation System (CSES). The CSES objectively assesses coastal characteristics and is rarely used in Southeast Asia, especially Indonesia. Pangandaran District was chosen in this study because it is part of a National Tourism Strategic Area in Indonesia, especially for marine tourism, which means it is at risk of physical changes to the environment due to the growth of tourism. The study results show that most coasts were classified as natural, but Class 1, as the top natural, was not obtained. The low quality of the scenery is because its physical parameters are lower than its human parameters. In order to improve the quality of the scenery, it can be done by handling garbage and waste, setting up utilities' development, and zoning for tourism types.

**Key words:** CSES, coastal, coast, beach, scenic, scenery, physical parameter, human parameter, Pangandaran

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### INTRODUCTION

The natural scenery along the coast is one factor that attracts tourists. Tourists can get a great impression of coastal areas with white sand beaches, clear water, breezes, and gentle waves (Kenchington, 1993; Nickerson et al., 2016). The natural coastal scenery is the key to tourists' satisfaction and loyalty (Chi and Qu, 2008; Kirillova et al., 2014; Robert, 2018). At first, coastal scenery was judged by how people thought the coasts looked (Morgan, 1999; Morgan and Williams, 1999; Williams and Lavallo, 1990). Ergin et al. (2004) offer a technical evaluation of coastal scenery based on 26 parameters (18 physical and 8 human parameters) and a fuzzy method for determining how much each parameter matters. This method was initiated as the Coastal Scenic Evaluation System (CSES). Physical parameters in CSES include coastal geomorphology and oceanography, while human parameters are anthropogenic impacts. The CSES is a valuable assessment method because it objectively evaluates coastal characteristics (Cristiano et al., 2018). 952 coastal sites have been assessed using the CSES from 2004 to 2018, and most of the coastal sites assessed are in the Americas and Europe. For the Southeast Asia region, the assessment was only carried out on two coasts in Vietnam (Anfuso et al., 2019).

As a tropical country, the beaches in Indonesia have white sand and abundant sunshine. This condition demonstrates the natural value of the coast and is essential for attracting tourists from the middle latitudes (Mestanza-Ramón et al., 2020). The Indonesian tourism industry continues to be developed to become the leading national economic sector based on the development of natural and cultural resources, with the coastal areas being the main tourism resource for Indonesia; therefore, many of Indonesia's coastal areas are developed for tourism (Antara and Sumarniasih, 2017; Bottema and Bush, 2012; Briandana et al., 2018; Hakim et al., 2018; Hengky and Kikvidze, 2021; Kurniawati et al., 2022; Rosadi et al., 2022; Tranter et al., 2022). For example, the southern coast of West Java, which is administratively under the Province of West Java and part of the southern coast of Java, is one of the areas developed as a natural tourist destination because it has the potential for natural resources from its geomorphological diversity, such as mountains, cliffs, caves, waterfalls, and white sand beaches, so that it is also prioritised as an area for environmental protection and cultural conservation (Putri and Supriatna, 2021; Rizal et al., 2020; Syaifudin and Hendarmawan, 2022; Zuvara et al., 2022). On the other hand, the southern coast of West Java, as well as the entire southern coast of Java facing the Indian Ocean, has higher wave energy and steeper shores than the coasts that do not face the Indian Ocean (Aji et al., 2021; Rizal et al., 2019; Wahyudie et al., 2020). This condition causes the coastal area not to be developed into a port city, so it remains in a rural and natural condition.

One of the regions in the south of West Java that is a favourite marine tourism destination and is prioritised to support national tourism is the Pangandaran District. Pangandaran District has also been designated as a National Tourism Strategic Area, a designation given to regions that either have tourism as their primary function or have the potential to develop

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national tourism. As a result, Pangandaran District has designated it as a "Coastal Tourism City" (Rizal et al., 2021). The economic potential of Pangandaran District is greatly affected by marine and coastal resources like fishing and tourism, especially marine tourism (Putri et al., 2020). Changes in the environment, both social and physical, may result from the development of tourist areas along the coast, and this is possible in the Pangandaran District. In general, studies that discuss the potential and problems of tourism in Pangandaran mostly focus on human parameters and legal aspects, such as information and marketing (Nugraha, 2019; Rudiana, 2018; Sujatna et al., 2019), rural tourism community development (Astuti, 2021; Damayani et al., 2021; Komariah et al., 2018; Subekti et al., 2022), tourism impact on nature reserves (Komsary, 2018; Panuntun, 2020), legal aspects (Kurniati et al., 2019, 2020). In fact, the potential for marine tourism is influenced by the naturalness of the coastal scenery, and conversely, the development of marine tourism affects the coastal scenery.

Several studies have used CSES to determine the level of naturalness of the coasts and the factors that influence the level of naturalness, such as that conducted by Cristiano et al. (2020) in De Noronha Island, Brazil, where the study revealed that some coasts are extremely beautiful, but that this beauty is being diminished by human actions and seasonal changes in physical parameters. Mooser et al. (2021) utilised CSES to conduct research on the Mediterranean Coast in Spain. The results indicated that physical parameters such as waves, tides, sea level, and storms affect the degree of naturalness of the coast, while tourism and urbanisation are examples of human pressure. On the coasts of Bulgaria, Mooser et al. (2022) discovered that natural processes have a greater impact than human influences and that half of the coasts are extremely sensitive to these natural processes. Er-ramy et al. (2022) use CSES to determine how much the Moroccan Mediterranean coast has deteriorated due to human activity. The research using CSES on the Purba Medinipur District in India by Chatterjee et al. (2022) illustrates that the coastlines have lost a significant amount of scenic quality. This is due to the rapid degradation of the physical environment caused by coastal tourism and poor management policies.

Due to its development as a marine tourist destination, the coastal Pangandaran District may lose some of its natural appearance. Therefore, this study aims to measure the natural level of coastal scenery along the coasts of Pangandaran District using CSES. Another objective is to determine which parameters have the most influence on the Pangandaran coastal scenery. Also, because there haven't been many CSES studies on Indonesia's coasts, it is hoped that this research will provide the initial information needed to evaluate the coastal scenic in Indonesia or other coastal areas with similar conditions.

## MATERIALS AND METHODS

### Areas of Interest (AoI)

The local government has classified some of the coasts in Pangandaran as the main tourist destinations. In this study, AoI focused on ten popular tourist destinations along the coast. The positions and names of the coasts are illustrated in Figure 1. The CSES is a checklist procedure applied to 26 different parameters. Each parameter is assigned a value ranging from the lowest (1) to the highest rating (5), as in Table 1. Ratings 1 and 2 are regarded as poor, rating 3 as medium, and ratings 4 and 5 as excellent (Pranzini et al., 2019). A fuzzy logic assessment method was used in CSES to estimate vagueness, uncertainty, and errors in assessment parameters as well as uncertainties and subjective statements (Williams et al., 2012).

### Method and Analysis

The CSES results are represented by the histograms, the curve, and the evaluation index (D). The first result is a scenic assessment histogram, which gives a visual summary of each of the 26 parameter ratings and is a handy way to compare each parameter. The second histogram shows weighted averages vs. attributes of physical and human parameters. The third is the membership degree vs. attribute curve, which provides a general scenic assessment. The interpretation of the curve is based on the skew. If the membership degree vs. attribute curve displays right-hand skew (RHS), it indicates a high scenic quality, whereas if it demonstrates left-hand skew (LHS), it implies a low scenic quality (Ergin et al., 2004). The final result of the CSES is the evaluation index (D), which categorises the coastal scenery into five different classes (Table 2). The steps of the CSES methodology are depicted in Figure 2 as a flowchart. Examples of histograms and curves are shown in Figure 3. In the CSES, there are ratings and attributes. Rating is the value of each parameter, while an attribute is the overall rating condition for the weighted average and membership degree. For further information and a complete explanation of the CSES theory, see Ergin (2019) and Ergin et al. (2004, 2011).

## RESULT AND DISCUSSION

According to the CSES calculation, the coasts in AoI are classified as Classes 2 to 5. To generate Class 1, at least three-

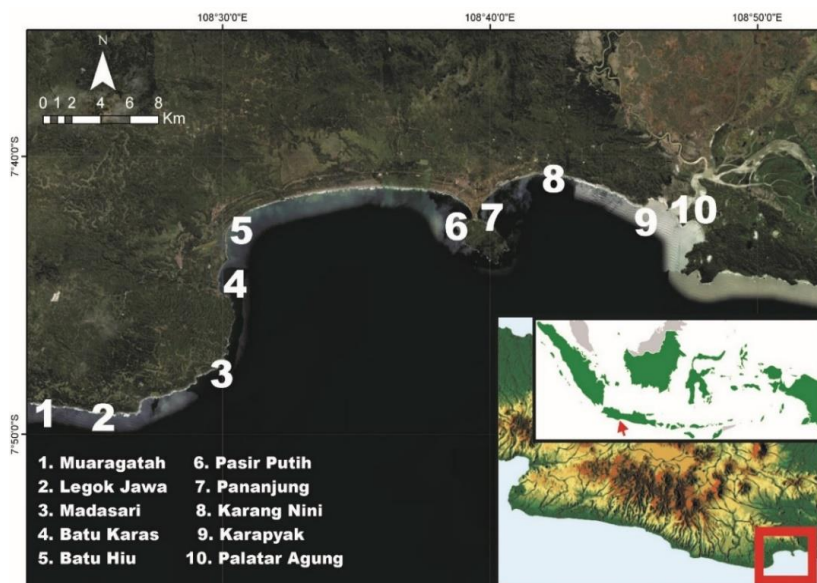


Figure 1. The positions and names of the coasts of the AoI (Source: modified from Google, n.d.)

quarters of all parameters, including the top five, must be in excellent condition (4 or 5 ratings), which is not the case on all coasts in AoI. The top five rated parameters from 485 respondents' perception studies were coastal landscape features, water colour and clarity, absence of noise, absence of sewage and litter, and absence of utilities with a natural skyline (Ergin et al., 2004). Observations show that only Karang Nini and Palatar Agung have impressive skylines without utility.

Table 1. Coastal Scenic Evaluation System (Source: Ergin, 2019)

| No | Physical Parameters         |                  | Rating                           |   |  |  |   |
|----|-----------------------------|------------------|----------------------------------|---|--|--|---|
|    |                             |                  | 1                                | 2                                       | 3  | 4                                      | 5   |
| 1  | Cliff                       | Height ( $H$ )   | Absent ( $< 5$ m)                | $5 \text{ m} \leq H < 30$ m             | $30 \text{ m} \leq H < 60$ m                         | $60 \text{ m} \leq H < 90$ m           | $H \geq 90$ m                                 |
| 2  |                             | Slope            | $< 45^\circ$                     | $45^\circ - 60^\circ$                   | $60^\circ - 75^\circ$                                | $75^\circ - 85^\circ$                  | Circa vertical                                |
| 3  |                             | Special features | Absent                           | 1 special feature                       | 2 special features                                   | 3 special features                     | Many $>3$ special features                    |
| 4  | Beach face                  | Type             | Absent                           | Mud                                     | Cobble/boulder                                       | Pebble/gravel                          | Sand  |
| 5  |                             | Width ( $W$ )    | Absent                           | $W < 5$ m or $W > 100$ m                | $5 \text{ m} \leq W < 25$ m                          | $25 \text{ m} \leq W < 50$ m           | $50 \text{ m} \leq W \leq 100$ m              |
| 6  |                             | Colour           | Absent                           | Dark                                    | Dark tan   | Light tan/bleached                     | White / gold                                  |
| 7  | Rocky shore                 | Slope            | Absent                           | $< 5^\circ$                             | $5^\circ - 10^\circ$                                 | $10^\circ - 20^\circ$                  | $> 20^\circ$                                  |
| 8  |                             | Extent           | Absent                           | $< 5$ m                                 | $5 \text{ m} - 10$ m                                 | $10 \text{ m} - 20$ m                  | $> 20$ m                                      |
| 9  |                             | Roughness        | Absent                           | Distinctly jagged                       | Deeply pitted and/or irregular                       | Shallow pitted                         | Smooth  |
| 10 | Dunes                       |                  | Absent                           | Remnants                                | Foredune   | Secondary ridge                        | Several                                       |
| 11 | Valley                      |                  | Absent                           | Dry                                     | Stream ( $< 1$ m)                                    | Stream ( $1 \text{ m} - 4\text{m}$ )   | $> 4$ m                                       |
| 12 | Skyline landforms           |                  | Not visible                      | Flat                                    | Undulating   | Highly undulating                      | Mountainous                                   |
| 13 | Tides                       |                  | Macro ( $> 4$ m)                 |   | Meso ( $2 \text{ m} - 4\text{m}$ )                   |  | Micro ( $< 2$ m)                              |
| 14 | Coastal landscape features  |                  | None                             | 1 feature                               | 2 features   | 3 features                             | $>3$ features                                 |
| 15 | Vistas                      |                  | Open on one side                 | Open on two sides                       |  | Open on three sides                    | Open on four sides                            |
| 16 | Water colour & clarity      |                  | Muddy Brown/grey                 | Milky blue/green; opaque                | Green/grey blue                                      | Clear blue/dark blue                   | Very clear turquoise                          |
| 17 | Vegetation cover            |                  | Bare ( $< 10\%$ vegetation only) | Scrub/Garigue/grass (marram/ferns, etc) | Wetland/meadow                                       | Coppices, maquis (mature trees bushes) | Variety of mature trees/ mature natural cover |
| 18 | Vegetation debris           |                  | Continuous $>50$ cm high         | Full strand line                        | Single accumulation                                  | Few scattered items                    | None  |
| No | Human Parameters            |                  | Rating                           |   |  |  |   |
|    |                             |                  | 1                                | 2                                       | 3  | 4                                      | 5   |
| 19 | Disturbance factor (noise)  |                  | Intolerable                      | Tolerable                               |  | Little                                 | None  |
| 20 | Litter                      |                  | Continuous accumulations         | Full strand line                        | Single accumulation                                  | Few scattered items                    | Virtually absent                              |
| 21 | Sewage (discharge evidence) |                  | Sewage evidence                  |   | Some sewage evidence                                 |  | No evidence of sewage                         |
| 22 | Non-built environment       |                  | None                             |   | Hedgerow/terracing/ Monoculture                      |  | Field mixed cultivation $\pm$ trees/natural   |
| 23 | Built environment           |                  | Heavy industry                   | Heavy tourism and/or urban              | Light tourism and/or urban and/or sensitive industry | Sensitive tourism and/or urban         | Historic and/or none                          |
| 24 | Access type                 |                  | No buffer zone/heavy traffic     | Buffer zone/light traffic               |  | Parking lot visible from coastal area  | Parking lot not visible from coastal area     |
| 25 | Skyline                     |                  | Very unattractive                | Un-attractive                           | Sensitively designed                                 | Very sensitively designed              | Natural/historic features                     |
| 26 | Utilities                   |                  | $>3$ utilities                   | 3 utilities                             | 2 utilities  | 1 utilities                            | None  |

Table 2. The evaluation index of coastal scenery (Source: Ergin, 2019)

| Class | D values             | Coastal scenery condition  |
|-------|----------------------|--|
| 1     | $D \geq 0.85$        | Top natural: Extremely attractive sites with very high landscape value             |
| 2     | $0.85 > D \geq 0.65$ | Natural: Attractive sites with high landscape value                                |
| 3     | $0.65 > D \geq 0.40$ | Natural: Average sites with medium landscape value                                 |
| 4     | $0.40 > D \geq 0.00$ | Mainly urban: Unattractive sites with medium landscape value and light development |
| 5     | $D < 0.00$           | Urban: Poor sites with low landscape value and intensive development               |

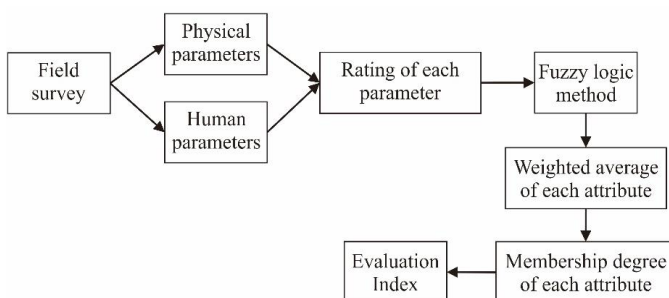


Figure 2. The steps of the CSES methodology



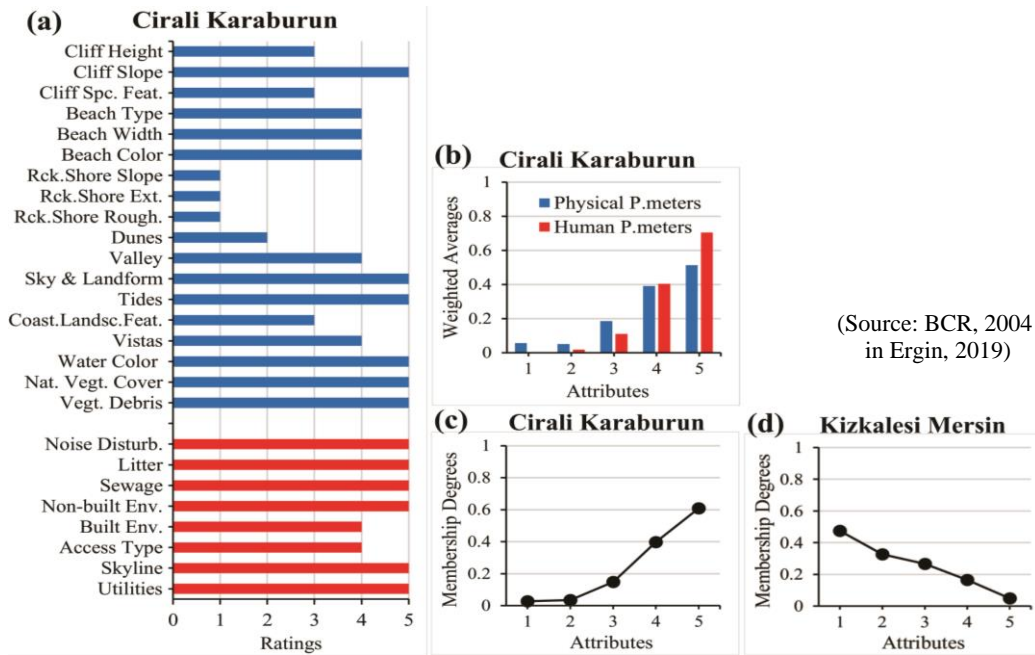


Figure 3. The examples of histograms and curves of the CSES result in Karaburun and Mersin, Turkey (a) The histogram of scenic assessment, (b) The histogram weighted averages vs. attributes, (c) The RHS and (d) The LHS of the curve of membership degree vs. attribute



Figure 4. The example of the dominant physical and human parameters in AoI (a) The wide beach is dominated by dark tan sand with mature trees bushes, (b) The water is a greyish blue, (c) The few buildings near the beach (Source: Author, 2022)

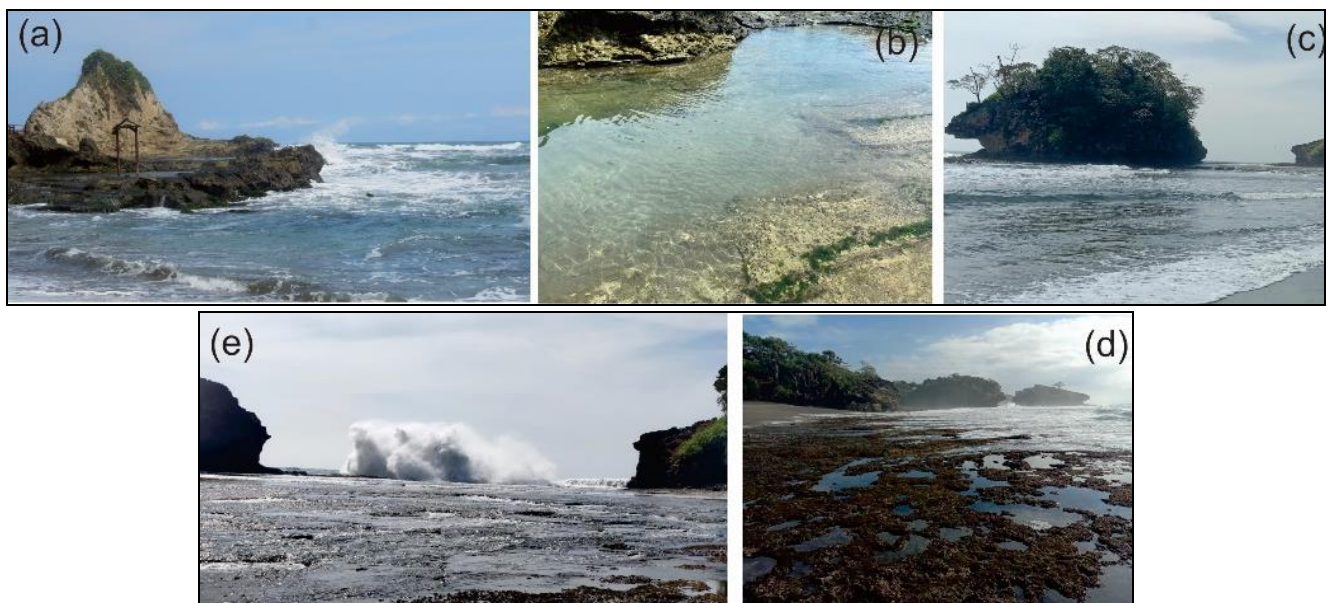


Figure 5. The appearance of coastal landscape features in Class 2 (a) The rock ridge in Karang Nini, (b) The tidal pool in Karang Nini, (c) The stacks in Madasari, (d) The wave crashes in Madasari, (d) The reefs in Madasari (Source: Author, 2022)

Pasir Putih, Karapyak, and Muaragatah have the most transparent water in tidal pools where the tides are trapped on reefs. Almost all coasts have no sewage, except for Pananjung. Even though there is no sewage, some coasts still have scattered litter. The daily presence of litter in AoI is classified into a few scattered conditions due to certain officers'

routines of picking up litter. In general, the similarities in the physical parameter ratings of the coasts in AoI are the absence of high cliffs (except in Palatar Agung). The beaches are wide and dominated by dark tan sand. Dunes are only found up to the foredune, mature tree bushes dominate the coastline, the skyline tends to be flat to undulating, the views are open on two or three sides, and almost all the waters are greyish blue or clear blue with meso tidal types. According to human parameter ratings, AoI is predominantly used for light tourism, with few buildings visible from the skyline and rarely apparent litter and sewage. Some of the appearances of physical and human parameters in AoI are shown in Figure 4.

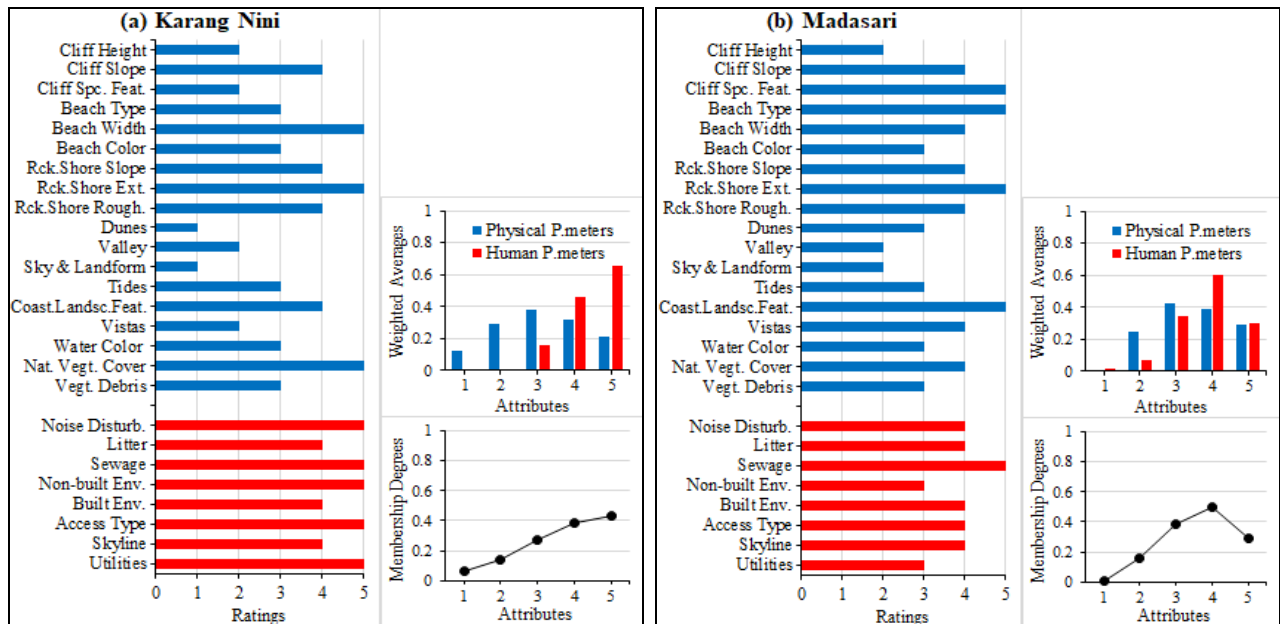


Figure 6. The CSES results for Class 2



Figure 7. The appearance of some physical and human parameters in Class 3 (a) Cloudy brown water in Palatar Agung, (b) Tourists visiting Pasir Putih use small boat engines, (c) The beach near the buffer zone in Karapyak, (d) The small port for non-engine boats in Muaragatah (Source: Author, 2022)

**Class 2**

The coasts of category Class 2 are Karang Nini ( $D = 0.7$ ) and Madasari ( $D = 0.67$ ). The two coasts are classified as natural with attractive sites with high landscape value, especially because they have varied coastal landscape features. These coasts have coastal landscape features, including rock ridges, tidal pools, stacks, wave crashes, and reefs (Figure 5).

The scenic assessment histogram of human parameters shows Karang Nini and Madasari are dominated by ratings of 4 and 5, so the coastal conditions are quiet and clean, with few buildings. This condition exists because the coast's position is far from residential areas. According to the weighted averages vs. attributes graph, both of the coasts have high weighted average values on attributes 4 and 5. The skewness of the membership degrees vs. attribute graphic can be classified as



RHS (high scenic quality), which is indicated by a curve that continues to rise in proportion to the attribute value.

Even though the value of the membership degree from attributes 4 and 5 goes down on Madasari's curve, the high value of attribute 4 increases the curve, so it is still categorised as the RHS. The CSES results for this class are presented in Figure 6.

**Class 3**

This class is classified as natural with an average site, which has medium landscape value and dominates in AoI. The coasts with this class include Palatar Agung (D = 0.41), Pasir Putih (D = 0.62), Karapyak (D = 0.41), and Muaragatah (D = 0.41). In Class 3, attributes 1 and 2 begin to increase. Among the coasts in Class 3, Palatar Agung and Pasir Putih have lower physical parameters than human parameters, and even Palatar Agung has poor water colour and clarity with cloudy brown water. Palatar Agung's poor colour and clarity are due to its location at the Citanduy watershed outlet, which has long experienced high erosion (Malawani et al., 2020). On the other hand, Pasir Putih, Karapyak, and Muaragatah have excellent water clarity in the reef areas that form tidal pools. Palatar Agung and Pasir Putih are not near the residential areas, but Pasir Putih is a popular tourist destination in Pangandaran District because it has white sand and excellent water clarity. The tourists will come and use a small engine boat to get to Pasir Putih. As a result, the noise and disturbance conditions are tolerable (rating 2). The poor condition of these ratings causes Pasir Putih to be in Class 3.

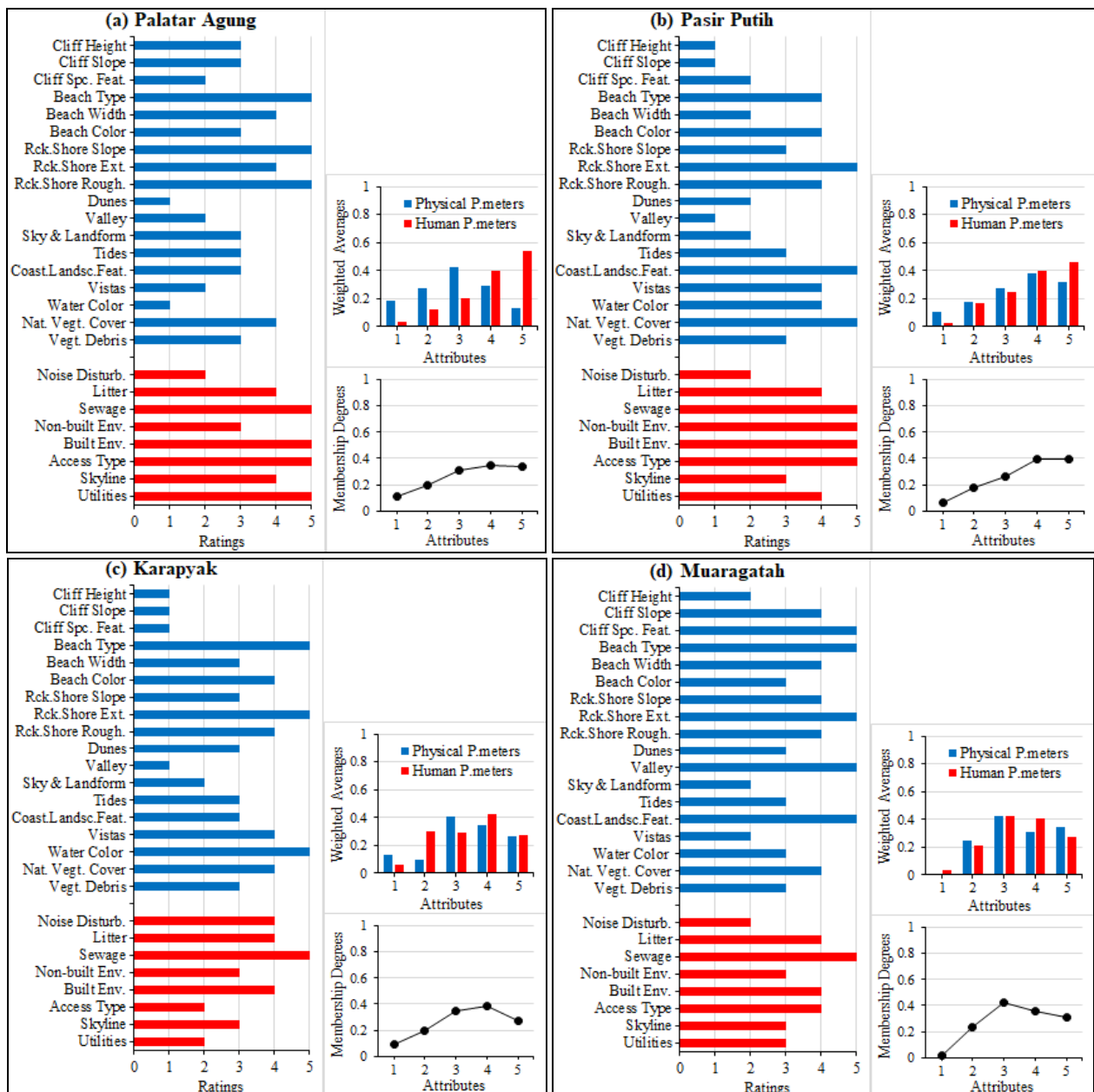


Figure 8. The CSES results for Class 3

Meanwhile, Karapyak and Muaragatah are located near residential areas, and their physical parameter ratings are relatively the same as human parameters. Muaragatah has a wide valley and serves as a small port for non-engined boats. Figure 7 shows the appearance of some physical and human parameters in Class 3. Class 3's weighted averages vs. attributes graph shows decreases in attributes 4 and 5. These coasts have medium scenic quality, but their membership degrees vs.

attribute curves can be divided into two groups. Palatar Agung and Pasir Putih have a gentle and constant curve at attributes 3 to 5. Meanwhile, the curves of Muaragatah and Karapyak are steep at the beginning of the attribute but then decrease for attribute 5. The shape of the Karapyak curve is almost similar to the Madasari curve (Class 2), but Karapyak has a smaller weighted average value on attributes 4 and 5 compared to Madasari. Figure 8 displays the results of the CSES for this class.

**Class 4**

This class included Batu Hiu (D = 0.17) and Legok Jawa (D = 0.33). These two coasts are mainly urban, with unattractive sites that have medium landscape value and light development. This is because they are close to residential areas, and none of the top five parameters has a maximum rating. At Batu Hiu, rock cliffs have become an icon of this coast, and some of the dunes have been converted into semi-permanent structures for tourism.

Meanwhile, Legok Jawa is the coast that serves as a venue for equestrian sports activities and is close to the buffer zone. However, this area does not have many permanent or semi-permanent buildings. This coast's advantage is the open vistas on all four sides. At the same time, the dunes have been transformed into pedestrian to facilitate sporting activities. Figure 9 represents some of the physical and human parameters in Class 4. When sporting events are held at Legok Jawa, issues such as litter, noise, and disturbances worsen, resulting in a low rating. However, these occurrences are uncommon. Sports and cultural activities are usually carried out two or three times a year, such as on the anniversary of independence or religious holidays, so the daily noise levels are relatively low. The membership degree curve vs. attribute graphic curve can be classified as LHS (low scenic quality). The results of the CSES for this class are shown in Figure 10.



Figure 9. The appearance of some physical and human parameters in Class 4 The rock cliff icon of Batu Hiu, (b) The semi-permanent structures in Batu Hiu's dunes, (c) The pedestrian and buffer zone near Legok Jawa (Source: Author, 2022)

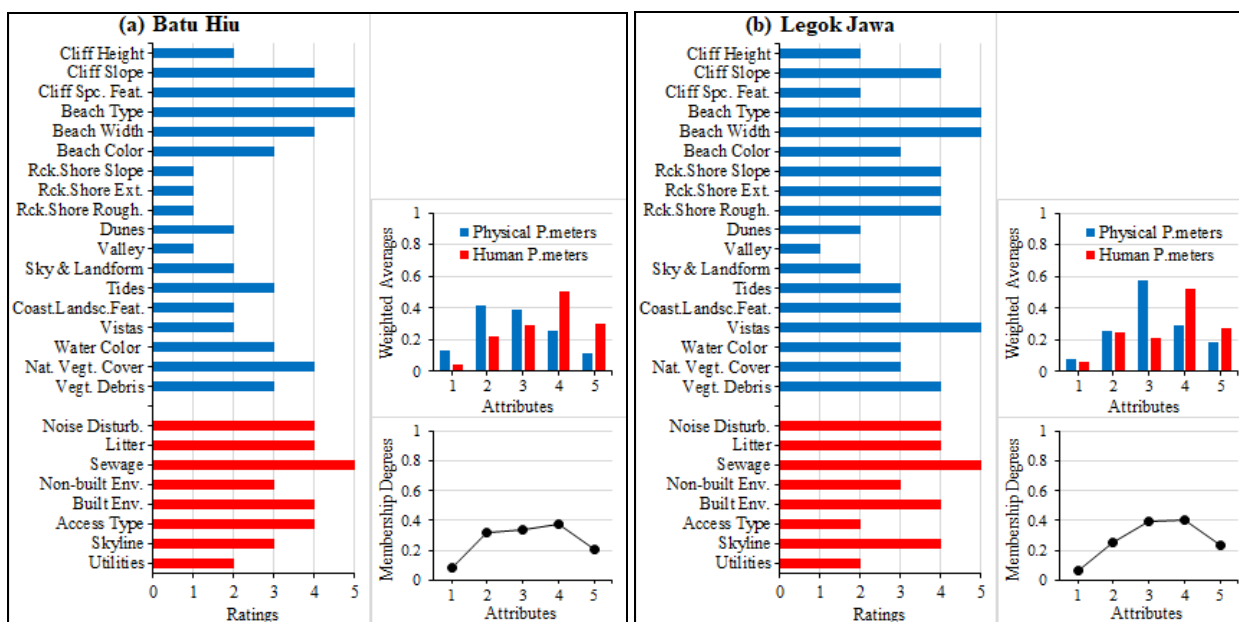


Figure 10. The CSES results for Class 4

**Class 5**

This class is classified as urban with very unattractive sites with low landscape value and intensive development. Batu Karas (D = -0.08) and Pananjung (D = -0.32) are popular tourist destinations in Indonesia. These two coasts have the lowest wave energy in the AoI due to their sheltered bay location, so many water attractions attract visitors. The local government builds supporting facilities such as parking areas, parks, and commercial areas to support tourism activities.

Some of the commercial areas are directly on the beach. Pananjung and Batu Karas are also intended as fishing ports, so supporting port facilities such as ship moorings, piers, sea dikes, and piers are built. Figure 11 shows the appearance of some physical and human parameters in Class 5. The development on these two coasts has resulted in low ratings for physical and human parameters, which are dominated by poor conditions. As a result, attributes 1 to 3 dominate on the weighted averages vs. attributes graph. The membership degrees vs. graphic attribute curve shows a decrease in attributes 4 and 5, which are classified as LHS. Figure 12 shows the CSES results for this class.





Figure 11. The appearance of some physical and human parameters in Class 5

(a) The buffer zone near Batu Karas beach, (b) The commercial activity in Batu Karas beach, (c) The boat docks in Pananjung, (d) The sea walls in Pananjung, (e) The banana boat for water tourism rides in Pananjung, (f) The sewer in Pananjung (Source: Author, 2022)

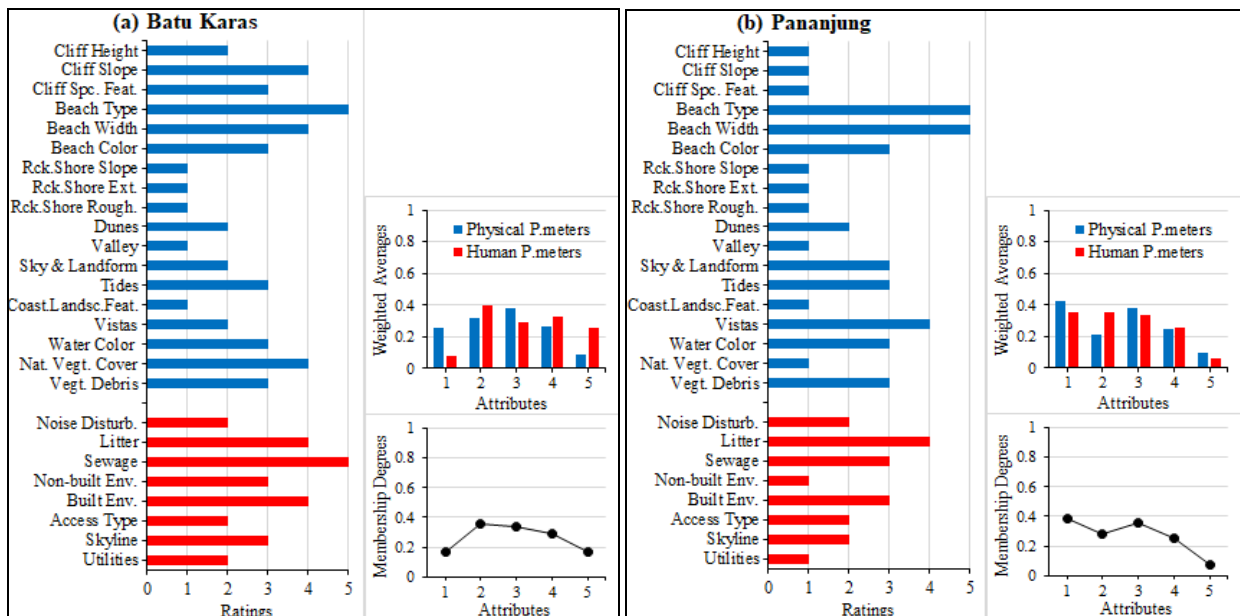


Figure 12. The CSES results for Class 5

## DISCUSSION

Six of the ten coasts studied are considered natural with a medium to high scenic quality. Another two coasts have intensive development, while the rest have light development. As determined by histogram analysis, the low quality of AoI's scenic is due to lower physical parameters than human parameters. For example, Batu Hiu and Legok Jawa have weighted averages for attributes 4 and 5 of physical parameters, which are lower than human parameters. However, the highly weighted averages for attributes 4 and 5 of human parameters cannot improve the class of these two coasts. Karang Nini and Madasari are additional examples of coasts with high scenic quality. Compared to other coasts in AoI, these two coasts have highly weighted averages for attributes 4 and 5 of human parameters but relatively low weighted averages for attributes 4 and 5 of physical parameters. Although it has a high human parameter rating, it cannot place these two coasts in Class 1. Studying physical and human parameters along the Pangandaran coast allowed local government or private sector decision-makers to determine and classify which variables may be handled better to boost scenic value at numerous researched sites. From the scenic assessment histogram, the person in charge of deciding will be able to identify where adjustments need to be made instantly. At the same time, vacationers can use the CSES data practically, deciding between natural and urban attractions (Cristiano et al., 2018). In order to improve the quality of the scenery in grades 4 and 5, the rating of human parameters should be improved by handling garbage and waste, setting up utilities' development, and zoning tourism types. Some administrative solutions, like the decentralisation of tourism, could be used to alleviate overcrowding (Rodella et al., 2020). Several physical parameters can be modified to achieve a higher classification, including the maturation of trees, the removal of vegetation debris, and the restoration of the function of dunes. The loss of dunes increases the erosional risk to the coastal landscape. For this reason, it is necessary to build an artificial dune to protect the beach from abrasion (Corbau et al., 2015). Several studies on coastal tourism have also concluded that the scenery along the coast can provide competitive advantages, particularly in more rural and remote areas (Ullah et al., 2010). Rural and remote coastal

locations in the Pangandaran District have an excellent prospect for coastal tourism development. Also, the fact that most of the coasts are natural shows that the coasts in the Pangandaran District still have much potential for nature tourism.

## CONCLUSION

According to this study, AoI does not have a coast that is classified as a Class 1, but most of AoI is a natural coast. In addition, not a single coast receives a high rating of excellent for all five of the top five parameters. Class 2 consists of Karang Nini and Muaragatah. The two coasts are in remote areas with excellent coastal landscape features. Class 3 is dominant in AoI. This class has the advantage of excellent watercolour and clarity in Pasir Putih, Karapyak, and Muaragatah, while Palatar Agung has the advantage of being located in a more remote area. The natural category involves classes 2 and 3. However, the tourism development of the two classes should be carefully considered because tourists tend to explore new natural places. If not noticed, too many visitors could damage the coastal scenery. Because Classes 4 and 5 were urban areas and popular spots, their human and physical parameters gradually declined. Class 4 consists of Batu Hiu and Legok Jawa, almost identical to Class 3 but with lower physical parameters. This is because the natural features have turned into tourist facilities. This also occurs in Batu Karas and Pananjung, which are part of Class 5. This area has many water attractions because both coasts are in sheltered bays. The high number of visitors to these two coasts lowers human parameters, while tourism facilities lower physical parameters. The low quality of the scenery in AoI is caused by its physical parameters being lower than its human parameters, and it is impossible to increase the rating of the physical parameters of AoI, whereas human parameters are highly changeable. Simple actions like clearing trash from coasts and improving coastal amenities could enhance the scenic value of coastal areas. Meanwhile, maintaining utilities along the coast and making changes to the beach, like adding sand, is an expensive way to improve the view, but it is worth trying.

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## THE DYNAMICS OF HUMAN RESOURCE BY ETHNICITY IN THE LANDS AND AREAS OF CRIȘANA REGION IN THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT

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**Abstract:** This study presents the population dynamics by ethnicity in the lands of Crișana Region, Romania, based on a population forecast for the year 2030. The aim of the study is to provide short term population dynamics information by comparison between the six lands and area of the region. Crisana is a heterogeneous area from ethnic point of view and migration has been intense in the past three decades, but some ethnicities have been more affected by this phenomenon than others, therefore this forecast is made by ethnicity and the results show different trends. The population of each Land and area is characterized by the studied ethnicities, but the numbers differ considerably. Also the lands and areas show different trends regarding the ethnic populations. The method used for population forecast is a quantitative method based on statistical data obtained from successive censuses. The reference years taken into study are 1900, 1030, 1992, 2002 and 2011. Despite the fact that by 2011 the trend was decreasing, because from 1900 to 1992, the number of population increased, the trend for 2030 is also of increase for most ethnicities.

**Key words:** population dynamics, ethnicity, population projection, sustainable development

\* \* \* \* \*

### INTRODUCTION

Sustainable development is a concept dating back in 1987 when it was mentioned in the Brundtland Report as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987), but concerns were pointed out in relation to population growth, industrialization and economic impact, long before that time (Mfungahema and Kitamura, 1997; Mensah and Casadevall, 2019; Takashi, 2017).

Crișana is a region in the North-West part of Romania (Figure 1), characterized by relief diversity and richness. Its limits are represented by the interfluvium between Crasna and Someș rivers in the North, Meseș, Bihor-Vlădeasa Mountains in the East, the interfluvium between Mureș and Crișul Alb rivers and Zărand Mountains in the South and the Hungarian border line in the West (Godea, 1996; Ilieș, 1998). The Apuseni Mountains integrate Crisana with its western and central subunits.

The lands (Cocean, 1997; Cocean, 2011; Cocean and Filimon, 2013) and areas which are part of Crișana Region (Figure 1) and for which the analysis was made are: Ier and Barcău Valley, which is characterized by low land forms (Stașac, 2005) (Careiului Plain, Ierului Plain) and some small hills; Silvania Land, which resembles a gulf surrounded by Meseș Mountains in the East, Plopiș Mountains in the South and Șimleu Hummock in the North, North-West (Josan, 2009). The third one is Crișul Repede Valley, with varied forms of relief: plains – Bihariei, Miersigului – hills and some mountain formations, rich in natural resources (Olău et al., 2019). Beiuș Land, situated on Crișul Negru Valley, is surrounded by Bihorului Mountains, Pădurea Craiului Mountains and Codru-Moma Mountains (Berindei et al., 1977; Filimon, 2012; Boc et al., 2022). Crișurilor Plain is formed mainly of low plains, as the name itself shows, and is situated in the Western part of the Western Hills (Godea, 1981). Last, but not least, Zărand Land is surrounded by mountains such as Codrului Mountains in the North, Metaliferi Mountains and Zărandului Mountains in the South – South-West (Dudaș, 1981).

The new paradigms which function in the authentic lands are those related to heritage capitalization, sustainable development, well-being, economic competitiveness, economy of knowledge and, eventually, participative debate. The lands, as tourist destinations, are developing based on their defining elements: islands of conservation of an idealized, traditional, rural lifestyle, which responds to the tourist and cultural needs of a society which faces globalization and an identity crisis (Ilieș et al., 2014; Stupariu, 2017; Stupariu and Morar, 2018; Tatar et al., 2018; Craiut et al., 2022).

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Another important characteristic of Crişana Region is the presence of multiple ethnicities, each of them contributing to the economic and social development of the region (Deac et al., 2019; Iliş et al., 2010, 2011; Linc et al., 2019; Morar et al., 2019). The following ethnicities were taken into account: Romanian, Hungarian, Roma, German, Slovakian, Ukrainian and others (population which cannot be incorporated in any of the previous categories). The population of each Land and area is characterized by the studied ethnicities, but the numbers differ considerably.



Figure 1. Lands and areas of Crişana Region and localization of Crişana Region within Romania

## MATERIALS AND METHODS

Population is the main beneficiary of turning ecosystems and natural resources to profit, but, at the same time, it is the main disruptive factor for the integrity or balance of these ecosystems and natural resources. Human intelligence becomes thus a factor of economic and social development. In its turn, the community from the rural and urban environment will respond promptly to the desire of recovery in the midst of an unpolluted, balanced and healthy natural background (Bungau et al., 2022). The novelty of the tourist product in rural and urban environment, the current conditions, the culture and purity of people and places, together with specific hospitality, will all impose and contribute to sustainable and responsible development. Tourism, as economic activity, should adhere to the concept of sustainable development, since it is an industry which depends on natural resources and the cultural heritage of each society, which actually sells these resources. Thus, all tourist activities should be compatible with the tourist loading capacity, providing sustainable economic and ecological functioning at all levels (Herman et al., 2020; Caciora, 2021; Iliş et al., 2020, 2021; Morar et al., 2021).

Population extrapolation into the future is a projection technique (Smith et al., 2002) which uses aggregated data from the past to project into the future. The projection can be linear, geometrical or exponential. Population projection or forecasting has been intensely used in developing conservation strategies, taking management actions and it is also very useful in elaborating sustainable management strategies. The focus must be on population welfare, as well as on sustainable development of the region. Most population projections are based on birth, mortality and migration rates (Wheldon et al., 2013; Takashi, 2017; Kim and Kim, 2020) over yearly periods of time.

Our study utilizes a quantitative method of analysis (Rich, 1980) and it is based on past data obtained from the censuses conducted by the National Institute of Statistics from Romania and it refers to population by ethnicity in the six lands and distinct areas of the region.

The method that we used in forecasting the population for each ethnicity for the year 2030 is the linear extrapolation equation (Smith et al., 2013), based on the censuses taken in 1900, 1930, 1992, 2002 and 2011:

$$P_{t+n} = P_t + b(n) \tag{1}$$

Where:

$P_{t+n}$  is the population at a future date in time. In our case is the year 2030;

$P_t$  is the population at the last census – 2011 is the last census that we referred to;

$P_{t-1}$  is the census taking prior to the last one taken into consideration;

$n$  is the number of units of time taken into consideration for the projection;

$b$  is the average growth increment per unit of time.

The first step was gathering statistical data from the above-mentioned censuses for each territorial administrative unit (TAU) and then, grouping them by land. The time intervals considered in this study are a total of 4 and the unit of time between is variable, thus unit one is of 30 years, unit two comprises 62 years, unit 3 has 20 years and unit 4 has 9 years. The ethnicity taken into study here are Romanian, Hungarian, Roma, German, Slovakian, Ukrainian and the last category comprises other ethnicities, which were not taken into calculus because of very poor representation or people for whom the ethnicity could not be established.

### RESULTS AND DISCUSSIONS

Some of the lands and areas of Crișana are heterogenic from ethnicity point of view, others are more homogenous and that fact has influenced the population dynamics over time (Ilieș, 1998). The major ethnicity in Crișana is the Romanian one and, though this one was also prone to migration, the other ethnicities recorded higher migration rates.

Figure 1 is a graph which shows the population dynamics, starting with the year 1900, up to the 2011 census by ethnicity, and also, based on these data, it shows the population projection for the year 2030 for Ier and Barcău Valley area. It can be seen that the general trend for the total population of the area is of increase or relative stability until 1992 when, because of the social and political changes which occurred in Romania in 1989, the emigration phenomenon increased considerably, the birth rate decreased (Ilieș, 1998), thus the trend was descendent until 2011, the year of the last census taken into consideration. The only exception was the Roma ethnic population which recorded a continuous increase.

The population projection for the year 2030 in Ier and Barcău Valley (Figure 2) shows a slight increase, with the exception of the Hungarian and Ukrainian ethnicities which present a small decrease.

Silvania Land is a heterogenic area from ethnic population viewpoint and Figure 2 shows considerable increase for the total population and the Romanian one until 1992,

then a constant decrease until 2011. The other ethnicities also show increase until 1992, but less dramatic. The Roma population continued the increasing trend after 1992 as well. The projection for 2030 in Silvania Land (Figure 3) shows a

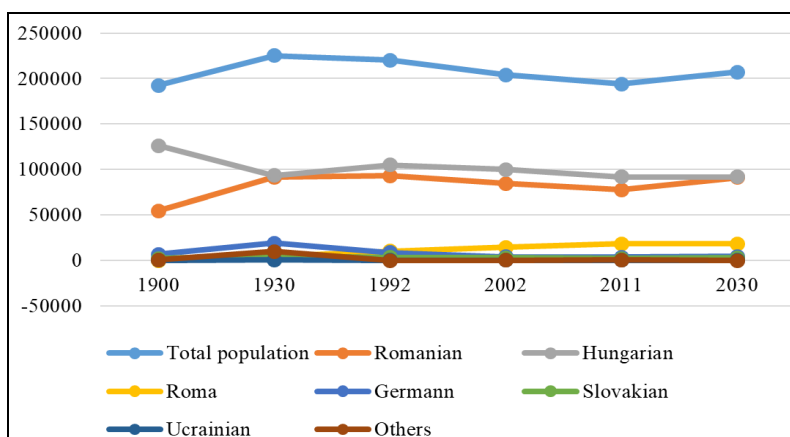


Figure 2. Population forecast and dynamics by ethnicity for Ier and Barcău Valley (Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)

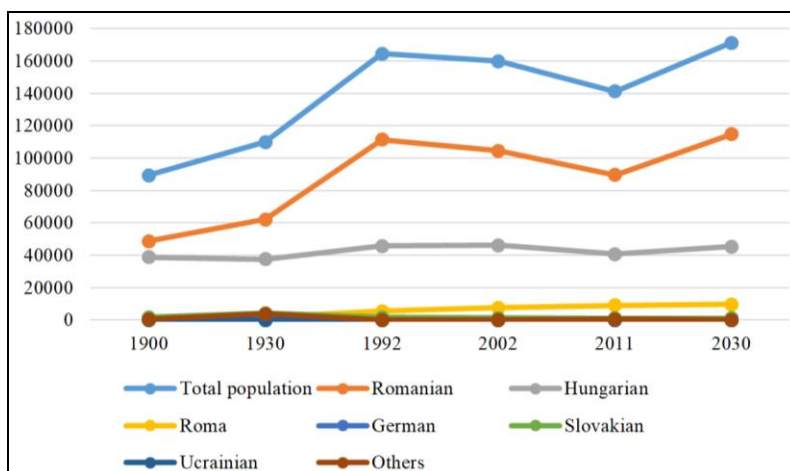


Figure 3. Population forecast and dynamics by ethnicity for (Silvania Land Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)



considerable increase for the total population and the Romanian ethnicity. The population forecast for the other ethnicities also shows an increase, except for the German and Slovakian ethnicities which recorded a slight decrease.

Crişul Repede Valley is a homogenous area from ethnicity point of view, fact which is reflected in the reduced dynamics, compared to other lands and areas from Crişana Region. The predominant ethnicity is the Romanian one and a considerable increase was recorded since 1900 until 1930 (Figure 4), just like in the case of the entire population of the region, then a constant period followed until 1992. Since 1992 until 2011, the trend was descending, especially after 2002. The Roma and Ukrainians are the only ones that showed increase between 2002 and 2011. Regarding the forecast for 2030, the number of the total population, of Romanians and Roma increased, while the number of all the other ethnicities decreased, the number of German people reaching the negative (-8.4) division.

Beiuş Land is another homogenous area of Crişna Region, with absolute predominance of the Romanian ethnicity during the entire studied period (Figure 5). From 1900 to 1930, the Romanian population increased, but from 1930 until 2011, it was on a decreasing trend. The Roma population is the only one which increased in number during all periods, until 2011. The number of Ukrainians changed from one period to another, sometimes increasing, sometimes decreasing. All the other ethnicities were on a decreasing trend until 2011. The forecast for 2030 shows an increase in the case of Romanians, Roma and Ukrainians. The other ethnicities decreased and the number for the Germans and Slovaks got below zero.

Crişurilor Plain is more heterogeneous, as both the Romanian and Hungarian ethnicity are predominant ethnicities here. The number of Romanians increased since 1900 until 1992, then decreased until 2011 (Figure 6). The Hungarian population decreased at first (by 1930), then increased slightly (until 1992), but after that, it was on a decreasing trend until 2011, just as it was the number of the total population. The Roma increased in number since 1900 up to 2011, while the Germans and Slovaks followed the decreasing trend until 2011.

The Ukrainians were the only ones who went through alternating trends between the periods: increasing (1900-1930), decreasing (1930-1992), increasing (1992-2002) and decreasing again (2002-2011). The population projection for 2030 shows slight increase for all ethnicities, except the Slovaks whose decreasing trend is forecasted for 2030 as well.

A particularity of Zărand Land from population dynamics point of view is that it is a homogenous area, the predominant ethnicity is the Romanian one, and the general trend for most ethnicity was of decrease (Figure 7). Thus, the Hungarians and Slovaks decreased in number through all the studied periods, since 1900 to 2011. The other ethnicities increased in number,

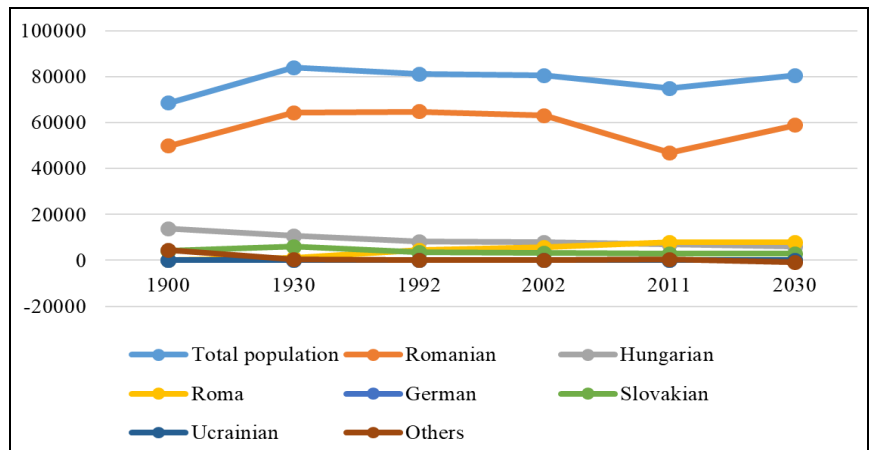


Figure 4. Population forecast and dynamics by ethnicity for Crişul Repede Valley (Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)

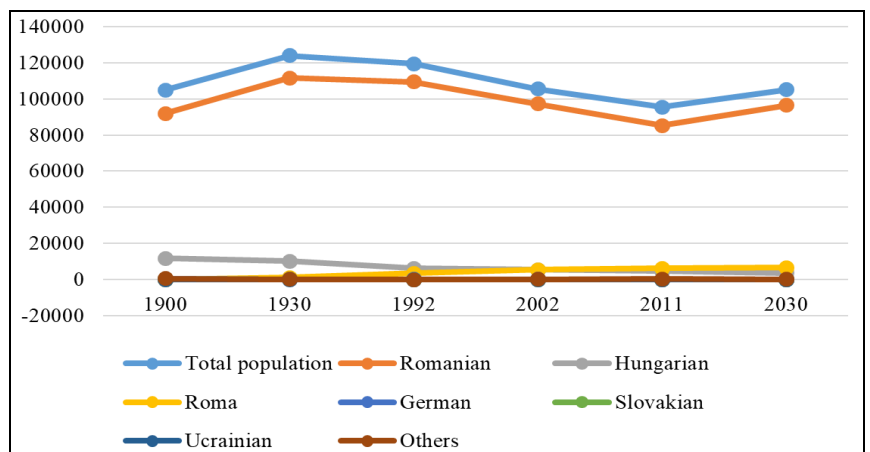


Figure 5. Population forecast and dynamics by ethnicity for Beiuş Land (Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)

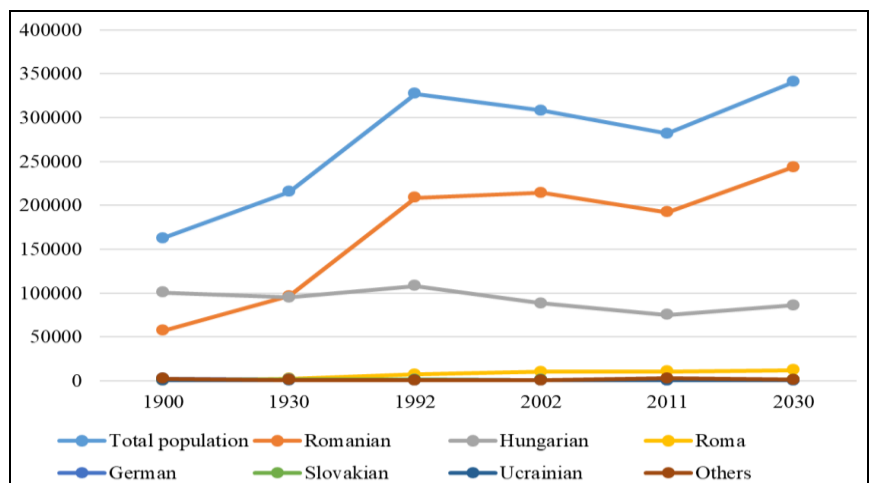


Figure 6. Population forecast and dynamics by ethnicity for Crişurilor Plain (Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)

but only since 1900 till 1930. From 1930 until 2011, almost all decreased. The only exception is represented by the Ukrainians who showed an increase until 2002, then a drop in number until 2011. A considerable difference is noticed in the prediction for 2030 as well, compared to the other lands and areas. The Romanians, Roma and Ukrainians showed a slight increase in number since 2011 to 2030, while the Hungarians, Germans and Slovaks decreased in number.

## CONCLUSIONS

Following the analysis of population dynamics and forecast for the year 2030, by ethnicity, for each land and area of Crișana Region, it can be noticed that from ethnic point of view, Ier and Barcău Valley, Silvania Land and Crișurilor Plain are heterogeneous areas, while Crișul Repede Valley, Beiuș Land and Zărandului Land are more homogenous. The forecast for the year 2030 showed increase of the Romanian population in all areas, the most significant increase being recorded in Crișurilor Plain and Silvania Land, both heterogeneous areas.

The forecast for the Roma ethnicity is also, of increase in all areas, but the other ethnicities, even in some lands there was minor increase, the general trend is of decrease. The sustainable development dynamics depends on the human resource as well, analyzed both as potential resource in the perspective of tourist development and from tourist flow perspective, the population in the area being the main component of tourist flow at microscale level. Besides the positive effects, there are some negative ones as well, such as the depopulation process in certain areas, unless it is considered a sustainable development and programming of tourism. The impact of tourism upon the social and economic factors is, obviously, major and of maximum importance, even in the national and international economy dynamics, through the involvement and extension of the material and natural potential, as well as of the human potential. Thus, in the geo-demographic analysis of this research, reference was made to the communities within Crișana region and the analyzed indicators were in relation to the entire system of localities so as the analysis would be as complex and suggestive as possible. Finally, we express our hope that this research will positively influence the local actors in their endeavour to design and elaborate future strategies of sustainable development and evolution in the region.

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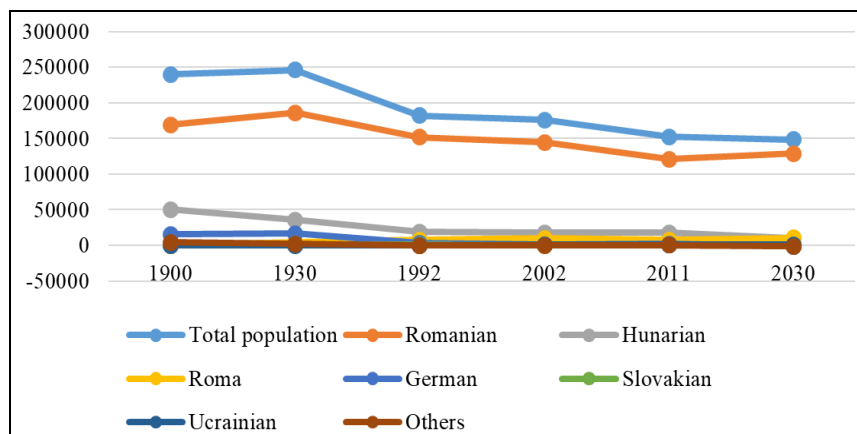


Figure 7. Population forecast and dynamics by ethnicity for Zărand Land (Source of data: <http://www.kia.hu/konyvtar/erdely/erd>)



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## THE CONTRADICTION OF THE EXPECTATIONS OF THE ACTORS OF THE TOURISM ORGANIZATIONAL AND CONSUMER MARKET IN SUSTAINABLE DESTINATION DEVELOPMENT

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**Abstract:** The Lower-Ipoly area, located in the north-central region of Hungary, has linear extension. In terms of the specific location and the unfavourable demographics tourism development faces difficulties in this heterogeneous area. The aim of the research is to identify the needs of prospective travellers and decision makers toward future developments in tourism in the indicated region. The paper summarizes the results of a survey, identifying the opinions of organizational and consumer market stakeholders, their similarities and differences in terms of expectations for tourism developments. This study covers the types of tourism and product elements that can potentially be developed sustainably.

**Key words:** tourism development, destination management, actors of tourism market, Lower-Ipoly region destination management, sustainable development

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### INTRODUCTION

The area along the Lower-Ipoly in Hungary is geographically well-defined, consisting of ten settlements (Bernecebáraty, Kemence, Tésa, Perőcsény, Vámosmikola, Nagybörzsöny, Ipolytölgyes, Letkés, Ipolydamásd, Szob), showing a certain identity from demographic, geographic and economic points of view, which can be called an independent destination. Although the target area has not been named independently as a region for national regional development, its importance is proven by the fact that most of the areas belong to the Danube-Ipoly National Park, and there is also large territory of NATURA 2000 areas, nature conservation areas and areas affected by the National Ecological Network. The defining element of its tourism resources is the River Ipoly. The importance of the area along the river for nature conservation and tourism requires the development of tourism infrastructure and services. Ecotourism factors stand out among the attractions in the area. In settlements located along the river, water and waterfront, active tourism is typical, but the regulation of waterside use has not been resolved. The further attractions of the target area provide the opportunity for rural, cultural and heritage tourism; fishing, hunting and equestrian tourism; youth, religious and bicycle tourism and hobby tourism to appear in a sustainable way with proper controlling.

The tourism infrastructure of the destination shows a diverse picture; the coverage with the road network is good, but the condition of the roads is a limiting factor in the development of tourism. The area – in terms of public administration

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and statistics – belongs to the Central Hungary region and influenced by Budapest to some extent. However, the peripheral location and the linear pattern of the network of settlements – being accessed only on a single road - reduce the development effect of the capital and lead to a polarization in the wealth of inhabitants within the statistical region (Penzes et al., 2014). The location along the border also affects traffic; only the Letkés border crossing is used for vehicles to cross to the Slovak side. In terms of accommodation, more significant quality improvement is required, and each target group expects special additional services. A significant part of the guest nights in the region are generated in private accommodation; the clientele is almost exclusively limited to domestic guests. Most of the settlements in the target area are equipped with catering units, there are several types, from buffets to restaurants, and they show a wide spread in terms of quality. The environmental condition of the riverbank can currently be considered good. However, as a result of uncontrolled fishing activities and nomadic camping, garbage contamination is significant in some hotspots. In terms of human resources, the destination is one of the underdeveloped areas (Alreahi et al., 2023).

The region's development ideas include tourism, but their goal is not the development of mass tourism, but the creation of unique quality tourism based mainly on the waterfront environment (Fehér and Medina, 2015). The aim of the study is to explore the potential for tourism development in the study area, taking into account sustainability aspects. Among the accepted strategic planning phases (Kyriakaki and Kleinaki, 2022) - after the first unit, i.e., inventory of potential tourism types - the study looks at the second, overview phase, the market opportunities on both the supply and demand side. In order to achieve the above goal, it became necessary to assess, on the one hand, the preferences and development attitudes of the tourism service providers and institutional stakeholders of the Lower-Ipoly area, in addition to the tourist characteristics of the target area. On the other hand, it is necessary to carry out a potential demand survey for tourist perceptions related to tourism types of the tourist facilities of the destination area (Samu, 2014). On the basis of the collected data, it can be determined on which strengths tourism developments can be based, as well as the elimination of which weaknesses can represent significant progress in sustainable growth. The outputs from the two sets of responses are summarised in the results and discussion section.

### **Theoretical Background**

The organizational and consumer market - with regard to regional tourism - means all those actors segmented for the market at the targeted regional level, which participate in the operation of tourism. Organizational markets mean producer, reseller and institutional (governmental, non-profit) markets (Czimmer, 2008). In the organizational market of tourist services, travel agencies and tour operators classically appear and meet the theoretical definition as long as the organizations do not engage in tour operator or intermediary activities (Michalkó, 2016). In the organizational market, a significant part of the products and services offered are not (directly) purchased by end users, i.e., individual consumers, but organizations, as providers of consumer market offerings, can also be present as customers in the organizational market (Kiss, 2016). It is therefore necessary to respond to this effect with well-targeted marketing techniques. Organizations are also represented by individuals (employees, managers, possibly owners), but in this role they do not buy for themselves; they do not focus on their individual benefit (Reketye et al., 2015). Their purchases are also intended to ensure continuity and maintain operations, so that decision making within the organization is defined and based on internal rules.

The organizational market can be divided into groups, business and non-business, profit-oriented and non-profit-oriented markets. From the point of view of regional tourism development, the range of organizations affected is very wide; their market involvement can be economic and social in nature (tourism enterprises, professional organizations, public sector, TDMs, civil organizations, clusters, etc.). In the consumer market, the tourist appears parallel to the tourism service providers, as market players who directly provide the supply. The particularity of the demand that appears in the tourism organization market is that, on the one hand, it originates from the needs of the consumer market, i.e., tourists, and on the other hand, due to the consumption of the same resources, the leisure needs of the local population also appear, despite the fact that they are not tourists (Horner and Swarbrooke, 2007). This situation creates a source of conflict of demand for an accessible tourism service because although the basic needs of locals and tourists are the same, further expectations are different (e.g., land use, number of tourists) which was also examined by Gadve (2017).

Institutional decisions of the organizational market often appear as group decisions in order to reduce risk (Reketye et al., 2015). At the same time, the stakeholder decisions also serve the realization of the joint sub-strategy, which appears as the intersection of individual strategies, organizational learning, and the increase of social capital (Wang, 2008). In addition, a competitive tourism destination is capable of continuously increasing revenues, attracting tourists, and providing experiences in addition to generating profits (Ritchie and Crouch, 2003; Mallinguh et al., 2022).

In the logic of destination management, tourism destination management organizations (TDMs) are institutions that appear on the typical organizational market, whose influence can also be felt on the destination's consumer markets. In practice, however, in the absence of an independent organization, some functions of destination management are performed by different institutions - even separately. This ability to form networks significantly affects the success of destination development (Volgger and Pechlaner, 2014). The efficiency of management is hindered by the lack of functions (Enright and Newton, 2004), precisely because of the absence of comprehensive planning and strategy-making functions; the undertaken cooperation and coordination are difficult, and the marketing functions are mainly limited to communication. All these shortcomings could be eliminated by the establishment of TDM organizations and their appearance on the organizational market. The functioning of coordination mechanisms between stakeholders is a condition for successful destination development (Bhat and Gaur, 2012). However, the diversity of stakeholders can be a limiting factor (Sheehan and Ritchie, 2005) and this conflict can build barriers and difficulties may impede the creation of a network of

local stakeholders despite their sharing of common goals (Cortese, Giacosa and Cantino, 2021). Development from the bottom up could also be realized starting from the institutional market, and then tourism service providers that only appear on the consumer market could get involved. This strategy makes proper baseline for community empowerment (Rachmawati and Fountain, 2020). A new opportunity for networking could develop at the intersection of the two markets (Adeyinka-Ojo et al., 2014) which requires an active communication between the parties involved.

At the same time, it is also worth considering that successful destination development requires the functioning of different aspects of both sides as examined by Vrontis et al (2021). With regard to the institutional market, the need for supplier relations, effective management, strategic planning, organizational focus and leadership, adequate financing, and the provision of well-trained staff should be highlighted. In the consumer market, it is necessary to ensure proper location and accessibility, attractive product and service offerings, quality visitor experiences, and local community support (Bornhorst et al, 2010). The support of the local population is also indispensable for tourism developments thanks to their participation and welcoming attitude (Zheng et al., 2021). The programmes offered in rural tourism are aimed at both residents and tourists and the expectations of the stakeholders are convergent. All of these should be considered for those involved in the tourism development of the Lower-Ipoly area, and the fact that it is not necessary to create a traditional TDM organization is also encouraging. In the case of development methods based on projects, it is necessary to include the TDM functions in the application or in the implementation project. In this way, the organizational tasks of directing and coordinating the development of the destination are carried out for each project, according to the given programme.

## MATERIALS AND METHOD

The preferences and development attitudes of the tourism service providers and institutional stakeholders of the Lower-Ipoly area were surveyed with a questionnaire. The questionnaire included 4 identification questions and 18 content questions, of which 3 were simple choice questions; 10 complex scale questions, 1 complex preference question, and 4 open questions awaiting suggestions and additions. Certainly, the answers included the I don't know/I don't answer option and the option for other answer as well. The complete research method is defined below (Figure 1). The number of respondents was less than expected, despite the local distribution, it was small; the number of returned questionnaires was only fourteen; but the quality of the filling made it possible to process them. From the point of view of integrated rural development, the opinions of organizational stakeholders are of great importance (Panyik et al., 2011). The territorial extent of the respondents' activities covers the target area, with Ipolydamásd, Letkés and Ipolytölgyes being the most represented settlements. Among the respondents were tourism program providers, accommodation, catering establishments, professional organizations, civil communities, settlement management organizations, and organizations performing public tasks, sometimes with several functions. It is not possible to further group the institutional market participants (Lakner et al., 2018) due to their relatively small number. The highest proportion of tourism service providers occurred in the sample. They all belong to the micro or small-sized organization category and tourism plays a role in their activities in varying proportions (20-100%). The sample with a low number of elements is suitable for analysis and making conclusions, but at the same time it sets a limit for carrying out crosstab and correlation analyses.

The research aimed at the perceptions of the tourism features of the Lower-Ipoly region related to different types of tourism, and for the purpose of measurement of potential demand, was conducted as an online questionnaire using a Google form. The questionnaire included 7 socio-demographic questions for identification, 4 questions assessing potential demand and 5 questions about perceptions related to the different types of tourism. The questions measuring preference were formulated as hexavalent Likert-scale questions, while the questions measuring the characteristics of the potential tourists were included in the questionnaire as single- or multiple-choice questions. Among the answer options, the I do not know/I do not answer option could also be chosen. The number of respondents reached a high value thanks to the sharing on Facebook and the support with an advertisement, a total of 246 responds were received. Due to the use of the mandatory question setting, all of the answers given were valid, and incomplete filling was not possible.

## RESULTS AND DISCUSSION

### The role of stakeholders in the organizational market

The tourism position of the target area is shown by its current and future importance from the point of view of the economy and the society. A positive vision emerges from the answers, the current scale average of 3.71 is believed to be 5.57 in the future (on a scale of 1-6). In the other group of questions, also concerning the position, there is a large degree of agreement between the answers. 85.7% consider it gratifying and beneficial that many tourists visit the region, and the same proportion disagree with the lack of development and the need to further increase the number of tourists. 28.6% of respondents consider tourists to be a nuisance on occasion; this may also stem from the heterogeneity of the target area and the experience of tourist-frequented settlements (e.g., Nagyörzsöny). There is a high rate of agreement (71.4%) that the development of tourism is necessary; it is good if more travellers come, they believe that the conditions make this possible. In addition, with

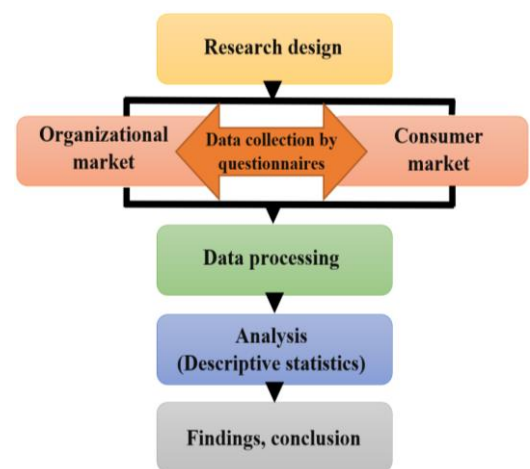


Figure 1. Flowchart of the research (Source: compiled by the authors, 2023)



the same agreement, compliance with the principle of regulated, sustainable tourism is considered to be taken into account during development. 85.7% of the respondents believe that tourism developments are beneficial for local residents as well. The environmental impact of tourism is not considered to be a significant problem; people filling in the questionnaire would typically take only minimal restrictive measures (Bungau et al., 2019). The number of tourists is considered small, which is because the area is not well-known and the services are not competitive. This is the opinion of at least 85.7% of respondents, and the same number assess the development possibilities of the settlements as limited due to the lack of financial resources.

Based on the answers to the following questions, a problem ranking was compiled, which also shows the importance of solving the problem. In addition to information gaps, the groups that need to be dealt with the most are the lack of spending opportunities, insufficient cooperation, a lack of regulation in tourism, and unorganized settlements. In addition, the respondents raised the conflicts of interest of water-based tourism and fishing, the lack of moorings, the collection and removal of waterfront waste, the lack of waterfront rest areas, toilets and cleaning facilities, and the scarcity of leisure services. Regarding the balance of demand and supply of services, opinions are divided between two answers: 57.1% say that the number of service providers is small compared to tourists, so they cannot always find everything in the area, while 42.9% think that there are enough service providers. However, their offer does not always satisfy the needs of tourists. This is consistent with the previous opinion about spending opportunities, but at the same time contradicts the answers given to the next question. 71.4% of the respondents consider tourists to be more satisfied, and the remaining 28.6% say they are completely satisfied, that their trip will fulfil their preconceived ideas. For the sake of a more favourable assessment, the factors mentioned several times among the suggestions are: information supply, comfortable accommodations, cultured environment, waterfront restaurant, restaurant service, marketing, cooperation of service providers, programme organization and tour guiding in the area, tour organization, tourist information point/office.

The composition and quality assessment of the services took place on a complex scale, after identifying the quantitative criteria (few (1), sufficient (2), many (3)). In all three categories low (+0,1), adequate (+0.4) and above average (+ 0.7) rating could be answered. In the evaluation, the quantified values of the categories were averaged, with the exception of the I do not know/I do not answer. The answers were concentrated in three categories (sufficient and adequate quality; little and adequate quality; little and low quality). Ecotourism, water-based tourism and fishing tourism services are rated the best. But at the same time, the reason for the short length of stay can also be seen from the answers, because both quantity and quality problems were indicated in the supply of accommodation, catering facilities, leisure services, but especially event services, and mainly in terms of information services. Three questions related to the different roles, impact, and significance of the types of tourism that can be identified in the region. Based on these, a significance index (average of 1-3 scale), an impact index (-1 to +1 scale) and a growth index (-2 to +2 scale) could be formed, and the simple arithmetic average of which can be called a potential index. The importance, impact and growth indices are illustrated in Figure 2, which also contains the potential indices, distinguishing the four quartiles with colours.

It can be concluded that two of the three indices have the highest values in the case of ecotourism/nature walks and are considered the second most significant, followed by bicycle tourism. In terms of impact, it is the same, and in terms of significance, it is high. But its development is considered to be more moderately necessary for water-based tourism, and the same development index; however, a much lower impact index, is attributed to youth tourism. Since these four types of tourism make up the upper quartile, it is recommended to take them into account in development plans. From the upper-middle quartile, great importance is attributed to sport and hobby tourism, while the

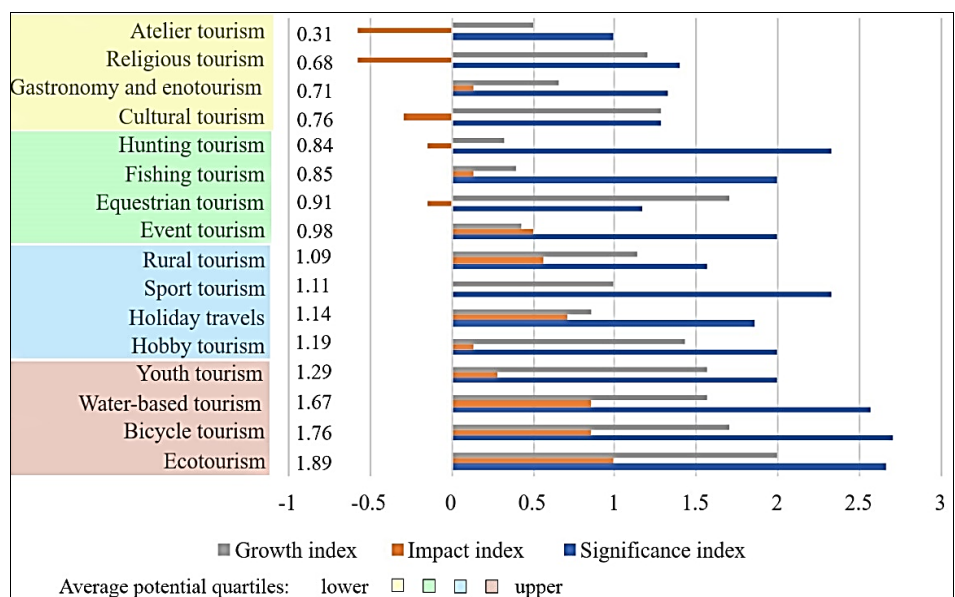


Figure 2. Evaluation and average potential of tourism types. (Source: compiled by the authors based on the survey results, 2019)

potential of holiday travels was included in this group due to its impact, and the potential of rural tourism was included in this group due to the belief in its development. With regard to tourism development proposals, it is advisable to leave out holiday travels due to the significant capital need. Fishing tourism has a special assessment; the respondents consider it significant, but its positive effect is minimal. At the same time, they do not shy away from the possibility, but are among the last to recommend its development. Event tourism is also considered significant from the point of view of the target area; its impact can also be considered positive, but its development weight is below the average. However, the respondents were generally positive about tourism development; there were no answers that suggested the redevelopment of any type of tourism.

There are many and different opinions regarding development cooperation. On average, it is characteristic to a large extent that organizations carry out development tasks independently; often instead of others, they also carry out development from their own resources. It is not considered only to a small extent that tasks can be solved more quickly in cooperation with partner organizations. But at the same time, tasks can be carried out at a more favourable cost through collaborations, and thus the tasks can be implemented faster. According to all of this, the stakeholders of the target area can cooperate effectively on the basis of transparent and well-divided project plans. Three groups of actors of settlement/regional events gave answers to the relevant questions (main organizers, service providers, and participants). They unanimously regard the events as important from the point of view of both the population and tourists. Broader promotion and better hospitality are considered to be the most feasible in order to increase the awareness and attendance of the events. This is followed by attractive product presentations, free tastings, and then more interesting programs and more focused theming. At the end of the line are the prize games, and the respondents mostly reject the extension of the programs to more settlements. With regard to festivals, it can be concluded that large-scale, multi-day events exceed the resources of the target area, but more frequent, thematic village day events can be successful. The attractions, tourism products and communication of the destination area, the stay in the destination area, the promise of experience and the similarity of lived experiences have different effects on tourists. Each form of tourism serves different proportions for travel motivation, satisfaction, or the extension of the stay (Figure 3). The most motivating types of tourism in the destination area can be festival tourism, cycling tourism, sports tourism, hunting

tourism, water-based tourism, and hobby tourism. Post-stay satisfaction can be increased by cultural tourism, fishing, hobby, atelier, and youth tourism. Extending the length of stay is encouraged by ecotourism, holiday travels, equestrian tourism, and village tourism. It is advisable to take revealed functions into account during product development, especially fusion products. Among the additional ideas related to the tourism of the Lower-Ipoly region, the respondents mentioned the role of tourism in preserving culture and values; the importance of creating a vision for the future, and the need for local acceptance. It was also emphasized that the search for sources corresponding to the vision should be a good practice, instead of the implementation of development ideas corresponding to the goals related to the available EU or national financial resources.

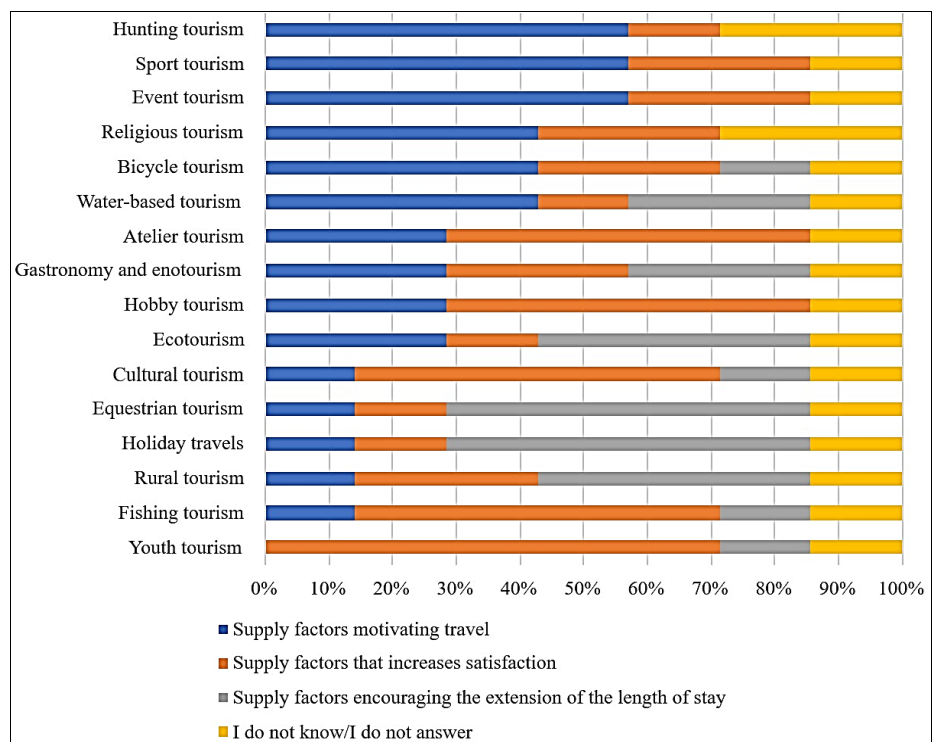


Figure 3. Presumed functions of each type of tourism (Source: compiled by the authors based on the survey results, 2019)

**Demand analysis - perceptions of the demand groups of potential tourists related to types of tourism**

The sample is overrepresented in terms of women (63%), which is very common in the case of non-stratified, voluntary response surveys, because women prefer to participate in opinion polls (Kabil et al., 2022). The obtained results were not weighted to achieve an even gender sample ratio, because the primary goal of the research was not to reveal differences of opinion between the sexes, but to learn about the expectations related to each type of tourism. The age distribution of the sample is balanced, typically following the characteristics of the cohort. All age groups represented their opinion; the opinion of 30–49-year-olds represents 58% of the sample. Based on employment status, two-thirds of the 246 respondents were active earners. The highest educational qualification shows a high level of education for the respondents (45% have secondary and 49% higher education). The respondents could determine their income status with a value given on a scale of 1-10, the average of which is 5. Most of them indicated levels 4, 5 and 6, and no answers were received for the lowest and highest income levels. 60% of the respondents live in a city; 31% in a village and 9% in the capital. Examining the distribution according to county of residence, Jász-Nagykun-Szolnok and Pest counties are overrepresented.

One of the questions used to measure potential demand was about the frequency of domestic tourist trips, regardless of the length of stay. Two-thirds of respondents (68%) often take part in such trips, while the proportion of frequent and very frequent travellers in the sample is three-quarters (75%). The participants in the research had a significant demand for domestic travel, which proves the potential demand for tourism developments. They also determined the most common purpose of their domestic tourist trips by choosing five of the listed motivational factors. From the Top 5 motivations, the Lower-Ipoly area - with the exception of the wellness spa - has the proper features for all of them (Table 1).

Specifying the type of tourist that best suits the personality of the respondents can help during development, because segmentation can also take place according to lifestyle. Those included in the research identified themselves in the highest proportion as wanting to see, followed by experience seekers (Table 2). Based on the results obtained, the target area meets the most common lifestyle expectations of potential tourists. It is worth exploring how far tourists are willing to travel in order to visit the destination. The respondents intended to travel a significant distance when travelling by car; a distance of 101-300 km appeared in the case of 66% of the respondents. According to this, for the Lower-Ipoly region, the communication of tourism products to individual passengers travelling by car is appropriate for the entire territory of Hungary to attract domestic travellers. Regarding travelling by public transport, longer travel distances also represent the largest response rate (34%), but the sample is divided: a significant group of respondents is only willing to travel shorter distances when travelling by public transport. A trip of 0-100 kilometres was indicated by 56% of the respondents; in contrast, the distance of 101-300 kilometres remained in the minority. The further part of the research was made up of questions about images related to types of tourism. Respondents' opinions were surveyed in relation to five types of tourism: water-based sports tourism, cycling tourism, youth tourism, event tourism, and fishing tourism. The five priority types of tourism were determined after an assessment of the tourism features of the Lower-Ipoly region.

Table 1. Travel motivation ranking (Top 5) (Source: compiled by the authors based on the survey results, 2019)

| Travel motivations                          | Number of answers |
|---|-------------------|
| Nature walks, hiking                        | 155               |
| Participation in water-based sports tourism | 97                |
| Fresh water bathing, hiking                 | 96                |
| Wellness, spa visit                         | 92                |
| Hobby-related travel                        | 88                |

Table 2. Tourist type self-identification (Source: compiled by the authors based on the survey results, 2019)

| Tourist types     | Number of answers |
|-------------------|-------------------|
| Wanting to see    | 155               |
| Experience seeker | 131               |
| Wanting to rest   | 99                |
| Adventure seeker  | 68                |
| Motion seeker     | 63                |

In the case of water-based sports tourism, the respondents evaluated the expectations regarding the services necessary for the development of the offer on a wide range. They could express their opinion on 25 different service elements on a hexavalent scale (with endpoints ranging from very unimportant to very important). According to the opinion of those interviewed, the services provided in the framework of water-based tourism should cover the provision of the most basic infrastructural conditions (Table 3). Among the related tourist services, the respondents considered leisure programmes, catering and accommodation offers, as well as the existence of interactive applications and maps to be indispensable.

Table 3. Priority ranking of services related to water-based sports tourism (Top 5) (Source: compiled by the authors based on the survey results)

| Services                             | Scale average (scale 1 to 6) |
|--------------------------------------|------------------------------|
| Providing the possibility of mooring | 4.82                         |
| Waterfront toilet block              | 4.82                         |
| Provision of boats                   | 4.66                         |
| Boat storage facilities              | 4.38                         |
| Provision of equipment               | 4.20                         |

Table 4. Priority ranking of services related to bicycle tourism (Top 5) (Source: compiled by the authors based on the survey results, 2019)

| Services                                  | Scale average (scale 1 to 6) |
|---|------------------------------|
| Secure bicycle storage                    | 5.23                         |
| Rest area with rain shelter and benches   | 5.21                         |
| Provision of repair services              | 4.91                         |
| Map information at the rest area          | 4.85                         |
| Rest area with refreshment point services | 4.68                         |

The following services are also obtained a scale average above average (3.5): the existence of nature walking leisure programmes, the possibility of cooking, luggage transfer, provision of sporting leisure programmes and passenger/tourist transfer, provision of maps, provision of creative leisure programmes, provision of GPS navigation, tour guiding, individual/small group tour, as well as the range of fun leisure programmes. In terms of bicycle tourism, the most important service elements were identified by the respondents as safe bicycle storage and rain-proof rest areas, which represent a very high value on the evaluation scale. Also, more fundamental service elements are features related to the use of bicycles and related to infrastructure, such as cycle paths, information boards, as well as special services of the tourism type, such as repair, provision of equipment, bicycle transport (Table 4). The following service elements also show an above the average value (4.3 on the hexavalent scale): hostel-type accommodation; mobile accommodation (rooms with bunkbeds and bathroom) and food service provision; cycling leisure programmes; providing interactive navigation and/or application; comfortable accommodation (hotel, boarding house) and GPS navigation. There is also a demand from those participating in bicycle tourism for longer tours, which necessitates the provision of tour offers. The existence of a suitable quantity and quality of varied accommodation is a necessary condition for satisfying needs. The respondents involved in the research identified the large common living room, where young people can gather, participate in activities, and have fun, as the most important service elements necessary for the development of an offer related to youth tourism. A scale value in the range of 4.4-5.0 was also indicated by the respondents for expectations to several additional service elements (Table 5). Among the service elements necessary for the development of the event tourism offer, the respondents expressed their highest expectations for the provision of mobile toilets, hand washing opportunity and potable water with a scale value of over five on a scale of 6 (Table 6).

In the case of event tourism, respondents consider the provision of a good selection of food and beverages, programme offerings according to interest and age groups, and accommodation services to be also essential. The large area that can be furnished with a mobile stage, the sporty, challenging programmes, and the sightseeing leisure programmes are also of high importance. The demand for cheaper accommodation shows the need for accommodation differentiation. Finally, during the evaluation of the 33 service elements of fishing tourism listed in the questionnaire, the assessment of their individual factors was characterized by the smallest standard deviation in relation to the five examined types of tourism. In the case of six

aspects, the respondents gave values on a hexavalent Likert-scale above the scale average of 5. Of these, four are related to infrastructure (fishing spots, jetties), and two are service-related (selling fishing permit and bait) (Table 7). Convenience services such as a place to clean fish and cooking facilities, as well as the provision of equipment, also fall into a high average scale value interval of 4.60-5.0. The expectations for accommodation were formulated by the respondents as a fishing lodge-type, simple accommodation with a high level of importance. The leisure programmes related to fishing and the accessibility of the waterfront without a car, as well as the approachability of interactive information and/or application, are service- and infrastructure-based, similar to the above expectations.

Table 5. Ranking of services related to youth tourism (Top 5)  
(Source: compiled by the authors based on the survey results, 2019)

| Services   | Scale average (scale 1 to 6) |
|--|------------------------------|
| Large common living area   | 5.29                         |
| Catering services  | 4.98                         |
| Provision of equipment   | 4.69                         |
| Providing information and brochures for individual request           | 4.65                         |
| Participation in a tour with a familiar community and/or schoolmates | 4.63                         |

Table 6. Ranking of services related to event tourism (Top 5)  
(Source: compiled by the authors based on the survey results, 2019)

| Services                                       | Scale average (scale 1 to 6) |
|--|------------------------------|
| Mobile toilet, hand wash, water supply points  | 5.12                         |
| Food service - buffet, fast food restaurants   | 4.93                         |
| Beverage services                              | 4.90                         |
| Programmes can be chosen according to interest | 4.63                         |
| Programmes can be chosen by age group          | 4.59                         |

Table 7. Ranking of services related to fishing tourism (Top 6)  
(Source: compiled by the authors based on the survey results, 2019)

| Services   | Scale average (scale 1 to 6) |
|--|------------------------------|
| Selling fishing permits or tickets                       | 5.70                         |
| Toilet block close to the waterfront                     | 5.48                         |
| Bookable fishing spots with seating, protected from rain | 5.33                         |
| Providing/renting a fishing rod                          | 5.27                         |
| Provision of designated fishing spots                    | 5.26                         |
| Ensuring the purchase of feed and bait                   | 5.01                         |

## CONCLUSION

Based on the features and services revealed during the status quo analysis, as well as the environmental factors with direct and indirect effects, the strengths were determined for the target area mainly according to the internal factors (favourable natural appeal, Ipoly as a tourism resource, the attractiveness of Börzsöny, the function of an excursion site, youth tourism location, local producers and products, diverse culture and heritage, activity of local governments to participate in tenders) (Bogdan et al., 2022). Weaknesses can also be identified from the point of view of the various stakeholders, i.e., the low-level of utilization of geographical features, the orderliness and usability of the waterfront, the quantity and quality of existing tourism services, current regional marketing and communication activity, lack of combined transportation infrastructure, low level of experience offer, welcoming attitude, tourists' length of stay, fragmented organizational stakeholders and absence of cooperation. According to the effects, interactions or reactions of the factors of the external environment, such opportunities as the increase in interest in the green environment, the increase in the demand for active recreation, diverse transport accessibility, channel communication specific to the target group, the strengthening of the character of the recreation area, spread of bio and organic farming have been outlined (Bhagat et al., 2022). In addition, cooperation between local tourism organizers, domestic and cross-border tenders, and networking also offers opportunities for local bodies for sustainable tourism development. It is important for the institutional market to accurately assess its own role in rural tourism (Darabos et al., 2022; Priatmoko et al., 2021) and plan development based on synergy with their network of relationships.

At the same time, the threats are mainly seen by the organizational stakeholders, such as environmental and weather anomalies, the development of unfavourable composition of tourists, the activity of competitors, inefficient communication, the spread of mass tourism with high externalities, the deteriorating tourism infrastructure and superstructure, the unfavourable local social processes, the growing organizational separation. Based on the needs, the vision of the area can be outlined, that is, by the end of the decade, the Lower-Ipoly area will become a network of differentially impulsive experience points based on the unique combination of diverse natural features, and will be integrated as an excursion and holiday destination for eco-conscious tourists who prefer active tranquillity to the Börzsöny and the Danube Bend sustainable tourism and contributes to the well-being of the local population. According to the vision, the tourism market provides expanding services for several overlapping segments (Maghsoodi Tilaki et al., 2017), the service providers and the relevant institutions cooperate effectively, and the hospitality of the population becomes palpable.

Proceeding from the analysis of the results of the stakeholder and potential consumer surveys, five types of fusion tourism development directions emerge, and one development direction targets the niche market that requires special experiences. These include nature-loving water-based sports tourism, environmentally friendly fishing tourism, adventure-seeking bicycle tourism, exploratory youth tourism, and guest-welcoming event tourism. It is advisable to take into account the successfully implemented area-based functional delimitation of Lake Tisza during product generation (Béki and Gál, 2012). The next step in the development is the creation and communication of a differentiated product portfolio in space and time corresponding to the identified segments and to desirable sustainable landscape use (Ruzsinné Tillesch and G-Tóth, 2013). In addition to these, in the case of cross-border development opportunities, the existing models developed for areas with similar characteristics (Bujdosó et al., 2011; Dávid et al., 2011) can be well adapted in the future.

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## THE INFLUENCE OF SOCIAL CAPITAL IN IMPROVING THE QUALITY OF LIFE OF THE COMMUNITY IN SIDOMULYO TOURISM VILLAGE, INDONESIA

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**Abstract:** Sidomulyo Village has succeeded in developing village tourism during the hustle and bustle of urban life and delivering real benefits to the local community. One of the key factors was the prevalence of social capital underpinning strong engagement of the local community to support the programs. In light of this success, this study further observes the factors determining social capital and found an overall improvement of the quality of life of the local people as a direct impact of this rural based tourism development in Sidomulyo. This study deploys descriptive statistical analysis to reveal the baseline characteristics in relation to social capital and quality of life in Sidomulyo. Subsequently, a CFA framework was applied to determine the factors forming social capital and quality of life. Meanwhile, an analysis using a SEM technique was done to identify the relationship between social capital and quality of life. This study observed the components of quality of life which consists of material, community, emotional, health, and safety. The result shows that 81% of the quality of life is influenced by social capital in relation to the health and safety components. Social capital is important in facilitating the community's activities, especially tourism involving many people. Good social capital will affect the quality of life of the people of Sidomulyo Village through trust, norms, and networks that will make the community cooperate and support the development of tourism in Sidomulyo Village.

**Key words:** Social Capital, Quality of Life, Tourism Village

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### INTRODUCTION

Tourism based development can be perceived as one the approaches in rural development to improve of the people's welfare and overall quality of life (Hassan et al., 2022). Tourism provides opportunities to connect local communities with tourists through the utilisation of natural resources, human resources, and local customs. Additionally, it encourages the existence of environmental ethics among the local community to maintain sustainability of resources, and thus providing better opportunities for job creation and income generation which will improve the quality of life in the long run (Băndoi et al., 2020). In tourism, social capital plays an important role in encouraging pro-social and pro-environmental attitudes underpinning human-nature relations through uplifting a sense of belonging towards their environment (Ramkissoo, 2020; Zmyślony et al., 2020). Social capital is as a determinant of individual wellbeing and health (Lane et al., 2020), created in a community environment settings to improve quality of life. Social capital is not only manifested in the social aspect but also as a form of certainty between individuals to create a strong community ties which reflects a decent quality of life (Hamdan et al., 2014). One of the villages that has succeeded in utilizing its social capital in supporting tourism development is Sidomulyo Village which consists of three hamlets, including Tinjumoyo, Sukorembung, and Tonggolari. This village is included in the village in Batu City, East Java Island, Indonesia.

This village has successfully developed their tourism sector in the midst of urbanisation challenges. The development centralises in the utilisation of ornamental flower plants as a key product to fuel the growth of the agro-

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industrial sector. Flower farming (floriculture) has been the main occupation for locals; which contributed significantly in the production and made this village as a centre of ornamental plants cultivation in Batu (Augusty et al., 2022). The success of developing a tourist village certainly provides benefits for the local community.

According to (Băndoi et al., 2020; Ramkissoon, 2020; Zmysłony et al., 2020), tourism can improve the quality of life of people, while social capital enables the empowerment of pro-social and pro-environmental attitudes to channel improvement of the overall quality of life. Quality of life depends on many factors and circumstances, and quality of life itself can include separate components related to health, material, spiritual, quality of work life, family, social quality of life, recreation, and environmental quality of life. Social capital is directly related to one of the components of quality of life, namely social quality of life, and social capital is indirectly related to other quality of life components (Prayitno et al., 2022; Sarkiunaite et al., 2012). Researches (Gao et al., 2018; Murgáš et al., 2022), states that social capital has a strong influence on quality of life, especially in areas with high quality of life. Quality of life is a concept by which people express their satisfaction or dissatisfaction with life. Quality of life is also interpreted as happiness or well-being, even though social capital is an intangible and non-financial capital owned by a person, social capital will reflect the level of satisfaction with life. The higher the value of social capital, the higher the value of quality of life, someone who has high social capital will tend to experience a higher quality of life as well (Chen et al., 2018). This is in line with (Bartolini and Sarracino, 2014), that a decrease in social capital will also reduce one's happiness. According to (Nugraha et al., 2022), village communities generally have low incomes with low levels of education. In this case, the role of social capital is urgently needed in improving the quality of people's lives, through trust it will make it easier to build mutually beneficial partnerships, then through norms and networks will provide opportunities and information related to employment. In this context, this study investigates the factors of social capital and the quality of life of the residents of Sidomulyo Village in relation to tourism development. Subsequently, the relation between social capital and the quality of life in the context of this case study is investigated to identify the primary subject of tourism to quality of life of the people in Sidomulyo.

## LITERATURE REVIEW

### Tourism Village

Tourism in various developing countries is considered a development tool to solve problems and plays many roles, including empowering individuals and communities (Rachmawati, 2020). In Indonesia, tourism has become a strategic sector and is set to be one of the development priorities through the development of tourist villages (Purnomo et al., 2020). In the last few decades, good tourism development can trigger good economic growth (León-Gómez et al., 2021) (Ruiz-Real et al., 2020). Tourism is the activity of people traveling to stay outside their usual surroundings, often for relaxation, for less than one year. Five integrated sectors comprise the tourism system: accommodation, attractions, transportation, travel providers, and local organizations (Manaf et al., 2018). Rural tourism is considered one of many countries' most appropriate development strategies for rural areas. The purpose of developing tourism in rural areas is to increase the benefits and participation of rural communities in managing tourism (Gallo et al., 2018; Ayhan et al., 2020; Khartishvili et al., 2019). In addition, the knowledge and skills of local communities in their livelihoods become a tourist attraction and can create participatory tourism experiences for local communities (Su et al., 2019). The concept of a tourist village emerged along with the number of villages that offer the charm of rural life as a tourist attraction (Risawati et al., 2020). Tourism villages generally describe the main tourism activities in rural areas such as nature tourism, agriculture-based tourism, adventure tourism, spiritual tourism, cultural tourism, and other activities related to activities in rural areas (Rosalina et al., 2021). Most tourist villages offer activities in nature as a tourist attraction (Priatmoko et al., 2021).

A tourism village is one form of implementing community-based and sustainable tourism development. Village tourism is where a small group of tourists stay and learn about village life and the local community. Tourism is a form that can provide numerous advantages for the village's development. This potential can be a tourist attraction that can provide authentic experiences to tourists and opportunities for local communities to earn additional income through tourism (Arida et al., 2019). So, community participation or community empowerment is necessary for managing tourist villages (Prameka et al., 2021; Xiong et al., 2021). The involvement of local communities will play an important role from its inception to running tourism activities in the village (Nugraha et al., 2021). The management of tourist villages requires systems and regulations carried out by village institutions such as Village-Owned Enterprises (BUMDES), Tourism Awareness Groups (POKDAKAWIS), Youth Organizations, etc. (Risawati et al., 2020). Several potential factors for the development of tourist villages include (1) rural areas that are still pure and traditional and whose cultural potential is still displayed in traditional events, (2) rural areas that still have a clean natural environment, and (3) community social capital used for optimizing the economy and develop tourist villages. Thus, the tourist village maximizes the utilization of rural resources as a tourist attraction to increase the competitiveness of local tourism (Aji, 2020).

### Social Capital

An important contribution of the social capital approach is to emphasize the active role of individuals and communities in dealing with environmental changes (Field, 2003). The existence of social capital affects the differences that exist between communities. The impact is in the form of positive influences that can be felt by the whole community, such as trust, cooperation, and networking that meet needs and are mutually beneficial—each other (Bott et al., 2020). Social organization, the nature in question, includes the values of trust, social norms, and social networks that can facilitate action (Falk and Kilpatrick, 2000). Social capital is defined as a social network that benefits all elements of society. The less social capital you have, the more vulnerable you are to mental and physical health problems. Participation is widely recognized as a

core component of social capital (Xie et al., 2019). According to (Coleman, 1989) social capital is the key to a social group in solving a common problem to gather various thoughts to achieve group goals. Social capital serves as a substitute for other lack of capital, but social capital not only arises naturally but requires money and time to be formed and maintained.

Social capital refers to the idea that a relationship investment can lead to greater access to various resources (Rossoni et al., 2018). In order to achieve something, economic capital and social capital are important, and if there is social capital, it can be easily achieved. Some people work with people they trust (Bourdieu, 1986). Social capital can serve as a substitute for other lack of capital, but social capital does not just appear naturally but requires money and time to be formed and maintained. Community social capital needs strengthening to achieve more efficient infrastructure management programs (Prayitno et al., 2020). Social capital can serve as a substitute for other lack of capital, but social capital does not just appear naturally but requires money and time to be formed and maintained (Bott et al., 2020). The main elements of social capital, including social networks, norms, and trust, have significantly impacted society (Paramitha Dewi et al., 2021). At the individual level, resources include social support, such as family and friends watching over someone's home or providing emergency loans (Mathews, 2021). At the group level, binding social capital can help reduce crime rates in close-knit communities, prepare them to protect themselves from outsiders, and help residents achieve development goals (Putnam, 2000).

Social capital is a key factor in supporting community development. In the concept of social capital, humans are the main players in determining the direction of development implementation. Participation and self-regulation are critical to enabling societies to play a role in models of human development. These two capabilities are supported and developed by the community's social capital. The existence of social capital is equally important for poverty alleviation. Poverty reduction is not only related to meeting economic needs, but also to expanding access to livelihood resources. This is also determined by network availability, the growth of values (norms) in society, and mutual trust in society public. The presence of social capital owned by village communities facilitates successful village development (Prayitno et al., 2022).

**Quality of Life**

Quality of life (QOL) is defined as an individual's perception of their position in life in the context of the culture and value systems where they live and in relation to their goals, Expectations, Standards, and Concerns. Quality of life is influenced by behavioral regulators, potential opportunities, skills, support systems, life events, resources, environmental changes, and political changes (Furlong et al., 2022). Quality of life is a global phenomenon that has become one of the most important concerns of the 21st century in both developing and developed countries. Quality of life is a multidisciplinary issue, complex, multidimensional and dynamic, involving both material (e.g. income) and immaterial (health, employment, personal and family life, social support, stress, environment, etc) (Aliyari et al., 2022). Quality of life (QOL) is also defined as encompassing the quality of the environment in which people live, their general well-being, and their satisfaction with this environment (Al-Qawasmi, 2020). In essence, quality of life is a multifaceted economic criterion that includes political, political and economic factors environmental, social and personal aspects (Honarkhah et al., 2020). Quality of life measures can be objective or subjective. Objective indicators are measurable economic and social aspects that reflect how well human needs are being met from time to time. Quality of Life Studies a subjective, human-determined approach direct questions about living conditions should be made as quality of life goals may not be achieved. Accurately reflect people's consciousness, subjective metrics are more descriptive valuable Insights into people's perceptions (Liu et al., 2020).

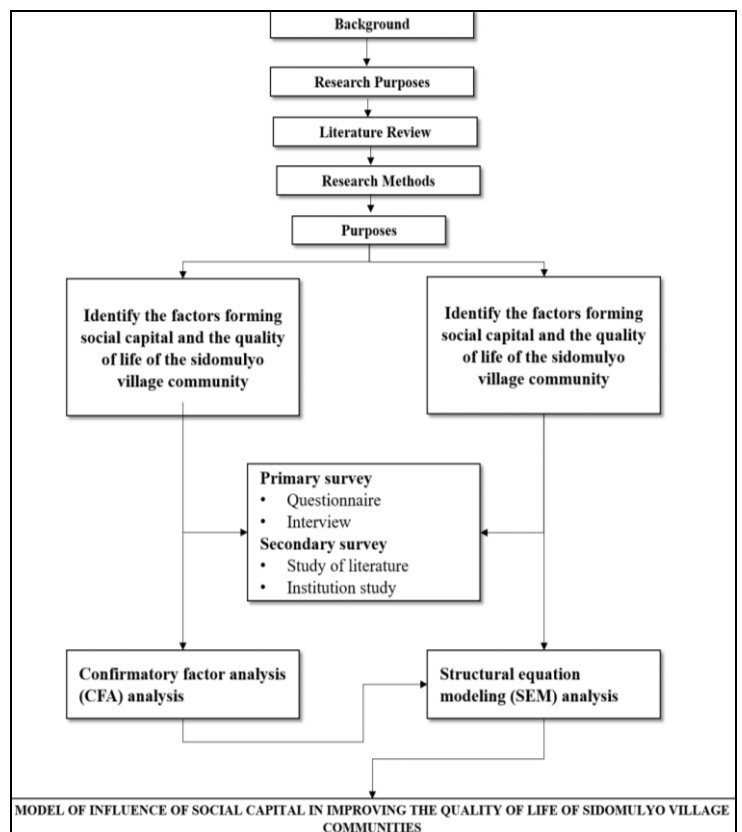


Figure 1. Research Method

**MATERIALS AND METHODS**

**Method of Collecting Data**

Data collection methods in this study used questionnaires and interviews to obtain primary data for secondary data collection techniques by reviewing literature studies (Figure 1). The data collected is divided into three major dimensions: the characteristics of the respondents, the social capital of the Sidomulyo Village community, and data related to Quality of Life. Through the questionnaire, the results of filling in the form of scoring to obtain data on social capital and quality of life. Each variable is filled with a score of 1-5, consecutively interpreting strongly disagree to strongly agree. Furthermore,



the scoring results are converted into percentages. The characteristics of social capital and quality of life of the residents of Sidomulyo Village can be determined by calculating the frequency and percentage of questionnaire responses. In this study, the population is the 17-to-64-year-old population of Sidomulyo Village in 2022, which totals 6.623 people. Based on the table that determines the number of samples carried out with the selected error rate of 5%, the minimum number of samples that can be used in this study is 320 people. The research sample was divided into several hamlets, namely 160 respondents in Tinjumoyo Hamlet, 60 respondents in Tonggolari Hamlet, and 100 respondents in Sukorembug Hamlet.

### **Analysis Method**

Descriptive statistical analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) are the three primary analyses conducted in this study.

1. In this study, descriptive analysis was used to interpret the findings from observational studies, questionnaires, and interviews about the characteristic of social capital and quality of life in Sidomulyo Village. Each variable is filled with a score of 1-5, consecutively interpreting strongly disagree to strongly agree. Furthermore, the scoring results are converted into percentages. The calculation of the frequency and the percentage of answers to the questionnaire represents the characteristics of social capital and quality of life of the people of Sidomulyo Village.

2. Confirmatory Factor Analysis (CFA) is part of Structural Equation Modelling (SEM). CFA is conducted to test variables that have good measurement results which can be described logically and systematically. CFA produces a variable that can represent the number of a factor. Using CFA can reduce the risk of measurement errors with many indicators on the same latent variable. The level of influence is the relationship between measurements of the factors that cause the existence of these variables. The first stage of this analysis evaluates the outer model to specify the relationship between latent variables and their indicators. The second evaluation of the inner model (structural) is to provide information and test the relationship between latent constructs.

3. The third analysis includes the previous analysis, Structural Equation Modelling (SEM). Linear, general, and cross-sectional statistical modelling in SEM include factor analysis, path analysis, and regression analysis. This analysis stimulant handles a measurement error, latent variable, and indicator variable. A structural model is used to test a hypothesis on the relationship between latent variables when estimating latent variables using the measurement of each variable. The data used is in the form of a sample group of data so that the similarity of the structure and pattern in the two groups can be seen.

## **RESULTS AND DISCUSSION**

### **Overview of Study Area**

Sidomulyo Village is one of the villages located in the administrative area of Batu District, Batu City, East Java Province. Sidomulyo Village has an area of 270.82 Ha divided into three hamlets: Tonggolari Hamlet, Sukorembug Hamlet, and Tinjumoyo Hamlet. Sidomulyo Village is located at an altitude of 800-850 meters above sea level with an average air temperature between 17o-25o C. This physical condition makes Sidomulyo Village known as one of the villages with mountainous natural scenery and cool air and soil properties with a high fertility rate. This type of soil makes 68% of the Sidomulyo Village area used as agricultural land, approximately 184.02 Ha.

Of the 320 respondents, 61% were male, i.e., 196 persons, while 39% were female, or 123 persons. In addition, the level of education taken by the village community is quite diverse. As many as 1% of respondents do not go to school. Respondents with elementary/MI education levels are 35%, junior high school/junior high school graduates/equivalent are 22%, high school/high school/equivalent education levels are 33%, and universities are 9%. From these data, it can be seen that the majority of respondents are SD/MI graduates. Most respondents work as farmers, considering that Sidomulyo Village is a Tourism Village with potential for ornamental flower farming. Respondents also have other livelihoods such as entrepreneurs, civil servants, entrepreneurs, farm laborers, not working, and other jobs. The involvement of respondents in the tourism sector is relatively low. Respondents who do not work in the tourism sector are 84%, while the other 16% are divided into livelihoods into tourist attractions, culinary, accommodation, travel services, and transportation services. Most respondents have an income level of <Rp 2.830.367.09, 125 respondents or 39% of the total respondents.

### **Confirmatory Factor Analysis (CFA)**

#### **1. CFA of Social Capital in Sidomulyo Village**

CFA Social capital in Sidomulyo Village was measured using norms (N), trust (K), and social networks as social capital variables (J). Five indicators describe the norm variable, six indicators describe the social network variable, and nine indicators describe the trust variable. Furthermore, calculations are carried out on each social capital indicator. In the CFA stage, the social capital of Sidomulyo Village consists of 2 stages. In the early stages of CFA, all social capital indicators are included in the model. Measurement Results CFA phase 1 (Figure 2) social capital was calculated with a reliability cut of 0.5. In this first stage, the trust variable has a composite reliability value of 0.729, the social network variable has a value of 0.768, and the norm variable has a value of 0.644. So it can be seen that all variables have a value higher than 0.5, meaning that all constructs in the model can explain more than half of the indicator variance. Furthermore, the calculation is carried out on each social capital indicator, where indicators that do not meet the loading factor criteria ( $\geq 0.70$ ) will be discarded because these indicators cannot describe social capital variables adequately. Several indicators that were discarded from the trust (K) variable consisted of indicators K1, K2, K3, K4, K5, K6, and K9. Then the norm (N) variable discards indicators N1 and N5. In the social network (J) variable, the J1 indicator is discarded. Results CFA stage 2 (Figure 3) social capital still maintains the three dimensions of social networks, norms, and trust. The norm variable is

formed by indicators of Obedience to religious rules (N2), Compliance with village government regulations (N3), and Obedience to groups in the village (N4). The trust variable is formed by an indicator of the level of trust in the role of tourism institutions in building tourist villages (K7) and the level of confidence in the performance results of tourism institutions (K8). Finally, social network variables are formed by indicators of Participation in village religious activities (J2), Participation in village social activities (J3), Participation in group activities (J4), Participation in traditional village activities (J5), and Participation in giving opinions, suggestions, and financial assistance related to village development (J6).

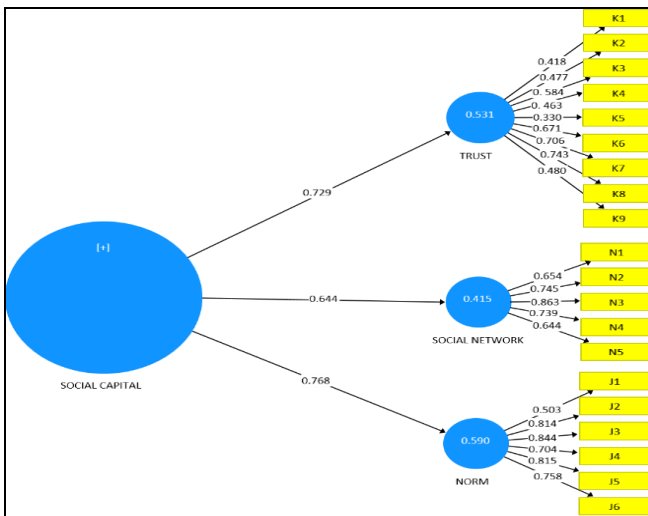


Figure 2. CFA of Social Capital Phase 1

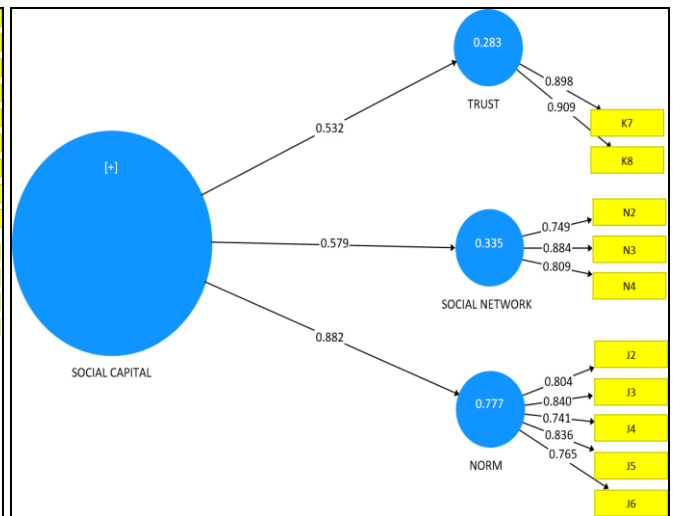


Figure 3. CFA of Social Capital Phase 2

Then the convergent validity of CFA social capital stage 2 has a composite reliability value that exceeds the minimum limit of 0.5 for each social capital variable. The trust variable has a value of 0.532, the social network variable has a value of 0.882, and the norm variable has a value of 0.579. In this stage 2 social capital CFA, indicators are not removed because the ten indicators have met the limit factor loading value ( $\geq 0.70$ ). So that the indicators that can describe social capital well consist of indicators of: Obedience to religious rules (N2), Compliance with village government regulations (N3), Obedience to groups in the village (N4), level of trust in the role of tourism institutions in building tourist villages (K7), level of confidence in the performance results of tourism institutions (K8), Participation in village religious activities (J2), Participation in village social activities (J3), Participation in group activities (J4), Participation in traditional village activities (J5), and Participation in giving opinions, suggestions, and financial assistance related to village development (J6).

Table 1. The goodness of fit index in CFA (Source: Analysis results, 2022)

| No. | The Goodness of Fit Index | CFA First Step |             | CFA Second Step |             |
|-----|---------------------------|----------------|-------------|-----------------|-------------|
|     |                           | Results        | Description | Results         | Description |
| 1   | SRMR >0.10                | 0.192          | good fit    | 0.198           | good fit    |
| 2   | d_ ULS >0.05              | 30.274         | good fit    | 32.288          | good fit    |
| 3   | d_G                       | n/a            | good fit    | n/a             | good fit    |
| 4   | Chi-Square >0.05          | infinite       | good fit    | infinite        | good fit    |
| 5   | NFI <0.9                  | /a             | good fit    | n/a             | good fit    |
| 6   | RMS Theta >0.102          | 0.213          | good fit    | 0.214           | good fit    |

The results of the model feasibility test were compared by comparing the CFA results in the first and second stages of social capital (Table 1). In the CFA feasibility test, social capital resulted in differences in the values of SRMR, d\_ ULS, d\_G, Chi-Square, NFI, and ms Theta. The feasibility test of the two stages of CFA shows that both models are fit. However, the second stage is the fittest model describing social capital in Sidomulyo Village. In stage 1 the model has an SRMR value of 0.006 to 0.198 in stage 2. Likewise, the ms Theta value of stage 1 is 0.213 to 0.214 at stage 2. However, the d\_ ULS value at stage 1 of 32.288 decreases to 30.274 at stage 2. At stage 2, CFA social capital has valid values for all indicators. The stage 2 CFA social capital is the fittest model for describing social capital in Sidomulyo village.

The social capital CFA of Sidomulyo Village is formed by social network variables, trust, and norms. Trust (K) is described by indicators of the level of trust in the role of tourism institutions in building tourist villages (K7) and the level of confidence in the performance results of tourism institutions (K8). Trust means shared values that form the basis of the community to build relationships, especially in the development of the Sidomulyo Tourism Village. The trust of the people of Sidomulyo Village is illustrated through indicators of the level of trust in the role of tourism institutions in building tourist villages. Trust in people means that the role of tourism institutions is significant in developing tourist villages by providing complete and honest information to the entire community regarding tourism management. Furthermore, the trust of the people of Sidomulyo Village is also described through indicators of the level of trust in the performance results of tourism institutions. This means that the results of the performance of tourism institutions in carrying out their programs well are very important to positively impacting tourism development in Sidomulyo Village.

The norm variable (N) is formed by indicators of Obedience to religious rules (N2), Compliance with village government regulations (N3), and Obedience to groups in the village (N4). Norms mean rules or benchmarks that are followed by society. The norms of the people of Sidomulyo Village are described through indicators of compliance with religious rules. This means that the community's knowledge, understanding, and obedience regarding applicable religious regulations are very important as guidelines for the religious life of the community in Sidomulyo Village. Furthermore, norms are described through indicators of compliance with village government rules, which means the importance of complying with government regulations that have become guidelines for community life. In addition, norms are also described through obedience to groups in the village, which means the importance of obeying group rules that bind each member in the form of written and unwritten rules. The existence of norms will provide knowledge and understanding of the community regarding actions carried out daily.

The social network variable (J) is formed by indicators of Participation in village religious activities (J2), Participation in village social activities (J3), Participation in group activities (J4), Participation in traditional village activities (J5), and Participation in giving opinions, suggestions, and financial assistance related to village development (J6). Social network means social relations formed in society. First, the social network of the Sidomulyo Village community is described through indicators of participation in village religious activities, which means the importance of being active in participating in religious activities in the village such as recitations and religious celebrations.

Second, social networks are described through indicators of participation in village social activities, which means the importance of community activity in participating in social activities such as village clean-up activities, social gatherings, sports, and so on. Likewise, the indicators of participation in village group activities emphasize that following a group/community in Sidomulyo Village is important. Then the social network is described through indicators of participation in traditional village activities, which means the importance of community activity in traditional village activities such as cleansing the 'punden' and traditional rituals.

In addition, social networks are also described through the participation indicator in providing opinions, suggestions, and financial assistance related to village development. This means the importance of community activity in providing opinions, suggestions, and financial assistance during meetings/meetings with village communities. Thus, the people of Sidomulyo Village build social networks through group activities to strengthen relationships between people.

## 2. CFA of The Quality of Life in Sidomulyo Village

The variables used to measure the quality of life of the people of Sidomulyo Village consist of Material Welfare (C), Community Welfare (C), Emotional Welfare (E), and Health and Security (H). The total number of indicators measuring people's quality of life is 40. The details of Material Welfare Variable (C) consist of 8 indicators, Community Welfare Variable (C) consists of 21 indicators, Emotional Welfare Variable (E) consists of 4 indicators, and Health and Security Variable (H) consists of 7 indicators. The next step is after the CFA results are obtained for the social capital variable, then the CFA is carried out for the social capital variable with the quality of life variable. On the results of the CFA on social capital, variables show that indicators that can describe the social capital of the Sidomulyo Village community include indicators K7, K8, N2, N3, N4, J2, J3, J4, J5, and J6. The results of this social capital variable indicator are used as input in the next CFA step which is carried out together with the quality of life variable.

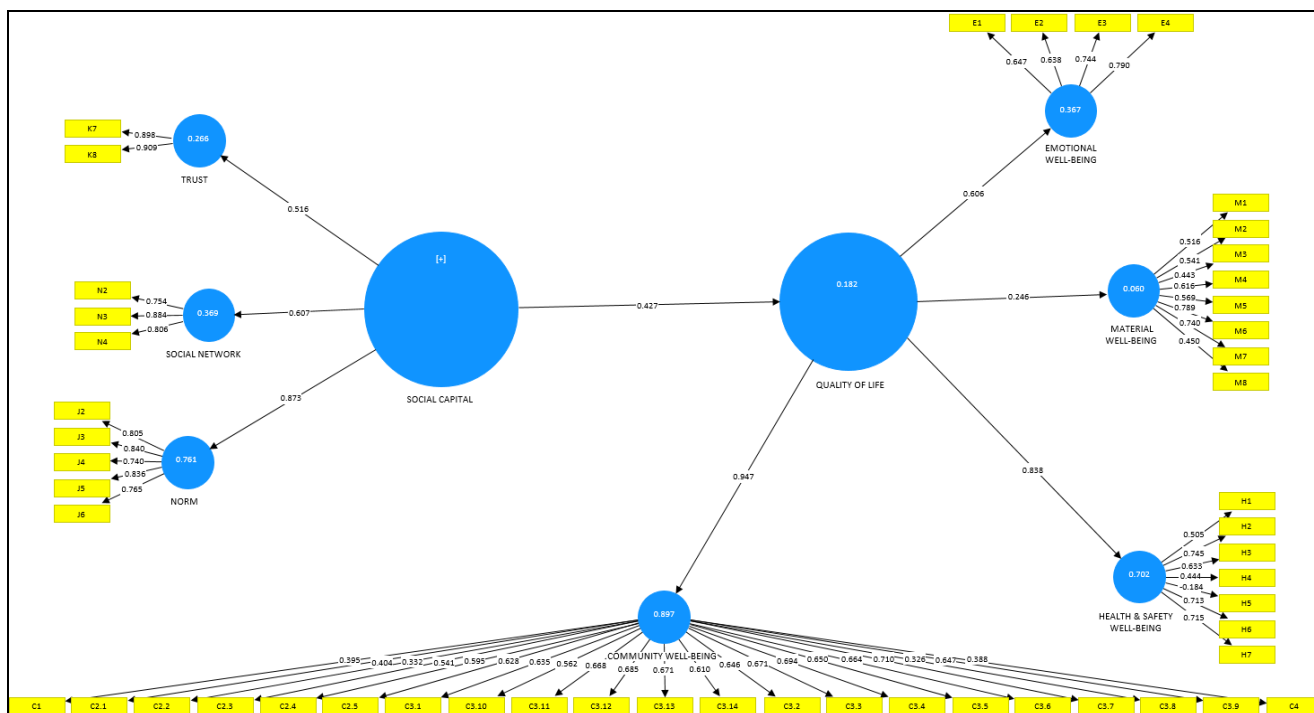


Figure 4. CFA of Social Capital and QOL Phase 1

Measurement of reliability at the CFA stage with a minimum limit of 0.5 resulted in the CFA QOL Phase 1 (Figure 4) that there is one variable lower than 0.5, namely Material Welfare (M) with a value of 0.246. Then for the other three variables, the value is > 0.5, which means that the variable can explain more than half of the variance of the indicators. The variable consists of the Community Welfare variable (C) with a value of 0.947. Then the variable Emotional Welfare (E) with a value of 0.606. Furthermore, the variable Health and safety (H) are 0.838.

In CFA QOL Phase 1, indicators that do not meet the loading factor requirements ( $\geq 0.70$ ) are discarded, which means that the indicator cannot describe the variable. Indicators that do not meet the loading factor requirements must be discarded with a total of 32 indicators. So that the indicators that are discarded are indicators of the Material Welfare (M) variable, including M1, M2, M3, M4, M5, and M8. Then the indicators on the Community Welfare variable (C), include C1, C2.1, C2.2, C2.3, C2.4, C2.5, C3.1, C3.2, C3.3, C3.4, C3.5, C3.6, C3.8, C3.9, C3.10, C3.11, C3.12, C3.13, C.14, and C4. Furthermore, indicators of the variable of Emotional Welfare (E) include E1 and E2. Then the indicators on the Health and safety variable (H) include H1, H3, H4, and H5.

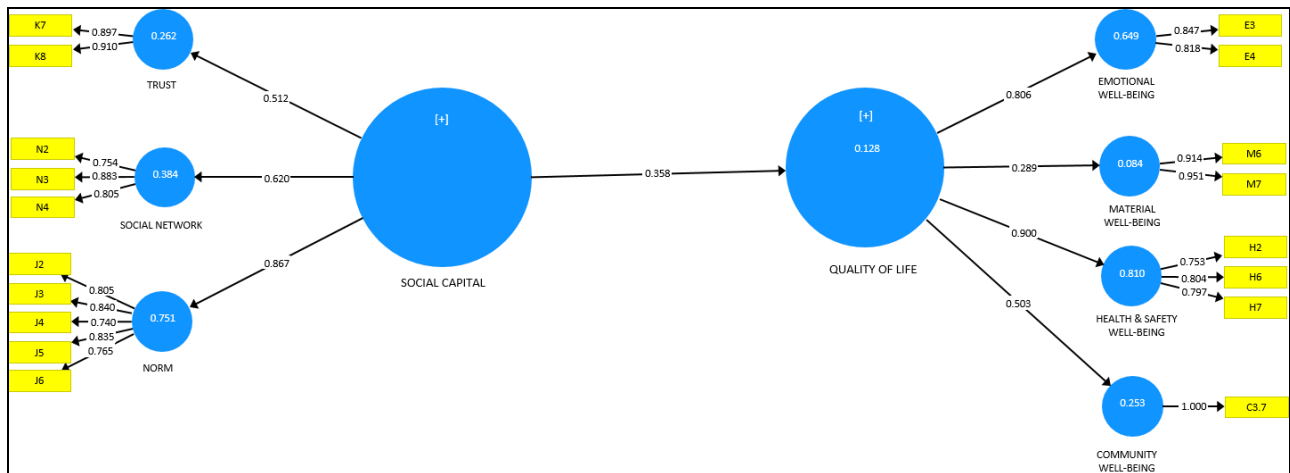


Figure 5. CFA of Social Capital and QOL Phase 2

In this second stage (Phase 2) (Figure 5), the Material Welfare (M) variable is formed by two indicators including the availability of job opportunities around the place of residence (M6) and new business opportunities due to tourism activities (M7). The variable of Emotional Welfare (E) is formed with two indicators, including safety and comfort in worship (E3) and local cultural activities (E4). The Community Welfare Variable (C) is formed by 1 indicator, namely the availability and condition of irrigation networks (C3.7). In addition, the Security and Health (H) variable is formed with three indicators, including clean water quality (H2), safety in the living environment (H6), and comfort in the living environment (H7).

Furthermore, reliability measurements were carried out in the CFA QOL stage and Social Capital Stage 2 with a minimum limit of 0.5. The results obtained at CFA QOL Stage 2 showed one variable lower than 0.5, namely Material Welfare (M), with a value of 0.289. Then for the other three variables, the value is > 0.5, which means that the variable can explain more than half of the variance of the indicators. These variables consist of the Community Welfare (C) variable with a value of 0.503. Then the variable Emotional Welfare (E) with a value of 0.806. Furthermore, the variable Health and safety (H) are 0.900. Therefore, in CFA QOL Phase 2, the eight indicators have met the loading factor requirements ( $\geq 0.70$ ). These indicators include safety and comfort in worship (E3), local cultural activities (E4), quality of clean water around (H2), security in the living environment (H6), comfort in the living environment (H7), availability of employment opportunities in the area of residence. around the place of residence (M6), New business opportunities due to tourism activities (M7), and availability and condition of irrigation networks (C3.7). Therefore, no indicators were discarded, and the eight indicators were declared valid. Then the next step is to do the goodness of fit test (Table 2).

Table 2. The goodness of fit index of CFA (Source: Analysis results, 2022)

| No. | The Goodness of Fit Index | CFA First Step |             | CFA Second Step |             |
|-----|---------------------------|----------------|-------------|-----------------|-------------|
|     |                           | Results        | Description | Results         | Description |
| 1   | SRMR >0.10                | 0.138          | good fit    | 0.141           | good fit    |
| 2   | d_ ULS >0.05              | 95.618         | good fit    | 100.304         | good fit    |
| 3   | d_G                       | n/a            | good fit    | n/a             | good fit    |
| 4   | Chi-Square >0.05          | infinite       | good fit    | infinite        | good fit    |
| 5   | NFI <0.9                  | n/a            | good fit    | n/a             | good fit    |
| 6   | RMS Theta >0.102          | 0.162          | good fit    | 0.213           | good fit    |

The goodness of fit test is carried out by comparing the results of the CFA Social capital and QOL Stage 1 and stage 2 (Table 2). In both stages, the goodness of fit test is carried out based on the requirements for the value provisions that must be met to produce a fit model, which consists of the SRMR (Standardized Root Mean requirements. Square), d\_ ULS, d\_G, Chi-Square, NFI (Normed Fit Index), and rms Theta. Both stages of CFA are fit models, but CFA Stage 2



is the fittest model. The fit model is because the SRMR value has increased from the first stage to the second stage by 0.138 to 0.141. Likewise, the  $d_{ULS}$  value increased from the first stage to the second stage by 95.618 to 100.304. Then the  $ms\ Theta$  value increased from the first stage to the second stage by 0.162 to 0.213. In addition, in CFA Stage 1, some indicators are not valid, while in CFA Stage 2, all indicators are declared valid. This makes the CFA Phase 2 model appropriate in describing CFA's social capital and QOL for the people of Sidomulyo Village.

In CFA QOL Phase 2, the variable of Emotional Welfare (E) is described by indicators of Safety and comfort in worship (E3) and local cultural activities (E4). Emotional well-being means the community can manage and control emotions over life events or problems, especially in tourism development prone to conflict between communities. First, the emotional well-being of the people of Sidomulyo Village is described as an indicator of safety and comfort in worship. This means emphasizing the importance of worship facilities in supporting the community in worship. Second, the emotional well-being of the people of Sidomulyo Village is described in indicators of local cultural activities, which means the importance of village cultural activities for the community to get happiness and enjoy life.

The Health and Safety Variable (H) is described by indicators of clean water quality around (H2), safety in the living environment (H6), and comfort in the living environment (H7). Health and Security mean the availability of health facilities supported by a safe and comfortable environment. First, the health and safety of the people of Sidomulyo Village are described in the indicators of clean water quality. This means the importance of clean water quality as a basic human need that is part of sanitation in people's lives, especially in supporting tourism, which requires the additional provision of clean water for tourists. Then the Health and security of the people of Sidomulyo Village are described in the indicators of security and comfort in the environment. This means emphasizing the importance of the community and tourists feeling safe and comfortable in staying or visiting. If the community and tourists feel unsafe and comfortable in the village, this will cause people's fear and give a lousy village image for the village.

The Material Welfare variable (M) is described by the indicators of Availability of employment around the place of residence (M6) and new business opportunities due to tourism activities (M7). Material Welfare means the fulfillment of all the necessities of life that can be seen from decent work with high incomes to meet the needs of clothing, food, and housing. First, the material welfare of the people of Sidomulyo Village is described in the Availability of employment indicators around the place of residence. This means emphasizing the importance of providing extensive employment opportunities to accommodate unemployed people and people who want more decent jobs to achieve material welfare. Then the Material Welfare of the Sidomulyo Village community is described as the indicator of new business opportunities due to tourism activities. This indicator emphasizes tourism activities' importance in improving material welfare through new business opportunities. However, with the limitations on the quality of human resources in the village, it is necessary not only opportunities but also ways to take advantage of these opportunities for rural communities.

The Community Welfare Variable (C) is described by the availability and condition of the irrigation network (C3.7). Community Welfare means easy access to facilities and the fulfillment of all life needs, including social, physical, spiritual, and material needs. The welfare of the people of Sidomulyo Village is described in the indicators of Availability and condition of irrigation networks, this means emphasizing the importance of irrigation for agriculture, which in fact most of the people of Sidomulyo Village are flower farmers. The unavailability of adequate irrigation for farmers will impact the growth and production of flowers. This, of course, will also impact decreasing income; it will reduce the quality of life. Therefore, it is important to maintain the availability and condition of agricultural irrigation networks in Sidomulyo Village.

### 3. Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a follow-up analysis after using CFA analysis, which was conducted to determine the condition of social capital and its effect on the quality of life of the people of Sidomulyo Village. The results of the instrument feasibility test show that there are no indicators removed from the model because it has a loading value above 0.70, where the loading value states the magnitude of the effect of the indicator on the latent variable and the influence between latent variables. Then the SEM results show that the R Square of social capital is 0.896, which means that the exogenous latent variable can be explained by the trust, social network, and norm variables of 89.6%. The endogenous variable quality of life shows an R Square value of 0.128, indicating that the quality of life can be explained by social capital of 12.8%. The material, community, emotional, and health and safety variables each have an R Square value of 0.084; 0.253; 0.649; and 0.810 which indicates that:

1. The endogenous quality of life can explain the material variable of 8.4%, and variables outside the study
2. explain the rest.
3. The endogenous variable quality of life can explain community variables by 25.3%, and variables outside the study explain the rest.
4. The emotional variable that the endogenous variable quality of life can explain is 64.9%. Variables outside the study explain the rest.
5. Health and safety variables can be explained by the endogenous variable quality of life of 81%, and variables outside the study explain the rest.

The results above show that the most influencing quality of life in Sidomulyo Village is the level of health and safety. According to the community, this factor is one of the factors related to community performance in activities. When the community is in good health, the community is more productive, and when a job has safety guarantees, the more successful the work will be. After health and safety factors, there are emotional factors that affect people's quality of life. This factor relates to safety and comfort in worship and local cultural activities. The community considers a religious village a society

that upholds a relationship with God. The closer you are to God, the more peaceful and calm life is, and the better relations between people. Furthermore, the third factor is material well-being related to the availability of employment opportunities around the residence and new business opportunities due to tourism activities.

## CONCLUSION

1. Based on the CFA analysis, it was found that trust (variable K) was a strong determinant to social capital and was formed by two indicators. First is the level of trust in the role of tourism institutions in building tourist villages (K7) and, second is the level of confidence in the performance of tourism institutions (K8). Meanwhile, the Norm variable (N) is formed by three indicators - Obedience to religious rules (N2), Compliance with village government regulations (N3), and Obedience to groups in the village (N4). Finally, the Social Network variable (J) is formed by five indicators encompassing Participation in village religious activities (J2), Participation in village social activities (J3), Participation in group activities (J4), Participation in traditional village activities (J5), and Participation in giving opinions, suggestions, and financial assistance related to village development (J6).

2. The CFA framework also found Emotional Welfare (E), Health and Safety (H), Material Welfare (M) and Community Welfare (C) as the key factors towards the quality of life in Sidomulyo. Emotional Welfare was formed by two indicators - Safety and comfort in worship activities (E3) and local cultural activities (E4) while Health and Safety (H) involves clean water quality around (H2), safety in the living environment (H6), and comfort in the living environment (H7). Material Welfare (M) was formed by two indicators - Availability of employment around the place of residence (M6) and new business opportunities due to tourism activities (M7). Meanwhile, Community Welfare (C) was formed by one indicator, namely the availability and condition of the irrigation network (C3.7).

3. Meanwhile, the relationship between social capital and the quality of life in Sidomulyo was identified using the SEM analytical framework. The result shows that the social capital variable was formed by trust, social network, and norms. Furthermore, the quality-of-life variable can be explained by the social capital variable by 0.128 or 12.8%. Additionally, quality of life was also affected by material variables by 0.084 or 8.4%, community variables by 0.253 or 25.3%, emotional variables by 0.649 or 64.9%, and health and safety variables by 0.810 or 81%.

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## QUANTITATIVE VISITORS' ANALISYS TO THE FARM CULTURAL PARK MUSEUM (FCP), IN FAVARA, SICILY (ITALY)

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**Abstract:** This study focuses on one line of cultural tourism. Specifically, in a contemporary art museum, located in Favara, (Agrigento), Sicily, called Farm Cultural Park (FCP) Museum. The study analyzes the profile of FCP visitors, from the perspective of cultural, sustainable and participatory tourism. A total of 302 surveys were conducted during June, July and August 2020. Therefore, it must be considered that they were the first months after the confinement decreed in the country due to Covid-19, with all the obvious difficulties. Data analysis was carried out with the SPSS statistical program in its version 26. The methodology was based on a structural equation model (SEM), with different causal relationships among the analyzed constructs. Tourists came with the precise interest of visiting an open museum, with a very high social and participatory component. The visitors were fully satisfied by the staff who welcomed them. A medium-low level of spending was observed, linked to consumption inside the museum. And, unfavorable opinions were expressed on a lack of signage to arrive in FCP. The final results support the influence of preferences upon satisfaction, which originates attitudinal loyalty. Therefore, it would be very important for Sicily to show that tourism on the island could not be seasonal, due to the magnificent climatic conditions that prevail throughout the year. It would also be crucial to expand research on the synergies of cultural tourism that could be generated between the Valley of the Temples, in Agrigento, and the FCP, in Favara. In this way, a greater range of sites would be offered that concern various interests and ideas, both for the department's business community, as well as for tourists. The corollary of these actions would be to increase the presence of Agrigento on the map of international cultural tourism. All this should be capable of transforming, enhancing and making known the richness of territorial diversity, traditions and historical and environmental contexts, first in the department of Agrigento, and later, throughout the island.

**Key words:** contemporary museum, cultural tourism, SEM, visitors

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### INTRODUCTION

Cultural tourism in Italy generate 52% of total tourist visits and 60% of total tourism income, which indicates the importance of this segment in the country's economy (Banca d'Italia, 2018). The Farm Cultural Park Museum (FCP), the object of our study, is the most important cultural attraction in Favara. It is a contemporary urban park, cultural proposals to the visitors, located in the heart of the town, just six km from the magnificent Valley of the Temples of Agrigento, also known as the City of Temples linked to the ancient Greek settlement, Figure 1. Since 1997 the whole area has been included in the list of Unesco's World Heritage Sites. The archaeological and landscape park of the Valley of the Temples, with its 1,300 hectares, is the largest archaeological site in the world.

The object of this study is to analyze the experience of visitors, Italian and foreign, that participate in FCP various cultural events during several evenings. FCP was founded on June 25, 2010 by a renowned notary and philanthropist from the city, Mr. Andrea Bartoli. It is located in Favara inside the Bentivegna courtyard, formed by seven small courtyards that house palaces of Arabic origin, in the historic center of the Sicilian town, Figure 2. It must be borne in mind that Sicily is a region formerly known - even today, although less - as the birthplace of the mafia, and all the crime and cultural and environmental degradation that emanates from it. But, in recent years, the island has started a process of transformation. And, specifically, Favara, is a city, through its civil society, that has undertaken a determined process of social and cultural

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change. One of its most notable results is the FCP, in which the encounter between the literary and museum genre, inspired by the study of De Michele (2019), is gradually achieving its objectives. In this sense, the founder, upon returning to Favara, their hometown, have tried to ensure that the FCP enhances mysticism, ethics, and values. These objectives are still exemplary and ambitious, since the FCP museum was like a cultural seed planted in the middle of a region in Italy linked, above all, to illegal activities and known for its high level of environmental and architectural deterioration. And to all these facts must be added the sad scenario of illegal immigration. A decade after the founding of FCP, Favara presents a new face today: hotels and various accommodations, restaurants, pizzerias, and bars. And an important detail: these new small and medium business belong to entrepreneurs from the city who had left and later in, returned. This climate of new investments is largely due to the fact that these entrepreneurs perceive FCP's spirit of commitment to the city and its culture (Faraci, 2017). Thus, Favara has also joined the renewed phenomenon of Agrigento, which attracts tourists from all over the world.

FCP presents itself as a cultural and tourist centre, an art gallery where temporary painting, photographic exhibitions and permanent installations of contemporary art are set up, as well as a residence for artists. This is a new form of tourism in which tourists are involved in creative activities with the local population. The places that have inspired FCP are three, the Palais of Tokyo, in Paris; Marrakech, the main square of Morocco; and the market of Camden Town, in London. The evolution of the types of cultural tourism is being experienced and the results indicate that there are activities that are not practicable in other places and at other times of the year. Cultural tourism is a significant parameter for the development and consolidation of destinations (Hornig et al., 2013). Likewise, and especially visits to cultural events, they tend to become socializing encounters, where unique experiences are generated (Fonseca and Ramos, 2014) and (Quinn et al., 2018). Obviously, the number of people participating in FCP cannot be compared to the number of people participating in a music festival, for instance. In these types of events, the audience tends to be massive, while a visit to contemporary museums tends to be lower, and includes another type of tourist, perhaps more elitist (Reyes et al., 2021). In spite of this, the local population also frequents this place as a place to enjoy sociality that is not strictly linked to culture and organised events. According to the survey carried out, many foreign tourists move to FCP as a second visit after the Valley of the Temples; the interest to know this particular place and participate in various events even several times a year, as grown every year.

In 2011, FCP won the Federculture Management Culture Award and the following year it was invited to the XXIII International Architecture Exhibition in Venice. The British blog Purple Travel placed the FCP and Favara in sixth place in the world as a contemporary art tourist destination preceded by Florence, Paris, Bilbao, the islands of Greece and New York (Bartoli and Saieva, 2010). These awards constituted an important incentive for FCP.

The spaces of the main courtyards of FCP include the following: the Galleria Detroit, which is a contemporary art gallery; the Raft, which takes us on a journey to the planet FCP; a garden inspired by Arab environments called Riad; a convivial space called Nzemmula; and a school of architecture for children (SOU), Figure 3.

The SOU was conceived and designed to stimulate children to freedom of thought, to the magic of creativity, to the vocation to realize collective dreams, to the desire to make the impossible possible. SOU's mission is, in fact, to stimulate reflection, planning and action for the improvement of society, promoting the education of children towards values of welcome, participation, tolerance and solidarity, generosity and social commitment. All of this offer educational activities related to urban planning, architecture, environment and community building. At the basis of the activities presented in FCP museum there is a sustainable tourism able to satisfy the present needs of tourists, the tourism industry and the host populations, without compromising the satisfaction of the needs of future generations. Sustainable tourism goes beyond its individual aims and involves those around it. Effective sustainable tourism does not need to act alone; it needs a project that has a positive influence on the territory in which it works (Gasparini and Mariotti, 2021).

The extraordinary consistency and cultural relevance of the Italian historical and artistic heritage are universally known (Di Maio and Gaeta, 2019). Likewise, the importance of tourism is one of the main aspects that leads many public and private bodies to consider this sector as a generator and main source of wealth of their territory. According to Pangallozzi (2019), the contemporary museum has assumed a role of being a vehicle of social knowledge, through the preservation and transmission to subsequent generations of a common cultural heritage. It is an institution or a place in whose context the visitor comes into contact with the testimonies of civilization and, more widely, with the various possible manifestations of human creativity. Lubar et al., 2017 mention that the overview of the museum's history reveals that collections tend to be more mobile than is currently believed. This indicates a series of arguments about the flexibility and the approach of these institutions to the general public. Like everything, this one has its pros and cons related to the security of the collections. On the other hand, Al-Ansi et al. (2021) denounce that with increasing frequency, museum's exhibit historical artistic works, driven by the burgeoning global art market. However, behind the phenomenon of highly successful exhibitions in major tourist cities around the world is the problem of looted cultural heritage. The study proposes an investigation that explores the carelessness of local communities towards the smuggling of cultural heritage goods in Yemen. To contrast the hypotheses raised, the SEM is used. The total capital of a location is composed of nature, climate, art, history, tradition, the friendliness of the people, the professionalism of the operators and more. All this can be maintained or destroyed. A destination could therefore possess a great capital and not be able to exploit it; or it could develop by consuming the inherited capital (Magliulo, 2013). The promotion of tourism - and of cultural tourism specifically - in Italy and in countries such as Spain, France, etc., is included in government development policies. But the growth of the same does not always bring economic and social benefits and does not imply only positive aspects, but also negative ones. And the latter tend to be, above all, to the detriment of the local community, natural resources and the environmental quality of the tourist destination (Ekins, 1999). And negative impacts resulting from the development of poorly planned and controlled tourism can easily and gradually damage the very environments on which the success of the sector itself depends (Mihalic, 2020).

In reference to cultural and environmental tourism, it must be taken into account that short-term economic growth is usually at odds with environmental sustainability. However, Stern (2006) affirm that there is a relationship between financial concepts, such as operating margins, for example, and some socioeconomic criteria, such as the well-being of the population. However, growth, competitiveness and profitability models tend to invade the spaces that correspond to the social, cultural, and environmental well-being of the population (Bristow, 2005; Oughton, 2012). In this regard, it should be borne in mind that the quality is one of the key factors determining the competitiveness of a tourist destination and is vital for the success of the destination in cultural tourism (Alberti and Giusti, 2012).

Faced with this position, authors such as (Gasparini and Mariotti, 2021) present a study on environmental tourism and relates it to European Tourism Indicators System (ETIS), whose indicators attempt to quantify the quality of this type of tourism. Besides, environmental degradation has affected cultural assets in Italian cities and towns. There are neighborhoods, and even cities in the country, that have grown without urban planning, without parks and gardens. And as far as this research is concerned, without cultural assets around which to continue, or rebuild, the tradition and identity. Currently, the resources and opportunities dedicated to cultural enrichment are scarce. One of the studies dedicated to museum education is found in Falchetti (2011). As a global cultural concept, she argued that museums serve to revitalize people's mental model. And the specific objective of his analysis was to overcome disinterest, mistrust, and a new motivation, especially for young people. Likewise, Bocci and Passaro (2011) state that proposing culture as a standard-bearer for the re-appropriation of the identity of places means, in fact, rebalancing the intimately unstable local system by dynamizing it along sustainable and ecological lines of development. FCP encourages so-called creative tourism, where tourists actively participate in cultural learning events. In this regard, Richards (2019) affirms that this segment offers visitors the opportunity to develop their creative potential through active participation in courses and learning experiences characteristic of the tourist destination in which they are. For instance, FCP offers the School of Architecture for Children (SOU) to spread the values mentioned above. Timothy and Boyd (2015) claim that cultural tourism is an experiential tourism, based on being involved and stimulated by the performing arts, visual arts and festivals and typically local experiences.

Another maxim taken into account in FCP is the concept expressed in Bonami (2017) who recommends that in contemporary art, whether for a museum, cinema, advertising, fashion or architecture, it is no longer so essential to know how to do something. The important thing is to think the right thing, before others and at the right time.

Contemporary European art is in the midst of ideas that range from the philanthropic - art for art's sake - to the concept of being an economic activity translated into billions of euros in turnover (Vettesse, 2013). But, for this author, the value on which contemporary art focuses should be on invention and experiments, which are natural reflections of our way of living, producing and consuming. In this same sense, Zorloni (2013) mentions in his research that the artistic and aesthetic dimension in itself does not explain the enormous global development of the contemporary art market. In the end, the exhibited works are economic goods. Therefore, a combination of the artistic, the aesthetic and the economic is required, which is difficult to replicate in other economic sectors. According to this same author, despite the fact that Italian and European contemporary art museums have an apparently exemplary organizational infrastructure, if there were no supportive patronage, the economic sustainability of these cultural institutions would be impossible. Therefore, the organizational design of the FCP, which has the unconditional support of its founder, is framed within the guidelines of economic and financial sustainability for this type of cultural tourism projects. Stylianou (2011) reconstructs and expands well-established cultural tourist typologies while offering an alternative model to help explain the differences between different cultural tourists in art museums. Tulliach (2017) takes a generic view of the evolution of the classical concept of museum to the contemporary avant-garde, among which is the FCP. Likewise, the work of Waterfield (2015), which compiles museum history from 1800 to 1914, has been an important source for this study. Bousselmi et al. (2019) analyze with structural models the possibility of attraction of investment related to social responsibility.

The distinction between visits and visitors is crucial. Even if most museums refer to numbers of visitors every year, they refer more to visits than to visitors. Since many people visit more than once a year, the actual number of visitors is significantly lower than the total number of visits. Nowadays, most museums are concerned about the number of recent, current and future visits and need to know if their audience is stable or fluctuating, which is growing (Selwood, 2018). In addition, references to visitor numbers are relatively rare in academic literature. Topaz et al. (2019) analyze the United States art museum industry in terms of primarily the demographic profile of exhibiting artists, and to a lesser extent, visitors. The results on the artists mention that 85% are white and 87% are men. When it comes to visitors, it is mentioned that the correlation between the mission of the museum's collection and the diversity of visitors is weak. The article of Hansen (2018) presents an approach, using a unique dataset of visit counts for 40 English museums and visitor attractions spanning the period 1850-2015. The word museum cover in this article both types. It examines the effect of socio-economic factors on visits using panel data analysis and macro-level variables. The results suggest that inflation rates, average earnings, and educational level all significantly influence the number of visits made.

The last mission of science modern museums seems to be to study, design and implement the museum. It communicates by dialoguing and receiving the participation of its audience, as opposed to the museum that monologues and is impervious to the feelings of visitors Rodari and Merzagora, 2007; Rodari, 2008. This new kind of scientific museum, able to fully face the challenges of the contemporary world because it is able to make the visitor a protagonist, is also the subject of the research of Amodio et al., 2005. They present an analysis of the transition from the traditional museum to the new figure of the science center, on the new forms of communication, which increasingly involve interactive and performing modes and, therefore, the active participation of visitors. Dewinter et al. (2020), affirm that debates about the social character of the arts are underlined in cultural policies and research in recent decades. They say that contemporary arts, in general, create mental

models in people. Sandell (2007) presents the debate on social exclusion that has stood out for last 25 years, both among academics and policy makers, particularly in the fields of social policy and economic development. But this level of analysis has not occurred in the cultural sphere. In this context, museums are being asked to stop being huge buildings destined for an elite. They are required to assume new roles and develop new ways of working, to demonstrate their social purpose and reinvent themselves as agents of social inclusion. However, there has been little analysis to support this new concept of museum social inclusion (Reyes-García et al., 2021). Nagel and Ganzeboom (2015) ask themselves the following question, “what place should the museum occupy in the changing landscape of social inclusion policies?”

In this line of thought, FCP is founded as an open-air museum contextualized in relation to the history of the city where it is located. Thus, Favara, today lives an important tourist flow that must be coordinated with the World Heritage of Agrigento and its Valley of the Temples. Regarding the hypotheses presented below, Yolal et al. (2019), Yolal et al. (2012) and Uysal et al. (1993), propose five different motivations to attend a cultural event: escape, emotion, novelty, socialization and family relationship. Likewise, Saayman and Saayman (2016) state three groups of motivations: attributes of the cultural event, socialization and escape. In relation to the satisfaction that cultural tourism provides, Cronin et al. (2000) mention that it represents the visitor's general evaluation of the service received compared to the expected service. The definition includes the cognitive part of satisfaction, but the satisfaction variable also has an emotional component. Yim and Sow (2013) analyze the aspects that cause visitor satisfaction in cultural events. Therefore, cultural events must adopt a meticulous control of satisfaction levels to implement them as evaluation criteria. Another crucial component is that satisfaction is one of the most important causes of tourist loyalty for a future visit (Yuksel et al., 2009). The study of tourist satisfaction, the main objective of this study, is usually inferred by contrasting the experiences and expectations of visitors. Satisfaction is a key parameter to measure the intention to return, in this case, to the FCP museum, and to recommend the visit to third parties (Kim et al., 2012). And finally, Yoon et al. (2010) analyze the quality attributes of the various offers of the event, as well as the atmosphere that prevails in the museum to predict satisfaction using a structural equation model.

In this paragraph we present the statistical bibliographical reviews that supported this research. Nunkoo et al. (2013), provide an overview of the use of SEM in the search for cultural events, with a list of the most important works based on these models. As the sample with which this research has been carried out does not represent a large number (302 surveys), all the recommendations made by Bentler and Yuan (1999) were taken into account. In addition, Elosua (2011) proposes a model within SEM to evaluate preferences among the dimensions of quality of life of elderly people. Caridad (2016) also includes a number of similar examples of SEM using AMOS. Similarly, Bollen and Hoyle (2012) include structural equations with latent variables in this type of approach. Hooper et al. (2008) propose clear criteria for assessing the appropriateness of different adaptation measures to MES. Iacobucci (2009) presents a practical approach to evaluate the use of different goodness measures, recommendations on sample size and model validation, in order to present the results of a research using these tools. Finally, a new work where SEM is used to analyze the profile of visitors in Spanish cultural tourism, has been carried out by Sánchez et al. (2021). A review of classical literature on this topic is presented by Bagozzi and Heatherton (1994) propose a framework for the representation of personality constructs at four levels of abstraction, using latent variables. Browne and Cudeck (1993) consider two types of errors that occur during the adaptation of a model: the approximation error and the overall error that occurs during the adaptation of the model. Bentler and Yuan (1999) cites that normed-coefficient yield (CFI) - and non-normed fit indexes (NFI) are often used as complements to chi-square statistics to assess the adaptation of a structural model. From the perspective of the bibliographic review presented above, this research aims to three hypotheses that refer to several causal relationships:

**H1:** The degree of preference of visitors to the FCP affects the offer of events and the satisfaction and loyalty of visitors for future visits.

**H2:** Visitors' behavioral loyalty to visit the FCP influences the overall evaluation level of the FCP.

**H3:** The causes of visitor satisfaction - through their preferences - are based on the variety of events and activities on offer; as well as - through attitudinal loyalty - in the attention and treatment provided by the staff and volunteers.

These hypotheses will be contrasted using SEM. The latent variables considered - preferences, satisfaction and loyalty - will be related to the observable variables collected and selected through the surveys carried out.

## MATERIALS AND METHODS

### Experimental design

The surveys were conducted during June, July and August 2020. Therefore, it must be considered that they were the first months after the confinement decreed in the country due to Covid-19, with all the obvious difficulties. A total of 302 surveys were conducted following Finn et al. (2000) and Byrne (2001). They were based on a questionnaire written in Italian and English selecting a sample of visitors to the FCP. From an initial survey, and through subsequent adjustments, a pre-test was carried out with a pilot sample, reaching, thus, the final format. This final version of the questionnaire seeks the maximum clarity of the questions in order to facilitate the data recollection and its reliability. In the same way, the maximum possible concreteness was sought in order not to lengthen the interview with the interviewed visitors too much. The survey used in this research is based on previous works, such as Yolal et al. (2019), Saayman and Saayman (2016), Kruger and Saayman (2016) and Fonseca and Ramos (2014).

The questionnaire was divided into four blocks. The first, aimed at collecting the characteristics of the visit to the museum; groups together questions such as, previous visits, who attended the museum or how many others similar have visited or will visit it again in 2021. A second block focuses on the analysis of preferences or tastes in relation to FCP and the cultural activities offered and the motivations that attract visitors to attend them. A third section includes the perception

of certain attributes related to the experience and expectations for future visits. And finally, several questions that includes the socio-demographic characteristics of the visitors such as age, sex, educational level or income. It was not stratified according to these parameters since no previous studies were available to support them. The average time to respond to the survey was about ten minutes. The rejection rate of the questionnaire was low and not significant, depending on the variables.

**Expected sampling error**

Data analysis was carried out with the SPSS statistical program in its version 26. Structural modeling required the use of a specific program; in this case AMOS, which has the advantage of incorporating a verification of the identifiability of structural equations and has a variety of methods for model estimation and validation (Bousselmi et al., 2018). The population under study is made up of 10,087 visitors to the museum during 2020, according to data from FCP. Using this figure as the reference population and, just as an indication, if it had been a simple random sampling, for a confidence level of 95%, the sampling error amounts to  $\pm 3.57\%$  in the estimation of the proportions for the whole sample. The technical details of the survey are given in Table 1.

Table 1. General data (Source: Own elaboration)

| Concepts         | Data  |
|------------------|---|
| Population       | 10,087 visitors   |
| Sample           | 302   |
| Procedure        | Random sampling   |
| Sampling period  | July, August and September, 2020                          |
| Sampling error   | $\pm 3.57\%$ in proportion's estimations (for $p = 0.5$ ) |
| Confidence level | 95.0%   |
| Sample control   | By the authors  |

Table 2. Variables in the model (Source: Own elaboration)

|          | Ratio   | Variables  |
|----------|---|------------|
| $\xi 1$  | Preferences                                     | Latent     |
| $\eta 1$ | Satisfaction                                    |            |
| $\eta 2$ | Attitudinal Loyalty                             |            |
| $\eta 3$ | Behavioral Loyalty                              |            |
| X1       | SOU, School of architecture for children        | Observable |
| X2       | RAFT. A journey within the planet FCP           |            |
| X3       | RIAD/FCP  |            |
| X4       | Detroit Gallery                                 |            |
| Y1       | Nzemmula (Gastronomy)                           |            |
| Y2       | Evaluation of the success of visiting FCP       |            |
| Y3       | Recommendation to attend FCP activities         |            |
| Y4       | Intention of repeating the visit                |            |
| Y5       | Price-quality ratio                             |            |
| Y6       | Attention and treatment of staff and volunteers |            |
| Y7       | Monthly income level                            |            |

The data were subjected to a prior analysis process to detect possible inconsistencies. In fact, and despite the aforementioned Covid-19 difficulties, the sample size was increased by 5% to be able to analyze abnormal data due to eventual errors in data collection, which could have distorted some results.

**RESULTS AND DISCUSSION**

**Application of the structural equations model (SEM)**

SEM constitutes a class of models, which can be multi-equation, like the one presented in this article. Among the different variables, several causal relationships are proposed, with the aim of testing the research hypotheses.

**Model specification**

SEM use different types of variables depending on their measurement or the role they play within the model (McNeish and Hancock, 2018; Caridad, 2016). Among them are: (i) Latent variables, as abstract constructs that can be indirectly observed through their relationships with observable variables. They can be exogenous and endogenous. Exogenous ones influence other variables but are not explained by other variables. The endogenous ones are explained by other variables of the model. (ii) Observable variables are those observed on each of the cases that make up the sample. (iii) Error variables, represent the variations of each endogenous variable not explained by other variables of the model.

On the other hand, covariances or non-causal interrelationships among variables are indicated with bidirectional arrows, although they are sometimes omitted to highlight the causal relationships under study. Table 2 presents the selection of the included variables, once the model has been re-specified several times.

**Identification and estimation of the model**

The conjectures propose involve the definition of four latent variables, Preferences, Satisfaction, Attitudinal Loyalty, and Behavioural Loyalty, to define the model. The first latent variable, Preferences ( $\xi 1$ ), which is exogenous, directly influences four observable variables: SOU, School for architecture for children (X1); RAFT. A journey within the planet FCP (X2); RIAD/Farm (X3) and Detroit Gallery (X4). It also directly influences two endogenous latent variables: Satisfaction ( $\eta 1$ ) and Behavioral Loyalty ( $\eta 3$ ), and indirectly, through Satisfaction, on Attitudinal Loyalty ( $\eta 2$ ). In this way, through the three endogenous latent variables, it indirectly influences others seven observable variables. The second latent endogenous variable, Satisfaction ( $\eta 1$ ), directly influences the variables Nzemmula (Gastronomy) (Y1) and My choice to attend the FCP has been successful (X2). It also directly influences the third latent variable, Attitudinal Loyalty ( $\eta 2$ ).

The third latent endogenous variable, Attitudinal Loyalty ( $\eta 2$ ), is influenced by the second, Satisfaction ( $\eta 1$ ). Likewise, it directly affects three observable variables, Price-quality ratio (Y5), Attention and treatment of staff and volunteers (Y6), and Monthly income level (Y7). All these variables have their corresponding random errors. The fourth latent endogenous variable, Behavioral Loyalty ( $\eta 3$ ), is directly influenced by Preferences ( $\xi 1$ ). Likewise, it directly explains four observable variables: My choice to attend the FCP has been successful (Y2), I would recommend attending the FCP if someone asked me for advice (Y3), After my experience, I consider going back in the future (Y4), and Price-quality ratio (Y5). Finally, some covariances among random errors are observed, both in the structural latent model, and in the measurement models.



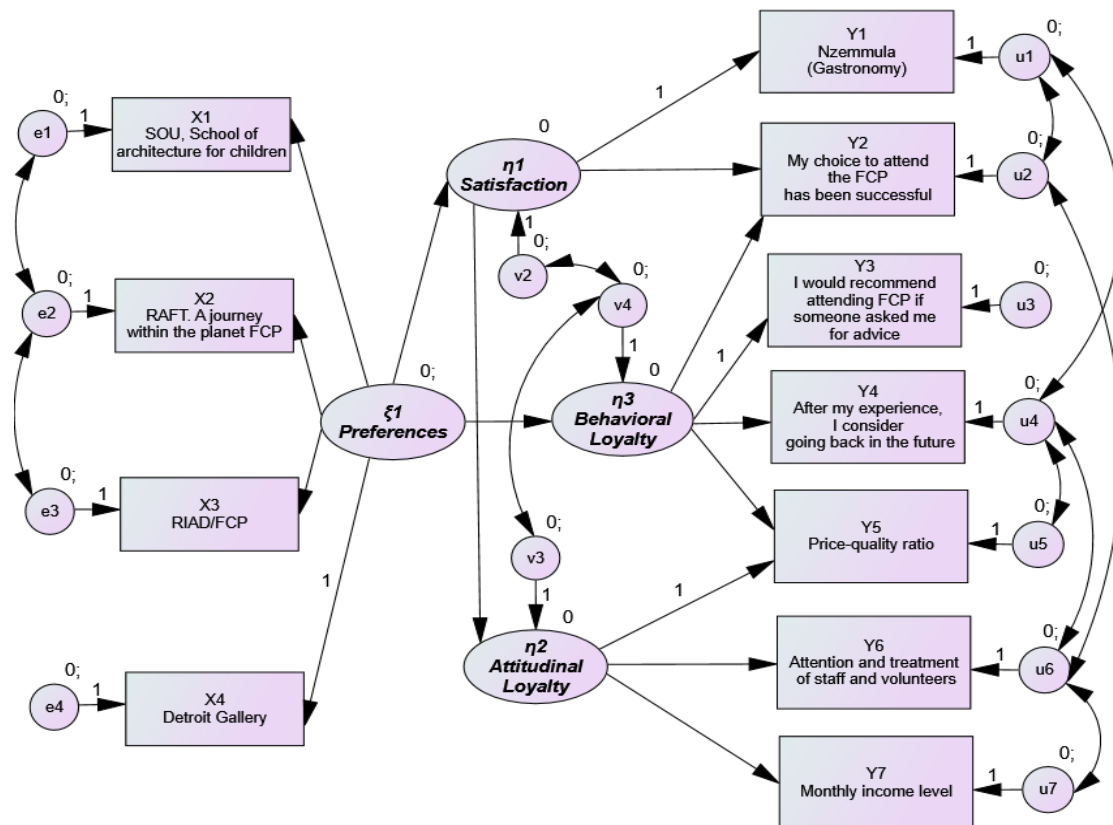


Figure 1. SEM proposed (Source: Own elaboration)

**Diagnosis of the model**

As will be seen below, the results of the designed model support the research hypotheses. Based on Byrne (2001) and Browne and Mels (1992), the goodness-of-fit test is necessary to assess the global fit of the observed data to the proposed model. In this sense, the log likelihood ratio statistic, CMIN is used (Lind et al., 2001). And its *p*-value supports the acceptance of the model. The rest of the goodness of fit measures such as *FMIN*, *CFI* and *RMSEA* are all close to their optimum values. Also, the individual tests on the estimated coefficients show their significance, both in the latent model and in the measurement models.

**Global assessment and goodness of fit**

**a. Global goodness of fit likelihood-ratio test**

The result obtained with CMIN is very good, 31.4, which has a *p*-value,  $p = 0.346$  with 29 degrees of freedom (DF). That is, the model estimated with the 302 observed cases is accepted at any level of significance  $\alpha < 0.346$ . The optimum value for the goodness of fit is close to zero (and its *p*-value would then increase) showing the closeness of the observed and expected data.

**b. Goodness of fit measures**

AMOS provides several goodness of fit measures and an interval of variation for most of them. The limits of these intervals correspond to the independence and to the saturated models. The later corresponds to a theoretical perfect fit (and no degrees of freedom), while the former is associated to uncorrelated observable variables, which corresponds to an hypothetical situation when there are no relations between the observed variables. These intervals are quite useful to assess the values obtained for the proposed model (Cheung and Rensvold, 2009).

Some measures are based on the correlation matrix (or in the covariance matrix) between the observed variables, such as CMIN. The root mean square absolute error,  $RMSEA = 0.017$ , is independent of the sample size, and the estimated value is close to zero quite smaller than the independence model limit of 0.236; Browne and Cudeck (1993) recommend values below 0.05, so the *RMSEA* obtained is excellent. The confirmatory fit index,  $CFI = 0.998$ , close to 1, the optimum value for the saturated model; Bentler (1990) recommends values over 0.9. The Tucker-Lewis index,  $TLI = 0.995$ , is also near its optimum value; it includes penalizations associated to over-parametrization of the model. Some measures based on the information matrix are Akaike information criteria,  $AIC = 127.4$ , value which is near its optimum value (154) and quite distant for the independence model extreme (614.6). In summary, using different goodness of fit measures, the proposed model shows a high degree of fit to the sample data, and, thus, can be globally accepted. \

**c. Coefficient estimates**

The estimated coefficients of the SEM model are presented in the following table 3, with their standard errors, the critical ratio statistics and their corresponding *p*-values. The objective hypotheses (point 1.3.) are confirmed, accepting the influence

of the exogenous latent variable upon the endogenous latent variables, in the structural model. Most of the critical ratio have *p*-values under 0.02, and many under 0.01 and even 0.001. The satisfaction of the attendees clearly influences the two types of loyalty considered, and the assessment attributed to the museum, which is also dependent of the attendant preferences.

**CONCLUSION**

FCP is 11 years old. And in light of the events, it can be asserted that, during these years, it has been an agent of transcendent change for the social and cultural life of Favara and the neighboring towns. And today, it is a notorious reference of contemporary museum art in the department of Agrigento. Likewise, this study has made it possible to affirm that the experiences of private organizations such as FCP, which were born in Italy in recent years, are all in the direction of sustainability. In other words, it not only concerns the natural environment, but also the social impact that contemporary art, as a transversal activity, helps to develop. This is corroborated when appreciating that some events offered in the FCP, configure an aid to think - starting with the children - thus contributing to create a climate of dialogue, discussion, and even confrontation, but a framework of respect.

FCP plays an increasingly important role in the diffusion of contemporary art, carrying out a meticulous and qualifying work on the territory aimed at the community, an experience of social micro-projecting in the city of Favara, a focal point of aggregation for the territory. The survey shows that the different events offered, such as participatory evenings, festivals, educational activities, art galleries, and even aperitifs, manage to attract not only tourists, but also curious visitors, many families and people with different cultural levels, ages and origins. The two aspects of visitors analyzed in hypothesis 1 both attitudinal, which leads to recommend the museum, and behavioral, linked to the number of editions in different years and the number of activities attended are strongly influenced by the variable "origin" and "level of education" of the tourist. By answering the questionnaire, the visitor expressed his or her impressions of the site, which had an important side effect in improving the image of the place visited. As for the reason for the choice of the FCP visitors - with the exclusion of local residents - it was the result of an investigation carried out through social networks and the recommendation of friends and acquaintances. Tourists have come with the precise interest of visiting an open museum, which offers many of its events outdoors, both during the day and at night, therefore, with a very high social and participatory component. Likewise, the questionnaire made it possible to understand if the visitors were fully satisfied by the staff who welcomed them, who were able to provide assistance in guided tours and indicate the activities offered in the evenings in progress. They were able to express their preferences on the individual spaces and experiences lived in relation with their attitudes and tastes.

A medium-low level of spending was observed, linked to consumption inside the museum. And unfavorable opinions were expressed on a lack of signage to arrive in FCP. In FCP is open to everyone, young or not, to share the deep emotion of discovering both the work itself and the territory that welcomes it. This is due to the increase in research for authentic sensations linked to the culture of the destination visited, which has given rise to the appearance of tourists who consider the local culture and the sensations experienced as the main motivation to travel and choose one destination rather than another. Within the different types of tourism, experiential tourism is one of the greatest potentials to improve the image and attractiveness of tourist destinations. Thus, in Sicily, in general, and Favara, in particular, despite all its monumental historical cultural potential, however, over the years, it has struggled to attract and retain its visitors. This objective still stands, and the FCP is one of the tools to promote tourism on the island. In this regard, one of the famous phrases of the American journalist from the Chicago Tribune, Mary Schmich (The Pulitzer Prizes, 2012), who is very present in FCP, is lapidary: "Good art is art that allows you to enter it from a variety of angles and to emerge with a variety of views".

A limitation of this study has been the atypical year - due to the pandemic - in which the surveys were conducted. Thus, a possible second survey that leads to the continuation of the prospective analysis should focus on the economic impact of the FCP in the city of Favara and in neighboring towns. It would be very important for Sicily to show that tourism on the island could not be seasonal, due to the magnificent climatic conditions that prevail throughout the year.

It would also be crucial to expand research on the synergies of cultural tourism that could be generated between the Valley of the Temples, in Agrigento, and the FCP, in Favara. In this way, a greater range of sites would be offered that concern various interests and ideas, both for the department's business community, as well as for tourists. In other words, a free path induced by sustainable and innovative tourism strategies linked to cultural tourism that would impact on economic and social benefits for the 34,000 inhabitants of Favara and also on the income of the FCP. At this point it would be original, and healthy, to include the intervention of the children of SOU, FCP's school of architecture.

In this sense, knowing how the little ones visualize their Favara, and Agrigento, in 20 years' time, when they will be young professionals, would not only be unique and beneficial, but would also constitute a magnificent opportunity to

Table 3. Model coefficients Source: Own elaboration

| Variables           |                       | Estimate | S.E.  | C.R.   | <i>p</i> |
|---------------------|-----------------------|----------|-------|--------|----------|
| Satisfaction        | ← Preferences         | 1.094    | 0.115 | 9.508  | < 0.001  |
| Attitudinal Loyalty | ← Satisfaction        | 0.495    | 0.134 | 3.702  | < 0.001  |
| Behavioral Loyalty  | ← Preferences         | 0.897    | 0.094 | 9.564  | < 0.001  |
| X2                  | ← Preferences         | 0.919    | 0.097 | 9.455  | < 0.001  |
| X3                  | ← Preferences         | 0.895    | 0.092 | 9.775  | < 0.001  |
| Y1                  | ← Satisfaction        | 1.000    |       |        |          |
| Y2                  | ← Satisfaction        | 0.143    | 0.086 | 1.651  | 0.099    |
| Y3                  | ← Behavioral Loyalty  | 1.000    |       |        |          |
| Y4                  | ← Behavioral Loyalty  | 0.841    | 0.073 | 11.576 | < 0.001  |
| Y7                  | ← Attitudinal Loyalty | 0.705    | 0.332 | 2.124  | 0.034    |
| Y6                  | ← Attitudinal Loyalty | 1.541    | 0.414 | 3.721  | < 0.001  |
| Y5                  | ← Attitudinal Loyalty | 1.000    |       |        |          |
| Y2                  | ← Behavioral Loyalty  | 0.879    | 0.084 | 10.508 | < 0.001  |
| X1                  | ← Preferences         | 1.175    | 0.113 | 10.431 | < 0.001  |
| X4                  | ← Preferences         | 1.000    |       |        |          |
| Y5                  | ← Behavioral Loyalty  | 0.333    | 0.111 | 2.994  | 0.003    |

demonstrate what they have learned at SOU. Therefore, the final objective of this departmental strategy would be the creation of a unitary and integrated tourism system of the nine departments of Sicily, which pilot test would begin in the department of Agrigento. The program should start with a project to modernize the road infrastructure, as well as a program aimed at strengthening the economic and social integration of the department. The corollary of these actions would be to increase the presence of Agrigento on the map of international cultural tourism. All this should be capable of transforming, enhancing, and making known the richness of territorial diversity, traditions, and historical and environmental contexts, first in the department, and later, throughout the island. Obviously, a mature policy of synergy will be necessary, and a demonstration of real interest between the different municipalities involved and the different political institutions, as well as regulated tourist associations, that makes the tourist from Agrigento to move to Favara.

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## ASSESSMENT OF FACTORS AFFECTING SPIRITUAL CULTURAL TOURISM AN GIANG PROVINCE, VIETNAM

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**Abstract:** Cultural and spiritual tourism activities are the development trend of Vietnam tourism. It not only brings socio-economic benefits to the locality but also contributes to improving the spiritual life of tourists. An Giang province, Vietnam, has many humanistic tourism resources, which is a condition for developing spiritual and cultural tourism. Exploiting spiritual and cultural tourism in An Giang has been going on for a long time, but many issues still need attention. The article uses surveying 120 tourists on the conditions for developing spiritual and cultural tourism and assessing the factors affecting the development of spiritual and cultural tourism in An Giang province. Research results analyzed by SPSS 20.0 show five factors influencing the growth of spiritual and cultural tourism in An Giang province: service prices, human resources and amenities; security, order and safety; goods and environmental protection; transportation; and facilities. The analysis results show that the conditions for developing spiritual and cultural tourism in An Giang province are only quite average. The article has proposed some development solutions for this type of tourism.

**Key words:** tourism, spiritual culture, An Giang province, Vietnamese Mekong Delta, cultural and spiritual tourism, factors affecting tourism

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### INTRODUCTION

Spirituality has grown in popularity as a research topic in recent decades. The International Union for Conservation of Nature (IUCN) defines it as follows: "instead of the physical aspects of life, spirituality deals with the spiritual aspects of life. Such as purity of motives, feelings, intentions, inner dispositions, psychology of inner life, and dynamic analysis" (Verschuuren et al., 2021). According to Haq and Yin Wong (2010), focusing on this concept can address individual and societal exhaustion; consequently, the field has been acknowledged as an important area of research, particularly in sociology and business. Spirituality can influence various economic and market activities, including the tourism industry, and the relationship between spirituality and tourism is evident. Spirituality can affect travel experiences (Willson et al., 2013) and motivate tourists to visit certain places (Kato and Prozano, 2017). On the other hand, as (Cheer et al., 2017) noted that tourism plays an essential role in "spiritual search" which is an emerging trend that travelers seek out. Despite the fact that the term of spiritual tourism has not yet been universally recognized, a number of scientific studies highlight a growth in self-awareness as a trait spiritual tourists share (Norman, 2012). Additionally, researchers attempt to establish the connection between spirituality and travel motivation and spirituality and travel experience. Choe et al., 2015 discovered that temples and pagodas offer a respite from the hustle and bustle of daily life for persons living in urban regions with hectic schedules. Similarly, Sharpley and Jepson (2011) revealed that although visitors are unlikely to visit these nature-based locations on purpose for spiritual fulfillment, their connection is subconsciously spiritual to a degree. Jepson and Sharpley (2015) claimed in a follow-up study that visitors accept a strong attachment to a destination, namely a feeling of place, and that visiting rural areas contributes to a more profound emotional experience.

It was in Vietnam in 2013 that the very first International Conference on Spiritual Tourism for Sustainable Development was held. This served to highlight the position that spiritual tourism currently holds in the tourism industry as well as the significance it plays in the field of sustainable development (World Tourism Organization, 2015). A growing number of tourism experts are concentrating on spiritual tourism study (e.g., Buzinde, 2020; Cheer et al., 2017; Kujawa, 2017; Norman, 2012; Willson et al., 2013). Spiritual and cultural tourism, often known as spiritual tourism, is on the rise in Vietnam as a significant economic sector. This sort of tourism is being exploited by travel agencies to meet the sightseeing and pilgrimage needs of travellers. The World Tourism Organization asserts that Vietnam has the capacity to enhance spiritual and cultural tourism. The Spiritual Tourism Conference for Sustainable Development (Vietnam National Administration of Tourism, 2013) was held in Ninh Binh province on November 21, 2013. Cooperation between the World Tourism Organization and the Ministry of Culture, Sports, and Tourism of Vietnam enabled the conference to take place. The purpose of the conference is to explore the potential for tourist development based on spiritual and cultural products, the issue of protecting the socio-cultural environment, and the challenges and obstacles connected with the development of tourism products related to spiritual culture. In addition to giving socioeconomic benefits to the destination like other types

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of tourism, developing spiritual and cultural tourism also enables those who make the journey to improve their spirits in the future. If tourist growth is on the right track, people will seek out purposes and values to enrich their lives and themselves.

In the Vietnamese Mekong Delta, the province of An Giang boasts numerous renowned communal houses and pagodas due to its distinctive architectural qualities and rich history and culture. It is a beautiful benefit for An Giang to capitalize on spiritual and cultural tourism to improve the province's tourism business (Chau, 2021). An Giang's visitors are predominantly pilgrims who combine sightseeing at the Nui Sam tourist area (Chau Doc City), Nui Cam tourist area (Tinh Bien district), Tuc Dup Hill tourist area (Tri Ton district) and visit President Ton Duc Thang's memorial site (Long Xuyen City). Spiritual and cultural tourism development is one of the provinces of An Giang's socio-economic development's primary tourism development objectives. An Giang, like many other provinces and cities in Vietnam, has not developed a quality and successful form of tourism, despite the good contributions of spiritual and cultural tourism in recent years. Therefore, the fundamental objective of this study is to examine and survey the opinions of visitors in order to determine the current state of conditions and identify the elements influencing the growth of spiritual and cultural tourism in An Giang province. From the research results, it is possible to propose measures to improve and enhance the quality of spiritual cultural tourism in the area. This contributes to improving economic efficiency and preserving and promoting cultural and religious values for local people in An Giang province.

### RESEARCH ISSUES OVERVIEW

#### Research area

The province of An Giang offers numerous humanistic tourist resources (People's Committee of An Giang province, 2013), which is advantageous for the development of spiritual and cultural tourism. The article polls visitors to An Giang province's three most popular tourism destinations:

(1) Nui Sam National Tourist Area is located in the Nui Sam ward of Chau Doc city. The Nui Sam National Tourist Area is approximately 60 kilometers west of Long Xuyen City, An Giang province, along National Highway 91. Nui Sam is a mountain that has an elevation of roughly 241m. This location focuses on architectural works, historical and cultural artifacts, and lovely sceneries, such as Bach Van hill and Tao Ngo garden. Nui Sam National Tourist Area features the Ba Chua Xu Temple, Tay An Pagoda, Hang Pagoda, and Thoai Ngoc Hau Tomb as tourist attractions. The target audience consists primarily of pilgrims attending the Ba Chua Xu Temple festival and cultural and history enthusiasts. This location receives approximately four million annual visitors, both domestic and international.

(2) The Nui Cam tourist area is a part of the An Hao commune in the Tinh Bien district. The Cam Mountain tourist region is around 90 kilometers from Long Xuyen's city center. Nui Cam, also known as Thien Cam Son, is the highest and most notable peak in the An Giang provincial region of Bay Nui. At the foot of the mountain to the east is the Lam Vien Nui Cam tourism area, which encompasses around 100 hectares and offers a variety of amusement options. In the tourism region, there are attractions such as Thanh Long stream, Big Buddha Pagoda with the tallest Maitreya Buddha statue in Southeast Asia, and Van Linh Pagoda with a tranquil and pristine scenery suited for pilgrimages and vacations. Approximately two million people visit the Nui Cam tourist region annually. The primary audience is comprised of travelers on pilgrimage, sightseeing, recuperation, pagoda worship, and entertainment.

(3) Tuc Dup Hill is part of the An Tuc commune in the Tri Ton district. Tuc Dup Hill is a hill of the Co To, a mountain in the magnificent Bay Nui region. Tuc Dup Hill has a surface area of approximately 2 km<sup>2</sup> and a height of 216 meters. Although the hill is modest, it has a distinctive geological structure, including a network of deep tunnels, enormous caves, and alleys formed by large and small rocks stacked on top of one another. Tuc Dup Hill is protected, enriched, and expanded to become a historical relic for tourism, inviting tourists to visit, make pilgrimages, discover the mysteries of the hill, be entertained, and climb mountains. Tourists frequently enjoy picnics, observing wild animals, indulging in regional dishes, and listening to traditional music while in this area.

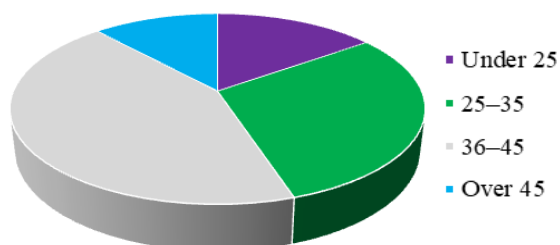


Figure 1. Graph of sample distribution by age (Unit: %)

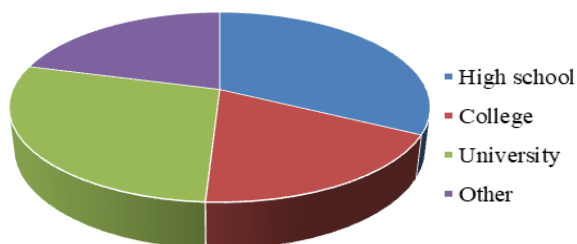


Figure 2. Graph of sample distribution by educational level (Unit: %)

Table 1. Demographic characteristics of respondents to the questionnaire (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Factors    | Component       | Amount | Percent |
|------------|-----------------|--------|---------|
| Gender     | Male            | 52     | 43.3%   |
|            | Female          | 68     | 56.7%   |
| Age        | Under 25        | 18     | 15.0%   |
|            | 25-35           | 36     | 30.0%   |
|            | 36-45           | 52     | 43.3%   |
|            | Over 45         | 14     | 11.7%   |
| Education  | High school     | 39     | 32.5%   |
|            | College         | 22     | 18.4%   |
|            | University      | 34     | 28.3%   |
|            | Other           | 25     | 20.8%   |
| Employment | State employees | 35     | 29.1%   |
|            | Workers         | 14     | 11.7%   |
|            | Farmers         | 16     | 13.3%   |
|            | Business        | 26     | 21.7%   |
|            | Other           | 29     | 24.2%   |
| Residence  | Urban           | 66     | 55.0%   |
|            | Rural           | 54     | 45.0%   |

**Research sample overview**

Through a questionnaire, the random sampling approach was applied to 120 visitors in order to analyze the influence factors (40 samples in the Nui Sam national tourist area and 40 samples in the Nui Cam tourist area, and 40 samples in the tourism region of Doi Tuc Dup). The demographic features of the respondents are displayed in Table 1. Segmentation by sex: the research sample includes 52 men, accounting for 43.3%, and 68 women, accounting for 56.7%. Divided by age (shown in Figure 1): the research sample the age of under 25 is 18 people (accounting for 15%); from 25 to 35 years old is 36 people (accounting for 36%); from 36 to 45 years old is 52 people (accounting for 43.3%) and over 45 people is 14 people (accounting for 11.7%). Divided by educational level (shown in Figure 2): most of the sample has high school education (32.5%), university (28.3%), and college (18.4%); the rest of the other qualifications accounted for 20.8%. Segmentation by occupation (shown in Figure 3): the sample includes 29.1% of civil servants and public employees, accounting for 11.7% of workers; 13.3% are farmers; accounting for 21.7% is business and retail; The rest are other occupations accounting for 24.2%. Segmentation by type of residence: 55% of tourists reside in urban areas, and 45% reside in rural areas.

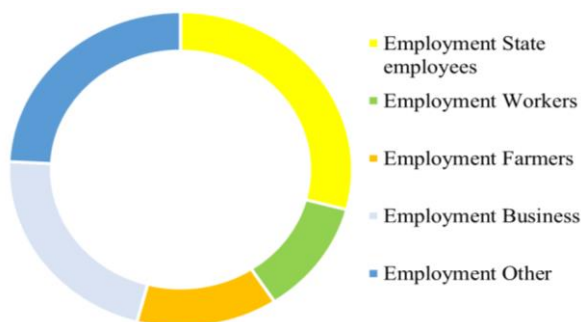


Figure 3. Graph of sample distribution by employment (Unit: %)

**RESEARCH METHODOLOGY**

**Primary data collection and processing**

The research steps are shown in Figure 4. A survey was carried out with the purpose of determining the elements that are influencing the growth of cultural and spiritual tourism in the province of An Giang. The rating system is based on a five-point Likert scale (Likert, 1932) to measure the evaluation of visitors: 1 = inferior, 2 = poor, 3 = average, 4 = good, 5 = very good or 1 = very not satisfied, 2 = not satisfied, 3 = regular, 4 = satisfied, 5 = very satisfied.

According to Hair et al. (2009) to use the exploratory factor analysis method, the sample size is good when the ratio of observations /measured variables is 5:1; that is, 1 measurement variable needs at least 5 observations (Hair et al., 2009). So, theoretically, the study uses 24 measurement variables, including: (1) no divination status; (2) no beggar status; (3) no theft status; (4) no peddling and peddling; (5) the temple grounds are clean; (6) suitable and abundant waste storage facilities; (7) good garbage collection and treatment; (8) adequate and clean toilets; (9) wide roads to attractions, (10) flat roads; (11) spacious car park; (12) many restaurants and eateries; (13) restaurants and cafeterias are clean and hygienic; (14) easy to find and buy incense and gifts; (15) diverse and abundant souvenirs; (16) pleasant shopkeepers and good service staff; (16) friendly and courteous accommodation staff; (18) spacious and airy rooms; (19) well-functioning air-conditioner and water heater; (20) television works with good picture and sound; (21) reasonable food prices; (22) reasonable accommodation prices; (23) reasonable sightseeing prices; (24) reasonable shopping prices.

Therefore, the required number of samples is  $24 \times 5 = 120$ . Using a questionnaire, convenience non-probability sampling is conducted. After being collected and screened, the questionnaires satisfy the standards and circumstances.

**Data Analysis methods**

Methods for data analysis include descriptive statistics using Microsoft Excel and SPSS software, one-factor analysis of variance, pairwise correlation analysis using the Pearson correlation coefficient, and scale reliability evaluation (Scale Reliability Analysis), exploratory factor analysis using SPSS 20.0.

**RESULTS AND DISCUSSION**

**Visitors' evaluation of the conditions for developing spiritual and cultural tourism in An Giang province**

In general, the conditions for promoting spiritual cultural tourism in the province of An Giang include security and order, safety, environmental sanitation, tourism infrastructure, food and beverage services, facilities and services retail that are rated higher than average by travelers. However, tourists only give an average rating to the affordability of the pricing of the services (Table 2). Table 3 shows that at the significance level  $\alpha = 0.01$ , 99% confidence level, the

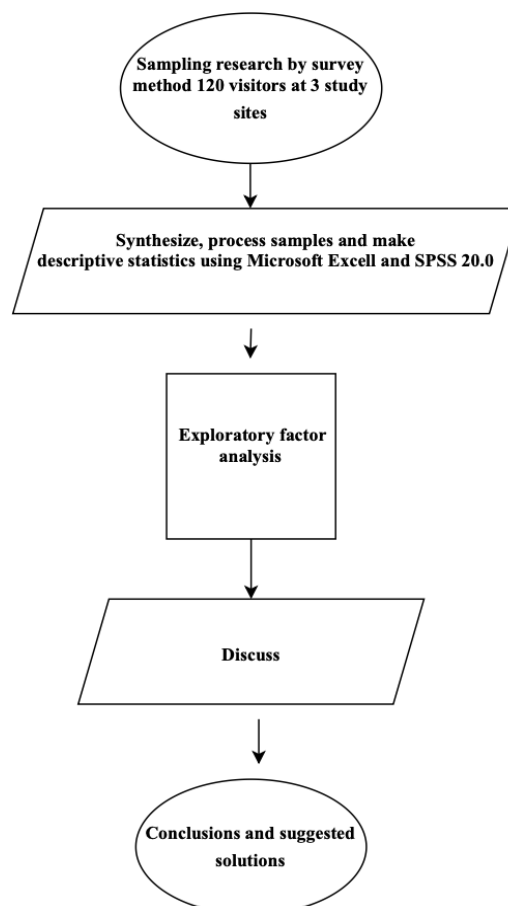


Figure 4. Flowchart of research steps (Source: Author, 2022)

problem of security, order, and safety; environmental sanitation issues; infrastructure for tourism and prices of services differ between the spiritual destinations of the three key tourist areas of An Giang province.

Table 2. Conditions for developing spiritual and cultural tourism in An Giang province (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Condition                  | Value Mean | Deviation Standard | Rating      |
|----------------------------|------------|--------------------|-------------|
| Security, order and safety | 3.44       | 0.708              | Fairly good |
| Sanitation problems        | 3.35       | 0.827              | Fairly good |
| Infrastructure for tourism | 3.45       | 0.721              | Fairly good |
| Catering and shopping      | 3.40       | 0.826              | Fairly good |
| Accommodation              | 3.32       | 0.795              | Fairly good |
| Prices of services         | 3.23       | 0.838              | Average     |

Table 3. Examination of the conditions for developing spiritual cultural tourism among the three destinations; Note: \*\*:  $\alpha < 0.01$  (statistically significant) (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Order | Condition                  | Sig.  | Level of meaning |
|-------|----------------------------|-------|------------------|
| 1     | Security, order and safety | 0.000 | **               |
| 2     | Sanitation problems        | 0.007 | **               |
| 3     | Infrastructure for tourism | 0.001 | **               |
| 4     | Prices of services         | 0.004 | **               |

According to Table 4, visitors rated Nui Sam national tourist area the highest for security, order, and safety, followed by Nui Cam tourist area, and Tuc Dup Hill tourist area the lowest. The Tuc Dup Hill tourist region had the lowest rating for environmental sanitation, followed by the Nui Cam tourist area, and then the Nui Sam national tourist area.

Tourists rank Nui Sam national tourist area as having the best infrastructure for tourism, followed by Tuc Dup Hill tourist area, and Nui Cam tourist area as having the lowest infrastructure. Visitors regard the cost of services in the Nui Sam national tourist region as the most reasonable, followed by the Nui Cam tourist area, and the Tuc Dup Hill tourist area as the most unreasonable. In contrast to Tuc Dup Hill tourist area and Nui Cam tourist area, Sam Mountain national tourist area receives the highest grade for all conditions conducive to the development of spiritual and cultural tourism (about four different conditions with statistical significance).

Table 4. Differences in development conditions for cultural and spiritual tourism of three tourist areas (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Condition                  |                               | Value Mean | Deviation Standard |
|----------------------------|-------------------------------|------------|--------------------|
| Security, order and safety | Nui Sam national tourist area | 3.75       | 0.494              |
|                            | Nui Cam tourist area          | 3.60       | 0.590              |
|                            | Tuc Dup Hill tourist area     | 2.98       | 0.768              |
| Sanitation problems        | Nui Sam national tourist area | 3.58       | 0.748              |
|                            | Nui Cam tourist area          | 3.45       | 0.876              |
|                            | Tuc Dup Hill tourist area     | 3.03       | 0.768              |
| Infrastructure for tourism | Nui Sam national tourist area | 3.79       | 0.732              |
|                            | Nui Cam tourist area          | 3.35       | 0.736              |
|                            | Tuc Dup Hill tourist area     | 3.20       | 0.564              |
| Prices of services         | Nui Sam national tourist area | 3.54       | 0.682              |
|                            | Nui Cam tourist area          | 3.23       | 0.832              |
|                            | Tuc Dup Hill tourist area     | 2.93       | 0.888              |

Table 5 shows that tourists feel pretty satisfied with the spiritual and cultural tourism in An Giang (reaching 3.63 points). At a 99% confidence level, visitor satisfaction varies across destinations. The highest level of visitor satisfaction for a trip in the Nui Sam national tourist area (reaching 3.93 points), followed by a trip to the Nui Cam tourist area (reaching 3.58 points), and the lowest for tourism in the Tuc Dup Hill tourist area (reaching 3.38 points).

At the significance level  $\alpha = 0.01$ , 99% confidence level (Pearson test, 2-sided), visitor satisfaction is positively correlated with the destination's attractiveness to return to tourism the following times and to introduce tourism to relatives and friends of visitors. According to Cao Hao Thi,  $|r| < 0.4$ : weak correlation;  $|r| = 0.4-0.8$ : mean correlation;  $|r| > 0.8$ : strong correlation. The test results of the relationship between the three variables,  $r = 0.577$ ,  $r = 0.458$ , and  $r = 0.454$ , mean correlation (Table 5).

Table 5. Correlation between satisfaction with attractiveness of destination and intention to return, intention to introduce tourism of tourists (Source: Data analysis results from direct visitor survey in 2022, n = 120)

|                       |                                     | Satisfaction  | Attraction | Planning to return | Intended introduction |
|-----------------------|-------------------------------------|---------------|------------|--------------------|-----------------------|
| Satisfaction          | Pearson correlation Sig. (2- sides) | <b>1</b>      |            |                    |                       |
| Attraction            | Pearson correlation Sig. (2- sides) | 0.577** 0.000 | <b>1</b>   |                    |                       |
| Planning to return    | Pearson correlation Sig. (2- sides) | 0.458** 0.000 |            | <b>1</b>           |                       |
| Intended introduction | Pearson correlation Sig. (2- sides) | 0.454** 0.000 |            |                    | <b>1</b>              |

Therefore, preserving and embellishing the environment and landscape, preserving cultural values to make the destination more and more attractive; along with that is the development of services and amenities; ensuring the reasonableness of prices, security, order, and safety is the basic foundation to improve visitor satisfaction. The analysis results show that the higher the level of satisfaction about the trip, the higher the likelihood that tourists will return to travel next time. At the same time, it also stimulates them to promote tourism by word of mouth to the tourist market potential.



### Factors affecting cultural and spiritual tourism in An Giang province

To explore the factors affecting the development of cultural and spiritual tourism in An Giang province, the study uses 6 criteria (24 variables), including security, order, and safety (4 variables), sanitation issues (4 variables), tourism infrastructure (3 variables), food and shopping services (5 variables), accommodation facilities (4 variables) and prices of services tourism services (4 variables). Evaluate the 6 criteria (24 variables) mentioned above to ensure the reliability of the scale and measurement variables. Regarding the scale's reliability, Hoang and Chu (2008) said that if Cronbach's Alpha is in the range from 0.7 to nearly 0.8, the scale is usable, and from 0.8 to close to 1, the scale is good to use.

The adjusted total variable correlation coefficient ensures the reliability of the measured variable (corrected item-total correlation)  $\geq 0.3$  (Nunnally and Bernstein, 1994), (Nguyen, 2011). After evaluating the reliability of the scale, the security and order criteria have Cronbach's Alpha = 0.884, and none of the variables have variable correlation coefficient - adjusted total  $< 0.6$ ; the criterion of environmental sanitation has Cronbach's Alpha = 0.803 and no variable has variable correlation coefficient - adjusted total  $< 0.5$ ; the criterion of infrastructure for tourism has Cronbach's Alpha = 0.725 and no variable has variable correlation coefficient - adjusted total  $< 0.4$ ; the criteria of food service and shopping have Cronbach's Alpha = 0.729, and no variable has variable correlation coefficient - adjusted total  $< 0.4$ ; the accommodation criteria has Cronbach's Alpha = 0.789 and no variable has variable correlation coefficient - adjusted total  $< 0.4$ ; the price criteria for services has Cronbach's Alpha = 0.900 and no variable has variable correlation coefficient - adjusted total  $< 0.7$ . So 6 criteria, including 24 variables, all ensure reliability, so they are included in exploratory factor analysis.

Table 6. KMO and Bartlett Test (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| KMO and Bartlett's Test                         |                    |         |
|---|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of sampling adequacy |                    | .836    |
| Bartlett's Test of Sphericity                   | Approx. Chi-Square | 1.675E3 |
|   | Df                 | 276     |
|   | .Sig               | .000    |

In Table 6, the KMO (Kaiser-Meyer-Olkin Measure of sampling adequacy) and Bartlett (Bartlett's Test of Sphericity) tests are used to check the relevance of the data before officially conducting exploratory factor analysis. According to Kaiser, KMO  $\geq 0.9$ : very good; KMO  $\geq 0.8$ : good; KMO  $\geq 0.7$  acceptable; KMO  $\geq 0.6$ : temporary; KMO  $\geq 0.5$ : bad; and KMO  $< 0.5$ : unacceptable (Kaiser, 1974). According to Hoang and Chu (2008), if Bartlett's test has Sig. Value  $> 0.05$  (no statistical significance) should not apply factor analysis. After testing, the KMO index of the data = 0.836, and the Bartlett test has a Sig value. = 0.000 ( $< 0.05$ : statistically significant). therefore, the data is appropriate for exploratory factor analysis. The method of extracting Principle components, Eigenvalues over 1 (the number of factors is determined in the element with eigenvalue  $> 1$ ), with Varimax perpendicular rotation, is used in factor analysis.

Table 7. Factor matrix after rotation (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Measure variable  | Factors |      |      |      |      |
|---|---------|------|------|------|------|
|   | 1       | 2    | 3    | 4    | 5    |
| The reasonable price of accommodation                   | .790    |      |      |      |      |
| The reasonableness of food prices                       | .763    |      |      |      |      |
| The staff of the accommodation is always ready to serve | .664    |      |      |      |      |
| Service attitude of restaurant staff                    | .658    |      |      |      |      |
| Friendly and polite accommodation staff                 | .641    |      |      |      |      |
| The restaurant is clean, ensuring food hygiene          | .640    |      |      |      |      |
| The reasonable price of sightseeing                     | .603    |      |      |      |      |
| The reasonableness of shopping prices                   | .577    |      |      |      |      |
| Spacious and airy rooms                                 | .502    |      |      |      |      |
| Theft situation   |         | .872 |      |      |      |
| Begging status  |         | .818 |      |      |      |
| Status of peddling and peddling                         |         | .776 |      |      |      |
| Divination status                                       |         | .722 |      |      |      |
| Convenience in buying incense and gifts                 |         |      | .705 |      |      |
| Variety of souvenirs                                    |         |      | .704 |      |      |
| Garbage collection and treatment                        |         |      | .515 |      |      |
| Width of the road to the place to visit                 |         |      |      | .842 |      |
| The quality of the road surface to the place to visit   |         |      |      | .749 |      |
| Sufficient garbage disposal equipment                   |         |      |      |      | .702 |
| The toilet is complete and clean                        |         |      |      |      | .624 |

According to the standard eigenvalues over 1, there are 5 factors drawn, and the cumulative column % (% cumulative) shows that 5 factors explain 67,246% of the variation of the data. According to the factor matrix table after rotation (Table 7), five factors influence the growth of spiritual and cultural tourism in the province of An Giang. To ensure the practical importance of the exploratory factor analysis in Table 7, the measurement variables with factor loadings that do not match the threshold for each factor must be eliminated. According to Hair et al. (2009) considers that factor loading is the criterion to ensure the practical significance of exploratory factor analysis.  $0.3 < \text{factor loading factor} \leq 0.4$  is considered minimal,  $0.4 < \text{factor loading factor} \leq 0.5$  is considered important, factor loading factor  $> 0.5$  is considered important. considered to be of

practical significance. Therefore, the measurement variable is selected when there is a factor loading factor > 0.5. After removing the measurement variables that do not meet the standards in each factor, the results are obtained.

Table 8 shows 5 factors affecting the development of cultural and spiritual tourism in An Giang province.

Factor 1 is influenced by 9 variables: "price of services, human resources, and amenities."

Factor 2 is influenced by 4 measurement variables "security, order, and safety."

Factor 3 is influenced by 3 measurement variables named "commodities and environmental protection."

Factor 4 is influenced by two measurement variables named "transportation."

Factor 5 is influenced by two measurement variables named "facilities."

To calculate the factor score for each observation case, we have the equation (Hoang and Chu, 2008):

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + W_{i4}X_4 + \dots + W_{ik}X_k$$

In there:  $F_i$ : estimate the value of factor I;  $W_i$ : factor weight;  $k$ : number of variables

Based on the factor score matrix table (Table 9), we have the following factor score equations:

$$F_1 = 0.257 X_1 + 0.232 X_2 + 0.208 X_3 + 0.227 X_4 + 0.209 X_5 + 0.196 X_6 + 0.108 X_7 + 0.105 X_8 + 0.094 X_9$$

Factor 1, the factor "price of services, human resources, and amenities" is affected by 9 variables:  $X_1$  (reasonability of accommodation prices),  $X_2$  (reasonability of food prices),  $X_3$  (willingness to serve by hotel staff),  $X_4$  (service attitude of restaurant staff),  $X_5$  (friendliness and courtesy of accommodation staff),  $X_6$  (restaurant staff eat clean and ensure food hygiene),  $X_7$  (reasonability of sightseeing prices),  $X_8$  (reasonability of shopping prices), and  $X_9$  (spacious and airy rooms). Variables  $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$ ,  $X_5$ , and  $X_6$  have the most substantial impact due to having the most significant factor scores.

$$F_2 = 0.253 X_{10} + 0.213 X_{11} + 0.244 X_{12} + 0.185 X_{13}$$

Factor 2, the factor "security, order and safety," is affected by 4 variables:  $X_{10}$  (theft situation),  $X_{11}$  (begging situation),  $X_{12}$  (street peddlers and solicitation), and  $X_{13}$  (divination status). Variables  $X_{10}$ ,  $X_{12}$ , and  $X_{11}$  have the strongest impact.

$$F_3 = 0.370 X_{14} + 0.323 X_{15} + 0.247 X_{16}$$

Factor 3, the factor "commodities and environmental protection," is affected by 3 variables:  $X_{14}$  (convenience in buying incense, lamps, and gifts),  $X_{15}$  (variety of souvenirs), and  $X_{16}$  (publicity, garbage collection). Variables  $X_{14}$  and  $X_{15}$  have the most substantial impact.  $F_4 = 0.462 X_{17} + 0.359 X_{18}$

Factor 4, the factor "transportation," is affected by 2 variables:  $X_{17}$  (width of the road to the place of interest) and  $X_{18}$  (quality of the road surface to the place of interest). Variables  $X_{17}$  have the most substantial impact.

$$F_5 = 0.373 X_{19} + 0.337 X_{20}$$

Factor 5, the factor "facilities," is affected by 2 variables:  $X_{19}$  (adequate waste storage equipment) and  $X_{20}$  (adequate and clean toilets). Variables  $X_{19}$  have the most decisive impact.

Table 8. Factor Score Matrix (Source: Data analysis results from direct visitor survey in 2022, n = 120)

| Measure variable  | Factors |       |       |       |       |
|---|---------|-------|-------|-------|-------|
|   | 1       | 2     | 3     | 4     | 5     |
| The reasonable price of accommodation                   | 0.257   |       |       |       |       |
| The reasonableness of food prices                       | 0.232   |       |       |       |       |
| The staff of the accommodation is always ready to serve | 0.208   |       |       |       |       |
| Service attitude of restaurant staff                    | 0.227   |       |       |       |       |
| Friendly and polite accommodation staff                 | 0.209   |       |       |       |       |
| The restaurant is clean, ensuring food hygiene          | 0.196   |       |       |       |       |
| The reasonable price of sightseeing                     | 0.108   |       |       |       |       |
| The reasonableness of shopping prices                   | 0.105   |       |       |       |       |
| Spacious and airy rooms                                 | 0.094   |       |       |       |       |
| Theft situation   |         | 0.253 |       |       |       |
| Begging status  |         | 0.213 |       |       |       |
| Status of peddling and peddling                         |         | 0.244 |       |       |       |
| Divination status                                       |         | 0.185 |       |       |       |
| Convenience in buying incense and gifts                 |         |       | 0.370 |       |       |
| Variety of souvenirs                                    |         |       | 0.323 |       |       |
| Garbage collection and treatment                        |         |       | 0.247 |       |       |
| Width of the road to the place to visit                 |         |       |       | 0.462 |       |
| The quality of the road surface to the place to visit   |         |       |       | 0.359 |       |
| Sufficient garbage disposal equipment                   |         |       |       |       | 0.373 |
| The toilet is complete and clean                        |         |       |       |       | 0.337 |

## CONCLUSION AND PROPOSED SOLUTIONS

In general, the conditions for growing spiritual and cultural tourism in the province of An Giang are only mediocre; among the locations evaluated, the Nui Sam national tourist area excels in every respect, according to the opinions of visitors. The spiritual trip to An Giang leaves guests feeling quite content. Nui Sam national tourist area has the highest level of tourist satisfaction, followed by the Nui Cam tourist area, while the Tuc Dup Hill tourist area has the lowest level. The amount of visitor satisfaction is positively connected with the destination's attractiveness, the likelihood of future travel, and the intent to suggest tourism to family and friends. The development of cultural and spiritual tourism in An Giang province is influenced by five factors: "service costs, human resources, and amenities"; "security, order, and safety"; "goods and protection"; "environment," "transportation," and "facilities". Based on the findings of the analysis, the

author concludes that local authorities and tourism management boards in An Giang province must address a number of the following issues in order to overcome obstacles and stimulate the growth of spiritual and cultural tourism:

(1) The issue of human tourism resources, accommodation facilities, and tourism service prices: localities must open short-term training courses for service personnel at tourist destinations on tourism knowledge and the psychology of tourists, the art of communication, and the means of ensuring food hygiene. Accommodations must prioritize spaciousness, coolness, cleanliness, and organization. The pricing of tourist service establishments should be made more reasonable. In addition, the publishing of pricing in restaurants and souvenir shops is crucial since it instills confidence in tourists and prevents arbitrarily contested prices.

(2) Security and safety issues for visitors: it is necessary to strengthen the inspection, monitoring, and handling of security violations such as enticing tourists to buy incense, lamps, and offerings; fortune-telling, begging and stealing at tourist sites. The authorities should specifically re-plan areas for trade and parking to increase the beauty of the tourist destination and, simultaneously, create safety for visitors.

(3) The issue of environmental protection and souvenir sales: it is necessary to educate locals and tourists on the importance of maintaining a green and clean environment at tourist attractions, as well as to strengthen garbage collection and treatment activities to ensure environmental sanitation and enhance the aesthetic appeal of tourist destinations. The local government facilitates the production and distribution of local souvenirs. Encourage the production and sale of Khmer and Cham-specific goods by the local populace.

(4) Problems of transportation and facilities: it is necessary to upgrade the car route to the Nui Cam tourist area and overcome the problem of landslides at this route to ensure the safety of tourists during the trip. Pilgrimage, sightseeing. In addition, the main roads to Sam Mountain National Tourist Area and Tuc Dup Hill tourist area also need to be repaired and expanded to create convenient circulation. It is adding garbage storage devices at tourist sites. The toilet system needs to be fully equipped and clean. From the above suggestions, the study hopes to contribute to the development of spiritual and cultural tourism to contribute to the development commensurate with the potential of An Giang province in particular and for An Giang to become a destination attractive, reliable, convenient, friendly, and safe, worthy of the land converging many national spiritual and cultural identities in general.

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## ATTITUDES AND ACTIONS IN RESPONSIBLE TOURISM – AN ANALYSIS OF GENERATIONAL DIFFERENCES

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**Abstract:** Examining today's tourism, we should recognize the appearance and intensification of socially and environmentally undesirable side effects of tourism. A change is necessary in order to maintain the popularity of tourism and to develop it further. This change must take place both in terms of supply and consumer demand. In the present study, we examine the extent to which the Hungarian population is open to demonstrating environmentally conscious and responsible consumer behaviour during their travels. The diverse consumer behaviours of the generations are well known, but in the case of tourism, this is a somewhat less researched area. The current study was carried out to explore these generational differences. As part of the research, we conducted an online survey of 1,085 respondents in April and May of 2018 with the aim of examining the attitudes of the Hungarian population toward tourism, focusing on the generational perspective. In this paper, we analyse the results of some important manifestations of responsible tourism and the attitudes of the Hungarian population toward environmental issues. In our opinion, the study is also relevant because many tourist destinations are already struggling with the negative effects of overtourism, so it is critical that we explore whether there is willingness among tourists to adopt more environmentally conscious and responsible consumer behaviour patterns. Employing the core research data, we performed a cluster analysis, with the help of which we attempted to characterize a range of consumer groups.

**Key words:** tourist consumption habits, environmental awareness, responsible tourism, age, cluster analysis

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### INTRODUCTION

Since the middle of the 20<sup>th</sup> century, when the dynamic expansion of tourism began, it has become a real mass phenomenon in just a few decades. Today it can be considered a social and economic factor that significantly influences people's daily lives. The experiences available through tourism make our lives more complete and have a positive effect on our well-being and subjective happiness. The dynamic development of tourism has brought several benefits: it has led to the strengthening of local and national economies, the improvement of the range of services available to the population, the creation of jobs, the promotion of intercultural dialogue and tolerance between peoples. However, the investigation of today's mass tourism has also highlighted socially and environmentally undesirable side effects. In some destinations, the volume of tourism has become so massive that it has begun to deteriorate local people's living conditions and to threaten the natural environment. Prior to the Covid-19 pandemic, overtourism was one of the most pressing tourism problems in many destinations (Kiss and Hinek, 2020), and although the various travel restrictions introduced during 2020 and 2021, together with increased risk perceptions, had a moderating effect on tourist demand (Çınar et al., 2022), whenever these restrictions were temporarily lifted, there was an immediate boom in visitor numbers. As with all forms of tourism, uncontrolled development causes more harm than good, and only with appropriate frameworks and regulations can the expected benefits be secured and harmful consequences mitigated or eliminated (Ariyani and Fauzi; 2022, Kyriakaki and Kleinaki, 2022). Thus, a change is needed to maintain and increase the popularity of tourism, a change that must take place in terms of both supply and demand. This study examines the extent to which the Hungarian population is open to environmentally conscious and responsible consumer behaviour patterns when travelling. Differences between age groups in consumer behaviour are quite extensively investigated (Li et al., 2013; Lipowski, 2017), but in tourism research this is a somewhat underrepresented topic, particularly when it comes to responsible travel behaviour, as existing studies tend to focus on the technological and the marketing aspects of generational differences (Huang and Petrick, 2009; Monaco, 2018; Ketter, 2020). Since both the senior and the youth market are increasingly important in global tourism, it seems relevant to investigate whether travellers' age has an impact on their attitudes towards responsible tourism practices as well as their actual demand.

Responsible tourism development is a complex process that requires conscious and ethical decisions and actions on behalf of all stakeholders: tourists, tourism companies, host communities, DMOs, governments and NGOs, among others (Mondal and Samaddar, 2021). The aim of responsible travel is to maximize the desirable social, economic, and environmental effects of tourism on the destination while minimizing its undesirable impact (Csapó, 2015). According to

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the Cape Town Declaration (*International Conference on Responsible Tourism in Destinations, 2002*), besides generating greater economic benefits and improving the well-being of the host communities, responsible tourism also provides more enjoyable and memorable experiences for visitors by enabling to create meaningful connections with local people and to understand better local social, cultural and environmental issues. Responsible travellers are conscious consumers who, rising above individual selfishness and avoiding hedonistic behaviour, strive not only to maximize their own experiences during their tourist activities, but also to optimize the favourable impact of their trips, thus demonstrating tourist citizenship behaviour (Thai and Nguyen, 2022). Deeper connections with local people can inspire authentic experiences, contribute to mutual respect between tourists and hosts, and promote travellers' understanding of the importance of cultural and environmental issues caused by tourism (Diallo et al., 2015). Whether a returning traveller or a first-time hiker trying a form of alternative tourism, it can be assumed that one is guided by respect and genuine interest in nature and the host community when planning a trip. Responsible tourists make a conscious effort to adopt the most favourable travel behaviour and are open to the interests of the area they visit (Gonda, 2017). While the recent Covid-19 pandemic had a predominantly negative impact on global tourism development, research has shown that it has also led to increasing concern for sustainability, resulting in changes in travel behaviour (Csóka et al., 2021; Kovács et al., 2021). According to a study conducted by the European Tourism Futures Institute (ETFI) at NHL Stenden University of Applied Sciences and the Centre for Sustainability, Tourism and Transport (CSTT) at Breda University of Applied Sciences concluded (ETC, 2022), although the changes brought about by Covid-19 did not have a deep impact on travellers' likelihood of adopting more sustainable travel behaviour in the post-pandemic era, certain sustainable tourism practices have increased in popularity, especially travelling to shorter distances, avoiding destinations suffering from overtourism, and searching for more immersive, authentic experiences. According to Csapó and Töröcsik (2020), risk aversion and an increased need for safety is likely to remain a permanent consumer trend in tourism, with less visited destinations becoming more popular.

Destinations that take more effective measures to reduce the negative impacts of mass tourism will become more resilient (Ketter, 2022), but the ability to take such measures also requires a profound understanding of visitors' attitudes and behaviour. Research has shown that there is often a gap between consumers' self-professed willingness to adopt a more responsible travel behaviour and their actual choices (Budeanu, 2007; Raffay-Danyi and Formádi, 2022). Investigating the factors that affect the gap between values and actions can help destinations and companies create improved experiences and better targeted services and may contribute to increased resilience and sustainable recovery in the post-pandemic period.

As previous studies demonstrated, responsible travel behaviour is influenced by a great variety of demographic, social, cultural and environmental factors including, among others, sustainability values (Sirakaya-Turk et al., 2014), the environmental background of the destination (Wang et al., 2019), national culture (Kang and Moscardo, 2006), environmental knowledge (Kim and Stepchenkova, 2020), environmental sensitivity (Cheng and Wu, 2015) or place attachment (Ramkissoon et al., 2013). Responsible tourists also tend to differ in their behaviour and in their degree of commitment towards different aspects of the visited destination such as the local communities, the local economy or the environment (Del Chiappa et al., 2016), and the range of responsible behaviours depend both on the local destination context (Stanford, 2008) and on the visitors' personality traits (Al-Gharibah and Mahfod, 2022).

The study presented in this paper discusses some important manifestations of responsible tourism and explores the Hungarian population's attitudes toward environmental awareness, highlighting differences between age groups. Age as a factor influencing travellers' attitudes and travel behaviour is often investigated in the context of generational studies, recognising the fact that critical events have an impact on personality and behaviour. However, the theoretical assumptions underlying generational theory have also been questioned since little empirical evidence supports the classification of people of pre-determined generational groups (Nemes, 2019; Rudolph et al., 2021), and the current categories predominantly based on US and Western European history – from the Silent Generation to Alphas – do not necessarily reflect reality in Eastern Europe (Artwińska and Mroziak, 2020) or in Asia (Huang and Lu, 2017). Consequently, in this research we decided to use age groups and not sociological cohorts as our independent variable to separate generations. A similar approach was used by Šenková et al. (2022) in their analysis on the perception of overtourism in the context of sustainability, and by Kim and Lee (2015), who used age as a moderating factor in their investigation of the relationship between quality, satisfaction and behavioural intentions in rural responsible tourism. These studies verified the importance of age as a factor of influence in responsible tourism, but their focus was limited on cities and on rural destinations, respectively, while our research is of a more comprehensive nature.

Although the empirical survey was completed before the Covid-19 pandemic when overtourism and the associated growth agenda were considered the main threats to global tourism development (Herntrei, 2019; Kagermeier and Erdmenger, 2019), understanding potential visitors' attitudes is no less relevant today in the post-Covid era, since the recovery of the industry is most likely to bring about the same problems that were experienced before. The dimensions of responsible tourism attitudes explored in this paper include the tourist-host relationship, the contribution of tourism to the local economy, respect for cultural and natural values, and the relationship between national representation and responsible behaviour.

## MATERIALS AND METHODS

This paper is based on the findings of a larger research project entitled "*The attitudes of Hungarian population about tourism*", in the framework of which an online survey with 1085 respondents was conducted in April-May of 2018. The survey aimed to explore the Hungarian population's attitudes towards tourism in general, and to identify the impact of age on attitudes toward responsible tourism choices, comparing the responses of participants belonging to three age groups: 15-

<sup>1</sup> EFOP-3.6.1-16-2016-00004 Comprehensive Development for Implementing Smart Specialization Strategies at the University of Pécs

34 years old, 35-65 years old and older than 65 years. The survey sample is representative of the Hungarian population aged 15-74, based on gender, age groups (10-year intervals), and region of residence.

Table 1 summarizes the key demographic data of the survey population. In this paper we mainly focused on the differences between age groups, but we also used other characteristics such as gender, education level, subjective assessment of financial status and economic status as independent variables in our analysis.

Table 1. The demographic characteristics of respondents (%) (N=1085)

| Gender                                    |      |
|---|------|
| Male                                      | 48.7 |
| Female                                    | 51.3 |
| Highest completed education               |      |
| Primary school                            | 3.2  |
| Vocational training                       | 12.9 |
| Vocational school diploma                 | 20.4 |
| High school diploma                       | 16.1 |
| Higher technical school                   | 10.9 |
| Bachelor                                  | 18.5 |
| Master                                    | 17.1 |
| No response                               | 1.0  |
| Age                                       |      |
| Young (15-34 years old)                   | 24.2 |
| Middle-aged (35-65)                       | 51.1 |
| Senior (65+)                              | 24.7 |
| Financial status                          |      |
| Do well and can save up                   | 6.8  |
| Do well but can save little               | 37.9 |
| Just above making ends meet, no saving up | 37.1 |
| Occasionally cannot make ends meet        | 8.0  |
| Have regular financial woes               | 3.4  |
| No response                               | 6.7  |
| Economic status                           |      |
| Active, blue-collar                       | 22.1 |
| Active, white-collar                      | 28.5 |
| Student                                   | 3.9  |
| Retired                                   | 29.2 |
| Inactive                                  | 13.5 |
| No response                               | 2.8  |

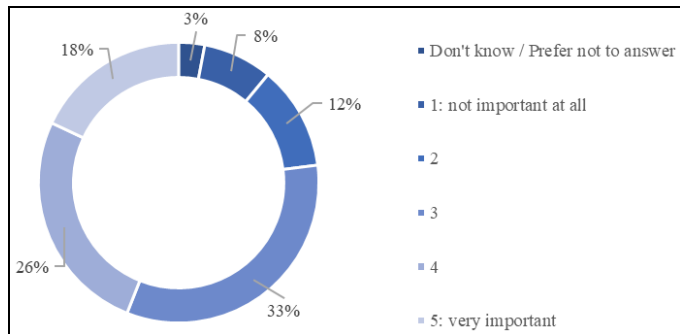


Figure 1a. Responses to the item "Getting to know and getting in touch with local people" (n=1.085) (Source: authors' data)

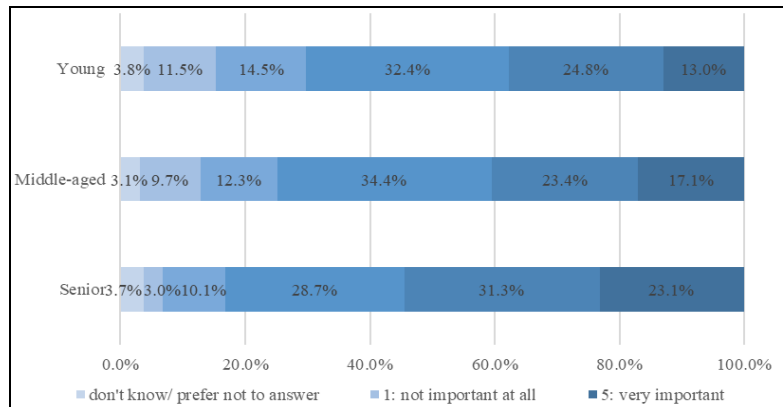


Figure 1b. A generational breakdown of responses to the item Getting to know and getting in touch with local people (n=1.085) (Source: authors' data)

SPSS software was used to perform frequency analysis, followed by demographic background analysis, in order to reveal whether there were verifiable significant differences in the responses obtained from each age group to each questionnaire item. Using the SPSS statistical program, we performed chi-square tests to reject or confirm our research hypothesis that there is a significant relationship between belonging to a given age group and the results of the answers to the questions. To measure the level of significance, we used the generally accepted 5% level ( $p < 0.05$ ). Several papers have been already published based on the data collected in the framework of the above mentioned research project (Csapó et al., 2018; Töröcsik, and Csapó 2018; Csapó and Gonda, 2019; Raffay, 2019), which we were able to factor in when drawing conclusions.

## RESEARCH FINDINGS

### 1. Attitudes toward responsible tourist behaviour

In the course of the research, we examined the importance that respondents associated with various aspects (such as getting to know the local people, customs, and the atmosphere) during their own holiday. We invited them to rate the importance based on seven statements characterizing responsible tourism. Importance was rated on a 5-point scale, where 1 meant not important at all and 5 meant very important. The option *I don't know/I prefer not to answer* appeared as a sixth, neutral choice.

First of all, we were curious about how important it was for the respondents to get in touch with and get to know the locals. Do they find it important to communicate with the locals, or do they prefer to mind their own business? According to the responses, 17.6% consider it very important to get to know the local people during their trip, 25.7% consider it important, so altogether, about 40% of respondents answered that it was important for them (Figure 1a). A third of the respondents (32.6%) belong to the undecided group (3), although for this answer it is difficult to determine whether the importance of the issue depends on the mood/situation, or whether respondents were simply unable to decide – further research and analysis is required. A relatively large number of respondents answered the question that for them it was not important at all (8.5%) or not important (12.2%), from which it can be deduced that about 20% of respondents prefer to be on their own or with their friends during their vacation. They are the tourists who are satisfied by the offer of a tourist ghetto, completely cut off from local residents, and by the services received through traditional mass tourism.

Looking at the generational aspect of the question, it was revealed that those belonging to the senior generation showed a much greater affinity for getting to know and getting in touch with local residents. When examining the combined answers of those who chose the values 5 and 4 (i.e., those who considered this issue very important or important), we can

see that the figure for the older generation is 14% higher than that for the middle-aged, and 16.6 % higher than for young people. There was no significant difference between the young and the middle-aged regarding this issue (Figure 1/b).

The second question focused on getting to know and respecting local customs. In theory, this question is closely related to the previous question, since the best and most authentic way to learn about local customs is through the people. However, the results showed a significant positive difference compared with the results obtained for the first question. Almost three-quarters (73.5%) of those surveyed said they were curious about local customs and would respect them during their vacation: 39.3% of the respondents marked the option very important, with 34.2% choosing the category one level lower (4). In contrast to the previous question that revealed that less than half of respondents were interested in local people, three-quarters reported being interested in local customs. The proportion of respondents who do not consider it important to learn about local customs and do not wish to respect them (categories 1 and 2) is insignificant for this item, with the two categories approximating a mere 5% share. The remaining app. 20% is divided between the undecided (19.1%) and those who did not respond to this item (2.6%) (Figure 2/a).

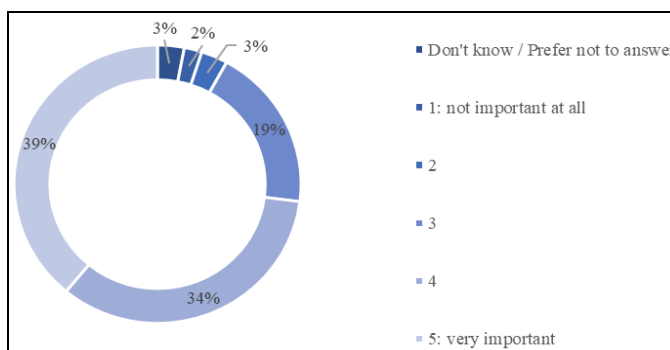


Figure 2a. Responses to the item Getting to know and respecting local customs (n=1,085) (Source: authors' data)

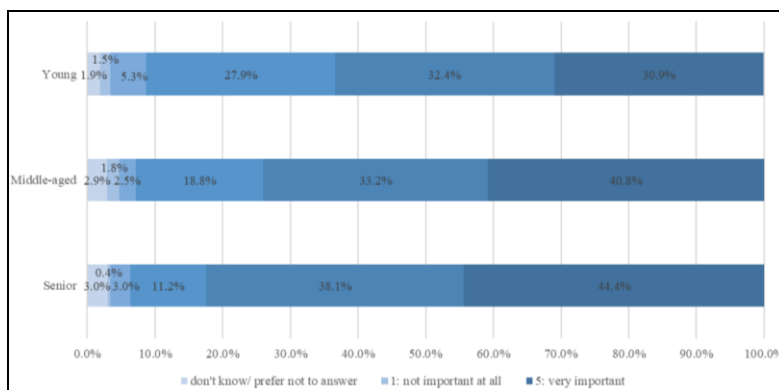


Figure 2b. Generational breakdown of answers to the item Getting to know and respecting local customs (n=1,085) (Source: authors' data)

The analysis of the generational breakdown revealed that although all generations considered this question very important, there was nearly 10% difference between the individual generational groups. For the important and very important answers, the results were as follows: senior, 82.5%, middle-aged, 74%, and young, 63.3%. (Figure 2/b).

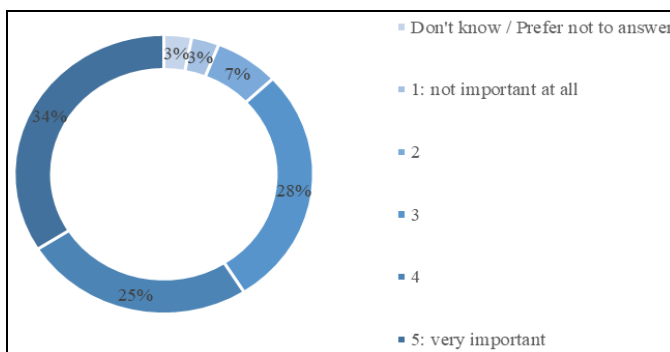


Figure 3a. Responses to the item Getting a glimpse into the everyday life of local people (n=1,085) (Source: authors' data)

Responsible tourists are interested not only in tourist attractions but also in the lives of the people in the area they visit. This was the focus of the third question of the survey. Respondents were asked to rank the importance they attached to having an insight into the everyday life of the local people. According to the answers, 58.9% of respondents feel it is important to get a glimpse of the everyday life of the locals (25.4% for category 5, 33.5% for category 4.) See Figure 3a. The answers to the first three questions show that respondents tend to be interested in learning about the culture of the host area, the local customs, and the lives of the people living there. At the same time, many prefer not to make specific contact and engage in personal conversations. In our view, one reason for this can be the limited competences of the Hungarian population as regards foreign languages. One of the important characteristics of a responsible tourist is that she gets thorough information in advance about the specific area that she wants to visit, educating herself about the values of the host area and learning about any cultural differences that may exist. The fourth question in the survey was used to elicit data on consumer behaviour in this regard. The

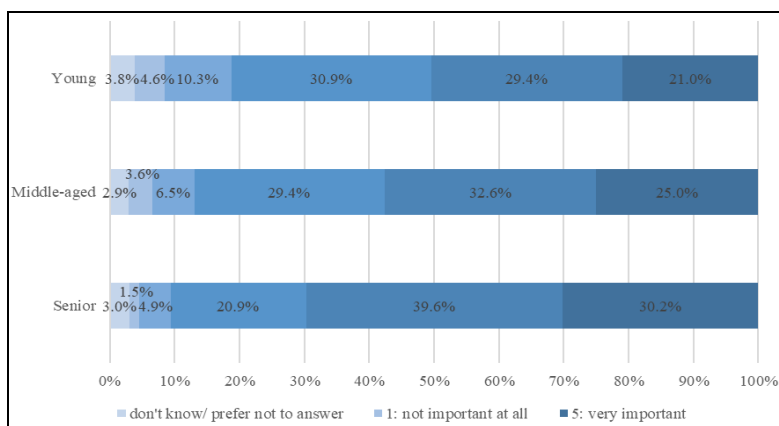


Figure 3b. Generational breakdown of answers to the item Getting a glimpse into the everyday life of local people (n=1,085) (Source: authors' data)

results show a supremely positive picture of the responsible behaviour of the population.

It was viewed as very important by 48.2%, important by 30.8% of respondents to prepare in advance and find out about their travel destination – that is, almost 80% said it was important to them, with only 3.7% stating the opposite, whereas the value 3 was also chosen by relatively few (14.7%), as Figure 4 shows. This issue is important for the Hungarian population regardless of age: this was the only question where our statistical analysis did not show a significant difference between the generations.

For the responsible tourist it is imperative to pay attention to the natural values of the host area and to minimize the impact on nature during a trip. Our study has found evidence that such conscious consumer behaviour is emerging in this area as well. The majority of respondents (55.1%) reported this being a very important issue, with another 28.3% claiming it to be important. The ratio of those who partially or fully reject its importance was minimal (1.6% and 1%, respectively). Another 2.6% was unable or unwilling to respond to this item (see Figure 5a). A pressing challenge for the tourism of our time is the creation of environmental sustainability and mitigation of environmental problems. The fact that 83.4% of respondents regarded this issue as important gives hope. The generational breakdown analysis revealed that young and middle-aged people hold nearly identical views on this issue (79.4% and 82.2%), whereas in terms of seniors, 9 out of 10 consider the curtailment of the negative impact of tourism on nature as important (90.3%). It should be noted, however, that despite the nearly 10% variability, there was no material difference between the number of middle-aged and seniors who chose the option *very important* (Figure 5b).

Besides addressing responsible tourism, the sixth question was related to the social dimension of sustainable development and tourism: we inquired whether it was an important aspect for tourists that local people should benefit from tourism. Respondents indicated an extremely positive image of the Hungarian population as 42.9% considered this issue very important and 30.8% important, a total of 73.7% of them rating this item in the positive range. In addition, 4.3% do not deal with it or do not consider it important, 4% could not or did not want to decide, and 17% made a neutral choice by selecting the middle value, 3. See Figure 6a. The close examination of answers to this question according to age groups confirmed that seniors are the most responsible tourists. On the one hand, almost half of senior respondents (48.9%) consider it

very important that local people should also benefit from tourism, with their ratio reaching over 80% when respondents choosing the important option is added (83.2%). For young people this statistic is 61.8%. (Figure 6b.)

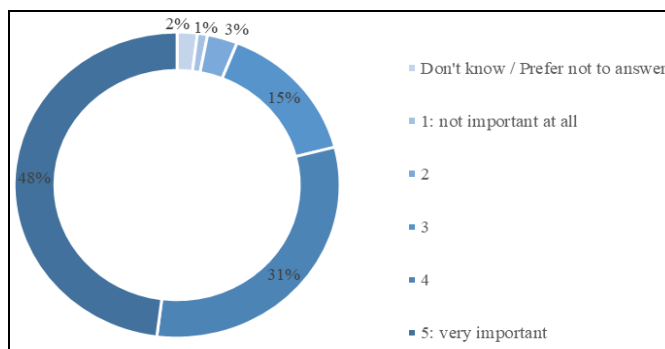


Figure 4. Responses to the item Finding out about the destination in advance (n=1.085) (Source: authors' data)

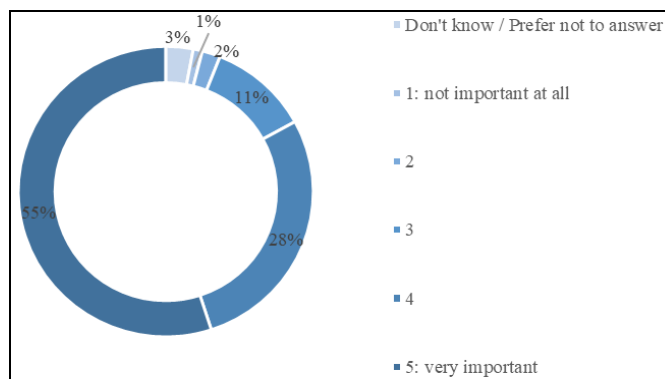


Figure 5a. Responses to the item Paying attention to natural values (n=1.085) (Source: authors' data)

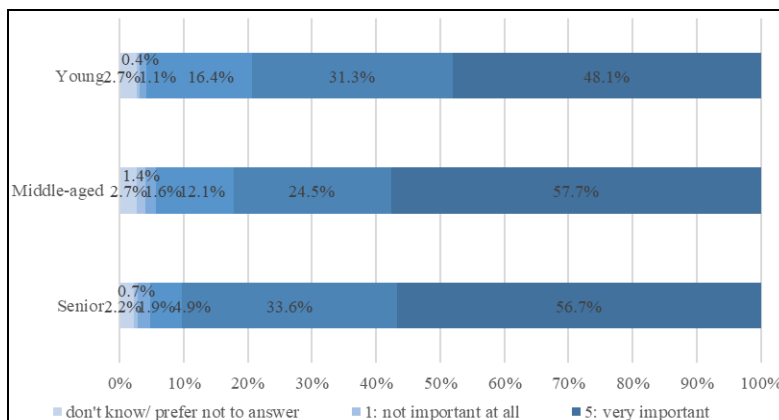


Figure 5b. Generational breakdown of answers to the item Paying attention to natural values (n=1.085) (Source: authors' data)

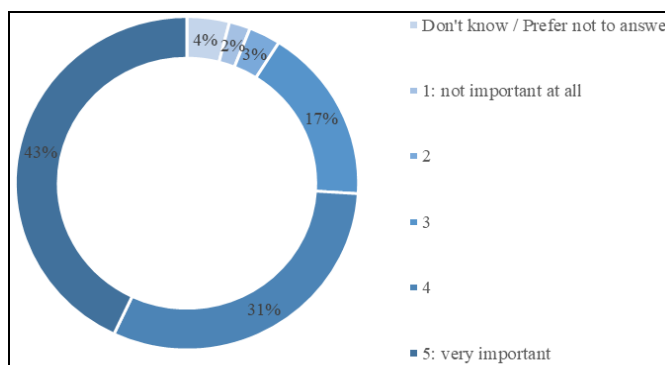


Figure 6a. Responses to the item Local people should also benefit from tourism (n=1.085) (Source: authors' data)



We believe that the behaviour of tourists is influenced by the fact that it is not only them who are judged by their actions, but also their community at large (in our case, the country, the nation). This is why we posed the question whether it was important for them to represent their country during tourist activities. Over 40% considered it a very important aspect, an additional 25% regarding it important, the combined figure (65.4%) indicating that Hungarians still hold the view that as individual tourists they are also representatives of their country, the ever present globalization and EU membership notwithstanding. Since this is likely to have a positive effect on tourist behaviour, we can file this result under positives. Compared with the other survey items, however, the number of those who chose complete (6.1%) or milder rejection (5.1%) was significantly larger. Therefore, more than a tenth of respondents (11.2%) did not consider this issue important. (Figure 7a.)

It was for this item that the most marked generational deviation was observed, the cause most likely being the fact that in Hungary, in the period before the change in regime, tourism was no exception to a highly politicized state of affairs. The sentiment was deeply imprinted in the people, even if with an appropriate pedagogical objective, that a Hungarian tourist should do well to display proper manners. The effect of this indoctrination is still felt by the seniors, as indicated by the high rate, 84.5%, of them considering this statement important. The variability across age groups is twice as large as that we saw for the previous answers, almost 20%. Accordingly, less than half of young respondents considered this issue important (46.9%).

**2. Forming consumer groups using cluster analysis**

As the first step of the cluster analysis, to gauge the general willingness of respondents, the average of agreement with the statements was subtracted for each survey participant from the degree of agreement with each statement, which made it possible to increase the deviation of individual evaluations, thereby increasing the measurement efficiency of the original Likert scales. To form groups with different preferences, the k-means cluster analysis method proved to be most effective, considering the number of elements in the sample. Prior to that, however, we performed a hierarchical cluster analysis, set to Ward’s method to determine the ideal group number. Based on the resulting dendrograms, the number or ideal groups came to be four. The values of the variables included in the cluster analysis were standardized in order to measure the deviation of the respondents’ answers from the average, and then they were included in a k-means cluster analysis, where the number of groups to be formed was set to 4. The groups thus formed were named, reflecting their properties so that these labels can be used to readily identify each of them. Figure 8 shows the cluster centres of the groups thus formed. The cluster groups have the following elements: 1: 218, 2: 156, 3: 15, and 4: 586 (1.085 in all). The distribution of cluster members according to educational level can be seen in Figure 9, whereas economic activity is illustrated in Figure 10. The study revealed significant differences across the three age groups, partly reflected in the analysis of cluster membership in a generational perspective (Figure 11). As can be seen in the results of the analysis of variance (ANOVA) in Table 2, the four clusters show significant differences in relation to all variables directly included in the cluster analysis. The results of the Chi-square tests of the demographic characteristics also show (Table 3) that the four clusters vary significantly according to education, economic activity, age group.

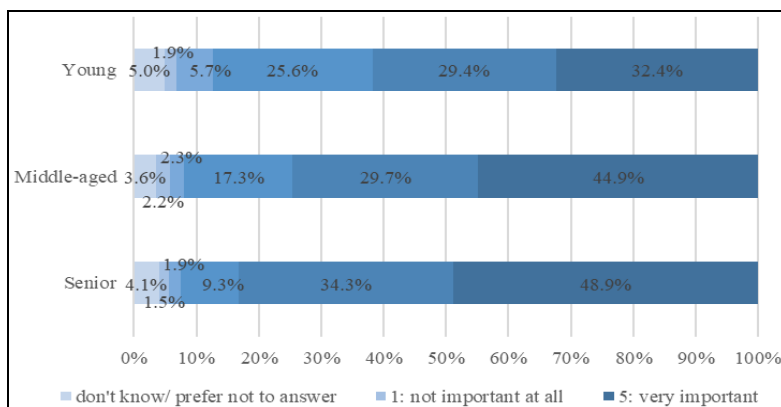


Figure 6b. Generational breakdown of answers to the item Local people should also benefit from tourism (n=1.085) (Source: authors’ data)

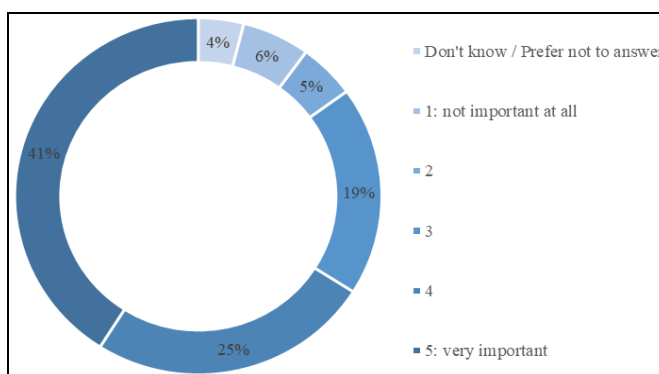


Figure 7a. Responses to the item representing my country while abroad (n=1.085) (Source: authors’ data)

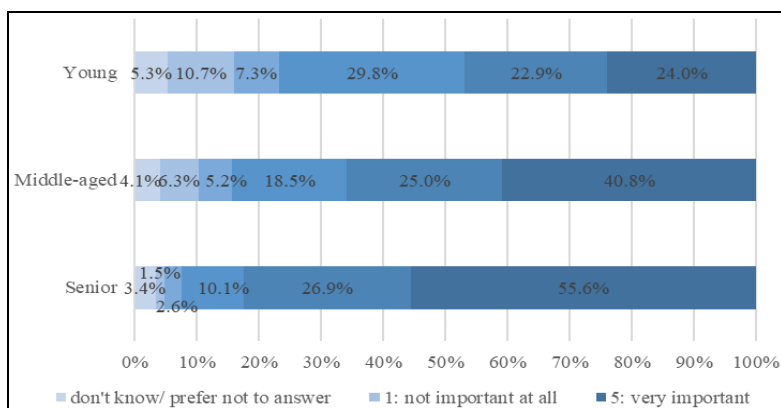


Figure 7b. Generational breakdown of answers to the item representing my country while abroad (n=1,085) (Source: authors’ data)

Based on these results, the four clusters can be characterized as follows:

i. Reclusive traditional tourists

Members of this cluster display no interest in local people, they do not want to get to know them and do not wish to be in contact with them. They are not interested in local customs and have no desire to get a glimpse into the lives of local people. They hold the view that when abroad, they represent their country, a sentiment inculcated in them during the socialist period (before 1990). The majority of them are middle-aged, but young and old respondents also belong to the cluster to the same extent (about a fourth from each age group).

ii. Reclusive valuers

Members of this cluster have ambivalent attitudes toward local residents and values. They have no desire to get to know the local people, or to have physical contact with them, or to gain a glimpse into the lives of the locals. However, it is important for them to learn about and respect local customs and values. This value-respecting behaviour is also reflected in that members of this cluster are also the most interested in natural values. This group has the most middle-aged people. There is no significant difference between the members of the first two groups as regards education and economic activity.

iii. Receptive egotists

Members of this cluster show the greatest interest in local residents. Eager to get to know their habits, they would like to get in touch with them, and would enjoy getting a glimpse into their lives. We could state that members of this group are the most receptive to responsible tourism, except that there is also a stiff contradiction as they strongly reject that local people should reap benefits from tourism. Many young and few old people belong to the group, and while they have the highest level of education, they do not share the view that when abroad they represent their country. In terms of economic activity, in connection with a high level of education, the proportion of white-collar workers is very high, and few are in retirement.

iv. Curious mass tourists

Members of this cluster show limited interest in local customs, not attaching much importance to respecting them. Although they tend not to find out about the destination in advance, they do wish to get to know the locals and are happy to get in touch with them, getting a glimpse into their lives. There is openness on their part, but this is not coupled with an intellectual interest in acquiring prior knowledge. This may well be related to their relatively low levels of education. This group has the most seniors and the least young people and in terms of their economic activity, the rate of retired people is highest in this group.

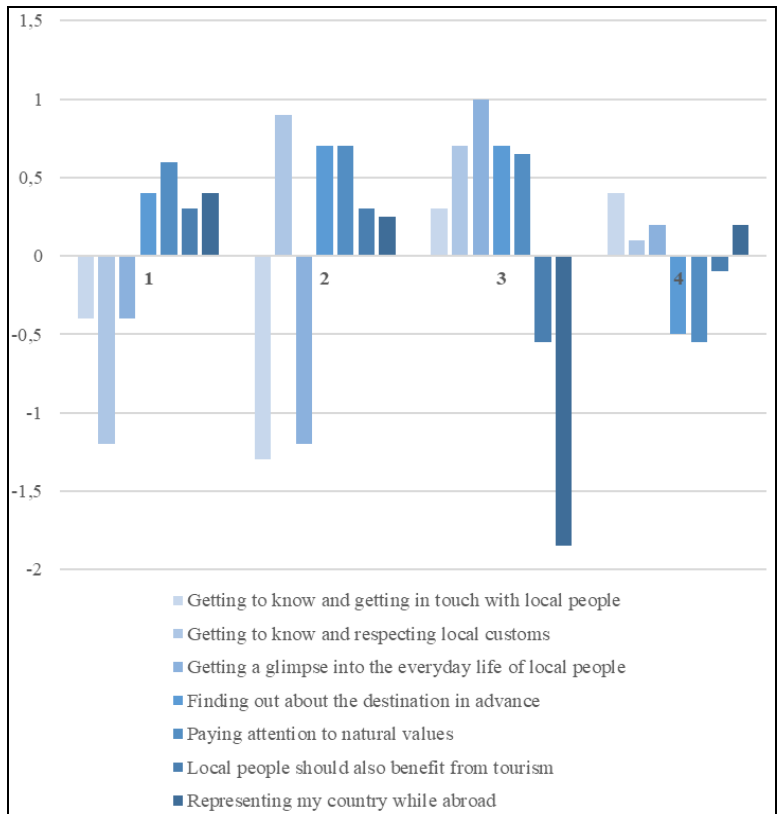


Figure 8. Cluster properties as measured by the deviation from the average on each statement (Source: authors' data)

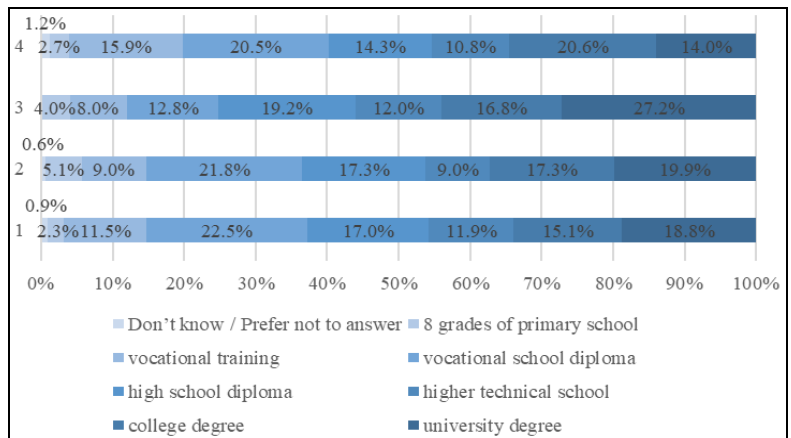


Figure 9. Distribution according to educational level within cluster groups (Source: authors' data)

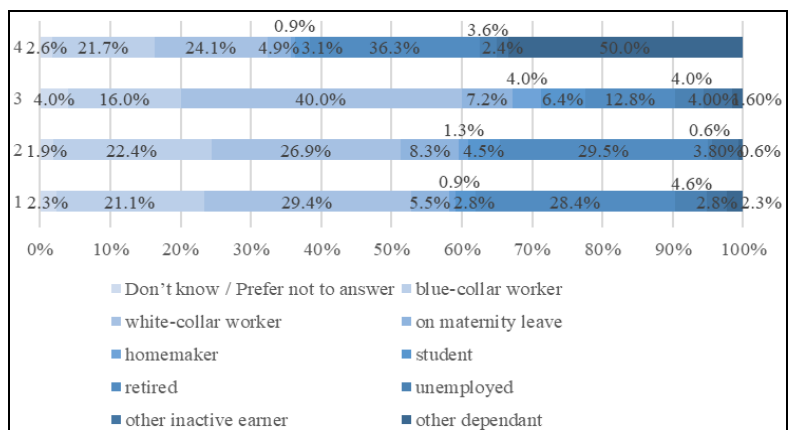


Figure 10. Distribution of members of each cluster according to economic activity (Source: authors' data)

**CONCLUSION AND IMPLICATIONS**

A change is necessary for the sake of increasing the popularity of tourism and for its further development as the current processes cannot be sustained. The strengthening of responsible tourism offers a viable solution to dealing with the situation or, at the very least, to avoid further complicating it. Any change in this area must take place both in supply and consumer demand. In this paper, we have discussed some important manifestations of responsible tourism and the attitudes of the Hungarian population toward environmental awareness. The results can be a source of optimism as we have found sufficient receptivity on the part of the actors on the demand side to responsible travel.

The majority of respondents are open to the practice of responsible tourism. Although getting to know the local people was stated as a goal by just over 40% of them, respecting and getting to know local customs is viewed as important by almost three-thirds of them. Indicating that tourists are more and more prepared and aware is the result that 80% of them consider it important to find out in advance about the values of the destination and different cultural customs.

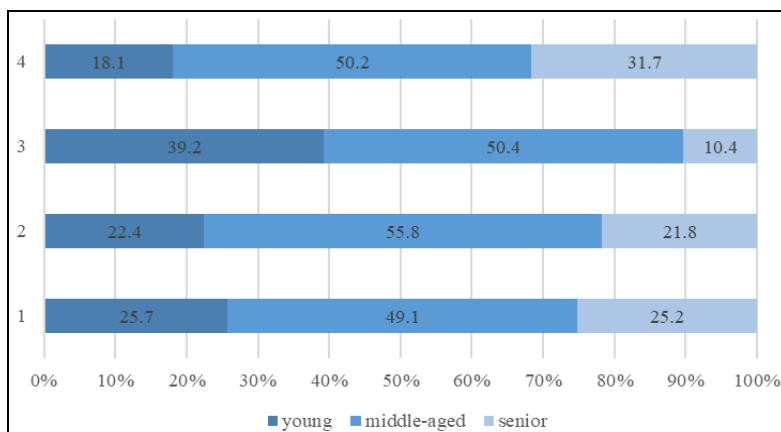


Figure 11. Generational distribution of cluster membership (Source: authors’ data)

Table 2. Results of the analysis of variance (Source: authors’ data)

|  | Cluster     |    | Error       |      | F       | Sig. |
|--|-------------|----|-------------|------|---------|------|
|  | Mean Square | df | Mean Square | df   |         |      |
| Getting to know and getting in touch with local people   | 217.880     | 3  | .408        | 1081 | 533.968 | .000 |
| Getting to know and respecting local customs             | 245.294     | 3  | .325        | 1081 | 753.897 | .000 |
| Getting a glimpse into the everyday life of local people | 222.254     | 3  | .371        | 1081 | 599.069 | .000 |
| Finding out about the destination in advance             | 215.576     | 3  | .398        | 1081 | 541.906 | .000 |
| Paying attention to natural values                       | 229.393     | 3  | .368        | 1081 | 622.675 | .000 |
| Local people should also benefit from tourism            | 215.024     | 3  | .419        | 1081 | 513.096 | .000 |
| Representing my country while abroad                     | 145.976     | 3  | .599        | 1081 | 243.521 | .000 |

The general mega trend that consumers are becoming ever more environmentally conscious can also be witnessed when scrutinizing travel habits. For the majority, paying attention to the natural values of the host area is an incontrovertible priority as is an attempt to reduce harmful impacts on nature. Over 70% of respondents agreed that the local population should be among the main beneficiaries of tourism. The generational analysis revealed that the receptiveness of the senior group to responsible tourism is significantly stronger than that of young people.

It is for this reason that we can posit that during the development of responsible tourism, in addition to creating new types of products, we must also sensitize and educate the younger, potential passengers. At the same time, as a positive conclusion of this study, we can affirm that tourism service providers can enter the market more boldly and consciously with offers that exploit the potential of sustainable tourism to the full, since consumers possess felicitous attitudes to this process.

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## PRIVATE RV (ROOFTOP TENT) CAMPING IN SOUTHERN THAILAND

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**Abstract:** Recreational Vehicles (RVs) with rooftop tent for camping have become popular in Thailand from about 2016 on, prior to the COVID-19 pandemic. However, no proper outdoor hospitality parks (OHPs) were available for these campers. This study aimed to investigate RV (rooftop tent) camping focusing on private properties in the context of southern Thailand, because there has been less such camping in this area than in other areas of Thailand. The representatives of 11 private OHPs from 11 provinces, of the totally 14 provinces in southern Thailand, were initially selected by purposive sampling. Data were collected by survey, observation, digital photography, pilot study, and interviews with 11 representatives of the OHP operators. The data were subjected to descriptive analysis and triangulated with other outcomes. It was found that suitable RV (rooftop tent) camping parks varied from small to large in the following order: Songkhla, Phangnga, Trang, Phatthalung, Satun, Chumporn, Suratthani, Ranong, Krabi, Nakhon Si Thammarat, and Phuket provinces. Likewise, the suitable time for camping in the shade (not in direct sunlight) was from 04.00 p.m. to 10.00 a.m.

**Key words:** Enjoyment, Outdoor Hospitality Park (OHP), RV, Rooftop Tent Camping, Southern Thailand, Responsibility, Safety

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### INTRODUCTION

Camping in general combines inexpensive outdoor accommodation with a form of recreational outdoor activity where individuals spend time - a day or up to several nights - away from home (Brooker and Joppe, 2013; Craig, 2019, 2020; Hewer et al., 2015; Lu et al., 2022; Ma et al., 2020; Radović et al., 2021; Sánchez-Sánchez and Sánchez-Sánchez, 2022). Ma et al. (2020) divided camping into three types: tent, recreational vehicle (RV), and cabin. Earlier, Brooker and Joppe (2013) had listed five types, classing caravans and RVs as two separate types of camping, and included a further type, glamping. Camping in Thailand began in the National Park areas—government properties—that provided cabins and/or tents for visitors to rent. More recently, many private properties have also provided tents and outdoor hospitality parks (OHPs) for tourists.

Details of cabin reservations and camping fees have been advertised on the National Park webpage and at other relevant websites. The camping fees for government and private properties are even more heavily advertised on social media, such as Facebook, which is free of charge. Tourists in Thailand continue to enjoy their long-accepted practice of traditional camping, with tents and cabins, particularly because they are inexpensive compared to other types of tourism. Although recreational vehicles (RVs) have been in favor elsewhere since the 1960's, especially in Europe, North America, and Australia (Hardy and Kirkpatrick, 2017; Rogerson and Rogerson, 2020; Ward, 1987), such trend of travelers using their own vehicles adjusted to include accommodation was just beginning in Thailand in 2016 (MGR Online, 2016; NationTV, 2016; Pajondotcom, 2016; Sommano, 2016; Thairath, 2016). At that time dealers selling gear specifically for travelers also began appearing. However, no proper OHP arrangements were then available: proper parking spaces and other appropriate infrastructure were lacking.

As a result, recreational vehicle users (or RVers) parked their cars in public areas, such as temples, department store parking lots, airports, and police stations. This disturbing behavior affected both the nearby local people and their environment negatively, according to Connell and Page (2008), who addressed environmental impacts such as traffic congestion, parking space occupancy (especially in beautiful scenery), and the limits of the carrying capacity of the local people.

More recently, with extended availability of appropriate facilities, interest in RV (rooftop tent) camping has grown immensely. According to Off Road Tents (2019), the strengths of RV rooftop tents can reduce the problems of traditional camping on the ground: for example, the RV (rooftop tent) camper is away from dangerous animals and unwanted creatures like snakes and spiders; there is no disturbance from humidity in the soil, ground, and vegetation; the RV (rooftop tent) camping does not need a flat spot so there is no longer a problem with mud and/or rocks or tree roots; and the RV (rooftop tent) camper gets better (elevated) views and the best photos. Consequently, the purposes of this study were: firstly, to survey the appropriate sites for tourism, focusing on private properties of southern Thailand for RV (rooftop tent) camping; secondly, to carry out a pilot study on tourism focused on private properties of southern Thailand with RV (rooftop tent) camping; and lastly, to recommend an optimal model for tourism with focus on private properties of southern Thailand with RV (rooftop tent) camping. No prior study on these topics has been reported in the literature.

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**LITERATURE REVIEW**

RV (rooftop tent) camping is a camping type using an RV (a recreational vehicle) capable of accepting a rooftop tent attached temporarily onto the vehicle, which may be a truck, sports utility vehicle (SUV), or van (see Figure 5 (a)). This RV (rooftop tent) camping style has recently become popular in Thailand because it is less expensive than other traditional RVs, according to KOA (2020) and GORVing (2021). Although we do not know any prior research on RV (rooftop tent) camping, either elsewhere or in context of Thailand, recent research was found on general camping, and on RV (but not RV rooftop tent camping), and on OHP. Rogerson and Rogerson (2020) reviewed camping tourism concept and presented that most camping tourism studies were from the Northern hemisphere, mainly from Europe and North America.

Similarly, Ding et al. (2021) mentioned that, in the United States, one-third of the tourism land, one-third of the tourism time, and one-third of the tourism accommodation facilities are for camping. However, camping activity is also found in Australasia, Africa, as well as in Asia proper, for example in China and in Japan. Camping has been on an increase, especially during COVID-19, while other types of tourism were declining, because it has been considered safe due to a well ventilated open-air natural environment, while also being accessible, and enabling social distancing standards to be maintained (Craig et al., 2021). Ding et al. (2021) studied factors related to site selection for self-driving and RV camps in China, quite similar to those in the current study, and found that RV campers selected RV campsite or OHP by transportation accessibility, parking policy, camping facilities, nearby tourist resource condition, and quality of ecological environment, topography, climate and disaster, as well as water source conditions. Craig and Ma (2022) focused more on weather and disasters. Both of these studies were similar to the recent research studies by Buckley (2004) and Sawatdichai (2012) that focused on camping and observed the following issues: 1) natural environment (slope; shading; chances to see wild animals; scenery; and safety from dangerous plants, animals, and natural disasters); and 2) physical development (camping area size; water availability; and basic facilities such as toilet, washing areas, and rubbish bins). This current study therefore observed and assessed these issues, and recommends appropriate private RV (rooftop tent) camping areas.

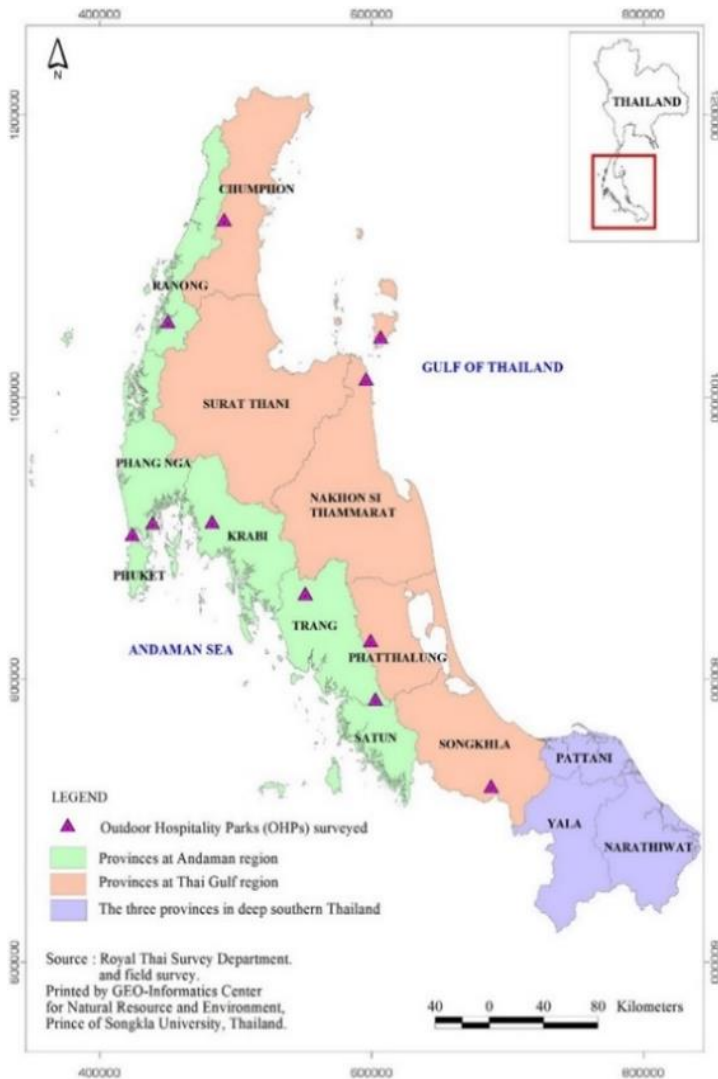


Figure 1. 11 selected private outdoor hospitality parks in southern Thailand (Source: GEO-Informatics Research Center for Natural Resource and Environment (Cartographer), 2022  
Note: This figure was produced purposely for only this research article)

**MATERIALS AND METHODS**

This was qualitative research that firstly reviewed the secondary data from potential private OHPs in 11 provinces of southern Thailand. These OHPs represented six provinces of the Andaman region (Ranong, Phangnga, Phuket, Krabi, Trang, and Satun), and five provinces of the Thai Gulf region (Chumphon, Suratthani, Nakhon Si Thammarat, Phatthalung, and Songkhla). The three southernmost provinces of Thailand suffer from an insurgency, and were not included in this research study due to the ongoing conflict bringing safety issues (Figure 1).

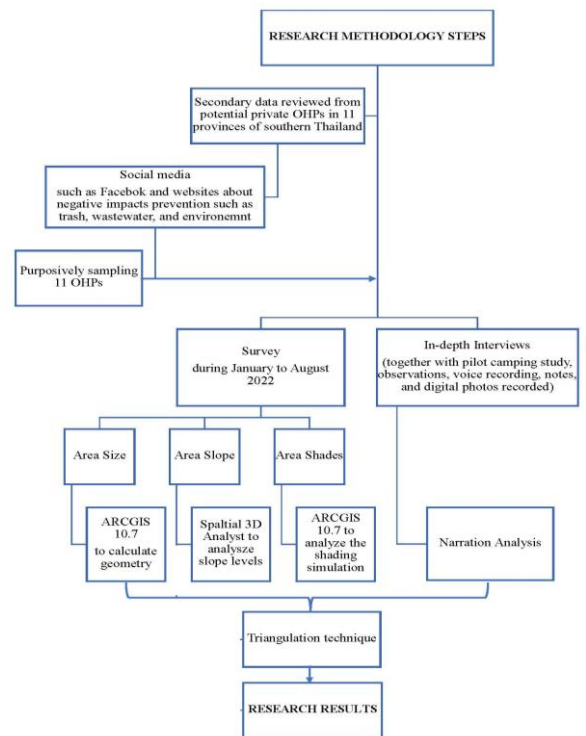


Figure 2. Research Methodology Steps (Source: The authors' elaboration)

Secondly, the private OHPs were initially selected by purposive sampling, mainly of the ones that extensively advertised on social media, such as Facebook, and from websites that also provided basic facilities for RV (rooftop tent) camping to prevent negative impacts to the environment, especially regarding trash, wastewater, and local disturbance. These OHPs were also selected because of their variety of environments, including mountains, streams, gardens, and beaches, in provinces with more than one OHP. The survey was conducted from January to August 2020 at the suggested optimum time period for each region (January to March at Andaman, and June to August at Thai Gulf). Ranong province was surveyed outside its optimum time period due to both COVID-19 and project schedule restrictions. Various methods to measure the aspects—area size, area shading, and area slope in particular—were employed in each OHP area for later comparisons, in order to suggest the optimum sites representative of each province. Details of area size, area shading, and area slope assessments are now explained.

### Area Size Analysis

Area size is usually known when the property owner applies for a land certificate. Advice here is on how to measure area size, especially at the area where the RV (rooftop tent) is allowed to camp, so that the OHP manager knows the carrying capacity of the area. In this study we used GPS measurements as follows: Recorded data of Latitude and Longitude of the rooftop tent parking area from the GPS (or by using a free smartphone GPS application), which was converted to a polygon by digitizing the area boundary on a map. Area sizes were then calculated by using the “calculate geometry” function in the ARCGIS 10.7 with square meters chosen for the unit (Muneenam and Suwannattachote, 2021).

### Area Slope Analysis

The area slope was measured to suggest appropriate areas for camping. Off Road Tents (2019) suggested that a rooftop tent vehicle does not need a flat parking spot. However, Williams and Marion (1995, cited in Leung and Marion, 2004) noted concerns about density of camping tourists, suggesting not to camp at 0–2%, the level most campers prefer. Previously Sawatdichai (2012) used the “Abney level” technique to measure area slope. However, in this study the approach followed Muneenam and Suwannattachote’s (2021) explanation of how to measure the slope. For area slope, firstly analyze the recorded data of Latitude and Longitude from the GPS (or from the free GPS application for smartphone) with the “Spatial 3D Analyst”, then interpret by coding them into slope levels. For example, green means a low slope of less than 15 degrees; a slope of 15–29 degrees is presented as yellow; and more than 30 degrees is presented as red (Figure 3).

Table 1. Basic information regarding a sampling of RV (rooftop tent) outdoor hospitality parks (Source: The authors' elaboration)

| No. | Province (Scenery)                      | Parking Fee (Baht/Day) | Area Size (Square metre) | Range of Sloping Level | Rubbish Bin      | Shared Toilet & Showers   | Cooking Facilities   | Restaurant | Survey Time in 2020 |
|-----|---|------------------------|--------------------------|------------------------|------------------|---------------------------|--|------------|---------------------|
| 1   | Ranong (canal environment)              | 100                    | 836.93                   | 0-4° (0-6.99%)         | ✓                | ✓                         | ✓<br>Do not allowed to fire stove directly on the grass/ground | ✓          | AUG                 |
| 2   | Phangnga (mountain environment)         | 200                    | 222.67                   | 2-8° (3.49-14.05%)     | ✓                | ✓                         | ✓  | ✓          | JAN                 |
| 3   | Phuket (garden environment)             | 500                    | 2,449.00                 | 0-4° (0-6.99%)         | ✓                | ✓                         | ✓  | ✓          | JAN                 |
| 4   | Krabi (Thai style farm environment)     | 100                    | 1,459.67                 | 4-10° (6.99-17.63%)    | ✓                | ✓                         | ✓  | ✓          | FEB                 |
| 5   | Trang (rice field environment)          | 150                    | 259.82                   | 0-2° (0-3.49%)         | ✓<br>Recycle Bin | ✓                         | ✓  | ✓          | MAR                 |
| 6   | Satun (canal environment)               | 200                    | 416.00                   | 0-4° (0-6.99%)         | ✓                | ✓                         | ✓  | ✓          | FEB                 |
| 7   | Chumphon (mountain environment)         | 150                    | 623.00                   | 0.8-60° (1.40-173.20%) | ✓                | ✓                         | ✓  | ✓          | JUL                 |
| 8   | Suratthani (forest environment)         | 100                    | 676.00                   | 0-4° (0-6.99%)         | ✓                | ✓<br>Warm water available | ✓  | ✓          | JUN                 |
| 9   | Nakhon Si Thammarat (beach environment) | 500                    | 1,600.00                 | 0-6° (0-10.51%)        | ✓<br>Recycle Bin | ✓                         | ✓<br>Do not allowed to cook foul-smelling seafood              | ✓          | JUL                 |
| 10  | Phatthalung (waterfall environment)     | 100/Person             | 300.00                   | 4-10° (6.99-17.63%)    | ✓                | ✓                         | ✓  | ✓          | JUN                 |
| 11  | Songkhla (canal environment)            | 100                    | 133.37                   | 0-2° (0-3.49%)         | ✓                | ✓                         | ✓  | ✓          | AUG                 |

### Area Shading Analysis

Measuring area shade from sunlight helps to find where and when the shade provides the best time for comfortable camping. The simplest way for campers to make this assessment is by observing shading during camping. Shading from trees and buildings, for example, is very helpful to rooftop campers, if they have not come prepared with extra accessories, such as

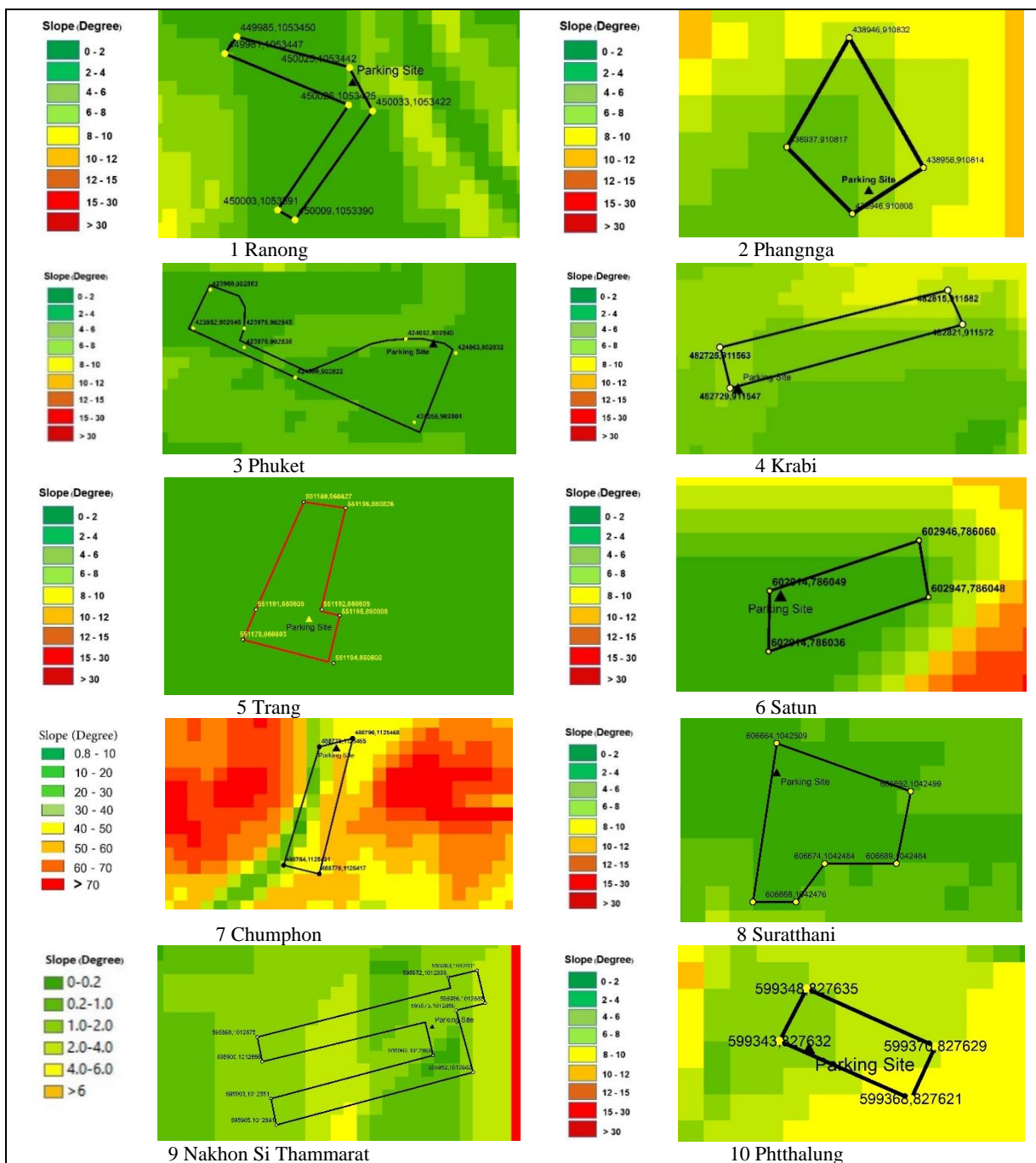
awnings and fly sheets. However, in this study shade area was measured using the GPS, calculating the result in several steps (Figure 4). First, find the recorded data of Latitude and Longitude at the parking area using the GPS or the GPS application on smart mobile phone; and use it together with digital photo records, as well as recordings of trees including types of trees, their height and width. Second, these data are gathered into the ARCGIS 10.7 program, and converted into a polygon to calculate the area size. Third, set up the tree data, as found from the survey and from Google Earth, in a simulated picture by digitizing shades from trees and buildings with the ArcScene function in order to analyze the shading simulation via the Sun Shade Volume tool, which is then presented in a 3D picture (Muneenam and Suwannattachote, 2021).

In addition, in-depth interviews with managerial representatives of the private 11 OHPs, together with pilot camping study, observations, voice recordings, notes, and digital photos were recorded with permission, in order to collect information supporting later recommendations for the optimum model for RV (rooftop tent) camping in southern Thailand. The collected data were analyzed with narration analysis, and cross-checked by the triangulation technique (Figure 2).

## RESULTS AND DISCUSSION

### Rooftop Camping in Southern Thailand

Table 1 outlines basic information regarding the OHP facilities at the time of the survey; full details for the 11 selected OHPs, describing how things were when the survey was done during January to August 2020 and highlighting what might have changed since (pricing and extended campsites) were found for the selected OHP sites in 11 provinces.





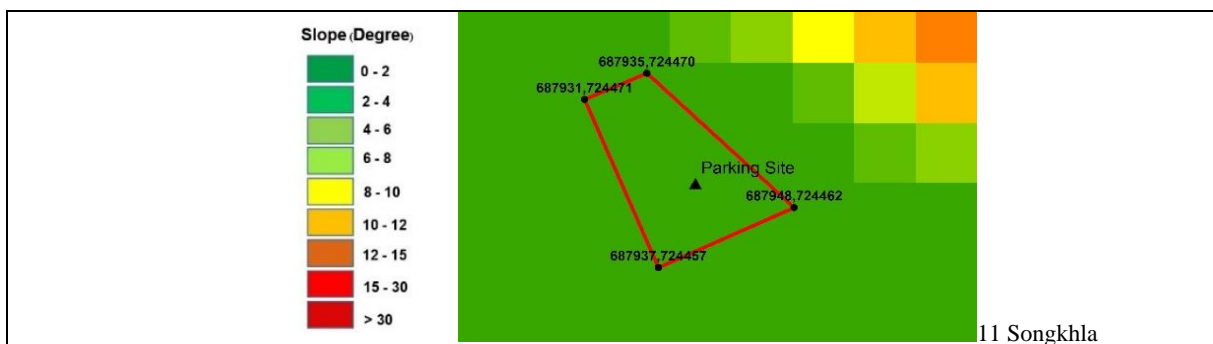


Figure 3. Slopes of RV (rooftop tent parking) areas (Source: The authors' elaboration)

In addition, Table 1 and Figure 3 also present slopes of 11 RV (rooftop tent) OHPs. Five among the eleven of them were in the optimum range of slopes, namely 2–4%, and the slope should not be over 15%. However, Krabi, Phatthalung, and Chumphon provinces had some parts of the camping areas with over 15% slope, which is excessive, as well as Trang and Songkhla provinces also had planar land between 0–2% that might be too densely packed with tourists (Leung and Marion, 2004; Sawatdichai, 2012). However, results from a pilot camping study did not find a high density of tourists, which might be because of the pilot camping studies were not on a long weekend or on a holiday.

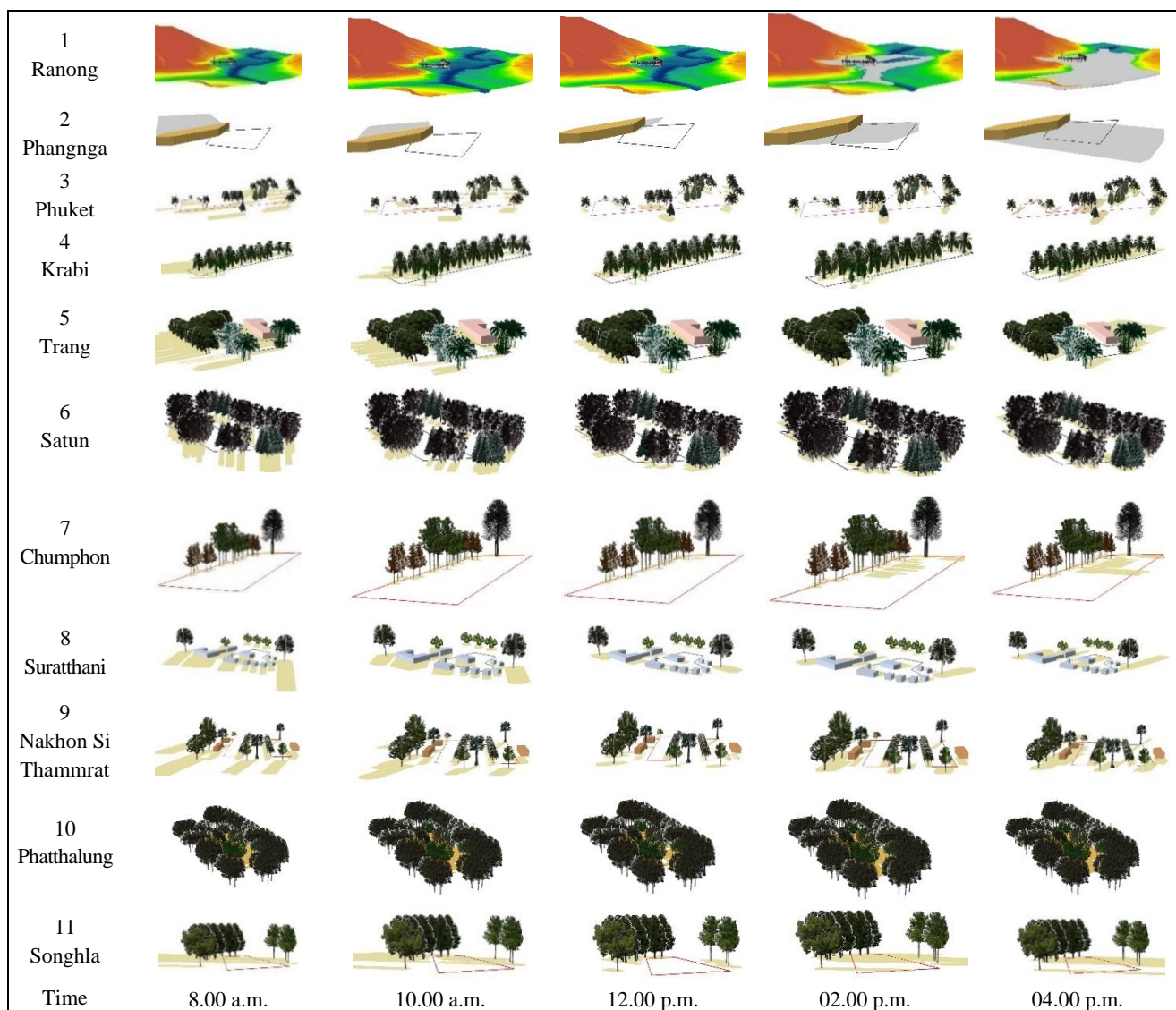


Figure 4. Simulated pictures of shading at OHP (Source: The authors' elaboration)

Figure 4 presents area shading of 11 RV (rooftop tent) OHPs indicating that shades from 04.00 p.m. to 10.00 a.m. were optimal for camping, concordant to the results from a pilot camping study which found that RV (rooftop tent) campers were naturally found in a good spot for camping under the shade, from trees, cliff, mountain range, and/or buildings. Besides, after 10.00 a.m. was a good time to pack the tent when the morning dew had dried.

**Plants and Animals**

Tourists were able to see a variety of animals, here divided into birds, small and medium sized animals, poisonous plants, and dangerous animals, as presented in Tables 2-6.

Table 2. Birds listed alphabetically from in-depth interviews (Source: The authors' elaboration)

| Bird's Name                         | Details   | Place(s) to Meet |
|-------------------------------------|---|------------------|
| <b>Asian Koet</b>                   | Scientific Name: <i>Eudynamys scolopaceus</i><br>Family: Cuculidae                          | 9                |
| <b>Asian Openbill</b>               | Scientific Name: <i>Anastomus oscitans</i><br>Family: Ciconiidae                            | 3                |
| <b>Banded Kingfisher</b>            | Scientific Name: <i>Lacedo pulchella</i><br>Family: Alcedinidae                             | 10               |
| <b>Barbet</b>                       | Scientific Name: <i>Megalaimidae</i><br>Family: Megalaimidae                                | 9                |
| <b>Blue-eared Kingfisher</b>        | Scientific Name: <i>Alcedo meninting</i><br>Family: Alcedinidae                             | 8                |
| <b>Canary</b>                       | Scientific Name: -<br>Family: Oriolidae   | 9                |
| <b>Commorant</b>                    | Scientific Name: <i>Phalacrocoracidae</i><br>Family: -                                      | 1, 10            |
| <b>Crimson Sunbird</b>              | Scientific Name: <i>Aethopyga siparaja</i><br>Family: Nectariniidae                         | 4                |
| <b>Crow</b>                         | Scientific Name: <i>Corvus macrohynchos</i><br>Family: Corvidae                             | 9                |
| <b>Dove</b>                         | Scientific Name: <i>Streptopelia</i><br>Family: Columbidae                                  | 5, 6, 9          |
| <b>Falcon</b>                       | Scientific Name: <i>Falco</i><br>Family: Falconidae   | 1                |
| <b>Great Hornbill</b>               | Scientific Name: <i>Buceros bicornis</i><br>Family: Bucerotidae                             | 1, 7             |
| <b>Greater Racket-tailed Drongo</b> | Scientific Name: <i>Dicrurus paradiseus</i><br>Family: Dicruridae                           | 1, 8, 10         |
| <b>Heron, Bittern, Egret</b>        | Scientific Name: <i>Ardea alba</i><br>Linnaeus, 1758<br>Family: Ardeidae                    | 1, 3             |
| <b>Oriental Magpie Robin</b>        | Scientific Name: <i>Copsychus saularis</i><br>Family: Muscipidae                            | 10               |
| <b>Red Collared Dove</b>            | Scientific Name: <i>Streptopelia tranquebarica</i><br>Family: Columbidae                    | 1, 6, 10         |
| <b>Red-whiskered Bulbul</b>         | Scientific Name: <i>Pycnonotus jocosus</i><br>Family: Pycnonotidae                          | 1, 2, 9          |
| <b>Sarus Crane</b>                  | Scientific Name: <i>Grus antigone</i><br>Family: Gruidae                                    | 5                |
| <b>Spotted Dove</b>                 | Scientific Name: <i>Streptopelia chinensis</i><br>Family: Columbidae                        | 10               |
| <b>Stripe-throated Bulbul</b>       | Scientific Name: <i>Pycnonotus finlaysoni</i><br>(Strickland, 1844)<br>Family: Pycnonotidae | 1, 2, 6          |
| <b>Swallow</b>                      | Scientific Name: <i>Hirundinidae</i><br>Family: Hirundinidae; Rafinesque 1825               | 1, 10            |
| <b>White-rumped Shama</b>           | Scientific Name: <i>Copsychus malabaricus</i><br>Family: Muscipidae                         | 6                |

Table 3. Small sized wild animals from in-depth interviews (Source: The authors' elaboration)

| Small Sized Wild Animals' Name          | Details   | Place(s) to Meet |
|---|---|------------------|
| <b>Asian Mongoose</b>                   | Scientific Name: <i>Herpestidae</i><br>Family: Mongoose                     | 1                |
| <b>Asian Tortoise</b>                   | Scientific Name: <i>Indotestudo</i><br>Family: Testudinidae                 | 4                |
| <b>Bengal Monitor</b>                   | Scientific Name: <i>Varanus bengalensis</i><br>Family: Varanidae            | 3, 9             |
| <b>Butterfly</b>                        | Scientific Name: <i>Chaetodon trifascatus</i><br>Family: -                  | 8                |
| <b>Cicada</b>                           | Scientific Name: <i>Cicadidae</i><br>Family: Cicadidae; Westwood, 1840      | 10               |
| <b>Civet</b>                            | Scientific Name: <i>Viverrocula indica</i><br>Family: Viverridae            | 1                |
| <b>Dragonfly</b>                        | Scientific Name: <i>Anisoptera</i><br>Family: -                             | 10               |
| <b>Firefly</b>                          | Scientific Name: <i>Lampyridae</i><br>Family: Lampyridae; Latreille, 1817   | 10               |
| <b>Gibbons</b>                          | Scientific Name: <i>Hylobates lar</i><br>Family: Hylobatidae                | 1, 4, 5          |
| <b>Glandular frog</b>                   | Scientific Name: <i>Hylarana glandulosa</i><br>Family: Ranidae              | 1                |
| <b>Hog Badger</b>                       | Scientific Name: <i>Arctonyx collaris</i><br>Family: Mutelidae              | 4                |
| <b>Insect</b>                           | Scientific Name: <i>Insecta</i><br>Family: -                                | 8, 10            |
| <b>Jungle Cat</b>                       | Scientific Name: <i>Felis chaus</i><br>Family: Felidae                      | 1                |
| <b>Langur, Leaf Monkey</b>              | Scientific Name: <i>Trachypithecus obscurus</i><br>Family: Cerceopithecidae | 6                |
| <b>Naked Catfishes, Barid Catfishes</b> | Scientific Name: <i>Bagridae</i><br>Family: Bagridae; Hamilton, 1822        | 10               |
| <b>Pangolin</b>                         | Scientific Name: <i>Manis javanica</i><br>Family: Manidae                   | 1, 4, 6          |
| <b>Pig-tailed Macaque</b>               | Scientific Name: <i>Macaca nemestrina</i><br>Family: Cercopithecidae        | 2, 6             |
| <b>Red Junglefowl</b>                   | Scientific Name: <i>Gallus gallus</i><br>Family: Phasianidae                | 4, 8, 11         |
| <b>Red Palm Weevil</b>                  | Scientific Name: <i>Rhynchophorus ferrugineus</i><br>Family: Curculionidae  | 8                |
| <b>Soro Brook Carp</b>                  | Scientific Name: <i>Neolissocheilus soroides</i><br>Family: Cyprinidae      | 10               |
| <b>Spiny Rock Crab</b>                  | Scientific Name: <i>Thalamita crenata</i><br>Family: Cyprinidae             | 10               |
| <b>Squirrel</b>                         | Scientific Name: <i>Callosciurus erythraeus</i><br>Family: Sciuridae        | 4, 7, 9, 11      |
| <b>Stingless Bee</b>                    | Scientific Name: <i>Trigona</i> sp.<br>Family: Apidae                       | 8, 11            |
| <b>Treeshrew</b>                        | Scientific Name: <i>Scandentia</i><br>Family: Tupaiidae                     | 5, 10            |
| <b>Turtle</b>                           | Scientific Name: -<br>Family: -   | 4                |
| <b>Waterfall Shrimp</b>                 | Scientific Name: <i>Macrobrachium</i> sp.<br>Family: Atyidae                | 10               |
| <b>Wild Pig</b>                         | Scientific Name: <i>Sus scrofa</i><br>Family: Suidae                        | 1, 7             |

Notes: 1 = RV (rooftop tent) parking area at Ranong province; 2 = RV (rooftop tent) parking area at Phangnga province; 3 = RV (rooftop tent) parking area at Phuket province; 4 = RV (rooftop tent) parking area at Krabi province; 5 = RV (rooftop tent) parking area at Trang province; 6 = RV (rooftop tent) parking area at Satun province; 7 = RV (rooftop tent) parking area at Chumphon province; 8 = RV (rooftop tent) parking area at Suratthani province; 9 = RV (rooftop tent) parking area at Nakhon Si Thammarat province; 10 = RV (rooftop tent) parking area at Phatthalung province; 11 = RV (rooftop tent) parking area at Songkhla province

Table 4. Medium sized wild animals from in-depth interviews (Source: The authors' elaboration)

| Medium Sized Wild Animals' Name | Details  | Place(s) to Meet |
|---------------------------------|--|------------------|
| <b>Deer</b>                     | Scientific Name: <i>Cervus unicolor</i><br>Family: Cervidae  | 4                |
| <b>Tapir</b>                    | Scientific Name: <i>Tapirus indicus</i><br>Family: Tapiridae | 1                |

Table 5. Poisonous plants from in-depth interviews (Source: The authors' elaboration)

| Poisonous Plants' Name           | Details  | Place(s) to Meet |
|----------------------------------|--|------------------|
| <b>Irritated Bamboo</b>          | Scientific Name: <i>Bambuseae</i><br>Family: Poaceae                     | 1                |
| <b>Needle Wood</b>               | Scientific Name: <i>Schima walichii</i> (DC.) Korth.<br>Family: Theaceae | 10               |
| <b>Thatch Grass, Wolly Grass</b> | Scientific Name: <i>Laportea interrupta</i> Chew<br>Family: Urticaceae   | 4, 10            |
| <b>Velvet Bean</b>               | Scientific Name: <i>Mucuna pruriens</i> DC.<br>Family: Fabaceae          | 1                |

### Natural Disasters

Natural disasters or inconveniences were also found from the in-depth interviews, such as rain and cloudiness during monsoon season, strong sunshine, heavy winds and rainstorms that destroyed giant trees, flooding with high tide that may also leave the area messy from flood debris, and forest fires. The OHP in Trang province reported no experience of any natural disasters (Table 7), being the one exception.

Table 7. Natural disasters of 11 OHPs from in-depth interviews (Source: The authors' elaboration)

| Type of Natural Disasters       | Place(s) to Meet   |
|---------------------------------|--------------------|
| <b>Cloudy</b>                   | 2                  |
| <b>Forest Fires</b>             | 1                  |
| <b>Flooding, Flash Flooding</b> | 1, 3, 4, 6, 10, 11 |
| <b>Rain Storm</b>               | 2, 7, 8, 9         |
| <b>Strong Sunshine</b>          | 9                  |
| <b>Wind Storm</b>               | 7, 9               |

Table 6. Dangerous animals from in-depth interviews (Source: The authors' elaboration)

| Dangerous Animals' Name       | Details  | Place(s) to Meet     |
|-------------------------------|--|----------------------|
| <b>Black House Ant</b>        | Scientific Name: <i>Paratrechina longicomis</i><br>Family: Formicidae                      | 4, 5                 |
| <b>Centipede</b>              | Scientific Name: <i>Scolopendra subspinipes</i> (Leach, 1815)<br>Family: Scolopendromorpha | 1, 2, 3, 10          |
| <b>Copperhead Racer Snake</b> | Scientific Name: <i>Coelognathus radiata</i><br>Family: Colubridae                         | 8                    |
| <b>Culex Mosquito</b>         | Scientific Name: <i>Culex</i> spp.<br>Family: Culicidae                                    | 1, 2, 3, 7, 8, 9, 10 |
| <b>Fire Ant</b>               | Scientific Name: <i>Solenopsis germinata</i><br>Family: Formicidae                         | 4, 8, 9, 10, 11      |
| <b>Gecko</b>                  | Scientific Name: <i>Gekko gekko</i> (Linnaeus, 1758)<br>Family: Gekkonidae                 | 2, 4, 8              |
| <b>Giant Asian Toad</b>       | Scientific Name: <i>Phrynoidis aspera</i><br>Family: Bufonidae                             | 10                   |
| <b>Green Pit Viper</b>        | Scientific Name: <i>Trimeresurus</i> spp.<br>Family: Viperidae                             | 10                   |
| <b>Honey Bee</b>              | Scientific Name: <i>Anthophila</i><br>Family: Apoidea                                      | 8                    |
| <b>House Gecko</b>            | Scientific Name: <i>Hemidactylus</i><br>Family: Gekkonidae                                 | 8                    |
| <b>King Cobra</b>             | Scientific Name: <i>Ophiophagus hannah</i><br>Family: Elapidae                             | 4, 10                |
| <b>Land Leech</b>             | Scientific Name: <i>Hoemadipsa</i> sp.<br>Family: Haemadipsidae                            | 1                    |
| <b>Little Honey Bee</b>       | Scientific Name: <i>Apis florea</i> Fabricius<br>Family: Apoidea                           | 10                   |
| <b>Monocled Cobra</b>         | Scientific Name: <i>Naja kaouthia</i><br>Family: Elapidae                                  | 4                    |
| <b>Rat Snake</b>              | Scientific Name: <i>Ptyas korros</i><br>Family: Colubridae                                 | 7                    |
| <b>Reticulated Python</b>     | Scientific Name: <i>Malayopython reticulatus</i><br>Family: Pythonidae                     | 6                    |
| <b>Scorpion</b>               | Scientific Name: <i>Scorpiones</i><br>Family: Scorpionidae                                 | 1, 10                |
| <b>Snake</b>                  | Scientific Name: <i>Serpentes</i><br>Family: -   | 1, 11                |
| <b>Wasp</b>                   | Scientific Name: <i>Vespa cincta</i><br>Family: Vespidae                                   | 9                    |

### Recommendations for RV (rooftop tent) camping with safety, responsibility, and enjoyment

This section reports on analyzed information from both the in-depth interviews and the pilot study of RV (rooftop tent) camping areas at 11 OHPs in southern Thailand. The main guidelines for RV (rooftop tent) camping put forward include making adequate preparations before travel, having respect for local rules, managing unexpected situations, and enjoying the adventure. Descriptions in that information of adequate preparation regarding how, when and where to go (e.g., selection OHPs catering for RV (rooftop tent) campers), along with deciding what to take (e.g., clothing, medications, food), should provide overall awareness of the safety, responsibility, and enjoyment facets of the chosen destination.

For example, the case studies for RV (rooftop tent) tourism in southern provinces of Thailand indicate that most of the routes are accessible for these vehicles, but some are rough, small, narrow, and steep, meaning that special vehicles would be needed, such as four-wheel drive off-road capable vehicles. In particular, the parking areas at Chumphon and Phangnga provinces were not really suitable for economy or luxury vehicles.

### Safety

Examples emerging from the survey details in Table 5-7 often required practical management of safety aspects, expected or unexpected. Most of these related to handling insect infestations; unexpectedly needing back-up food, lighting and clothing; and negotiating difficult driving challenges. For example, fire ants and mosquitoes were the most frequent dangerous and annoying animals encountered in the case studies. Other potentially dangerous animals that might be found in camping areas include centipedes and geckos, as well as colonies of ants that some tourists would rarely find in daily life (Table 6). Tourists may be excited or scared when showering and changing at the shared toilets and shower rooms,

because these may be a bit dark at night, due to having dim light or no light at all - much less comfortable than in other types of tourism. While travelling, tourists may be excited and impressed by the wonder of amazing tourist places. Choosing to experience these new places may distract tourists from remembering to keep safe, and accidents might occur, such as when driving an RV (rooftop tent) to the deep canal, or on hills with steep slopes. Unfamiliarity with these places may cause danger and feelings of insecurity, especially if there is no-one else around.

### Responsibility

Responsible tourists should study the local rules of the OHP on arrival, before parking and settling. These rules will cover actual parking requirements, such as what campers can do while residing in the OHP, which area to park at, which places are available, and any allowance for electricity use, or rules regarding making noise. This also includes finding out any restrictions specific to that OHP, such as the regular days closed to parking areas found in Krabi and Songkhla provinces. As there is as yet very little RV (rooftop tent) tourism in southern Thailand, compared to that in the northern, north-eastern, and central areas of Thailand, most parking operators can allow RV (rooftop tent) campers to choose their own spot. In making this choice, tourists should also avoid dangerous conditions, such as fire ants, parking near noisy main roads with poor privacy, or in steeply sloped areas that are uncomfortable for sleeping in RV (rooftop tent) camping. When there is high tourist demand, parking operators may assign parking places in areas that may be less suitable than when the camper has an open choice of their own parking place. Asking in advance for local rules regarding food preparation, cooking (and cleaning) will show concern and respect for the facility/parking operators. Each OHP will probably have its own ways of managing these rules: for example, not allowing preparation and/or cooking of 'foul-smelling food' (seafood); not allowing setting cooking or campfires directly on the ground; and possibly not allowing cooking at all (instead resorting to restaurant dining). Not all camping food needs to be cooked over a campfire: some parking operators provide kitchen facilities for tourists and others have cooking facilities available for rent. Rules for waste management are important for tourists to consider. Understanding how to separate waste the OHP way—rubbish or recycle; compost or trash—and then applying this knowledge will show respect and proper concerns held by the tourist (Table 1).

### Enjoyment

This study found only a small number of the amazing attractions that were located in or near the 11 selected parking areas of the southern Thailand provinces. For example, a beautiful but cold viewing point in Chumphon province (see Figure 5 a), the golden reflection of the canal in Satun province (Figure 5 b), a beautiful beach in Nakhon Si Thammarat province (Figure 5 c), and the limestone mountain ranges in Phangnga province (Figure 5 d) all represent superb natural tourism sites.

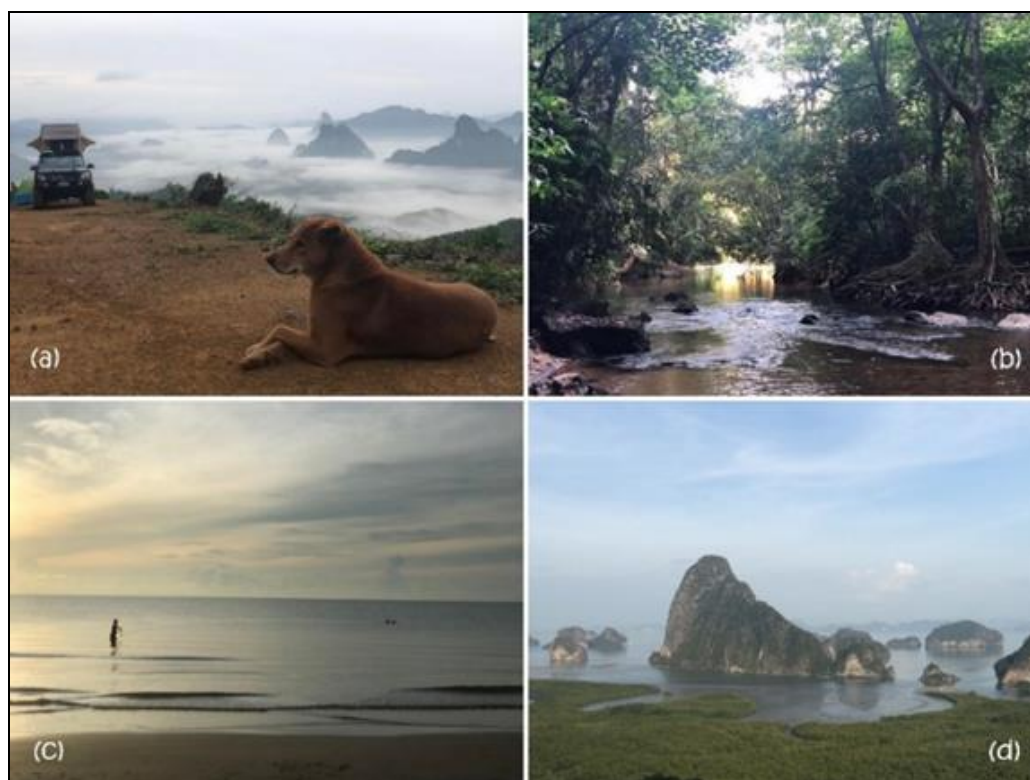


Figure 5. Examples of natural attractions in this research study Photographer: Muneenam, 2020 (First author)

### CONCLUSION

This research studied representatives of private OHPs in 11 provinces of southern Thailand—Ranong, Phangnga, Phuket, Krabi, Trang, Satun, Chumphon, Surathani, Nakhon Si Thammarat, Phatthalung, and Songkhla—all listed as OHPs suitable for rooftop camping. These were firstly screened from the available information from social media such as website and/or Facebook advertisement, especially with concerns about the possible impacts on society and environment as regards parking spaces, and waste and waste water treatment from RV (rooftop tent) camping activities (showering, cooking, and cleaning). After that, pilot camping study together with observations, and in-depth interviews, suggested suitability for RV (rooftop tent) camping based on: acceptance capacity of RV (rooftop tent) camping, suitable slope, local flora and fauna (birds, small-to-medium animals, and a slight possibility of any poisonous plants or dangerous animals), and the tourist preparation needed. However, access to some of these OHPs may benefit from having an off-road capable vehicle until the trails get improved.



It was found that the OHP at Songkhla province was smallest; while that in Phuket province had the largest parking space. The suitable time for camping in the shade was from 04.00 p.m. to 10.00 a.m. Five of the eleven OHPs were suitable as regards the camping area slope and flatness, while not being too flat and attracting too many campers. But this does not mean they cannot be camped at. Fire ants and mosquitoes were the most frequent dangerous and annoying animals encountered. However, RV (rooftop tent) campers were able to enjoy environments during camping from the choices of canal, mountain, garden, Thai style farm, rice field, forest, beach, and waterfall environments. Although all assessment issues for suggesting the optimal model for RV (rooftop tent) camping from this study were described, the OHPs were not rated for a rank order; but this aspect can be improved in future research studies assessing both the demand and the supply sides.

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## IDENTIFYING POTENTIAL ZONES FOR ECOTOURISM DEVELOPMENT IN BATTICALOA DISTRICT OF SRI LANKA USING THE GIS-BASED AHP SPATIAL ANALYSIS

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**Abstract:** Ecotourism makes a significant contribution to long-term development. However, a spatial analysis-based multi-criteria process has been widely used in ecotourism development planning. Batticaloa district is one of the tourism hotspots in the country which distinctive views play a significant role in fostering the potential for ecotourism. However, no specific study or planning has been carried out to identify appropriate zones for ecotourism development. This study attempts to identify suitable zones for ecotourism development in Batticaloa District. In this research AHP method was used in GIS environment. Five thematic layers such as landscape, protected area, topography, accessibility, and community characteristics were given appropriate weights and integrated into the GIS through the weighted overlay analysis. Accordingly, five potential ecotourism zones were identified in the study area. The research revealed that the area very suitable for ecotourism development is largely distributed in the northern, western, and south-western parts of the Batticaloa district. Finally, 12.53% of the land area of the District falls under the “very suitable to extremely suitable” area for ecotourism development. The findings of this study can assist tourism planners and the government in precisely selecting locations for ecotourism development and relieving pressures on the region's tourism demand.

**Key words:** eco-tourism, site suitability, AHP, GIS, MCDA, Batticaloa

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### INTRODUCTION

Ecotourism has emerged as a critical component of the tourism industry in order to raise environmental awareness, reduce the negative consequences of tourism, and sustainably use natural and cultural tourist assets (Kaymaz et al., 2021). It is one of the most successful means of balancing economic development and conservation of natural resources (Aneseyee et al., 2022). Definitions of ecotourism have been provided in the tourism literature. One of the earliest definitions is that “ecotourism is a sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature. It is ethically managed to be low-impact, non-consumptive, and locally-oriented (control, benefits, and scale). It typically occurs in natural areas and should contribute to the conservation or preservation of such areas” (Fennell, 2008: 26). Ecotourism is the most appealing aspect of the tourism industry, which, if properly handled, will contribute to the protection of natural resources and local development (Izwar et al., 2020; Waswa Wanyonyi et al., 2016). It plays a greater role in the economic growth and conservation initiatives of developing countries (Waswa Wanyonyi et al., 2016).

Therefore, several tourism destinations considered ecotourism as a potential approach to address their environmental and economic issues (Sahani, 2019). Sri Lanka has a long history of being a tourist destination because of its strategic and unique position as an Island in the Indian Ocean. It is famous for its tropical beaches, waterfalls, deep-sea fishing, scuba diving, coral reefs, and whale and dolphin watching. Furthermore, heritage sites, natural forests with dense fauna and flora, wildlife sanctuaries, etc., attract more tourists (MTDCRA, 2016). Sri Lanka's tourism sector has shown a strong return to conflict and natural disasters since 2009, despite having suffered almost three decades of war and Tsunami. Since 2012, the tourism business in Sri Lanka has performed successfully, reaching a record high of over 2 million (2,050,832) international tourist arrivals in 2016 (SLTDA, 2016). Sri Lanka recorded the highest growth rate (2333, 796) in 2018 with US\$ 4380.6 million in earnings, a rise of 10.3% from the previous year, making it the third-largest foreign exchange earner in Sri Lanka (SLTDA, 2018). The government of Sri Lanka has taken leaps in order to establish a new strategy (alternative tourism) to boost the economic impact of tourism by reviewing everything connected to tourism demand, investments, and constraints (MTDCRA, 2016). Unfortunately, International tourist arrivals fell by 61.7% in 2021 due to the unprecedented

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outbreak of the COVID-19 pandemic. Sri Lanka received 194,495 international tourists in 2021, a 61.7% decrease compared to the 1,913,705 international tourists that visited the country in 2019 (SLTDA, 2021).

The Batticaloa District was selected as a case study because of its natural tourist attractions: extensive sea, clean, sandy, and attractive beaches, protected area, dense forest, flowers, plants, and species. In addition, the district attracts tourists' attention from a socio-cultural and economic perspective: the rural house, rural life, rural agriculture, and local products. The district contains potential resources for initiating eco-tourism. However, a lack of suitability analysis to identify the potential ecotourism sites refrain from fulfilling potential tourism investments. This is the first study, to the best of the authors' knowledge, to apply a Geographic Information System (GIS)-based Multi-Criteria Decision Analysis (MCDA) to identify ecotourism locations in Sri Lanka. In order to address this significant knowledge gap in the increasing literature, this study attempts to identify suitable zones for ecotourism development in Batticaloa district using GIS-AHP spatial analysis.

The GIS and AHP technique is a valuable, cost-effective and time-efficient tool for identifying potential locations for ecotourism development (Ghorbanzadeh et al., 2018; Mahdavi et al., 2015; Sahani, 2019). The combination of remote sensing with GIS is regarded as an efficient method for environmental management, management of a large amount of spatial data, and analyzing the relationship between spatial data and tourism locations (Ghorbanzadeh et al., 2018, 2019; Sahani, 2019). Different MCDA methods are available, the most effective and commonly used for suitability analysis is the Analytical Hierarchy Process (AHP) (Kahsay et al., 2018; Wong and Fung, 2016). In AHP, each theme can be compared based on its relative importance for identifying potential zones. Multiple disciplines utilize GIS-based MCDA for supporting decision-making (Benke and Pelizaro, 2010; Sahani, 2019). GIS, together with MCDA, is one of the most appropriate approaches for a range of optimization applications and offers data structure, weighting, and integration techniques (Debesa et al., 2020; Feizizadeh and Kienberger, 2017; Ghorbanzadeh et al., 2019). The integrated approach of GIS and MCDA is considered essential for evaluating the potential sites for nature-based tourism (Ghorbanzadeh et al., 2018, 2019). GIS and MCDA have been applied to evaluate potential ecotourism sites with a wide range of techniques (Bunruamkaew and Murayama, 2011, 2012; Jeong, 2016; Sahani, 2019). GIS and AHP technique, can help categories, examine, and organize the available data concerning choice possibilities for spatial planning (Zabihi et al., 2019). The application of AHP technique and the spatial analysis approach for selecting potential ecotourism sites will maximize the economic value of appropriate land while minimizing negative environmental impacts (Mansour et al., 2019).

The literature analysis shows that a set of spatial variables (Factors/Thematic layers and criteria) has been evaluated to identify potential ecotourism sites within a GIS platform. Bunruamkaew and Murayama (2011) employed GIS and AHP to assess potential sites to develop ecotourism in Surat Thani province, Thailand, based on five factors: landscape, wildlife, topography, accessibility, community Characteristic characteristics, and land use. Mahdavi et al. (2015) applied five thematic layers: climate, topography, geo-pedology, environmental, and socio-economic for a fuzzy multicriteria decision method for locating eco-tourism. Waswa Wanyonyi et al. (2016) also used GIS together with AHP for the analysis of potential sites for ecotourism based on five thematic layers such as landscape, wildlife, topography, accessibility, and settlement size. Bingöl (2017) used four thematic layers such as landscape, wildlife, topography, and accessibility for Identifying potential sites for ecotourism in Burdur Province using GIS and AHP. Çetinkaya et al. (2018) applied fourteen thematic layers such as slope, elevation, aspect, earthquake risk, flood risk, rainfall, temperature, wildlife, vegetation diversity, distance from the road, proximity to cultural sites, proximity to water resources, proximity to lithology, distance from population centers to identify ecotourism sites using GIS and AHP.

Adigana and Sih Setyono (2019) also used GIS and AHP for ecotourism site suitability analysis based on five thematic layers such as landscape, wildlife, topography, accessibility, and community characteristics. Mansour et al. (2019) used thirteen thematic layers such as elevation, slope, aspect, geology, soil types, distance from built-up areas, distance from Road network, distance from sandy beaches, distance from fault lines, Distance from marine turtles zone, Distance from marine birds zone, Distance from mangrove zone, distance from coral reefs to analysis ecotourism land suitability in Masirah Island, Oman using GIS and AHP. Ghorbanzadeh (2019) applied four thematic layers: water attractions, Scenic spots, Mountain attractions, and forest attractions to identify potential tourism area in in East Azerbaijan Province, Iran by applying GIS-AHP. Ambecha et al. (2020) applied GIS together with AHP for ecotourism site suitability evaluation based on three thematic layers such as topography, elevation, and proximity to river. Eraku et al.(2021) identified ecotourism potentials of botutonuo beach in bone based on physical parameter, distance, amenities, attraction, attractiveness, availability of clean water, management, security, food and souvenir stalls, spatial arrangement.

Acharya et al. (2022) used eleven thematic layers to identify the potential location for ecotourism development such as relief, slope, drainage, forest, population density, tourists spots, infrastructure, health, road density, scenic beauty and LULC. Also, Aneseyee et al. (2022) applied criteria such as naturalness, wildlife, topography, accessibility, cultural heritage, and community characteristics to identify locations to develop community-based ecotourism in Abijiata-Shalla Lakes National Park, Ethiopia using GIS and AHP techniques. Chaudhary et al. (2022) identified suitable sites for sustainable ecotourism development in the Himalayan region on the basis of landscape, biodiversity, topography, climate, accessibility, attractiveness, and protection using geospatial technology and AHP. Khazae et al. (2022) applied permanent settlements, roads, power line, mines and factories, dam, slope, vegetation, wildlife to assess ecotourism in mountainous landscape using GIS and MCDA approach (Quinta-nova and Ferreira (2022) identified the suitable sites for ecotourism development in Beira Baixa region based on the nature conservation, birds richness, mammal richness, landscape diversity, landscape value, geological value, water bodies area, accommodation offering and path network. Based on the above studies and the availability of natural resources in the study area, this study employs five thematic layers, including landscape, protected area, topography, accessibility, and community characteristics to locate

potential sites for ecotourism development in Batticaloa District of Sri Lanka. Hence, the study's findings will enable decision-makers and planners to implement an investment plan to develop ecotourism in the district effectively.

**STUDY AREA**

The Batticaloa District lies on a coastal plain on the eastern coast of Sri Lanka between the longitudes of 81°15'00" and 81°50'00" East and the latitudes of 7°25'00" and 8°15'00" North (Figure 1). It is characterized by a tropical climate, with an annual rainfall of around 1000-1500 mm distributed irregularly throughout the year (primarily from the northeast monsoons (about 60%), during October to February) (District Secretariate Batticaloa, 2020; Jayasingam, 2008). The mean annual temperature is 30°C, although typically, this ranges from 25°C on cooler nights during the rainy seasons to 35.4°C during the rare day in the hot summer months (District Secretariate Batticaloa, 2020). It has a land area of around 2854 km<sup>2</sup> and an interior waterway of approximately 229 km<sup>2</sup>. The district comprises 3.8 % area of the country and is inhabited by a population number of 574836 (District Secretariate Batticaloa, 2020). The district has an attractive lagoon with several small islets, forest landscapes covered with abundant vegetation and mangroves, considerable wildlife, and socio-cultural uniqueness, providing ample ecotourism opportunities. Hence, on the eastern coast of Sri Lanka, the Batticaloa District is considered one of the prime locations for tourists to visit.

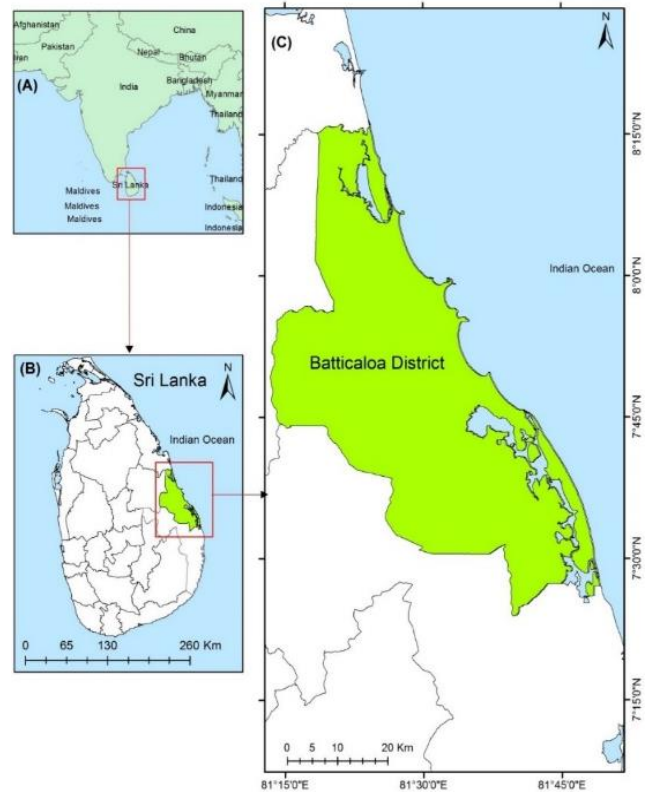


Figure 1. Location of the study area: (a) Map of South Asia; (b) location of Sri Lanka; and (c) the extent of Batticaloa district (Source: Authors, 2022)

**MATERIALS AND METHODOLOGY**

**Data source**

In this study, data was collected from multiple sources (Table 1). The factors and criteria influencing ecotourism in the Batticaloa District were determined through literature surveys.

Table 1. List of data layers and their sources (Source: Authors, 2022)

| Elements                  | Data                                    | Spatial Resolution | Source                                   |
|---------------------------|---|--------------------|--|
| Elevation                 | Aster DEM                               | 30 m               | U.S Geological Survey (USGS)             |
| Visibility                | Aster DEM                               | 30m                | U.S Geological Survey (USGS)             |
| River Network             | Aster DEM                               | 30m                | U.S Geological Survey (USGS)             |
| Land Cover 2019           | Sentinel-2                              | 10m                | U.S Geological Survey (USGS)             |
| Surface Water             | Sentinel-2                              | 10m                | U.S Geological Survey (USGS)             |
| Boundary map              | Topographical Map                       | 1:50,000           | Survey Department of Sri Lanka           |
| Forest reservation        | Topographical Map                       | 1:50,000           | Survey Department of Sri Lanka           |
| Road network              | Topographical Map                       | 1:50,000           | Survey Department of Sri Lanka           |
| Cultural attraction sites | Topographical Map                       | 1:50,000           | Survey Department of Sri Lanka           |
| Population Data           | Census of Population and Housing report |                    | Divisional secretariat Batticaloa (2018) |

**METHODOLOGY**

Figure depicts the activities involved in selecting potential locations for ecotourism development utilizing GIS and AHP (Sahani, 2019).

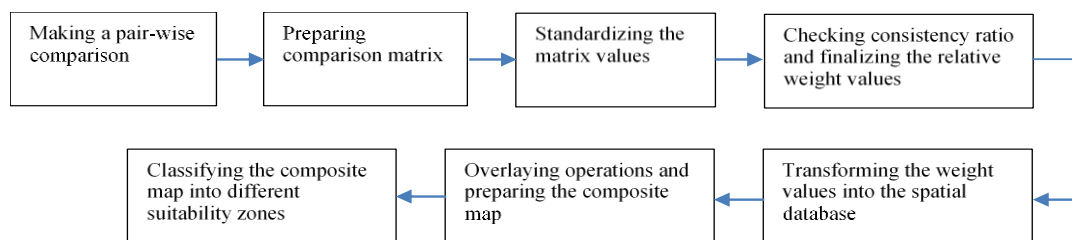


Figure 2. Flow chart for GIS-AHP based ecotourism site suitability analysis (Source: Authors, 2022)

**Generation of thematic layers**

The initial step of the procedure was to identify the factors and criteria (Thematic layers). The extent of the availability of data in the study area has a significant influence on selecting the number of thematic layers (Rahmati et al., 2015). The factors and criteria responsible for the Batticaloa District's ecotourism potential were selected in terms of



their importance, and information from relevant literature (Table 2) (Adigana and Sih Setyono, 2019; Bingöl, 2017; Bunruamkaew and Murayama, 2011; Çetinkaya et al., 2018; Ghorbanzadeh et al., 2018, 2019; Mahdavi et al., 2015; Mansour et al., 2019; Nino et al., 2017; Sahani, 2019; Waswa Wanyonyi et al., 2016).

The potential ecotourism locations are primarily dependent on the themes and criteria. The entire process of the identification of potential ecotourism locations is shown in Figure 3. Five thematic layers, such as landscape, protected area, topography, accessibility, and community characteristics and 12 criteria such as visibility, land use, reservation, elevation, proximity to historical sites, proximity to the surface water, proximity to streams, proximity to lagoons, proximity to mangroves, distance from roads, distance from population centers, and settlement density, were chosen to assess potential ecotourism sites (Figure 3 and Figure 4). Criteria maps were prepared based on the factor suitability rating (Table 2). The row scores for factors in Table 2 cannot be compared to one another as they have different scales of measurement. Therefore, to process comparison, the standardization of factors was performed based on five levels, viz. extremely suitable, very suitable, moderately suitable, slightly suitable, and not suitable (Table 2).

Table 2. Factors and criteria in identifying potential ecotourism locations  
(Source: Approach adopted from (Bunruamkaew and Murayama, 2011; Waswa Wanyonyi et al., 2016)

| Factor/<br>Thematic<br>layer | Criteria                         | Unit                                   | Factor Suitability Rating             |   |  |  |                                | Preferred Situations   |
|------------------------------|----------------------------------|--|---------------------------------------|---|--|--|--------------------------------|--|
|                              |                                  |  | Extremely<br>suitable                 | Very suitable                                     | Moderately<br>suitable                           | Slightly<br>suitable                             | Not<br>suitable                |  |
| Landscape                    | Visibility                       | Km                                     | >26                                   | 7-12  | 4-7  | 4-2  | <2                             | Eco-tourism sites should be located at a place with more visibility                              |
|                              | Land cover                       | Class (NDVI)                           | Dense forest (0.60-.80)               | Sparse forest (0.45-0.60)                         | Grassland & Agricultural (0.33-0.45)             | Bare land (0.12-0.33)                            | Urban (-0.99-0.12)             | Ecotourism sites should be located close to the dense forests for a better experience            |
| Protected Area               | Reservation                      | Km                                     | <14                                   | 14-32   | 32-47  | 47-64  | >64                            | Eco-tourism sites should be located close to protected areas for better observation              |
| Topography                   | Elevation                        | M                                      | >106                                  | 57-106  | 34-57  | 15-34  | <15                            | Eco-tourism sites should be located at high elevations for a better view                         |
| Accessibility                | Proximity to historical sites    | Km                                     | <13                                   | 13-25   | 25-36  | 36-50  | >50                            | Eco-tourism sites should be located close to historical sites                                    |
|                              | Proximity to surface water       | Km                                     | <2.5                                  | 2.5-5   | 5-7.5  | 7.5-10.5   | >10.5                          | Eco-tourism sites should be located close to the lake, ponds, etc.                               |
|                              | Proximity to stream              | M                                      | <700                                  | 700-1500  | 1500-2700  | 2700-4500  | >4500                          | Eco-tourism sites should be located close to a stream  |
|                              | Proximity to lagoons             | km                                     | <12                                   | 12-22   | 22-31  | 31-42  | >42                            | Ecotourism sites should be located close to a lagoon   |
|                              | Proximity to mangroves           | Km                                     | <6                                    | 6-11  | 11-16  | 16-22  | >22                            | Eco-tourism sites should be located close to mangroves   |
|                              | Distance from population centres | Km                                     | >27                                   | 20-27   | 13-20  | 7-13   | <7                             | Eco-tourism sites should be located away from the population centers                             |
|                              | Distance from roads              | Km                                     | Area >15 km buffer around major roads | The area within 7-10 km buffer around major roads | The area within 4-7 km buffer around major roads | The area within 1-4 km buffer around major roads | Area <1 km buffer around roads | Eco-tourism sites should be located far away from the major road for better protection of nature |
| Community Characteristics    | Settlement size                  | Population density per Km <sup>2</sup> | < 45                                  | 45-85   | 85-205   | 205-1440   | >1440                          | Eco-tourism sites should be located in a less populated area                                     |

#### Determination of Normalized weights for each thematic layer using AHP

Saaty's AHP was used to normalize the weights of different thematic layers and their features (Table 3). Suitable weights were assigned to the selected thematic layers and their features. Comparison matrices were generated on different hierarchical levels (Table 4). AHP process compares all thematic layers in pairings and outputs their relative weights. The normalized value is the thematic layers' final weights (Table 5) (Çelik, 2019).

Saaty's 1–9 scale was employed for pair-wise comparison of different thematic layers (Table 3), with a value of 1 expressing "equal importance" and a value of 9, which indicates that the factors have an "extreme importance" over another factor (Bunruamkaew and Murayama, 2011; 2012; Mansour et al., 2019; Muralitharan and Palanivel, 2015; Rahmati et al., 2015; Sahani, 2019).

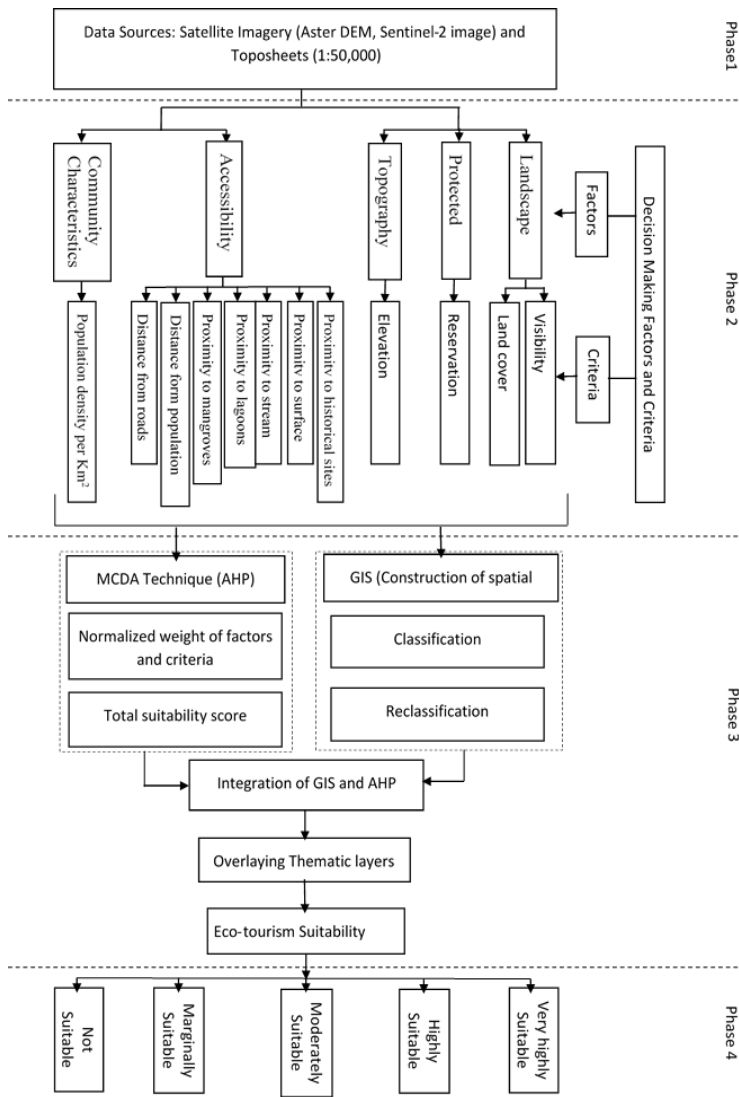


Figure 2. Flow chart of the methodology for Ecotourism site suitability analysis (Source: Authors, 2022)

Phase 1  
Phase 2  
Phase 3  
Phase 4

Table 3. Saaty's 1-9 scale for the pairwise comparison (Source: Çetinkaya et al., 2018; Mansour et al., 2019; Wong and Fung, 2016)

| Intensity of Importance | Definitions                         |
|-------------------------|-------------------------------------|
| 1                       | Equal importance                    |
| 2                       | Equal to moderate importance        |
| 3                       | Moderate importance                 |
| 4                       | Moderate to strong importance       |
| 5                       | Strong importance                   |
| 6                       | Strong to very strong importance    |
| 7                       | Very strong importance              |
| 8                       | Very strong to extremely importance |
| 9                       | Extreme importance                  |

Table 4. Pair-wise comparison matrix of thematic layers (Source: Authors, 2022)

| Themes/Factors                 | (LS) | (TP) | (WL) | (AC) | (CC) |
|--------------------------------|------|------|------|------|------|
| Landscape (LS)                 | 1.00 | 4.90 | 4.96 | 4.52 | 3.00 |
| Topography (TP)                | 0.20 | 1.00 | 0.68 | 2.17 | 1.93 |
| Wildlife (WL)                  | 0.25 | 1.47 | 1.00 | 2.63 | 3.90 |
| Accessibility (AC)             | 0.20 | 0.46 | 0.38 | 1.00 | 1.82 |
| Community Characteristics (CC) | 0.22 | 0.52 | 0.26 | 0.55 | 1.00 |

The Table 5 displays a pair-wise comparison matrix of five themes used to identify potential ecotourism locations in the study area. The following equation (Equation 1) (Aneseyee et al., 2022; Chaudhary et al., 2022; Sahani, 2019) is used to calculate the Consistency Ratio:

$$CR = \frac{CI}{RI} \dots \dots \dots (1)$$

where RI - Random index, CI - Consistency index. CI can be expressed as follows (Equation 2) (Aneseyee et al., 2022; Chaudhary et al., 2022; Sahani, 2019):

$$CI = \frac{\lambda_{max} - n}{n - 1} \dots \dots \dots (2)$$

Here, ( $\lambda_{max}$ ) is a principal eigenvalue, n is the number of factors, and CI is the consistency index. Consistent weights should have a CR value less than 0.10; otherwise, weights should be re-evaluated (Saaty, 1980). In this study, the consistency ratio (CR) is found 0.04536 ( $CR < 0.10$ ,  $\lambda_{max} = 8.70$ ,  $n = 5$ ,  $RI = 1.11$ ,  $CI = 0.0504$ ); this demonstrates that the pairwise matrix comparison yields a reasonable level of consistency (Table 5). The AHP method used here has thus been found to be quite accurate in predicting potential ecotourism locations.

Table 5. Determining the normalized weights for thematic layers (Source: Authors, 2022)

| Themes/Factors                 | (LS)  | (TP)  | (WL)  | (AC)  | (CC)  | Normalized Weight (W) | Consistency Measures |
|--------------------------------|-------|-------|-------|-------|-------|-----------------------|----------------------|
| Landscape (LS)                 | 0.535 | 0.587 | 0.681 | 0.416 | 0.258 | 0.50                  | 5.678                |
| Topography (TP)                | 0.107 | 0.120 | 0.093 | 0.200 | 0.166 | 0.14                  | 5.194                |
| Wildlife (WL)                  | 0.134 | 0.176 | 0.137 | 0.242 | 0.335 | 0.21                  | 5.118                |
| Accessibility (AC)             | 0.107 | 0.055 | 0.052 | 0.092 | 0.156 | 0.09                  | 4.980                |
| Community Characteristics (CC) | 0.118 | 0.062 | 0.036 | 0.051 | 0.086 | 0.07                  | 5.038                |
| Consistency index (CI)         |       |       |       |       |       |                       | 0.0504               |
| Random index (RI)              |       |       |       |       |       |                       | 1.11                 |
| Consistency Ratio (CR)         |       |       |       |       |       |                       | 0.04536              |

**Normalized weights of attributes of thematic layer**

Table 6 displays the assigned rank and normalized weights of the different features of the individual themes on their potential for ecotourism (Chaudhary et al., 2022; Chowdary et al., 2013).

**Definition of the EPI**

The ecotourism potential index (EPI) is a number with no units that predict where there might be good places for ecotourism in an area. It was calculated using the weighted linear combination method (Sahani, 2019). Potential ecotourism destinations were calculated using the following equation 3, which was used to integrate all of the themes. The EPI values

were classified into five groups: Extremely suitable (7.000000001 – 8.00), Very suitable (6.000000001 – 7.00), moderately suitable (5.000000001 – 6.00), Slightly suitable (4.000000001 – 5.00), and not suitable (>4), using the quantile classification method which has been adopted by many researchers in this field because of its classification efficiency (Rahmati et al., 2015). The weighted overlay analysis was used to produce a composite suitability map. Each spatial layer was transformed into a raster format and reclassified to a measurement suitability scale using ArcGIS 10.4 (Table 7).

Table 6. Normalized weights of different features of thematic layers (Source: Authors, 2022)

| Factor/<br>Thematic layer         | Normalized<br>Weight (w) | Criteria                          | Feature Normalized<br>Weight (wf) | Total Suitability<br>Score (w*wf) |
|-----------------------------------|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Landscape (LS)                    | 0.50                     | Visibility                        | 0.42                              | 0.21                              |
|                                   |                          | Land cover                        | 0.58                              | 0.29                              |
| Wildlife (TP)                     | 0.14                     | Reservation                       | 1.00                              | 0.14                              |
| Topography (WL)                   | 0.21                     | Elevation                         | 1.00                              | 0.21                              |
| Accessibility (AC)                | 0.09                     | Proximity to historical sites     | 0.15                              | 0.01                              |
|                                   |                          | Proximity to mangroves            | 0.23                              | 0.02                              |
|                                   |                          | Proximity to surface water        | 0.12                              | 0.01                              |
|                                   |                          | Distance form lagoons             | 0.11                              | 0.01                              |
|                                   |                          | Distance form streams             | 0.13                              | 0.01                              |
|                                   |                          | Distance form roads               | 0.26                              | 0.02                              |
| Community<br>Characteristics (CC) | 0.07                     | Settlement size                   | 0.60                              | 0.04                              |
|                                   |                          | Distance form populations centres | 0.40                              | 0.03                              |

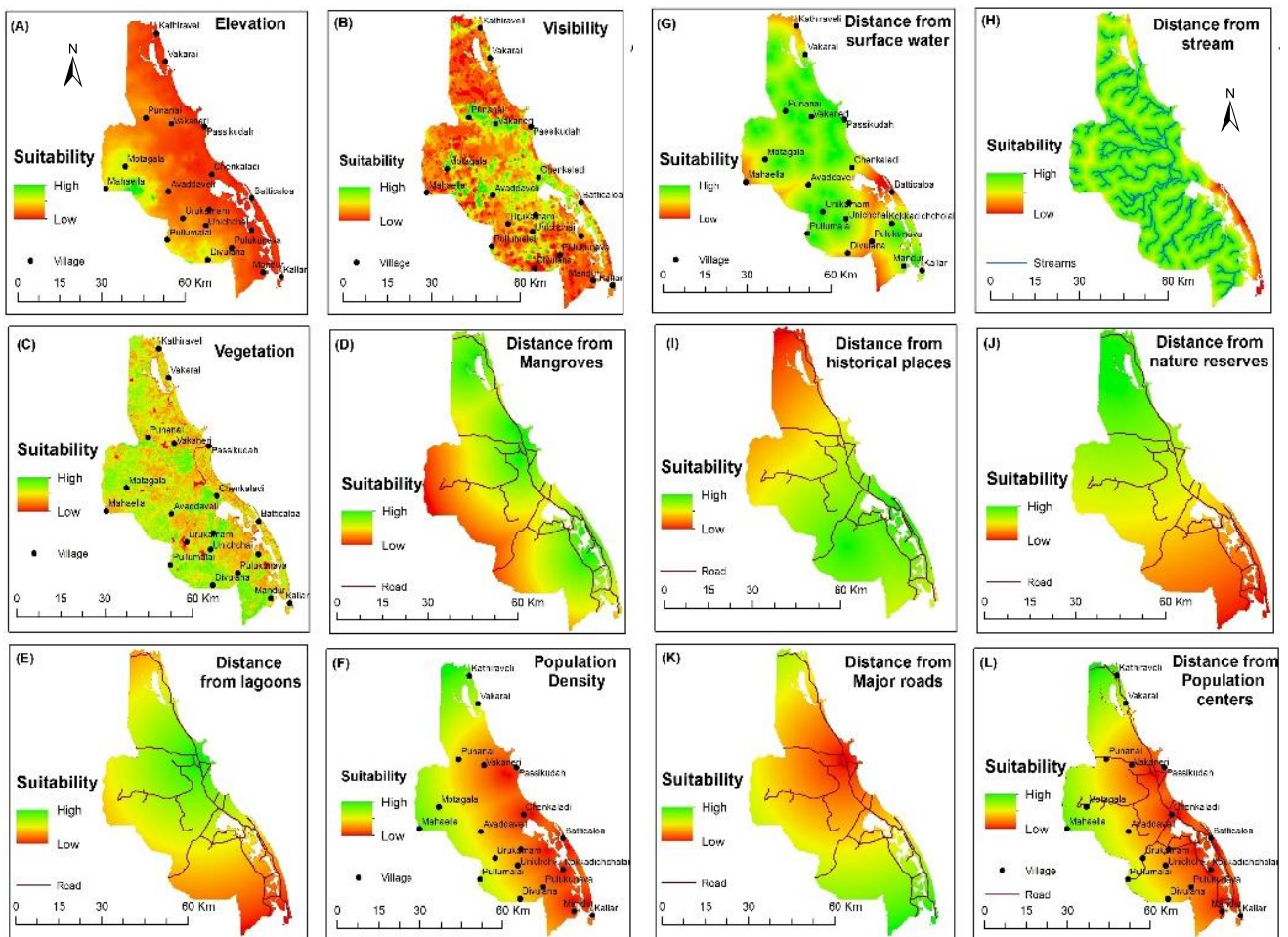


Figure 3. Criteria maps for ecotourism suitability: (A) Elevation (B) Visibility (C) Vegetation (D) Distance from mangroves (E) Distance from lagoons (F) population density (Source: Authors, 2022)

Figure 4. Criteria maps for ecotourism suitability: (G) Distance from surface water (H) Distance from streams (I) Distance from historical places (J) Distance from natural reserves (K) Distance from major roads (L) Distance from population centers (Source: Authors, 2022)

The following equation 3 modified from (Aneseyee et al., 2022; Chaudhary et al., 2022; Sahani, 2019).

$$EPI = \{ (LS_w LS_{wf}) + (TP_w TP_{wf}) + (WL_w WL_{wf}) + (AC_w AC_{wf}) + (CC_w CC_{wf}) \} \quad (3)$$

Where Sl—Landscape, TR—Topography, WL—Wildlife, AC—Accessibility, CC— Community Characteristics, the subscriptions 'W'— the normalised weight of the theme obtained through AHP and 'Wf'— the normalised weight of the individual theme features.

Table 7. Spatial data and analysis list (Source: Authors, 2022)

| Criteria                         | Influences | Analysis           |
|----------------------------------|------------|--------------------|
| Visibility                       | 3          | view shed          |
| Land cover                       | 28         | NDVI               |
| Reservation                      | 9          | Euclidean Distance |
| Elevation                        | 3          | Normalization      |
| Proximity to historical sites    | 8          | Euclidean Distance |
| Distance from streams            | 5          | Euclidean Distance |
| Proximity to surface water       | 5          | Euclidean Distance |
| Distance from lagoons            | 5          | Euclidean Distance |
| Distance from Mangroves          | 7          | Euclidean Distance |
| Distance from roads              | 13         | Euclidean Distance |
| Settlement size                  | 10         | Density            |
| Distance from population centres | 4          | Euclidean Distance |

Table 8. Area coverage of land usability for eco-tourism (Source: Authors, 2022)

| Suitability class   | Score range | Area coverage   |       |
|---------------------|-------------|-----------------|-------|
|                     |             | Km <sup>2</sup> | %     |
| Extremely suitable  | 7.001 - 8   | 2.78            | 0.12  |
| Very suitable       | 6.001 - 7   | 299.5           | 12.41 |
| Moderately suitable | 5.001 - 6   | 1509.1          | 62.51 |
| Slightly suitable   | 4.001 - 5   | 594.42          | 24.62 |
| Not suitable        | >4          | 8.34            | 0.35  |

**RESULTS AND DISCUSSION**

The integrated GIS and AHP techniques are advantageous for identifying potential ecotourism sites in an area and providing reliable preliminary information on locations cost-effectively (Ghorbanzadeh

et al.,2019; Sahani, 2019). This study produced a map of potential ecotourism sites through the weighted overlay analysis of various thematic layers on the GIS platform. It comprises five classes of suitability (Figure 6): extremely suitable, very suitable, moderately suitable, slightly suitable, and not suitable (Table 8).

The map shows that the potential locations for ecotourism development are dispersed unevenly across the district. The Extremely suitable location, about 0.12% (2.87km<sup>2</sup>) of the total area, is in the district's Northern part. Further, a few more "Extremely suitable" locations are in the Northwest part of the district. The "Very suitable" area is primarily distributed in the Northern, Western, and Southwestern parts of the region, which is about 12.41% of the total land area. About 62.51%, or 1509.1 km<sup>2</sup> land area of Batticaloa District (mostly in the district's middle) is classified as "moderately appropriate. The concentration of the "Slightly suitable" area (594.4Km<sup>2</sup>) is found in the district's Southeast part. Further, a few more "Slightly suitable" areas are located in the Northern, Western, and Southwestern parts of the district. Likewise, only a 0.35% of the total land area around urban settlements in the south is classified as "not suitable" for ecotourism development that should be excluded from any successful ecotourism planning. The finding indicates that very suitable and extremely suitable areas (12.53% of the total land area) for ecotourism development are found near protected areas and dense forest areas in the Batticaloa district, which has abundant biological diversity and is considered an important area for fauna and flora protection. These areas have the most ecotourism attractions, as well as very rich wildlife and ecological diversity.

This finding revealed that that the extremely, highly and moderately suitable areas for ecotourism development are located near protected areas, wildlife, dense forest, scenic beauty, and marine environment that are suitable for ecotourism as previously indicated by other authors (Ambecha et al., 2020; Aneseyee et al., 2022; Chaudhary et al., 2022; Kaymaz et al., 2021). The major part of "Slightly suitable and not suitable" areas are mostly located in bare lands, built-up and urban areas. These areas have high human influences and housing growth, and are described as having low natural resources (attractions), making them less suitable for ecotourism (Mansour et al., 2019). There are numerous potential economic benefits to developing ecotourism in the Batticaloa district of Sri Lanka. Both domestic and international tourists can benefit from ecotourism in districts, which can boost income generation throughout the country. Previous studies (Ambecha et al., 2020; Aneseyee et al., 2022; Chaudhary et al., 2022; Kaymaz et al., 2021) have highlighted the importance of considering environmental and ecological factors when planning for optimal ecotourism development. As a result, coastal areas, beaches, fauna and flora, marine environments, and wilds, among other things, can be developed into ecotourism attractions in the Batticaloa district. Sustainable development and biodiversity conservation in the Batticaloa district can be achieved by implementing appropriate ecotourism spatial planning. It has a high level of ecological and marine diversity. Therefore, the district will become a popular ecotourism destination and a location for ecosystem conservation.

Implementing appropriate infrastructure and amenities will turn the district into a major ecotourism destination in Sri Lanka. Tourism infrastructure should be developed in collaboration with the local environment and district identity. Previous research has highlighted the importance of infrastructure and land use in the development of ecotourism (Acharya et al., 2022; Ambecha et al., 2020; Aneseyee et al., 2022; Kaymaz et al., 2021; Mansour et al., 2019). Similarly, ecotourism facilities in the Batticaloa district should be able to promote ecosystem conservation while also ensuring reliable and safe access to ecotourism sites. The major part of the district can be considered for ecotourism development owing to its rich ecological and biological diversity. Therefore number of ecotourism activities can be developed across the district.

However, extremely suitable and highly suitable areas have an abundance of natural resources as well as fragile and sensitive ecosystem. The original ecosystem should be preserved while developing ecotourism in the district. A comprehensive guidelines may be introduced to minimize the negative environmental impacts. In fact, most of the moderately suitable areas for ecotourism development have sufficient natural resources. Thus, these areas also can be developed as appealing ecotourism destinations. Areas that are slightly suitable and not suitable for ecotourism development have low values. However, those areas can be used to build ecotourism infrastructure.

However, the growth of the mass tourism industry along the coast in Batticaloa District could threaten the sustainability of ecotourism. Continuous land cover changes in areas with the potential to become natural tourist attractions have the possibility to harm the district's ecotourism industry. It indicates that about 13% of the area, including several villages, have the greatest amount of potential to apply the ecotourism concept. This location has the potential to become a major ecotourism attraction on the island if better infrastructure and services are developed.



However, infrastructure should be built following local contexts and identities. Population growth in these villages has the potential to threaten ecotourism in the future. Villages with a lot of potential for ecotourism should be observed, assisted, and evaluated to see how they can use the idea of ecotourism to meet demand. If these potential locations are guided in terms of ecotourism development and earnings, it might lead to overcapacity, which can affect the environment. Thus, appropriate attention should be paid to tourist behaviors, marketing techniques, and destination management. A sustainable ecotourism management plan for the area is essential for the long-term financial advantages of ecotourism, ensuring that natural resources are protected and managed responsibly. In order to keep the ecotourism environment thriving, it is important that demand is managed in a way that respects the interests of both the locals and the visitors.

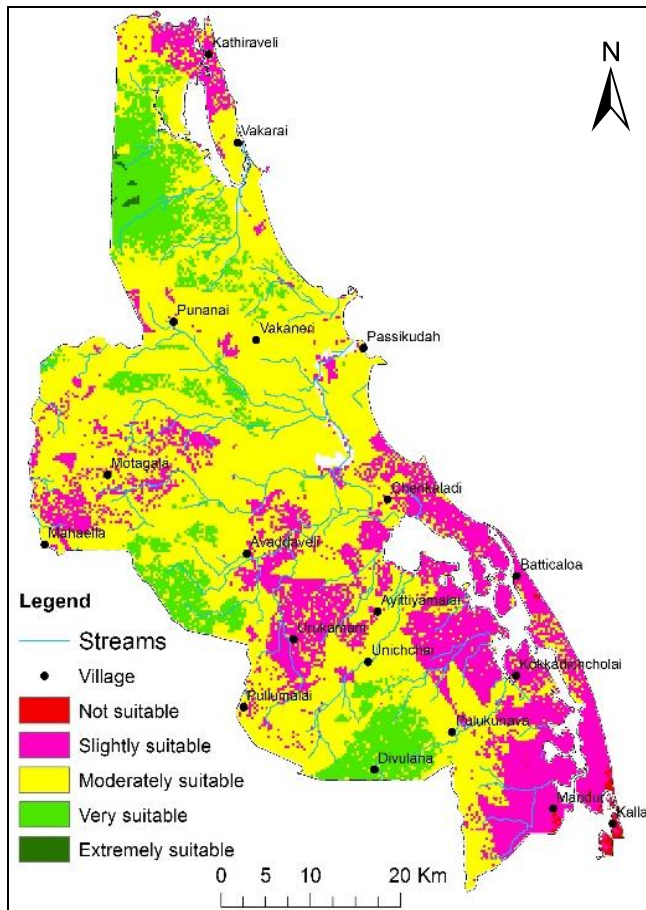


Figure 5. Potential Ecotourism zones of Batticaloa District (Source: Authors, 2022)

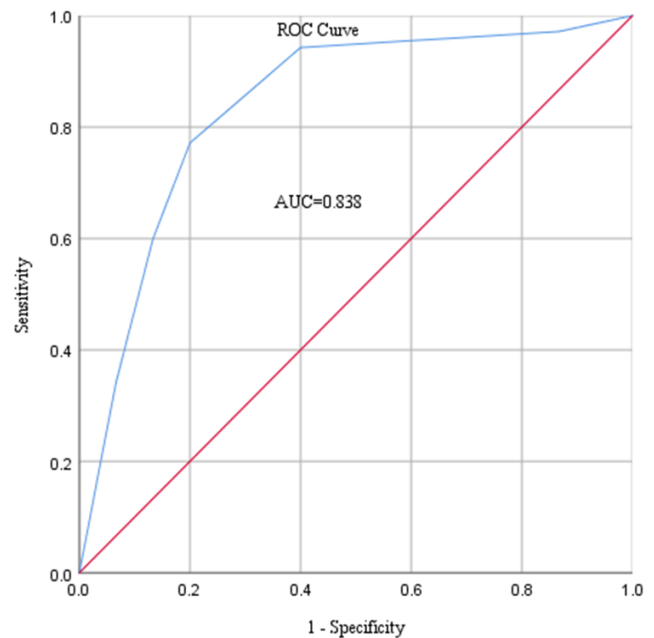


Figure 6. Receiver Operating Characteristics (ROC) curve (Source: Authors, 2022)

### Validation of the ecotourism potentiality

It is more important for the result to be validated in order to have scientific significance. (Chaudhary et al., 2022; Rahmati et al., 2015; Saha, 2017). Ecotourism suitability is validated using a variety of methods. However, the Receiver Operating Characteristics (ROC) curve is commonly used method to validate the ecotourism suitability (Chaudhary et al., 2022; Pramanik et al., 2021).

The ROC is a graphical representation of all possible threshold values by plotting the false-positive (Y-axis) and false-negative (X-axis) values (Chaudhary et al., 2022; Pramanik et al., 2021). The Area Under Curve (AUC) in ROC curve analysis indicates prediction accuracy by describing systems' ability to anticipate the absence and presence of predefined "events" (Chaudhary et al., 2022; Pramanik et al., 2021). Based on the value of AUC, prediction accuracy is classified as poor (0.5–0.6); average (0.6–0.7); good (0.7–0.8); very good (0.8–0.9); and excellent (0.9–1) based on the value of AUC (Andualem and Demeke, 2019; Pathmanandakumar et al., 2021; Rahmati et al., 2015). For the validation of the model, 50 randomly distributed points were generated on the ecotourism potential map of the AHP model and compared to existing ecotourism sites. An error matrix was constructed on the basis of the existing ecotourism location and random points, which was then validated using subsequent observed versus predicted values (Chaudhary et al., 2022; Pramanik et al., 2021). The ROC plot indicates that the area under the curve corresponds to an AUC value of 0.838, which represents 83.8% accuracy of prediction (Figure 6). The AUC value of 83.8% shows that predictions made using the AHP method to generate the potentiality maps are reliable. Hence, the model employed in this study provides a more accurate prediction of suitable ecotourism sites.

### CONCLUSION

The extremely suitable area is predominantly situated in the Batticaloa district's Northern part, which is highly favorable for ecotourism prospecting. A minor portion of the district's land area is located in its extreme southern part, which is the least favorable for ecotourism development. The findings of this study make a significant contribution toward a better understanding of the opportunities for the development of ecotourism in the Batticaloa District. The use of GIS in conjunction with the AHP method has proved to be beneficial for ecotourism planning. This study has highlighted the significance of finding suitable lands for ecotourism development in the Batticaloa district. Moreover,

the empirical evidence clearly shows the spatial distribution pattern of ecotourism resources in the Batticaloa district. This research has primarily contributed to the compilation of important criteria and features for ecotourism site selection that may be used in any future site selection process to develop ecotourism in Sri Lanka.

The findings of this study can assist tourism planners and the government in precisely selecting locations, developing related activities, and relieving pressures on the region's tourism demand. Those interested in using GIS techniques in conjunction with the AHP approach to identify potential locations for ecotourism development may benefit from this study. The lack of high-resolution satellite imagery, and governmental programs and proposals to initiate ecotourism in the Batticaloa District restricted this study. However, to the best of our knowledge, no ecotourism site suitability study employing GIS and AHP techniques to identify potential ecotourism development locations has been conducted in Sri Lanka. It is also not available in any popular scientific literature databases.

Further, this research can be improved by extending socio-economic criteria for ecotourism site selection under the GIS platform. The findings have broader implications for the United Nations Sustainable Development Goal-15 (SDG-15) of improving life on land by preserving natural heritage, wilderness areas, and traditional culture. It can help to create jobs for locals while also providing profits to local communities.

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## GEOTURISM AND ITS SUSTAINABLE PRODUCTS IN DESTINATION MANAGEMENT

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**Abstract:** Geographical knowledge of the country can be one of the leading assumptions that allow the tourism development. It enables a more detailed specification of the dominant potential for its further development. Considering the current significant need to create a sustainable product, the natural conditions together with destination management can be key elements for the future course of the tourism sphere. The aim of the study was to find out the preferences of visitors to selected geolocations in the Spiš region, specifically within the offered geotourism products. To fulfil the goal, the questionnaire as a key method was used and subsequently tested by the Kolmogorov-Smirnov test, Spearman's Rho test, coefficient of determination R<sup>2</sup>, F-test with Fisher's criterion. It can be concluded that the potential of the Spiš region is perceived as attractive. Based on results, the uniqueness of the main geoproduct offer is in montanistics.

**Key words:** tourism development, sustainability, geotourism, tourism product, Spiš region, destination management

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### INTRODUCTION

Tourism is basically a mass industry. Its products and services are aimed at enabling the regeneration of body and spirit, getting to know, and experiencing something new, interesting to as many people as possible. However, the present shows that, as in other sectors (for example the economy), it is necessary to apply elements of sustainability in tourism as well.

Sustainability in tourism takes many forms, making it a flexible and well-applicable industry. It is possible to focus on the distribution of tourist flows, support of communities, but the most attention is focused on the environment in which tourism takes place (Kyriakaki and Kleinaki, 2022). Environmental protection and sustainability are associated with the reasonable use and enjoyment of natural and cultural resources and the support of new types of tourism and their products (Dzurov Vargová, 2021) for the benefit of residents as well as visitors. The essence of sustainability is to convince society that all resources on our Earth are exhaustible and need to be conserved. Geotourism represents a relatively new direction in tourism. Its products in the form of activities are closely connected mainly with natural potential. Geotourism is one of the types that significantly supports sustainability in tourism in different forms. It is focused on the geology of the country, getting to know geoheritage and geosites, but especially it is an important part of supporting nature conservation. In addition to contributing to greater geological knowledge, geotourism also helps promote the local tourism industry and thereby strengthens community identity (Newsome and Ladd, 2022). For the development of geotourism in accordance with the requirements of sustainability, it is necessary for destination management to develop its activities in the region, which will support and coordinate the activities of business entities and organizations to create geotourism products by:

- opposes community involvement as local tourism businesses and tourism organizations join forces to provide a unique and authentic geotourism product aimed at visitor experience,
- inspires a sense of pride when visitors discover and consume geotourism products (i.e., geoactivities) that are interesting to them,
- improves the local economy as tourism businesses hire local workers and use local services and supplies to build geotourism products,

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- creates respect for local culture and traditions, by presenting not only natural attractions, geological phenomena, but also, for example, the history and culture of the region associated with geological activities (Yang and Su, 2021).

In general, the essence of destination management can be defined as the process of creating, directing and adapting factors involved in the creation of a unique tourist product of a destination, in which individuals, working together in groups, effectively realize set socioeconomic goals (Gato et al., 2022). In addition to the basic tasks and functions of management, destination management focuses on staff training, defining quality standards and manuals, equipment certification, building customer satisfaction, marketing efficiency, knowledge of competition, innovation and development projects of the destination, networking of business entities. One of the focal activities is the coordination of the creation of tourism products as a result of the cooperation of the business entities of the destination (Dzurov Vargová et al., 2020).

In the scientific literature, it is possible to meet the interest in the issue of geotourism and its sub-geoproducts. Németh (2023) examines volcanoes as an object of interest of geotourists, while Tiago et al. (2021), mentions volcano tourism as a specific part of geotourism. The attention of a significant part of the literature is devoted to geotourism within the problematic of national parks (Matsuha et al., 2021), Xi and Wu (2022) pay attention to geoparks as an innovative protection of geoh heritage and an important element in the development of geotourism. Their research results demonstrate that the geopark is an example of a sustainable approach to advancing earth protection and point to the fact that it can support local economic development. Their results further emphasize the importance of sustainable management in geotourism. Maghsoudi et al. (2021), pointed out in the study the connection of earth science, geotourism and aviation together. For the first time, they come up with the term aerial geotourism, which, according to the authors, encompasses various aspects of tourism, recreation, aesthetics, education, interpretation, understanding, geohistory and geoconservation by flying over geological landscapes in natural, urban and rural areas. The result of the study is the introduction of a new geotourism product - aerial geotourism, whose key role will be in geoprotection and geoeducation.

Geotourists as a specific segment are also the object of researchers' interest. Dowling et al. (2021) study visitors with different interests, especially geotourists, while Suhud et al. (2019) further divided them into tourists based on their interest in volcanic and geothermal resources, while the result was an increase in geotourists' interest in volcanoes as a product of geotourism. Kubalíková et al. (2020) focus on the challenges and opportunities of urban geotourism, while offering solutions and guidelines for identifying, inventorying, and evaluating geotourism and geo educational resources in urban areas.

It is still possible to find areas of research that are not sufficiently developed and where the potential in the field of research can be seen. In professional studies, we also find an assessment of the issue of the potential of geolocation, but to a lesser extent with an accent on the opinion of the tourists themselves about the offered geoproducts. Miśkiewicz and Poros (2022) addressed the issue of geoproducts, mapping the Polish scientific literature that lists typical geotourism products, such as geotourism guides and boards, geo educational games, heritage-inspired souvenirs, geology, geological museums, geocenters, dino parks, lapidaries, mining heritage sites, geological picnics, geotourism guide services and geotourism trails.

As part of the results of the project, they emphasize the need for cooperation and combining scientific knowledge with practical experience. They recommend even a national agreement of interested entities. As an output of his findings, he mentions, for example, the importance of supporting geotourism by destination management, which must cooperate not only with regional entities but also with government entities. He also declares it by asserting that the biggest opportunity in the case of his study is precisely the support of the Saudi government through the diversification of sources of national income, as part of the 2030 vision. Babiker and Abualyazed (2022) focus on the evaluation of well-known geolocations in Saudi Arabia, through a SWOT analysis, but from the point of view of a scientist (the opinion of subjects active in geotourism and geotourists is absent). They identified five geosites, three of which had significant potential for the development of geotourism. The outputs of the SWOT analysis indicated the need to create development plans and policies for geotourism in the region to ensure the sustainable use of resources.

Krishna et al. (2019) focused on investigating geoproducts in the Belitong Geopark in Indonesia and what role geoproducts play in geotourism. The focus of the research is on producers of geoproducts, small and medium-sized enterprises (local crafts and gastronomy). The research results point to the attractiveness of geoproducts for tourists, their difference in terms of quality and nature of the products, and at the same time the impact on the local population in the form of additional income. A certain gap in the market as shortly mentioned before, is the evaluation of the offered geoproducts by the users themselves - visitors to the geolocation and geotourists. The paper points out the importance of sustainability in tourism and its significant relation with geotourism.

The study focuses on the tasks and visions of destination management in the conditions of the Slovak Republic while monitoring selected geotourism products that are offered to visitors in the form of geoactivities. Subsequently, the research is focused on the visitors' opinions on the selected geolocalities and their geotourism products. As a research area chosen for the research needs was Spiš region, which is a potential leader in the development of geotourism in Slovakia.

## **Theoretical Background**

### **Geotourism as a model accepting sustainable tourism**

A favourable ecological environment is the cornerstone of supporting healthy development and sustainable tourism (Yang and Su, 2021) and an important part of increasing the attractiveness of tourism (Šenková et al., 2020). Achieving sustainable tourism is a continuous process and requires constant monitoring of impacts, implementation of necessary preventive and/or corrective measures whenever necessary. Sustainable tourism should also maintain a high level of satisfaction among destination visitors and provide them with a meaningful experience, raise their awareness of sustainability issues and promote sustainable tourism practices among them (UNWTO, 2005). Some practices typical for

sustainable tourism are supporting community conservation projects, recycling and waste treatment, sourcing local products for restaurants and souvenir shops, conserving water and energy, and hiring, training, and paying staff from the local community (Karagiannis and Andrinou, 2021). In the long term, sustainable tourism must therefore be ecologically durable, economically feasible, but also socially and ethically fair in relation not only to the destination and to objects of tourism, but also to the local population (Hassan et al., 2022).

Geotourism allows visitors to get to know the local geology, but also to better understand that this geology is closely related to all other assets of the territory (for example, biodiversity, archaeological and cultural values, gastronomy, etc.) (Welc and Miśkiewicz, 2020). Geotourism is a relatively new form of tourism, growing in popularity and becoming a new global phenomenon. It can be understood as a special form of tourism in a natural environment with a special interest in geology. The uniqueness of geotourism is supported by the sustainable use of natural heritage, raising awareness of nature through new and engaging ways of interpreting knowledge to the public (Geotour, 2019; Gałka, 2019). Fonseca-Filho and Ribeiro (2016) claim that it is the trend of tourism in natural areas, which prioritizes the evaluation of geodiversity. Like ecotourism, both are embedded in the context of tourism in natural areas and value the preservation of natural heritage, and these segments complement each other, although they differ, as they have specific characteristics (Vu et al., 2022). From an economic point of view, geoheritage (geosites) is considered the basis of tourism development; geolocalities contribute to the original (or primary) and derived (or secondary) tourist offer (Štrba et al., 2020). Fonseca and Ribeiro (2016; Rodrigues et al., 2021) they draw attention to the negatives of geotourism (for example, growing inflation, rising land prices, seasonality of product creation, low return on investment or reducing the quality of life of the local population) in the case of unmanaged development, poorly formulated development visions, wrong decisions by businesses and tourism organizations.

Rodrigues et al. (2021) state that geotourism products provide geotourists with new experiences and at the same time contribute to the development of the local economy. Fonseca and Ribeiro (2016) determined the criteria for geotourism products, where in the first place it should be from local products (created from the local potential of the region), which will then allow it to become a symbol of the geological and geomorphological heritage of the region. They further state that it must not only provide an experience but also be a commercial and pedagogical tool that integrates local traditional products with concepts and interprets the geosciences in an appropriate way. Finally, it should be created, and function based on the principle of sustainability, which once again proves the favourable connection between sustainability and geotourism.

Newsome and Ladd (2022) focus on the destination (natural environment) in which geotourism products can be provided. They point out that its product can only be created in a destination that has unique characteristics. Information exchange can be done by telling short stories instead of scientific explanations (Gałka, 2019). Such destinations can connect the past and present of the region. Basi Arjana et al. (2018), perceive the geotourism product from three aspects:

- form aspect (landscape, landforms, sediments, rocks, fossils, etc.), i.e., geological forms,
- process aspect (tectonic activities, weathering, erosion, etc.), represents the main attraction of geotourism,
- tourist aspect (attractions, activities, accommodation, trips, interpretation, management, etc.), i.e., tourism business activities, the result of which is a product.

These authors analyse geotourism as a system composed of three subsystems:

- forms (landscapes, landforms, sediments, rocks, fossils),
- processes (tectonic activity, volcanic processes, weathering, erosion, deposition),
- tourism (attractions, accommodation, tours, activities, interpretation, planning and management) (Basi Arjana et al., 2018; Rodrigues et al., 2021).

Getting to know the country as part of geotourism can be done through several available so-called of geoactivities, which, based on marketing theory, can in this case also be considered as geoproducts (selected products for the purposes of the study):

- *Geocaching* - tourism navigation game, which is based on the fact that a box (cache) is hidden in an unknown place. The information and navigation are published and coordinated through the internet. People try to search for the box using the navigation devices- GPS (Referowska-Chodak, 2019).

- *GeoRafting* – as an activity it provides more information about nature and the geopark, the region, biodiversity, geological and cultural heritage during rafting, while at various stops and geological points of interest, rafting guides tell guests interesting geological and other facts about the area (Andraşanu and Ciobanu, 2018).

- *Montanistics (mining tourism)* – it is based on the fact that geological development of the Earth and its rock composition was a necessary prerequisite and still has an irreplaceable role in the further development of human society (they influenced human activities in the country - establishing settlements, building roads, growing crops and ensuring livelihoods, extracting minerals, using energy resources, etc.) and at the same time represent each country's geological heritage (Weis, 2021). Montanists also includes activities such as:

- visiting open-air mining museums, museums, old mining buildings, shafts, tunnels, and the mines,
  - panning for gold and individual collection of minerals,
  - tastings of mine cuisine and samples of miners' life,
- mining workshops, exhibitions and creative workshops for children, educational mining trails, Slovak mining route (SBC) (Rodrigues et al., 2021; Andraşanu and Ciobanu, 2018).

## MATERIALS AND METHODS

### Study area

The Spiš region is one of the places in the Slovak Republic with the greatest potential for the development of geotourism. The region, with its direction and activities in tourism, develops and declares an interest in the development of geotourism and

can be considered the flagship (representative) of Slovakia in the implementation of geotourism. The Spiš region is located in the northeast of the central part of Slovakia, on the east and south of the High Tatras. The highest point in the Spiš region is Gerlachovský štít, which reaches a height of 2655 metres above sea level and the lowest point in the region lies on the Ružín reservoir at an altitude of 330 metres above sea level. The total area of the region is approximately 4,115 km<sup>2</sup> (Kopanic, 2011).

The territory of the Spiš region has a diverse character in terms of terrain, its geological structure, lush vegetation, and conditions, as well as economic use. In the middle of the area stretches the Hornád basin, bounded in the south by Hornád, in the north by the foothills of the Levočské vrchy. It has the character of a hilly area consisting of flysch clays, sandstones, and slates. Travertines were formed by precipitation from mineral springs that spring up along faults, which in the form of typical mounds stretch along the basin from Hôrka near Gánovce, through Skalka, to Pažica and Dreveník. At the Sivá Brada travertine mound, travertine is still being formed today, and in other places, travertine is already formed (Jančura, 2019).

The region is traditionally divided into Dolný Spiš (Gelnica and Spišská Nová Ves districts), Middle Spiš (Levoča and Poprad districts and a larger part of Kežmarok district) and Horný Spiš (Stará Ľubovňa district and part of Kežmarok-Zamagurie district). The natural potential is of exceptional quality. In addition to national parks (TANAP, Pieniny National Park, National Park Slovak Paradise and National Park Low Tatras), there are also several protected natural areas. The territory is relatively densely covered with coniferous forests, rich in animals, mushrooms, and medicinal plants. The rivers are clean and suitable for fishing and water sports (Prekopová, 2022). A significant part of the natural wealth of Spiš was made up of copper, silver and iron ores. The centre of Spiš mining and the bearer of special mining rights was the city of Gelnica (Jiroušek, 2011). The Spiš region has many interesting sites of geological importance, attractive for tourists and visitors:

- Dreveník national nature reservation (NPR Dreveník)- a tall natural travertine formation. It was created in the younger period of the Tertiary period. In the cracks of the slopes (especially on the western edge) there are smaller caves with sinter and sometimes ice decoration. Remains of a settlement from the Stone Age were found here (wooden treasure - it contained bronze needles, rings made of double wire, pendants for head decoration, etc.).

- Travertine mound Sivá brada (grey Beard)- is about 10,000 years old. It is a rarity in the whole of Slovakia, because unlike similar mounds (such as Dreveník, Spišský hradný vrch), it is still a living mound. Strongly mineralized water springs up from the depths in several places. In miniature lake, springing mineral water with a lot of mineral substances, aerated with carbon dioxide, continuously bubbles. The area around Sivá brada is also known for its mineral springs, which are widely used by visitors (Saxová, 2014).

- Mining open-air museum in Gelnica- is an extended exposition of the Mining Museum and consists of attractions of a mining nature. In the immediate vicinity of the open-air museum is the hereditary tunnel Jozef (a symbol of the golden era of the Dolný Spiš locality). It is opened again with interesting exhibits from the life of the miners. Another part of the open-air museum is the Pochwerk (historical crushing mining machine), the melting furnace (replica on a scale of 1:2, from 1738). In the future, more attractions will be added (crushing tables, knockers, mining stands, mining house or train) (Prekopová, 2022).

- Národný park Slovenský raj - the limestone mountain range, inconspicuous on the outside, has exceptional natural and aesthetic values, with the character of a karst plain, enchants with gorges and ravines, the massiveness of stone formations, the vastness of the highlands, the depth of waterfalls, fauna and flora. Tomášov výhľad (Thomas' view) is also accessible by bicycle via the cycle path, the rock walls of Tomášov výhľad are sought after by climbers (Šupšáková, 2019).

Rotenberg educational geotourism trail in Smolník - is a self-service, linear, two-way, pedestrian, and year-round trail that introduces the rich history of the former mining town of Smolník in an interesting way. There are benches, information boards and QRC posts on the sidewalk. It leads through beautiful nature and a mining tunnel (tunnels and mines are among the rarest preserved relics of historical mining in Slovakia) (Tourism portal of Košice region, 2022).

## Methods

The aim of the paper is to specify the visitors' preferences of individual geolocations in the Spiš region (in Slovakia) while analysing the available and provided activities focused on geotourism fundamentals.

The main research aim was to find out the preferences of visitors to selected geolocations in the Spiš region and the geotourism products offered within them.

Among the methods used for the purposes of the paper can be included:

- field research - used to evaluate secondary information about the Spiš region,
- individual interview – used for guided interviews with tourism organizations that focus their products and activities on geotourism,

- questionnaire - research sample consisted of visitors of the Spiš region with the motive of participating in geotourism or knowledge of the Spiš region as well as knowledge of geotourism products, while the respondents plan to visit the region in the near future for the purpose of participating in geotourism (210 respondents),

- Kolmogorov-Smirnov test, Spearman's Rho, coefficient of determination R<sup>2</sup>, F-test of Fisher's criterion - used to evaluate the hypothesis,

- correlation matrix.

Questionnaire method was used as a primary data collection, in order to fulfil the research objective. Hypothesis H1 was established, to which the null hypothesis was established for testing purposes.

**H1:** There is not a significant statistical relation between the chosen characteristic of Spiš region visitors and their active participation in geotourism.

Despite the assumed potential of the Spiš region for geotourism, we assume that visitors prefer, in addition to geotourism, other types of tourism such as natural, cultural, historical, etc.

**Data**

Of the total number of respondents (n=210), 74.29% (n=156) were women and 25.71% (n=54) were men. It follows from the Graph (Figure 1) that respondents aged 14-72 took part in the research. The statistical average was at the level of 35.27±14.55 years, but the median age of the respondents was 29 years. The most numerous age group consisted of respondents in the age category around 21-30 years, the second most numerous groups were the respondents aged 51-60 years. The respondents' education according to individual categories is shown in Table 1.

Table 1. Respondents according to highest level of education (compiled by the authors based on data obtained in 2022)

| Level of education               | frequency |
|----------------------------------|-----------|
| Basic                            | 8         |
| secondary complete education     | 81        |
| vocational education             | 13        |
| University education I. degree   | 42        |
| University education II. degree  | 62        |
| University education III. degree | 3         |
| other                            | 1         |

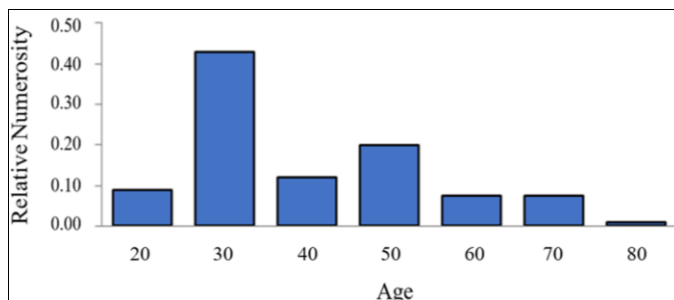


Figure 1. Histogram of the relative frequency of respondents in individual age categories Source: authors' processing based on data obtained in 2022

**RESULTS AND DISCUSSION**

Respondents were asked about their preference for types of tourism, their relationship to the environment and sustainability. From the mentioned part of the questionnaire following conclusions can be presented:

- respondents mainly prefer nature tourism (n=134), followed by cultural and educational tourism (n=54), spa tourism (n=13) and adventure tourism (n=9). While under nature tourism they included (in the open question) sports-nature tourism, birdwatching and geotourism,
- all respondents stated a positive attitude towards the protection of nature and the environment, while according to them, activities related to tourism seriously threaten the state of the environment (n=59), slightly threaten the state of the environment (n=138), do not threaten the state of the environment (n=13),
- respondents who expressed concern about the environment in the natural environment under the influence of tourism development (n=197), take care to protect the environment during their stay in nature and behave sustainably (e.g. quiet behaviour in the forest, taking away their own waste) (n =87), they are interested in participating in environmental protection and behaving sustainably in the destination, if they receive instructions / briefing (n=71), they like to familiarize themselves with the slings of sustainability and try to keep them in order to protect the environment (n =39).

The respondents answered the questions whether they had ever participated in geotourism on purpose (primary motive) or vice versa, or even though they had not participated in geotourism but had already heard about its products (in other words, geo activities) and were going to try them in the close future (secondary / unintentional motive).

The answers showed that 58.10% (n=122) of the respondents knew and tried geotourism products (i.e., were active in their consumption), but 41.90% (n = 88) answered that they had not yet tried geotourism products, but they plan to do it in the close future. Subsequently, the respondents were asked which geotourism products in the Spiš region they had already tried (i.e., which geo activities they had participated in). The question offered the indication of several options, but also the possibility of the open part of the question, where the respondents could add additional information. Based on the above mentioned, there was no point in examining the relative frequency of responses (Figure 2 and Figure 3).

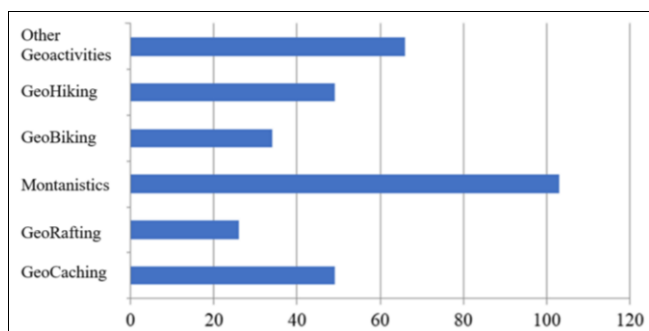


Figure 2. Respondents according to participation in the consumption of geotourism products (Source: authors' processing based on data obtained in 2022)

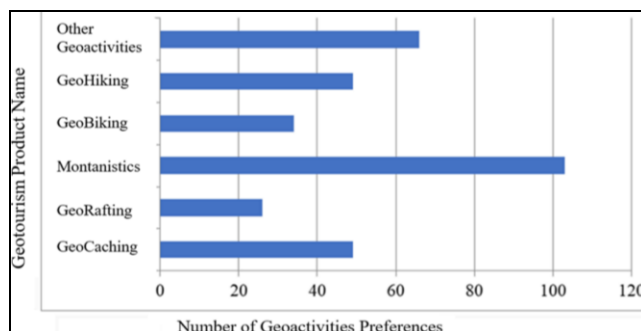


Figure 3. Respondents according to interest in geotourism product without previous experience (Source: authors' processing based on data obtained in 2022)

Figure 2 shows that the largest number of responses appeared in the case of the product of mountainistics (mining tourism), which has already interested respondents in the past (n=103). The second highest frequency was in the case of labelling another geotourism product (n=66). A total of 49 responses chose to the GeoCaching and GeoHiking products, which can basically be done simultaneously. The number of responses belonged to Geobiking (n=34) and GeoRafting (n=26). Figure 3 shows a selection of multiple answers for one respondent in the framework of determining interest in



geotourism products offered in the Spiš region, without previous experience (absolute expression of the number). Respondents who have not yet used any geotourism product were interested in the GeoRafting product (n=26), followed by the mountaineering product (n=16), the Geohiking product (n=13), and the same number of responses occurred again with GeoCaching products and GeoBiking (n=6). Two respondents expressed that they welcomed another geotourism product, citing the GeoFestival product (held for example in Australia).

In Figure 4, respondents evaluated the attractiveness of selected locations in the Spiš region in relation to geotourism and the geoproducts offered by it, which are carried out there. The locations were: Tomášovský výhľad, Sivú Bradu, Banský skanzen (mining open-air museum) and Slovenský raj (Slovak paradise), Dreveník national nature reservation and Rotenberg educational geotourism trail in Smolník. In the evaluation, they were supposed to indicate the attractiveness of the location by scoring from 1 to 5, with 1 = unattractive, 5 = attractive. The least attractive for the respondents were the Rotenberg educational geotourism trail in Smolník and the Dreveník national nature reservation. On the contrary, the natural locations Slovenský raj and Tomášov výhľad have the greatest degree of attractiveness. The mining open-air museum Gelnica is also attractive from the point of view of the respondents.

Figure 5 shows the potential of the offer of geotourism products according to the respondents in the Spiš region. Geoproducts such as GeoBiking, Montanistics, Geohiking and GeoCaching have considerable potential in the given region. The GeoBiking product was evaluated as the most attractive, and on the contrary, the GeoRafting geoproduct was evaluated as the least active. The rating was 1-5, where 1= yes, the geoproduct has high potential, 5= no, the geoproduct has almost no potential. As part of the established hypothesis, it was determined whether the number of respondents who visited the Spiš region is related to the number of respondents who expressed active participation in geotourism. The Kolmogorov-Smir test was used to examine the data from the questionnaire, used in testing the hypothesis, and it was found that the data of the variables are not normally distributed (Figure 6).

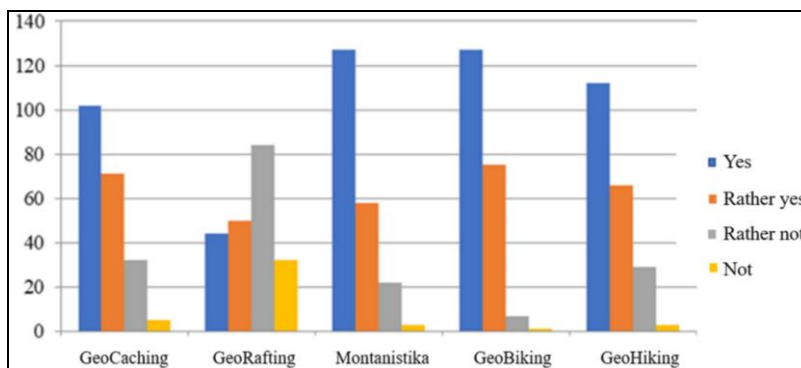


Figure 4. Summary chart of respondents' preferred geolocations  
Source: authors' processing based on data obtained in 2022

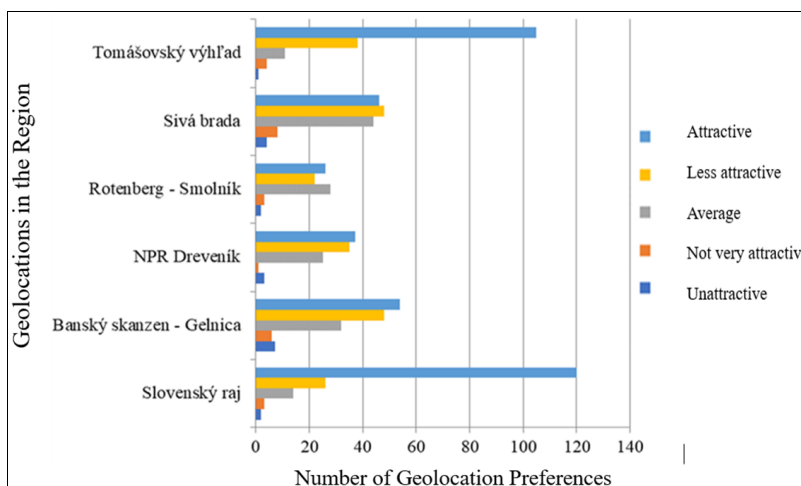


Figure 5. Distribution of geotourism products according to respondents' perceived potential (Source: authors' processing based on data obtained in 2022)

Table 2. Selected indicators of statistical analysis (compiled by the authors based on data obtained in 2022)

| Indicators                               | Values                     |
|--|----------------------------|
| Spearman's rho                           | 0.08864004                 |
| Determination coefficient R <sup>2</sup> | 0.012113                   |
| F- test of Fishers' criterion (1. 110)   | 1.128030                   |
| P-value                                  | 0.3956                     |
| Bootstrap 95 % interval of reliability   | -0.0582902 < β1 < 0.251192 |

The possible existence of a statistical relationship was investigated due to the nature of the data by Spearman's rho indicator. Based on the significance level of 0.3956, it is possible to state that the hypothesis H0 is accepted, given that it is true that if "H0: ρ = 0" we can claim that there is no statistically significant relationship between the variables and vice versa if "H1: ρ ≠ 0" we can claim that there is a statistically significant relationship between the variables.

Considering the results of the testing (shown in table 2), it can be concluded that there is no statistically significant relationship between the selected variables. Considering another defined indicator, the coefficient of determination R<sup>2</sup>, it is

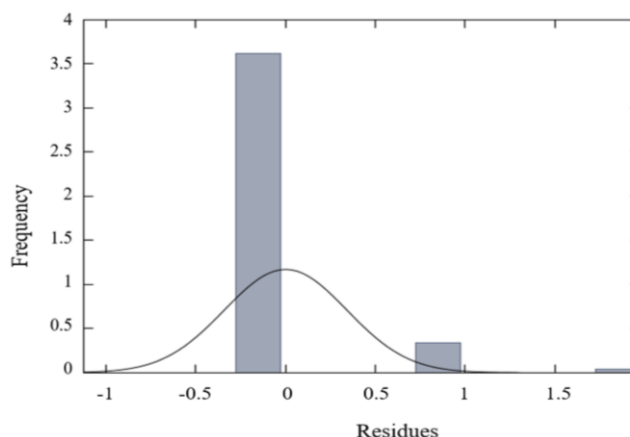


Figure 6. Data distribution normality (Source: authors' processing based on data obtained in 2022)

possible to interpret that the investigated relationship between participation in geotourism explains only 1.2% of the variability of the respondents' visits to the Spiš region. The investigated indicator F-test of the Fisher criterion, where the chosen level of significance is  $F = 1.128030 > 0.05$ , again considering the rules of the test, it is necessary to reject the alternative hypothesis and accept the hypothesis  $H_0$  about the absence of a statistically significant relationship between the selected aspects. In conclusion, it can be summarized that the existence of a statistically significant relationship between visiting the Spiš region and participation in geotourism was not proven in the hypothesis.

It is possible to lean towards the justification of hypothesis  $H_1$  in the methodology, and to state the assumption that the Spiš region is still considered as „a cultural treasure“ potential. However, this does not mean that nature tourism and its development is less important, possibly not a secondary motive for visiting the region. Given that it was not possible to confirm the existence of a statistically significant relationship, in the next step a possible relationship between the variables was identified using a correlation matrix. Individual examined data in rows and columns are marked with the serial number of the question from the questionnaire, and the resulting values are shown in Table 3.

Table 3. Correlation matrix of perception and evaluation of selected geolocations  
(Source: compiled by the authors based on data obtained in 2022) Legend: Edu. – Education

|     | Gen    | Age    | Edu    | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23     | 24     | 25     | 26    | 27    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| Gen | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| Age | -0.047 | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| Edu | 0.265  | -0.125 | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 4   | 0.063  | 0.245  | 0.041  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 5   | 0.076  | -0.095 | 0.340  | 0.073  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 6   | 0.089  | -0.190 | 0.367  | 0.117  | 0.000  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 7   | 0.125  | 0.066  | 0.161  | -0.114 | 0.113  | 0.092  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 8   | -0.002 | -0.017 | -0.103 | 0.066  | 0.468  | 0.201  | -0.111 | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 9   | 0.046  | 0.064  | -0.065 | -0.016 | -0.818 | -0.001 | -0.090 | -0.343 | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 10  | 0.002  | 0.211  | -0.119 | -0.191 | -0.290 | -0.246 | -0.082 | -0.22  | 0.372  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 11  | -0.148 | 0.271  | -0.098 | -0.103 | -0.012 | 0.070  | 0.096  | 0.053  | 0.026  | 0.294  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 12  | 0.080  | 0.088  | 0.003  | -0.003 | -0.084 | 0.008  | -0.159 | 0.018  | 0.056  | -0.038 | 0.000  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 13  | -0.039 | -0.044 | 0.035  | 0.013  | 0.196  | 0.007  | -0.089 | 0.178  | 0.041  | -0.101 | 0.199  | 0.130  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 14  | 0.008  | 0.031  | -0.007 | -0.026 | -0.062 | 0.212  | -0.027 | 0.099  | -0.079 | -0.151 | 0.262  | 0.114  | 0.382  | 1.000  |        |        |        |        |        |        |        |        |        |        |        |       |       |
| 15  | -0.007 | -0.095 | -0.011 | 0.034  | -0.030 | 0.241  | -0.103 | 0.080  | -0.052 | -0.019 | 0.252  | -0.114 | 0.180  | 0.32   | 1.000  |        |        |        |        |        |        |        |        |        |        |       |       |
| 16  | 0.129  | -0.131 | 0.116  | -0.020 | -0.011 | 0.153  | 0.120  | 0.032  | 0.048  | -0.255 | -0.088 | 0.019  | -0.060 | 0.109  | 0.197  | 1.000  |        |        |        |        |        |        |        |        |        |       |       |
| 17  | -0.119 | 0.020  | -0.072 | -0.047 | 0.089  | -0.867 | -0.007 | -0.045 | 0.092  | 0.137  | -0.038 | 0.118  | 0.120  | -0.163 | -0.211 | -0.060 | 1.000  |        |        |        |        |        |        |        |        |       |       |
| 18  | 0.043  | 0.194  | -0.072 | -0.058 | -0.232 | -0.257 | 0.122  | -0.125 | 0.123  | 0.085  | -0.070 | 0.181  | -0.121 | -0.158 | -0.219 | 0.142  | 0.438  | 1.000  |        |        |        |        |        |        |        |       |       |
| 19  | -0.207 | 0.271  | -0.162 | -0.192 | -0.105 | -0.385 | 0.150  | -0.232 | 0.152  | 0.281  | 0.128  | 0.282  | -0.068 | -0.113 | -0.319 | -0.077 | 0.554  | 0.515  | 1.000  |        |        |        |        |        |        |       |       |
| 20  | -0.036 | 0.277  | -0.244 | -0.143 | -0.413 | -0.365 | 0.021  | -0.198 | 0.233  | 0.408  | -0.087 | 0.320  | -0.250 | -0.183 | -0.301 | 0.230  | 0.466  | 0.787  | 0.732  | 1.000  |        |        |        |        |        |       |       |
| 21  | -0.065 | -0.011 | -0.170 | -0.197 | -0.040 | -0.286 | -0.029 | -0.013 | -0.032 | 0.071  | 0.166  | -0.020 | -0.168 | -0.051 | 0.031  | 0.500  | 0.591  | 0.675  | 0.665  | 1.000  |        |        |        |        |        |       |       |
| 22  | -0.100 | 0.100  | -0.182 | -0.022 | -0.021 | -0.508 | -0.149 | -0.111 | 0.125  | 0.069  | 0.042  | 0.160  | -0.080 | -0.158 | -0.176 | -0.034 | 0.489  | 0.374  | 0.567  | 0.622  | 0.588  | 1.000  |        |        |        |       |       |
| 23  | -0.034 | 0.102  | 0.140  | 0.027  | 0.052  | -0.137 | 0.025  | 0.037  | -0.066 | 0.079  | 0.107  | -0.130 | 0.159  | 0.142  | 0.025  | 0.092  | -0.014 | -0.143 | -0.214 | -0.122 | -0.223 | -0.123 | 1.000  |        |        |       |       |
| 24  | -0.010 | -0.077 | 0.292  | -0.004 | 0.202  | 0.141  | 0.105  | -0.072 | -0.039 | -0.035 | 0.010  | -0.095 | -0.024 | -0.002 | 0.050  | 0.003  | -0.292 | -0.220 | -0.056 | -0.180 | -0.184 | -0.155 | 0.041  | 1.000  |        |       |       |
| 25  | 0.231  | -0.101 | 0.834  | -0.047 | 0.300  | 0.277  | 0.231  | -0.179 | -0.054 | -0.249 | -0.182 | -0.060 | 0.060  | 0.110  | -0.222 | 0.108  | 0.055  | 0.024  | 0.167  | 0.038  | -0.011 | -0.115 | 0.132  | 0.233  | 1.000  |       |       |
| 26  | -0.046 | -0.009 | -0.115 | -0.039 | 0.052  | -0.177 | -0.079 | 0.078  | 0.029  | 0.214  | 0.051  | 0.141  | 0.024  | 0.051  | -0.055 | 0.011  | 0.021  | -0.152 | 0.132  | 0.171  | 0.043  | 0.272  | -0.021 | 0.080  | -0.176 | 1.000 |       |
| 27  | -0.081 | -0.150 | -0.185 | -0.102 | -0.046 | -0.047 | -0.064 | -0.036 | 0.004  | -0.130 | 0.039  | 0.141  | 0.128  | 0.248  | 0.146  | 0.146  | 0.054  | -0.122 | -0.004 | 0.154  | -0.107 | -0.051 | 0.049  | -0.019 | -0.115 | 0.069 | 1.000 |

The first variable is presented in parentheses by a questionnaire question vertically; the second variable is presented by a questionnaire question horizontally. The result of the investigation was the finding of the existence of a weak relationship between the investigated aspects, which are listed in descending order according to the expected intensity of the relationship:

- barriers of geotourism development in Spiš region (25) and education (Edu),
- evaluation of geolocations of National nature reservation Dreveník (19) and geolocations Slovenský raj (17),
- evaluation of the Rotenberg geolocation (20) and evaluation of the Banský Skanzen geolocation (18),
- evaluation of the Rotenberg geolocation (20) and geolocation evaluation of the National nature reservation Dreveník (19),
- evaluation of the geolocalities Sivá Brada (21) and Banský Skanzen (18),
- evaluation of the geolocalities Sivá Brada (21) and National nature reservation Dreveník (19),
- evaluation of the Sivá Brada (21) and geolocalities Rotenberg (20),
- evaluation of the Tomášovský výhľad geolocalities (22) and the National nature reservation Dreveník (19),
- evaluation of the geolocalities Tomášovský výhľad (22) and the geolocalities Rotenberg (20),
- evaluation of the geolocalities Tomášovský výhľad (22) and the geolocalities Sivá brada (21).

In the mentioned points, it is mainly an expression of weak relations between the evaluation of individual geo-locations. This means that the respondents tended to express themselves in a similar way within the selected pairs. Therefore, these aspects were not further analysed within the scope of the investigated issue. In the final summary, it can be stated that there are possible aspects in the investigated issue that were not the subject of the research or were not included in it. At the same time, this does not mean that there is no interest in geotourism or the development of this issue in the given location. Once again, space is created for further investigation of this issue, avoiding problematic aspects, and trying to examine more closely individual aspects of the selected topic. The secondary goal was to evaluate the activities of organizations focused on creating products, in the form of geotourism products. Several organizations operate in the monitored location. Three organizations can be considered leaders in the activities and creation of geotourism products and its development. The

answers to the interview were summarized and evaluated. By analysing the answers received, it can be concluded that there are enough people in the Spiš region, joining together in various associations and organizations, who understand the importance of the development of individual forms of geotourism for the development of the region and who understand how important it is to preserve the monuments of the past for future generations. At the same time, it was found that:

- the surveyed subjects see the potential in the development of mountain tourism products, which can build on the rich history of the region and use it for the benefit of the development of the region,
- the project activity of the surveyed organizations is mainly focused on the creation of geotourism products in the villages of the Hnilecká dolina (Hnilecká Valley) (Gelnica, Helcmanovce, Smolník, Žakarovce, Hnilčák) and in the villages of Poráč and Dobšiná,
- in the current activities and in the creation of geotourism products, closer cooperation between the individual affected municipalities and organizations is absent,
- the implementation of projects of more global significance with an impact on a larger number of potential geotourists is planned,
- awareness of the need to offer complex and attractive geotourism products is essential,
- the interest of the interviewed organizations in engaging young people in their activities and creation of geotourism products,
- emphasize the lack of funds or inappropriate offer of published subsidy schemes, absent coordination of the development of tourism and geotourism by the central destination management organization – DMO.

## CONCLUSIONS

The Spiš region has very good prerequisites for the development of not only nature tourism, for which it is known (for example, hiking), but also individual forms of geotourism. By its very nature, geotourism can fulfil people's modern interests, and what is even better, it contributes to the sustainability of tourism, to the protection of natural heritage, and at the same time educates. Through geotourism, it is possible to learn about the creation of the planet, about the life of ancestors, about various traditions and customs. Spiš abounds in beautiful and diverse nature, which in many places is still untouched by mass tourism and which offers many possibilities for active relaxation in nature through geohiking, geobiking or even geocaching. Deposits of copper and iron ores, mainly in the lower Spiš, played an extremely important role in the history of this region. The exploitation of ore deposits in Spiš was not only an impetus for the development of mountain production in the mining area itself, but also influenced to a large extent the development of business towns and towns north of the said mining area in the direction of the traditional export of mining production to Poland and the Baltics. The wealth and importance of the region is underlined by many places with historical and cultural significance that could interest tourists. This is another area on which regional organizations supporting tourism are working - sufficient promotion and customization of the offer for visitors.

The research pointed out the interest and knowledge of the respondents regarding locations suitable for geotourism, including the popularity and attractiveness of the offered geotourism activities. The natural and cultural heritage of the region in connection with the varied geological structure and also in the effort to preserve life and promote the elements of environmental sustainability are the main arguments for the development of montanistics in Spiš.

Despite not confirming the hypothesis, it can be stated that the Spiš region is the "Jewelry of Slovakia" with cultural and historical beauties and monuments, as well as a lot of natural beauty, but above all an interesting and rich mining heritage.

Currently, cycling is very popular, which was also proven by the research, as GeoBiking is one of the leading activities that the respondents identified as interesting with potential in the given region. Mountaineering and its unique products could represent an attraction for the Spiš region, which would motivate visitors to spend their holidays in the given region.

In the future, it is necessary to define the district of Gelnica as a tourism destination, possibly to be specified more precisely as a geotourism destination, both in the Development Action Plan and in the involvement of the district in the activities of the regional organization. As part of the definition of the territory of tourism development, it is necessary to define the destination places or tourism centres in more detail. Currently, the Gelnica district lacks a conceptual approach to the management of tourism development, as well as joint marketing and information services and activities. The territory does not have established destination management principles managed by one destination organization (regional tourism organization).

## Acknowledgement

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## COMPARING HUNGARIAN AND TUNISIAN GUEST PREFERENCES FOR SUSTAINABLE HOTEL ATTRIBUTES

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**Abstract:** The aim of the study is to identify the sustainability attributes of hotels preferred by guests and to compare the preferences of Hungarian and Tunisian hotel guests highlighting the similarities and differences. We used Q method to show which of the hotels' sustainability practices and attributes identified in the literature are the ones that are preferred by the guests. There were two samples: 15 Hungarian and 15 Tunisian guests. Three group of opinions were formed in both cases. The essential attributes are those that have emerged as a common point in both countries' opinion groups. The elements related to the social sustainability pillar play just a small important role among sustainability practices. It is important for a sustainable hotel not only to be environmentally responsible, but also to be holistically sustainable, so it is worth incorporating social considerations, if not as an essential element. For sustainable thinking hotels, it is worth addressing the issue of sustainability and responsibility at a strategic level.

**Key words:** sustainability, CSR, hotel, Q-methodology, Generation Z, Tunisia, Hungary

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### INTRODUCTION

Tourism has an intense impact on both the environment and society, and therefore plays an important role in shaping it (Benkő et al., 2022; Kaszás and Keller, 2022). Following sustainability guidelines gives tourism the opportunity to preserve the environment, increase social awareness and economic growth. Tourism, as one of the world's largest industries, is the engine of the economy for many countries, especially in Tunisia and Hungary, so it is particularly important how a given country shapes its impact. (Chaabane et al., 2019). Several previous studies have dealt with the comparison of Tunisia and Hungary from a tourism point of view, but in this study we examine the attitudes of the two countries specifically from the point of view of sustainability aspects (Mollet and Neffati, 2004).

Hotel guests are the primary stakeholders in hotels. Their decision greatly influences the achievement of hotel goals. They play a primary role in the success of hotels as they generate hotel revenue. Today, there is a growing tendency for consumers to buy from a company and consume products that are less harmful to the natural environment and society. This consumer segment is generally more sophisticated and, to varying degrees, is preoccupied with sustainability issues such as recycling or the purchase of local and / or organic food. This trend is becoming more pronounced in both tourism and the hotel industry, as hotel guests are increasingly looking for sustainable solutions (Yi et al., 2018) when traveling and hotels need to adapt to these expectations by implementing sustainability initiatives.

Williams et al. (2019) pointed out that CSR is a corporate approach that leads to sustainable development by providing environmental, social, and economic benefits to all concerned, meaning the words CSR and sustainability are used interchangeably in this article. Huda et al. (2018) wrote that a CSR strategy encourages a company to make a positive impact on the environment and its stakeholders, including communities, investors, employees, and consumers. A sustainable hotel approach thus involves sharing and recognizing guests' expectations for social responsibility and increasing the demand for environmentally friendly products and services. Applying sustainable hotel practices can also play an important role in improving the guest experience. Therefore, it is the responsibility of hotels to meet the sustainable needs of today's modern travelers, including retaining comfort, reducing water and energy consumption, or even rethinking the use of sustainable products. De Grosbois (2015) writes that there are key elements in the strategy of international tourism businesses that contribute to the well-being of local society, decent working conditions, and environmental protection. Examining consumer perceptions of CSR activities and how these opinions affect consumers' future intentions and views can help hotels understand the importance of introducing and strengthening CSR practices.

The topic of incorporating guest expectations into hotel environmental strategies is under-researched in the literature (Pakdil and Kurtukmusoglu, 2017), and there are even fewer resources for their overall sustainability practices. The present

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research contributes to the expansion of the literature in this field, but at the same time provides practical advice to hotels on which CSR elements and values to focus on when developing their CSR practices.

Based on the perception of the sustainability challenges of the hotel industry and the results of previous studies on the attitudes of current consumers, the aim of the present research is to compare the behavior, perceptions, and consumption preferences of Hungarian and Tunisian hotel guests about sustainable hotel attributes. Grouping tourists with similar attitudes towards sustainable hotels and analyzing their characteristics can help identify CSR value preferences for each group, which can encourage hotels to develop CSR policies that can further strengthen tourists' commitment to sustainable tourism and their choice of accommodation. The aim of the article is to group the opinions of the surveyed tourists using the Q-methodology, in which framework we identify the tourist attitudes and categorize the different and common opinions. Opinions are also presented along each CSR category. We present the main characteristics of each group, the differences between the groups, and make suggestions for more sustainable hotel practices that follow guests' value preferences. This research, by identifying preferences, provides a new perspective on sustainable hotel practices for academia and hotel professionals in both countries.

After reviewing the literature, we present the research methodology, including the elaboration of the statements and the sampling framework, and then draw the most important conclusions using the empirical results.

### **Theoretical background**

The hotel sector plays a significant role in society, especially in local communities. With tourism accounting for eight per cent of CO<sub>2</sub> emissions (Lenzen et al., 2018) and hotels responsible for nine per cent of energy consumption (IEA, 2018), its environmental impact is very high. Thus, the analysis and decisions of CSR practices in the sector can have a strong impact on a wide range of stakeholders, such as government agencies, local communities, but especially hotel guests. The perceived value of CSR varies depending on which stakeholder evaluates the actions (Campbell, 2007; Jones et al., 2017). In this sense, consumers are one of the most important stakeholders for the company (Jones et al., 2017). What matters to the hotel industry is how guests relate to CSR activities and the extent to which these corporate CSR approaches influence the future behavior of guests. Understanding these can help them implement appropriate CSR policies and practices. Tailoring CSR activities to guest expectations can contribute to increasing the competitiveness of hotels and can have an impact on society if stakeholders support these activities and value the behavior of these companies.

As environmental topic has become a central issue for policy makers and companies, understanding people's environmental values, behaviors, and intentions has also become increasingly important (Barber, 2010; Bazoche et al., 2008; Ottman, 2011). Previous research has shown that most responses to green practices are positive, but perceptions and acceptance of green hotel strategies differ. Sustainable practice is a key factor in guests' hotel choices. In contrast, we can also see an example that although guests are environmentally conscious, they do not necessarily care about the hotel's environmental practices when choosing accommodation (Kasim, 2004a).

According to Manaktola and Jauhari (2007), when choosing hotels, tourists do not consider green practices as important as other features of the hotel, such as price, location, or cleanliness. At the same time, Robinot and Giannelloni (2010) ensured that hotel guests have a certain environmental feature that they already consider to be 'essential' as part of the service offering. Therefore, they will take it negatively if green hotels do not implement those practices. Robinot and Giannelloni (2010) noted that the non-routine replacement of bed linen and towels is already considered a basic service, but the use of renewable energy sources is seen as an additional positive service element.

Watkins (1994) primarily identified eco-friendly attributes, of which guests highlighted: selective waste collection, energy-saving lighting, recycled paper, change of bedding on request, and turning off lights in unused rooms. According to Kasim (2004b), most tourists prefer unsustainable solutions such as changing towels and separate soaps over environmentally friendly alternatives, but water-saving features, selective waste collection, fire and energy saving solutions and information on local ecotourism attractions, are also considered important sustainable practices. In the research of Millar and Baloglu (2008), the green hotels' practices preferred by guests were the following: energy-saving light bulb, low-water-consuming toilets and faucets, infrequent linen change, selective waste collection, occupancy sensors and card keys. The analysis of Lee et al. (2011) showed that healthy rooms, eco-friendly practices, and reduced spending are positively related to guests' return intentions, while healthy rooms, reduced spending, organic food, and environmental protection have a positive and significant impact on the hotel's reputation, which underpins the additional benefits that the existence of these attributes can bring to hotels that introduce sustainability practices into their day-to-day operations.

In Han and Chan's research (2013) energy saving, and the use of environmentally friendly products are the two most important attributes. Han et al. (2019) also argued that water and energy saving measures are attributes that increase guests' loyalty to green hotels. According to Verma and Chandra (2016), among the green features of the hotels, energy-saving light bulbs, selective waste collection and green certification were preferred, while refillable shampoo dispensers and on-demand sheet change and towel reuse programs are less important to guests. Trang et al. (2019) identified five dimensions based on the green hotel attributes that guests may encounter: consumer benefits, recycling policy, energy management, water conservation, and green features. The positive attitude of the guests was most evident in the elements related to the benefits to the guests that have a positive impact on their well-being and health, such as vegan food or eco-friendly products. Tools and solutions related to energy efficiency were also considered important. In the case of green features, the green environment, green architectural solutions and organic gardens appear as essential green hotel elements.

There is a contradiction in the literature as to whether guests value their involvement in sustainability initiatives positively or negatively. Manaktola and Jauhari (2007) found that the guests wanted to take part in the green developments

but did not sacrifice the comfort of their stay there. 40% of respondents agreed that hotels should cover 50-100% of the costs of implementing a green practice vis-à-vis guests. Furthermore, even though many respondents were willing to save on water, they did not accept the low water pressure shower head in the bathrooms because they did not feel that they were directly responsible for the cost of the water (Ogbeide, 2012). In the case of luxury hotels, Meadin (2018) found that guests and residents alike appreciate the hotel's involvement of its partners, the media, and guests in its environmental initiatives. According to Baker et al. (2014) the importance of environmental friendliness (or, conversely, the resulting inconvenience) strongly determines the intention to book a green hotel room, while corporate responsibility issues have less or no effect on what is one of the pillars of sustainability. Guests are mostly concerned with the environmental pillar. Mensah (2004) found that 90% of hotel guests would prefer to stay in a hotel that has a green management policy. In addition, Kimpton Hotels reports that 16% of their guests choose them because of their environmentally friendly practices (Butler, 2008). Shereni et al. (2022) highlighted that sustainable attributes which does not need high investment are more common in hotels.

In Table 1, based on the literature, we collected the hotel sustainability attributes identified in previous research as guest-preferred items. Most of the elements are related to the environmental pillar, as previous research has primarily asked guests about environmental sustainability practices. There are some attributes like guest well-being and relationship with locals that go beyond the environmental pillar and take social sustainability into account. Green policy as an attribute is typically linked to environmental sustainability initiatives, but in many cases, it includes full sustainability.

Table 1. Sustainable hotel attributes preferred by guests (Source: own edition)

| Attributes                                    | Research in which the given attribute is preferred by guests   |
|---|--|
| Water saving                                  | Kasim (2004b); Millar and Baloglu (2008); Ogbeide (2012); Grosbois (2012); Han et al. (2019);  |
| Energy saving                                 | Watkins (1994); Kasim (2004b); Millar and Baloglu (2008); Robinot and Giannelloni (2010); De Grosbois (2012); Han and Chan (2013); Verma and Chandra (2016); Trang et al. (2019) |
| Selective waste collection                    | Watkins (1994); Kasim (2004b); Millar and Baloglu (2008); Verma and Chandra (2016)   |
| Recycling                                     | Watkins (1994)   |
| No bed linen change everyday                  | Watkins (1994); Millar and Baloglu (2008); Robinot and Giannelloni (2010)  |
| Environmentally friendly products             | Lee et al. (2011); Han and Chan (2013); Trang et al. (2019)  |
| Green environment                             | Trang et al. (2019)  |
| Guests' well-being and health                 | Lee et al. (2011); Trang et al. (2019)   |
| Local tourist attractions                     | Kasim (2004b)  |
| Local employment, local companies, local food | Shereni et al. (2022)  |
| Green policy                                  | Mensah (2004); Butler (2008); Lee et al. (2011); Verma and Chandra (2016)  |

## METHODOLOGY

Based on the literature, we have identified several research gaps:

- the incorporation of guest opinions and preferences into the development of hotel sustainability practices is a sub-research topic in the literature;
- guests' opinions are typically researched in a quantitative way;
- guest reviews show which items are expected more, but not all items are prioritized;
- typically, guests are asked about the elements of one key pillar of sustainability, the environmental one, and an examination of overall sustainability practices appear little in the literature,
- comparing two countries' guests, especially Hungarians and Tunisians is rare in the academic field.

In the present research, to fill these gaps, we want to explore the elements of the overall sustainability attributes of hotels and compare the Hungarian and Tunisian guest opinions. With Q methodology, we can identify the order of preferences of the guests and, therefore, determine how to incorporate and implement those practices.

Our main research questions are:

What are the sustainability attributes of hotels preferred by guests?

What are the similarities and differences between Hungarian and Tunisian hotel guests' preferences for sustainable hotel attributes?

By identifying the sustainability attributes of hotels preferred by guests, the aim of our research is to formulate recommendations for hotels on which sustainability practices to implement and to place greater emphasis on to meet the latter expectations. Q methodology was used to study subjective perspectives. This method is worth using when you want to characterize how different groups of people think systematically about a particular issue. It can be used to explore perspectives on any topic where there are subjective disagreements, as the method is particularly useful for studying controversial topics. The Q method does not seek to link perspectives with objective and external variables such as age, job, or income, but to understand the subject's own internal preference framework (Cairns, 2012).

Qu et al. (2015) used the Q methodology to classify Chinese consumers with similar characteristics into three groups based on their values and attitudes toward sustainable consumption. The sustainable group has strong environmental values. Indeed, its environment is important to it, and it understands the essence and functions of sustainable consumption. The second group, potential sustainable consumers, is already open to sustainable consumption, but they need more incentives to achieve it. The third group is unsustainable consumers, who need more information and education to achieve a change in consumer behavior towards sustainability. The Q method is mostly used for samples of 15 to 50 participants in size (Danielson et al., 2012; Cairns, 2012). Participants in the Q study are targeted (i.e., not randomly

selected) according to their interests. For example, they could be policy makers, professionals in a particular field, or people living in a particular field or affected by a particular problem. Respondents should be selected in such a way that they can represent the views of those interested in each topic, rather than representing the entire population.

The first step in the Q-method is to develop a “concourse”, the essence of which is to identify any statements related to the topic under study, in our case the sustainability issues of hotels (Stephenson, 1993; Stergiou and Airey, 2011). We formulated most of the statements for sustainability attributes of the hotels identified in the literature as shown in Table 1. However, as environmental sustainability elements typically appeared in the literature, we supplemented the statements with additional topics. Based on previous research (Ásványi et al., 2020), we formulated the statements along eight CSR categories, which already included the statements for the elements in Table 1. A total of 50 statements related to hotel sustainability were included in the original Q sample, which was pre-tested with 5 university students. By identifying the order of preferences, they gave and the topics proposed for review, we made the statements clearer and more concise so that the relevant topics remained, but at the same time became more understandable to the respondents, leaving 35 statements in the Q sample. Of the eight CSR categories, the first was related to the general responsibility of the hotel (4 statements). Three categories are related to environmental aspects (statement 14 + 5 + 3) and the other four are related to the social pillar (statement 2 + 1 + 4 + 2). These categories helped in the assessment along the emerging factors.

Targeted and theoretical sampling was used, where the condition was that the respondent had spent at least 1 guest night in a hotel he or she called sustainable in the past two years, meaning he or she had experience in sustainable hotels and was a member of Generation Z from Hungary or Tunisia. Sustainability practices in accommodations are more important to this generation and they prefer to choose such places to stay (Dębski and Borkowska-Niszczota, 2020), so we targeted them to explore our research question. Data were collected in November 2022. The number of statements was 35 and some literature suggests that the number of participants should be about half the number of statements. Despite the small number (15 Hungarian and 15 Tunisian guests) it is acceptable for evaluating the method and exploring different perspectives

(Stainton, 1995; Stergiou and Airey, 2011). Respondents rated the

Table 2. Q-sort (Source: own edition)

|    |    |  |    |   |    |    |    |
|----|----|--|----|---|----|----|----|
| -3 | -2 |  | -1 | 0 | +1 | +2 | +3 |
|    |    |  |    |   |    |    |    |
|    |    |  |    |   |    |    |    |
|    |    |  |    |   |    |    |    |
|    |    |  |    |   |    |    |    |
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|    |    |  |    |   |    |    |    |
|    |    |  |    |   |    |    |    |
|    |    |  |    |   |    |    |    |

statements obtained along a quasi-normal distribution according to which ones they completely agree with (+3), which ones are neutral to them (0), and which ones they completely disagree with (-3) (McKeown and Thomas, 1988). The seven-levels distribution shown in Table 2 was used as a basis. Since this is a relative scale, it is also possible that one respondent agrees with all the statements, while no other agrees with any of them, which we can avoid by developing a forced ranking. The essence of the method is that it is based on the ranking of the statements, i.e., where each statement is in relation to the other statements.

**RESULTS AND DISCUSSION**

We first performed a principal component analysis on the data of Hungarians and Tunisians. As a result, 8 factors were obtained in both samples. Only factors with an eigenvalue greater than 1 were retained. There were four factors above 1 in both cases, which means the 4-factor solution may be good. However, there were other requirements as the correlation have to be under 0.5 between factors a minimum 2 opinions have to be in one factor. Based on these, we chose the three-factor solution for the Hungarian and Tunisian sample too (Table 3).

Table 3. Factor matrix of Hungarian and Tunisian guests (Source: own edition)

| QSORT                  | HUN1                       | HUN2                               | HUN3                               | QSORT                  | TUN1  | TUN2                               | TUN3                 |
|------------------------|----------------------------|------------------------------------|------------------------------------|------------------------|---|------------------------------------|----------------------|
| Hungarian A            | 0.5686X                    | 0.0926                             | 0.4857                             | Tunisian A             | 0.9377X                                       | 0.1997                             | 0.0518               |
| Hungarian B            | 0.7801X                    | 0.3464                             | 0.2814                             | Tunisian B             | 0.1636  | 0.9748X                            | 0.0312               |
| Hungarian C            | 0.1919                     | 0.0940                             | 0.8718X                            | Tunisian C             | 0.2408  | 0.9346X                            | 0.0782               |
| Hungarian D            | 0.8066X                    | 0.1900                             | 0.2538                             | Tunisian D             | 0.6615X                                       | 0.2407                             | 0.6477               |
| Hungarian E            | 0.9383X                    | -0.0148                            | 0.1102                             | Tunisian E             | -0.0287                                       | -0.1072                            | 0.8833X              |
| Hungarian F            | 0.1774                     | 0.8530X                            | -0.0500                            | Tunisian F             | 0.9377X                                       | 0.1997                             | 0.0518               |
| Hungarian G            | 0.7191X                    | 0.4347                             | 0.1038                             | Tunisian G             | 0.1636  | 0.9748X                            | 0.0312               |
| Hungarian H            | 0.7569X                    | 0.2771                             | 0.2575                             | Tunisian H             | 0.6615X                                       | 0.2407                             | 0.6477               |
| Hungarian I            | 0.7218X                    | 0.3242                             | 0.3411                             | Tunisian I             | 0.6615X                                       | 0.2407                             | 0.6477               |
| Hungarian J            | 0.4301                     | 0.5915X                            | 0.3872                             | Tunisian J             | 0.3907  | 0.3834                             | 0.6385X              |
| Hungarian K            | 0.8801X                    | 0.1948                             | 0.1235                             | Tunisian K             | 0.9377X                                       | 0.1997                             | 0.0517               |
| Hungarian L            | 0.8722X                    | -0.0384                            | 0.0459                             | Tunisian L             | 0.1636  | 0.9748X                            | 0.0312               |
| Hungarian M            | 0.5101                     | -0.1260                            | 0.5813X                            | Tunisian M             | 0.2408  | 0.9346X                            | 0.0782               |
| Hungarian N            | -0.0926                    | 0.6084                             | 0.6612X                            | Tunisian N             | 0.6615X                                       | 0.2407                             | 0.6477               |
| Hungarian O            | 0.7550X                    | 0.1796                             | 0.2282                             | Tunisian O             | -0.0287                                       | -0.1072                            | 0.8833X              |
| % expl.Var.            | 45                         | 14                                 | 16                                 | % expl.Var.            | 32  | 34                                 | 24                   |
| Nbr of people / factor | 10                         | 2                                  | 3                                  | Nbr of people / factor | 7   | 5                                  | 3                    |
| Names of factors       | <i>Sustainable thinker</i> | <i>Controversially sustainable</i> | <i>Self-interested sustainable</i> | Names of factors       | <i>Sustainable at the level of principles</i> | <i>Environmentally sustainable</i> | <i>Unsustainable</i> |



**Factor analysis along CSR categories**

First, we summarize the results obtained under each CSR category, highlighting the areas that are more important or less important to the guests, or in which the respondents agreed, and about which each factor has different opinions. In the “responsible attitude” category, Hungarians opinions proved to be environmentally friendly and conscious for all three factors. Most respondents strongly agreed on the importance of an approach to sustainable development in the hotel and the need for hotels to operate in an environmentally friendly circumstances, which shows that they are aware of the impact of hotels on the environment and consider it important to address. Tunisians' opinions were more diverse about this category. TUN1 factor mostly agreed that the hotels they want to visit must have environmentally friendly conditions. TUN2 were neutral about the topic. However, TUN3 mostly disagreed on the necessity of the hotels implementing a sustainable development approach but, at the same time, they'd like to find identifiable CSR strategies, which is a contradictory attitude.

Especially in the “environmental responsibility” category, Hungarians are no longer clearly conscious, but they think in more cases in a sustainable way than Tunisian guests. Both countries' guests are aware that saving electricity contributes to reducing environmental damage, as evidenced by their disagreement with having lights lit in common areas throughout the night or turning on TV in an empty common area. For the most part, they also consider it important to have the possibility to collect waste separately in hotels, which is probably since they also collect waste selectively in their daily lives. In water consumption there are differences in the opinions of the countries' guests. Hungarians unanimously disagreed that the fountains should be open late at night while Tunisians are neutral about it. For Tunisians water consumption reduction in general is important. However, the use of tools, techniques, and solutions to reduce water consumption is already considered less important. All the guests want plenty of hot water in the shower, as these directly affect their personal comfort, which is more important to them than environmental sustainability.

Opinions in HUN1 were most expressed in their opposition to changing their towels and bedding daily, which is an environmentally conscious attitude, as changing every two or three days is the basis for operating in an environmentally friendly and responsible way. Respondents are no longer interested in paper brochures, which shows a positive attitude towards preserving the integrity of the environment.

They more agreed on the use of recyclable and reusable materials in restaurants and bars, which can make a significant contribution to reducing the use of pollutants such as plastics, metal cans and paper. All respondents agree in food waste reduction, however they wouldn't appreciate the reuse of food leftovers, which may shows that in general guests know that less consumption and less usage of the energy and water is necessary for our sustainable future but comparing their comfort the sustainable actions are still not in their daily expectations.

In the category of “responsible products” the opinions were the most different and contrary. Both the Hungarian and Tunisian guests wouldn't like the use of plastic cups and straws in the pool and beach areas even for safety reasons, nor the use of colorful plastic wristbands to determine the type of their hotel stay. neutral but disagreed with the use of (redundant) plastic products. However, insist on the usage of chemicals for cleaning as they don't trust, for example, the pool water to be disinfected and safely cleaned without the appropriate chlorine and chemicals. Only guests in HUN3 and TUN2 appreciate the use of organic food and products.

“Local environment” practices are considered less important by respondents. The issue of hotels having gardens or being surrounded by nature is less important to them than other elements of sustainability. Based on previous statements, we have seen that respondents are aware of the importance of the environment and its preservation, but do not feel the importance of this for the local environment. Guests did not agree that they should not be given information about

Table 4. Factor Q sort values for Hungarian and Tunisian guests (Source: own edition)

| Categories                   | HUN1 | HUN2 | HUN3 | TUN1 | TUN2 | TUN3 |
|------------------------------|------|------|------|------|------|------|
| Responsible attitude         | +++  | -    | +    | ++   | 0    | ---  |
|                              | +++  | ++   | +    | ++   | +    | --   |
|                              | +    | +    | ++   | +    | 0    | ++   |
|                              | 0    | -    | -    | +    | 0    | -    |
| Environmental responsibility | ++   | ++   | +    | ++   | +++  | +    |
|                              | +++  | 0    | +++  | +    | +++  | -    |
|                              | ++   | ++   | +    | +++  | +++  | 0    |
|                              | +++  | ++   | ++   | 0    | ++   | +++  |
|                              | +    | --   | 0    | ++   | +++  | +    |
|                              | +++  | +++  | +++  | 0    | +    | +    |
|                              | 0    | ---  | ---  | ---  | +    | ---  |
|                              | +    | +++  | 0    | -    | +    | -    |
|                              | +    | -    | ++   | +    | ++   | 0    |
|                              | +++  | 0    | ++   | +    | ++   | 0    |
|                              | ++   | 0    | -    | --   | +    | --   |
|                              | ++   | +    | +++  | +++  | ++   | ++   |
|                              | ++   | 0    | 0    | -    | +++  | --   |
|                              | +    | ++   | --   | 0    | +    | ---  |
| Responsible products         | ++   | ++   | --   | +++  | 0    | ---  |
|                              | +    | --   | +++  | -    | ++   | 0    |
|                              | ++   | -    | +    | ---  | ++   | 0    |
|                              | +    | --   | --   | -    | +    | -    |
|                              | ++   | +    | 0    | +++  | ++   | --   |
| Local environment            | 0    | 0    | -    | -    | ++   | 0    |
|                              | 0    | 0    | 0    | 0    | 0    | 0    |
|                              | ++   | +    | +++  | ++   | +++  | --   |
| Guests' education            | +    | +++  | +    | ++   | ++   | ++   |
|                              | 0    | ---  | --   | 0    | 0    | -    |
| Equal opportunities          | +    | +++  | -    | +    | +    | ++   |
| Local community              | ++   | +    | 0    | 0    | +    | -    |
|                              | +    | +    | --   | --   | +    | --   |
|                              | 0    | +    | -    | 0    | 0    | ---  |
|                              | 0    | -    | +    | ++   | +    | -    |
| Employees' attitude          | +    | 0    | 0    | +    | +    | -    |
|                              | +    | -    | -    | ++   | ++   | -    |

Notes: +++ = +3; ++ = +2; + = +1; 0 = 0; -- = -1; - = -2; --- = -3

responsible behavior; i.e., they consider it important that the hotel informs and educates its guests. Training on the topic of sustainability in hotels was more of a rejection, as the word training is perhaps more related to working in people's minds, which is a less attractive program, especially during holidays, which appeared more in Hungarians' opinions.

For the "equal opportunities" category, HUN2 and TUN3 strongly agrees on the importance of facilitating hotel stays for people with disabilities, it is important to have easy accessibility for people with disabilities in all common areas as well as in the rooms. However, all the others are more indifferent to the topic, indicating that they are more interested in their own convenience and in sustainable activities that affect them. For most respondents the "local environment" was more likely to be among the neutral CSR values. Overall, they do not reject or prefer to use local products, which shows that respondents are not yet fully aware of the sustainability benefits of local businesses. Donating to locals as a subsidy for the price of a guest night is not a significant issue for them. Guests less agree with participation in volunteering activities towards the local community with the involvement of guests and hotel staff, which shows that it is not important for respondents to provide a sustainable hotel with the opportunity for action on the part of guests.

In the "employee attitude" category, respondents are on the verge of neutrality and open-mindedness. Meaning that they are happy if hotel employees set a good example for them in terms of sustainable behavior, but do not have a problem if employees don't have a sustainable attitude, or they only help to decide which is more sustainable behavior in the hotel if they are specifically asked. This shows that guests have no expectations from the hotel staff part about it.

### Characteristics, differences, and similarities among Hungarian and Tunisian factors

In addition to the analysis along the categories, it is also worth looking at each factor separately, so we can identify different attitudes. In case of Hungarians according to HUN1, the implementation of a sustainable attitude and approach is the most important thing for a sustainable hotel, and the appearance of responsible activities and products related to the environment is essential. That is why they form *sustainable thinker* opinion group. Overall, for HUN2, the emergence of CSR at the strategic level is less important, but measures to strengthen environmental responsibility are considered important. However, their opinion reflects that they do not consider environmental sustainability measures that directly affect the comfort of guests to be a good direction. However, this factor already considers certain social CSR activities to be as important to the operation of a hotel as ensuring equal opportunities.

The HUN2 was called *controversially sustainable*. HUN3 includes the opinions that are least clear about sustainable hotel CSR initiative. Environmental responsibility is put at the forefront, but the fact that if the guest has to do it for the sake of sustainability, they tend to reject it is stronger. Factor 3 is the *self-interested sustainable* opinion group.

In case of Tunisians, the opinion of the first factor reflects that it agrees in principle with the implementation of sustainability principles in the hotel, but does not clearly choose sustainability solutions in terms of details, which can be described as a *sustainable group at the level of principles*.

The second group of opinions focuses on the environment among the pillars of sustainability, clearly prioritizing environmental values, and are therefore called *environmentally sustainable*. The TUN3 typically thinks exactly against the sustainability values, therefore they represent the *unsustainable group*.

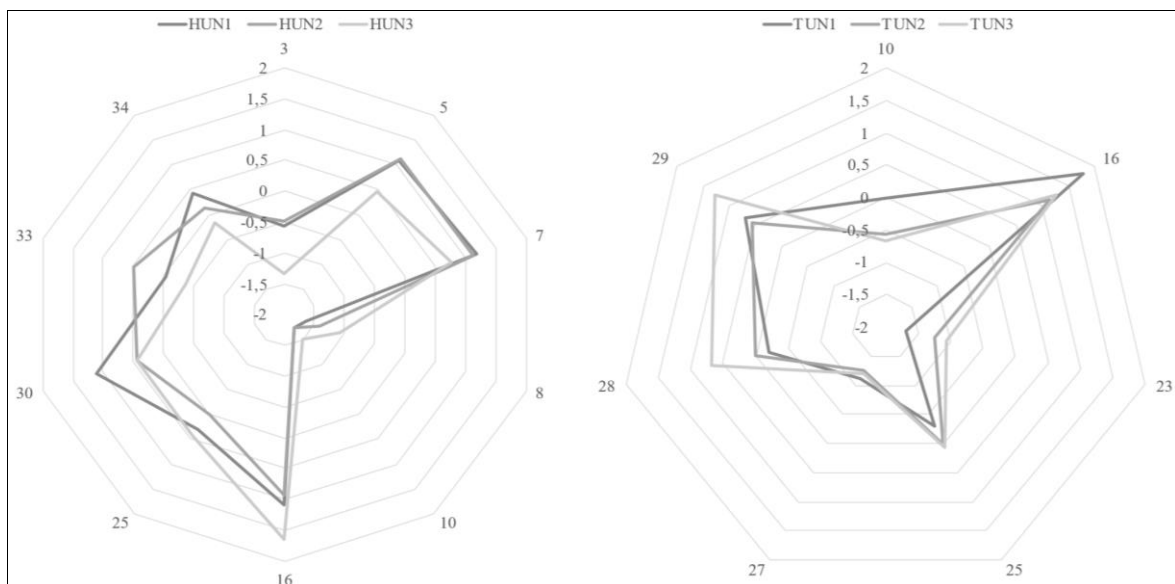


Figure 1. Consensus statements of Hungarian and Tunisian guests (Source: Own edition)

Common points among Hungarian and Tunisian guests tend to show positive or neutral opinions on sustainability (Figure 1), which means that there are more areas where hotels should already be operating in a sustainable way. Hungarians would welcome to see a CSR strategy from the hotel they stay in, they also prioritize energy and water saving aspects, and they expect hotels to follow sustainable principles in terms of waste management and food waste. However, there are attributes that are neutral for them, such as a private garden, local products, local attractions, which

rather suggests that they expect less of sustainable values at the local level, but rather a response to challenges that are also global. Tunisian guests also tend to be uniformly positive on environmental sustainability, while they are more likely to be similar but neutral on social sustainability.

## CONCLUSION

It has become increasingly important for hotels to reduce their negative impact on the environment, while at the same time moving forward on environmental sustainability and operating not only in an environmentally friendly way but also in a sustainable way. As consumers are one of the most important stakeholders in hotels, it is important to incorporate their expectations and preferences into the development of sustainability principles and practices. Hotels that build on their sustainability preferences can increase their competitiveness and have a positive impact on the environment and society.

Our main research questions are:

*What are the sustainability attributes of hotels preferred by guests?*

*What are the similarities and differences between Hungarian and Tunisian hotel guests' preferences for sustainable hotel attributes?*

To answer the question, we used a Q method to show which of the hotels' sustainability practices and attributes identified in the literature are the ones that are preferred by the guests. We could also identify what are the common expectations found, and what different approaches can be experienced between the different opinion groups.

Based on the research of Robinot and Giannelloni (2010), it is worth distinguishing between the attributes that appear as a basic fair for guests and those that are only extra attributes. The essential attributes are those that have emerged as a common point in both countries' opinion groups and that hotels must therefore implement to function as a sustainable hotel. Selective waste collection is the most basic requirement for guests. It is also important that the hotel prioritizes energy savings, uses energy-saving light bulbs and related solutions, and eliminates unnecessary energy consumption, i.e., unplugging unused electronic devices. Water saving is also an important factor, but not all guests agree. It is important not to use or waste water unnecessarily, but also the comfort reduction of guests to achieve this is a contradiction that has appeared in previous research (Manaktola and Juhary, 2007). In connection with this, hotels need to find water-saving solutions that serve guest satisfaction at the same time. The elements related to the social sustainability pillar play just a small important role among sustainability practices. Indeed, only HUN2 opinions support more the findings of Baker et al. (2014). Volunteering and donation are also less important for Hungarians and Tunisians, which may explain these results. However, it is important for a sustainable hotel not only to be environmentally responsible, but also to be holistically sustainable, so it is worth incorporating social considerations, if not as an essential element. Although Generation Z is more open to sustainability practices (Dębski and Borkowska-Niszczota, 2020), just HUN1 and TUN1 expect hotels to have an identifiable CSR strategy. For sustainable thinking hotels, it is worth addressing the issue of sustainability and responsibility at a strategic level as soon as possible for guests and the entire hotel industry.

In the present study, respondents were specifically from Generation Z., however, it would be interesting to conduct the same study with another generation for future research. As the aim of the study was to provide an in-depth representation of the subjective perspectives of guests related to a sustainable hotel, the number of participants was relatively low. Based on these results, in future research, a questionnaire survey on a larger sample would provide an opportunity to generalize the results. The research excluded tourists who stay in an unsustainable hotel, and the inclusion of these tourists in the future may also help to better understand the topic.

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## FINANCIAL PERFORMANCE OF TOURISM BUSINESSES UNDER THE INFLUENCE OF MEASURES RELATED TO COVID-19

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**Abstract:** We all know that the spread of the COVID-19 disease has brought significant restrictions for the whole world, which are also closely related to the business activities of companies. Due to the measures taken by the government of the Slovak Republic, some businesses were limited in the performance of their activities. In order to achieve the goal, in addition to general logical methods, we used hierarchical agglomerative cluster analysis. We chose the ward method as the clustering method. Ward's method of minimum variance is an agglomerative (merging) hierarchical method. Slovak businesses in the field of tourism, the most businesses contained cluster 3, which contained 16 businesses. This most numerous and dominant cluster has an average asset indicator value of 8546978 €. In Slovakia, as part of the aid to tourism enterprises at the government level, a call was launched within the framework of the scheme, during which it was possible to draw aid for the months of April to October 2020. This aid was supposed to cover the loss of 10% of their sales to entrepreneurs in the gastronomy and tourism industry.

**Key words:** tourism industry, gastronomy, financial performance, accommodation, COVID-19

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### INTRODUCTION

Financial performance measurement can be seen as a system that represents a set of indicators used to quantify the efficiency of the enterprise and the effectiveness of its activities. It can also be understood as a reporting process that gives feedback to employees based on the results of their activities. From a strategic point of view, we identify two different aspects of the business performance measurement system. On the one hand, it reflects the procedures used in selecting appropriate performance measures within the organization's strategy. On the other hand, this system provides the information necessary to question the meaning and validity of the strategy applied in the company (Pasek and Ratkowski, 2021; Herman et al., 2022). According to (Mihalčová et al., 2021) is the difference between modern and traditional approaches to business valuation. Traditional approaches to the evaluation of financial performance are focused on the past, at most on the present, while financial evaluation criteria are applied. An analytical approach (e.g. ratio indicators, parallel and pyramidal systems), assessment of development trends is promoted. On the contrary, modern approaches are focused on the past, present, but especially on the future. Complex approaches to evaluation, use of non-economic criteria are used. Modern approaches are used to determine the development potential of the company with greater emphasis on benchmarking in the evaluation. In the period of the spread of the disease COVID-19, several companies noticed a significant difference between the expected results in financial predictions. Several authors who analyze the impact of the restriction on the financial health of companies are devoted to this area. The impact of negative economic development on the banking sector is analyzed by several researchers. Of course, the result is the finding that the spread of the disease had a negative impact on their financial performance (Devi et al., 2020; Fakhri and Darmawan, 2021; Ichsan et al., 2021; Rulyanti et al., 2021; Boriščáková and Hamadej, 2022; Ambaw et al., 2022; Zachary et al., 2022; Balogová and Vranková, 2023).

The measures also had a significant impact on small and medium-sized enterprises across the entire spectrum of the economy. Engineering companies did not have enough material, which was caused by the absence of sick employees. Food businesses also had to follow strict measures. Some fabrics had to be quarantined for more than a month. It was these individual cases that led to a decrease in the financial stability of small and medium-sized enterprises (Cepel et al., 2020; Dewan et al., 2020; Kumar and Ayedee, 2021; Dejardin et al., 2022; Çınaj et al., 2022; Kurniawati et al., 2022).

It was in the tourism, accommodation and hotel industry that we could observe significant resistance to government regulations - as a result of which sales decreased. In a paper, Hailu (2021) examined the economic activities of the food

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industry during the pandemic of the coronavirus disease COVID-19 in Canada with a negative impact, but also sees some positives - disruptions in the food processing sector were not as severe as in non-essential sectors. In addition, a significant increase in the minimum wage above market expectations can be a threat to businesses. The findings offer evidence that the policy of minimum current financial performance; therefore, the implementation of a balanced minimum wage policy for the benefit of all stakeholders including business owners is essential for a win-win situation (Che Ahmat, 2021).

Research suggests that the impact of seasonality of tourism facilities in Norway on financial performance depends on market segments and varies within tourism destinations regardless of COVID-19. Moreover, seasonality has a greater impact on profit margin than on asset turnover, suggesting that marketing strategies and pricing and revenue management techniques can effectively mitigate the negative impact of seasonality (Zhang et al., 2021). Several authors found that Westlife Development, Lemon Tree Hotels, Indian Tourism Development Corporation, Royal Orchid and Country Club performed significantly worse than their competitors after the pandemic. On the contrary, EIH, Advani Hotels and Resorts and TGB Banquets achieved relatively better results. Travel agencies Easy Trip and International Travel House have fared particularly poorly as a result of the pandemic, but VMV Holidays has fared relatively better in the 2021 financial year (Ghosh and Bhattacharya, 2022). In the time resulting from the pandemic, there is an obvious need to review current hotel and restaurant business practices and quickly design new and innovative strategies that guarantee the health and safety of guests as well as employees and, consequently, restore consumer confidence - of course, this has an impact on financial performance, because increased costs and operation are necessary (Sharma et al., 2021). Results of (Qiu et al., 2021) also indicate that hospitality firms that pursue improved stock market performance during a pandemic can invest in Corporate social responsibility to protect communities, customers, and employees for attracting further stakeholder. It found that several travel agencies performed significantly worse after the pandemic than in the previous (pre-crisis) year, but fared relatively better in the 2021 fiscal year. However, the hospitality sector suffered the most adverse effects of COVID-19 due to restrictions and measures imposed by local governments. Hotels have thus significantly affected their financial performance and the efficiency of hotels around the world (Kozhamzharova, 2022). According to research, the Assessment of Changes in Revenues, Costs and Cost-to-Revenue Ratios shows the extent of the impact of the pandemic. The findings indicate that most hotels have suffered a significant loss of revenue and a significant increase in their cost-to-income ratio (Temelkov, 2022). In 2020, the author Damayanti (2023) used 27 financial statements of tourism companies in the countries of Turkey and Indonesia in his research. Based on the results, it was found that the profitability ratio has significant differences in both countries, such as ROA, ROE and net margin. In the next part of the post, we will analyze the state of financial health of selected companies operating in the tourism industry in Slovakia in 2022. The limitations that we can notice in this research consist in a different way of reporting (accounting). Not every country has the same definition of stocks, costs and activation in its accounting legislation, which can distort the results of our research. Another significant limitation is the way in which the data will be obtained - while the problem may arise with information obtained from non-official statistics (In SR conditions, it is the Ministry of Finance of the SR and the register of financial statements).

## MATERIALS AND METHODS

The goal of the contribution was to define selected indicators of the financial health of the company, which are significantly affected by the crisis caused by the spread of the disease COVID-19. We will also try to identify clusters for selected companies from the field of tourism with regard to selected indicators of the financial situation of companies, which reflect selected characteristics of profit, indebtedness and profitability.

For the sequence of steps, we first of all defined the companies that we will focus on in our research. We have chosen companies that excel in the tourism sector in Slovakia. Using the register of financial statements, we analyzed the financial statements. Subsequently, we calculated financial indicators that determine the state of the company's finances, their performance, and noted the deterioration/improvement of the financial situation of the selected companies.

In order to achieve the goal, in addition to general logical methods, we used hierarchical agglomerative cluster analysis. We chose the ward method as the clustering method. Ward's method of minimum variance is an agglomerative (merging) hierarchical method. In this method, the similarity of objects, or clusters, is measured as the sum of squares between objects from two clusters, added over all the attributes of the given objects. The uniqueness of the method lies in the minimization of the sum of variances across all newly created clusters. This means that in each generation we try to create clusters in such a way as to preserve as much cohesion as possible within individual clusters. To determine the optimal number of clusters, we used a heuristic approach supplemented with a graphical assessment using Screeplot. The data were obtained from the registeruz.sk database for the year 2021. For the analysis, we chose the TOP 27 companies from the field of travel and tourism according to the highest achieved sales in 2021. We can consider the absence of the most up-to-date data for 2022 as a significant limitation in our research, since under the terms of Slovak legislation, the deadline for submitting tax returns and financial statements is by the end of March 2023. Different groups of object similarity measures can measure similarity between country results. The choice of the degree of similarity also depends on the monitored characters whose values characterize the survey results for the given countries. The most well-known are distance measures, association coefficient, correlation coefficient and likelihood similarities. In our work, we will use the distance measure called the Euclidean distance. By using this distance, the author (Patel and Upadhyay, 2020) also deals with the research.

In the clustering method, we will use Ward's method, which is the most used in practice. This method does not calculate the distance between the clusters, but the clusters are formulated based on the maximization of inside aggregate sum of squares. The homogeneity measure represents the subsonic sum of squares of deviations from the aggregate diameter we call ESS - error sums of squares, and we use the following formula for its calculation (Behrens et al., 2019).

$$d_{ij} = \sqrt{\sum_{k=1}^n (X_{ik} - X_{jk})^2}$$

where:  $X_{ik}$  is the value of the k-th variable for the i-th country,  $X_{jk}$  is the value of the k-th variable for the jth country.

$$ESS = \sum_{i=1}^{n_h} \sum_{h=1}^q (X_{hi} - \bar{X}_{C_h})^2$$

where:  $n_h$  is the number of objects in the cluster,  $X_{hi}$  is the vector of the values of the character values in the cluster,  $\bar{X}_{C_h}$  is the value vector of the i-th object's character in the cluster.

## RESULTS AND DISCUSSION

The statistical analysis was performed using the programming language R, which is suitable for the creation of statistical models and data analysis and is suitable for graphing and graphic analysis of data. The data were obtained by calculating selected indicators from the area of indebtedness, profitability and basic indicators of the financial stability of enterprises. The selected data reflect the year 2021, which was significantly affected by the spread of the COVID-19 disease.

The using variables are shown in Table 1. Based on the performed analysis, we tested the basic characteristics of the research sample, while we can state that the selected variables come from a normal distribution based on the Shapiro-Wilk test. Table 2 presents descriptive statistics. A condition for the cluster analysis is to explore dependencies between variables. The starting point for us was a correlation matrix that contains Pearson correlation coefficients.

From the results of the correlation matrix, we can determine the dependence between individual variables. It is worth noting that this dependence is higher for some variables and lower for others. This means that there may be a problem with clustering in cluster analysis. Therefore, it is necessary to use principal component analysis. In doing so, we used a type of principal component analysis that works with standardized variables. For the purposes of identifying the number of significant components, we calculated the shares of the variability of the components on the total variability of the data from which we calculated the given components. Figure 1 and 2 shows given components.

Table 1. Using variables

| Company                              | Assets   | Equity   | Profit   | Sales    | ROE    | Profit margin | Total indebtedness | EBITDA   | Net debt | Net debt/EBITDA |
|--------------------------------------|----------|----------|----------|----------|--------|---------------|--------------------|----------|----------|-----------------|
| McDonald's Slovakia spol. s r.o.     | 60168417 | 52807663 | 8209299  | 50149643 | 15.54  | 16.36961      | 12.23              | 10128705 | -1.5E+07 | -1.49933        |
| Tatry mountain resorts, a.s.         | 4.99E+08 | 88735000 | -1.7E+07 | 48191000 | -19.05 | -35.0792      | 82.20              | -4429000 | 3.24E+08 | -73.0675        |
| SATUR TRAVEL a.s.                    | 11654808 | 669416   | -99593   | 31078203 | -14.87 | -0.32046      | 94.25              | 11406    | -4257385 | -373.258        |
| Compass Group Slovakia s. r. o.      | 11188380 | 4032562  | 241621   | 24161059 | 5.99   | 1.000043      | 63.95              | 928580   | -4232398 | -4.55793        |
| HYDROTOUR, cestovná kancelária, a.s. | 13241868 | -265840  | 94344    | 20219239 | -35.48 | 0.466605      | 102.00             | 229221   | 265558   | 1.158524        |
| Medusa Services s. r. o.             | 8821332  | 1164332  | 94519    | 16534579 | 8.11   | 0.571644      | 86.80              | 916668   | 3224172  | 3.517273        |
| ŠK Slovan Bratislava futbal a.s.     | 20960688 | 3203293  | -1271697 | 15174887 | -39.69 | -8.38027      | 84.71              | -1892204 | -1122046 | 0.592984        |
| RESTON s.r.o.                        | 4880496  | 933498   | 235974   | 14820293 | 25.27  | 1.592236      | 80.87              | 839987   | 1452308  | 1.728965        |
| Medusa Restaurants, s.r.o.           | 13268360 | 2170303  | 89362    | 11807958 | 4.11   | 0.756795      | 83.64              | 957617   | 6530539  | 6.819573        |
| TUCAN, s.r.o.                        | 1950878  | 1079005  | 222418   | 11219038 | 20.61  | 1.982505      | 44.69              | 372630   | -404178  | -1.08466        |
| X-BIONIC@ SPHERE a.s.                | 2.2E+08  | 49732583 | -1.2E+07 | 10750476 | -23.47 | -108.579      | 77.39              | 160289   | 1.38E+08 | 862.5345        |
| TAMAS, s.r.o.                        | 3250708  | 676010   | 78243    | 10045954 | 11.57  | 0.778851      | 79.20              | 471342   | 597253   | 1.267133        |
| Koala Tours, a.s.                    | 1739148  | 1507988  | 230359   | 9853955  | 15.27  | 2.337731      | 13.25              | 300062   | -437714  | -1.45875        |
| FIRSTIN, s.r.o.                      | 3865918  | 1214521  | 82431    | 9512853  | 6.78   | 0.866522      | 68.58              | 487515   | 846429   | 1.736211        |
| TIP travel a.s.                      | 2033504  | 1485371  | 575047   | 9467653  | 38.71  | 6.073807      | 26.95              | 901160   | -260498  | -0.28907        |
| DER Touristik SK a.s.                | 4342709  | 1016857  | 255150   | 8887004  | 25.09  | 2.871046      | 76.58              | 199112   | -995445  | -4.99942        |
| EUROCOM Investment, s.r.o.           | 41102770 | 23273985 | 193943   | 8682140  | 0.83   | 2.233816      | 43.37              | 1998369  | 9023421  | 4.515393        |
| TOP-RELAX s.r.o.                     | 2738152  | 354954   | 1139     | 7658609  | 0.320  | 0.014872      | 87.03              | 167411   | 768597   | 4.591078        |
| DORA Gastro Slovakia, a. s.          | 3461181  | 2272317  | 146191   | 6760353  | 6.43   | 2.162476      | 34.34              | 1394817  | -258771  | -0.18552        |
| MINISTRY rental service, s.r.o.      | 5020435  | 2392227  | 2310874  | 6615685  | 96.59  | 34.93023      | 52.35              | 3579638  | -1386050 | -0.3872         |
| BUBO travel agency, s.r.o.           | 12470268 | 893230   | -459897  | 6124663  | -51.48 | -7.50894      | 92.83              | -688281  | -1360281 | 1.976345        |
| 2beGROUP s.r.o.                      | 3233236  | 1577113  | 1482199  | 5874774  | 93.98  | 25.22989      | 51.22              | 2066593  | -2650418 | -1.28251        |
| BHP Tatry, s. r. o.                  | 24519199 | 2600214  | 161899   | 5848376  | 6.22   | 2.768273      | 89.39              | 849664   | 3002471  | 3.533716        |
| Grand hotel Permon, s.r.o.           | 3145521  | 925235   | 137974   | 5668629  | 14.91  | 2.433992      | 70.58              | 180391   | -699073  | -3.87532        |
| Ferozmat trade s.r.o.                | 3710783  | 33555    | 10735    | 5643028  | 31.99  | 0.190235      | 99.09              | 14700    | -1319658 | -89.7727        |
| APROXIMA, s.r.o.                     | 3789575  | 1831824  | -23691   | 5492615  | -1.29  | -0.43132      | 51.6.              | 135935   | 1180129  | 8.681568        |
| SOREA, spol. s r.o.                  | 2091269  | -763120  | -2292567 | 5315366  | -58    | -43.1309      | 136.9              | -2112240 | -1087688 | 0.514945        |

Table 2. Descriptive statistics

|                         | Assets   | Equity      | Profit    | Sales    | ROE     | Profit margin | Total indebtedness | EBITDA    | Net debt  | Net debt/EBITDA |
|-------------------------|----------|-------------|-----------|----------|---------|---------------|--------------------|-----------|-----------|-----------------|
| Valid                   | 27       | 27          | 27        | 27       | 27      | 27            | 27                 | 27        | 27        | 27              |
| P-value of Shapiro-Wilk | < .001   | < .001      | < .001    | < .001   | 0.026   | < .001        | 0.320              | < .001    | < .001    | < .001          |
| Minimum                 | 1.739e+6 | -763120.000 | -1.691e+7 | 5.315e+6 | -58.000 | -108.580      | 12.230             | -4.429e+6 | -1.519e+7 | -373.260        |
| Maximum                 | 4.986e+8 | 8.874e+7    | 8.209e+6  | 5.015e+7 | 96.600  | 34.930        | 136.490            | 1.013e+7  | 3.236e+8  | 862.530         |

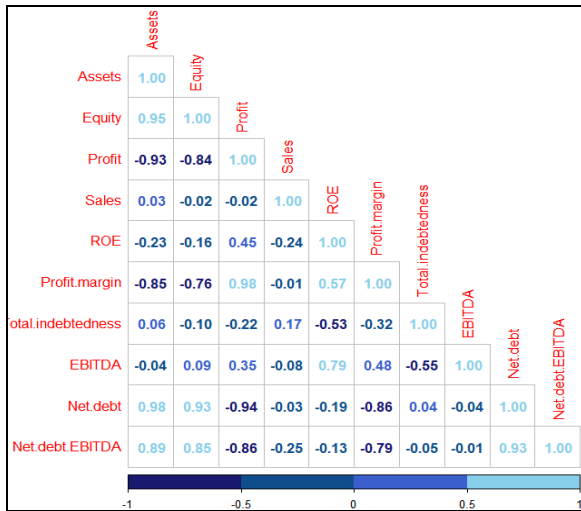


Figure 1. Reciprocal correlation of variables

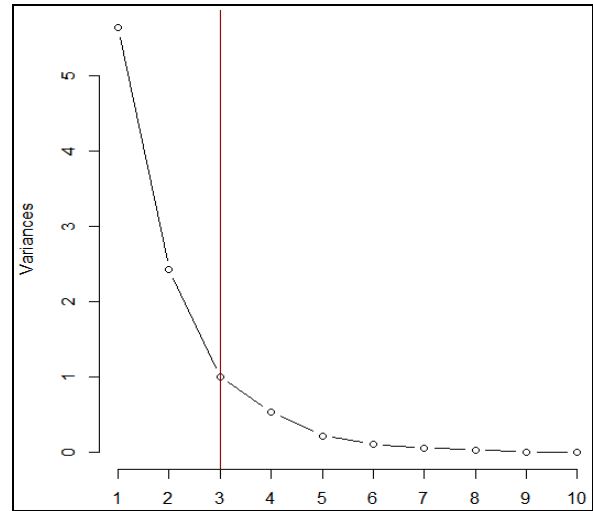


Figure 2. Screeplot of main components (PC)

Table 3. Selected statistics for variables

| Indicator                      | PC1             | PC2             | PC3             | PC4              | PC5              | ... | PC10       |
|--------------------------------|-----------------|-----------------|-----------------|------------------|------------------|-----|------------|
| Standard derivation            | 2.374972        | 1.557802        | 1.001927        | 0.7285654        | 0.4635434        | ... | 0.0375805  |
| The proportion of variance     | 0.564050        | 0.242670        | 0.100390        | 0.0530800        | 0.0214900        | ... | 0.00014000 |
| <b>Cummulative of variance</b> | <b>0.564050</b> | <b>0.806720</b> | <b>0.907110</b> | <b>0.9601900</b> | <b>0.9816800</b> | ... | <b>1</b>   |

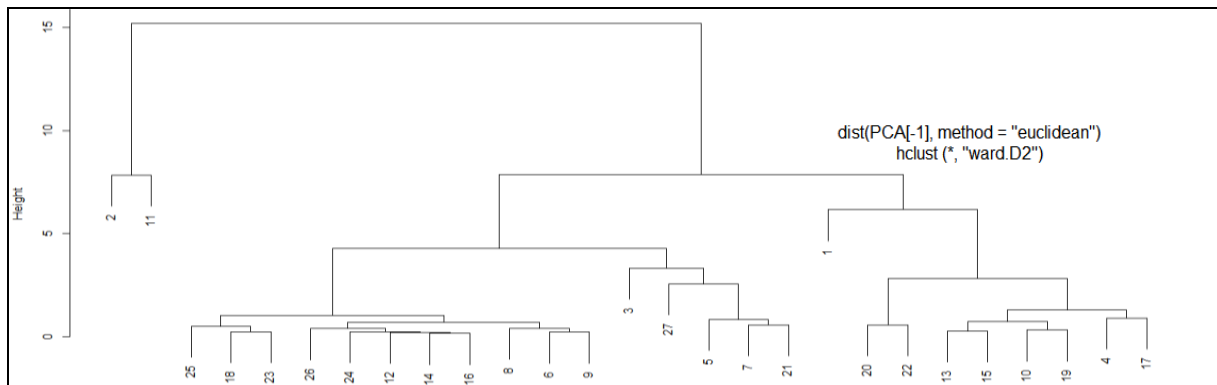


Figure 3. Dendrogram of selected enterprises

Table 3 shows that the first component explains the most and the last the least variability. 3 components were enough to explain 90.07% of the variability of the original set. We can conclude that we have met the rule that states that the number of principal components explains at least 70% of the total variance of the data (Said et al., 2020). Subsequently, we also displayed the explanation of the variability of the original set of components graphically using Screeplot, where the dispersion of the individual main components is explained and where we found a break in the graph. On this graph, we can observe the break at the second component, which explains 90.07% of the variability of the total variance of the data. Based on the 3 components we selected for use in cluster analysis, a hierarchical tree, also called a dendrogram, was developed. Figure 3 shows the Dendrogram of selected enterprises. The following table 4 shows the number of enterprises in individual clusters.

Table 4. Enterprises in individual clusters

| Cluster | Enterprises  |
|---------|--|
| 1       | McDonald's Slovakia spol. s r.o. MINISTRY rental service, s.r.o.; 2beGROUP s.r.o.; Cmpass Group Slovakia s. r. o.; TUCAN, s.r.o.; Koala Tours, a.s.; TIP travel a.s.; DER Touristik SK a.s.; DORA Gastro Slovakia, a. s.;  |
| 2       | Tatry mountain resorts, a.s.   |
| 3       | SATUR TRAVEL a.s.; HYDROTOUR, cestovná kancelária, a.s.; Medusa Services s. r. o.; ŠK Slovan Bratislava futbal a.s.; RESTON s.r.o.; Medusa Restaurants, s.r.o.; TAMÁS, s.r.o.; FIRSTIN, s.r.o.; DER Touristik SK a.s.; TOP-RELAX s.r.o.; BUBO travel agency, s.r.o.; BHP Tatry, s. r. o.; Grand hotel Permon, s.r.o.; Ferozmat trade s.r.o.; APROXIMA, s.r.o.; SOREA, spol. s r.o. |
| 4       | X-BIONIC@ SPHERE a.s.  |

The next procedure was to select the number of enterprises in our analysis. Based on a heuristic approach, we classified the set of enterprises into four clusters. However, we also used Screenplot, where the number of clusters is displayed on the x-axis and the sum of squares within the cluster on the y-axis. The decisive criterion is the minimization of the within-cluster sum of squares, which represents the optimal state. The line dividing the axis defining the 4 clusters represents the optimal state when the within-cluster sum of squares has an optimal value. Figure 4 shows screeplot of the number of clusters. If we had opted for more clusters, the within-cluster sum of squares would have made the number of countries in the cluster too small.



Conversely, a small number of clusters would cause the within-cluster sum of squares to show too high values. Subsequently, we also plotted the clusters in a hierarchical tree, where individual clusters are marked. Each business is marked with a name. Four clusters were created, which are heterogeneous from each other, but the companies within their cluster are homogeneous. It means that enterprises in one cluster have similar characteristics in the area of indicators of the financial situation of enterprises and at the same time have different characteristics of indicators with enterprises in other clusters. From this dendrogram shown in Figure 5, we can conclude that the set of our 26 enterprises was divided into four clusters by means of cluster analysis. The largest cluster is represented by 16 enterprises, the smallest by 1 enterprise.

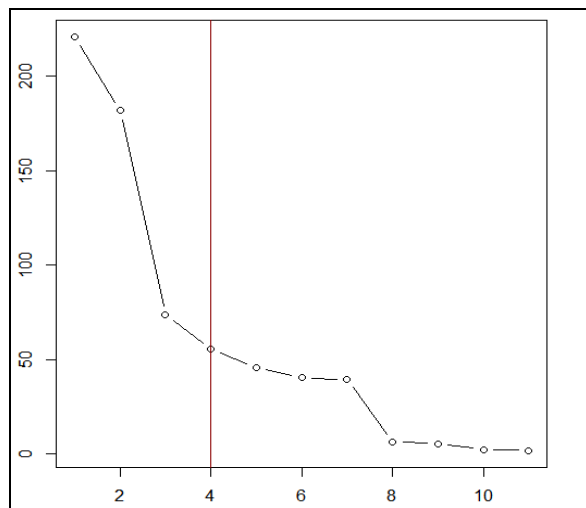


Figure 4. Screeplot of the number of clusters

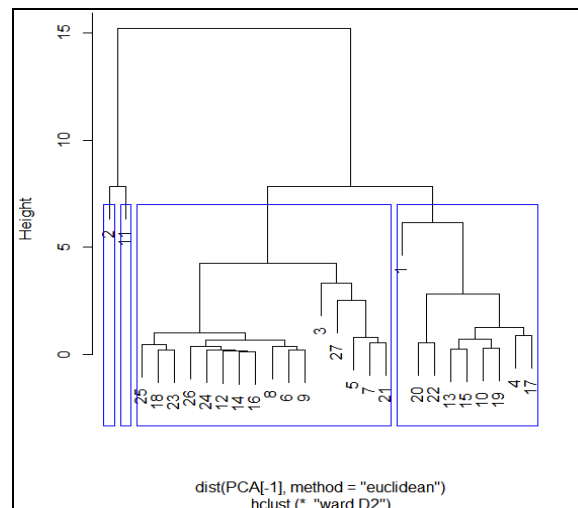


Figure 5. Dendrogram of selected enterprises in cluster

## CONCLUSION

On the basis of hierarchical agglomerative cluster analysis, identify clusters for selected companies with regard to selected financial indicators. In this analysis, we calculated 10 financial indicators for selected Slovak companies. We used the measure of distance using the Euclidean distance. We chose the ward method as the clustered method. Using the method of main components, we created clusters of enterprises, which are drawn in a dendrogram, which classified the enterprises for us based on selected financial indicators. Enterprises were thus organized into clusters that have similar characteristics and differ from the characteristics of enterprises in other clusters. Before moving on to clustering, we examined the relationships between individual variables. In our case, the characteristics of companies represent the characteristics of selected financial indicators. To determine the optimal number of clusters, we used a heuristic approach supplemented with a graphical assessment using Screeplot, where the numbers of clusters and intra-cluster sum of squares were shown. The result is the identification of 4 clusters. Based on the dendrogram, we found that during the COVID period, out of 27 Slovak businesses in the field of tourism, the most businesses contained cluster 3, which contained 16 businesses. This most numerous and dominant cluster has an average asset indicator value of €8546978. The average value of the achieved profit in this cluster is -181604.7 €, which are not favorable numbers for tourism businesses. The ROE indicator is more suboptimal with a value of -4.15%, which is caused by a drop in sales due to the restrictive measures imposed on this business sector. Another indicator is total indebtedness, where companies again reach high values at an average level of 86.48%, while it is necessary to point out that in the long term such a situation is intolerable. The development of financial indicators during the next period, when restrictive measures were again adopted, will be analyzed in the following posts.

In Slovakia, as part of the aid to tourism enterprises at the government level, a call was launched within the framework of the scheme, during which it was possible to draw aid for the months of April to October 2020. This aid was supposed to cover the loss of 10% of their sales to entrepreneurs in the gastronomy and tourism industry. In the coming months, the plan is to approve a large scheme that exceeds the threshold of 200 000 €. The characteristics of the new aid are as follows: the aid provided is for the months of November 2020 to March 2021, while the subsidy amounts to 10% of net turnover. Those entities that had no turnover in 2019 can also apply for help, and the limit per applicant is currently €200,000.

Not only restaurants, but also accommodation establishments, travel agencies, tour guides, organizations of congresses and corporate exhibitions, swimming pools, water parks, botanical and zoological gardens, cable car and lift operations, amusement parks and museums can apply for the subsidy. We firmly believe that the situation in the gastro sector, accommodation services and the entire travel industry will improve in the future and the spread of the disease will be eliminated. This is precisely the prerequisite for positive development and thus achieving financial results from the pre-crisis period. The selection of a indicators is considered to be the main limitation of the paper.

In general, mentioned financial indicators are the most listed in tourism sector. The future research direction will be focused on more indicators, especially non financial indicators in tourism sector. Exploring the financial and non-financial indicators can show us complete situation of tourism industry in hotels, accommodation and gastronomy.

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## SUSTAINABLE MANAGEMENT OF COASTAL RESOURCES IN MENTAWAI ISLANDS DISTRICT, WEST SUMATRA PROVINCE, INDONESIA

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**Abstract:** This study aims to analyze the level of sustainability of coastal resources in the Mentawai Islands District. As an area that has various potential resources. Many developments in coastal areas are essential means of regional economic growth. It turns out that development in coastal regions raises problems for their natural resources in the form of a decrease (degradation) of their natural resources in quality and quantity. The decline includes shrinking mangrove forests, decreasing fishers' catch, sedimentation, and coastal abrasion around coastal areas. The MDS (Multidimensional Scaling) analysis approach will be used to determine the status of coastal resources as a foundation for sustainable coastal resource management based on the carrying capacity of the resources. The investigation findings suggest that the Mentawai Islands District's coastline management situation is not promising. The index for the ecological dimension is 42.31. In the moderate category, the economic dimension of the sustainable development index has a value of 51.31. The sustainable development index has a social dimension of 50.01. This dimension's legal and institutional dimension index is 51.84. The Mentawai Islands district's coastal management has to improve, given the increasing pressure to develop coastal resources in the future.

**Key words:** Coastal Degradation, Management, Multidimensional Scaling, Sustainability

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### INTRODUCTION

Infrastructure development to support regional economic growth is critical to the Mentawai Islands District's success in the era of long-term development phase one. This situation is due to the Mentawai Islands District being a complete marine tourism area in western Indonesia (Figure 1). Geographically, the Mentawai Islands District has an area of the coast and oceans almost the same as the land area (Mentawai, 2021). The size of the coast holds various potentials, including marine fishery resources, marine tourism, aquaculture ponds, and mangrove forests (mangrove forests). The large and varied potential of coastal resources has generally been utilized for economic development. Using coastal resources for economic growth raises success and problems in coastal areas (Clark, 1996; Cicin-Sain and Knecht, 1998; Rizal et al., 2020b; Mentawai, 2022). The development problem in coastal areas of The Mentawai Islands District has not paid attention to the sustainability of its resources, namely not taking into account the biophysical carrying capacity of resources, economic carrying capacity, and social carrying capacity (Clarke and Warwick, 1997; Rizal et al., 2019; Rizal et al., 2020a). This causes a decrease in coastal resources, both in quality and quantity. The Regional Infrastructure Settlement Service of The Mentawai Islands District report

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(2022) revealed that there had been a reduction in mangrove forests throughout the Mentawai Islands District, including the coastal area, a decrease in the catch of fishers (CPUE), small fishers, and the amount of sedimentation and coastal abrasion in the coastal zone, all of which indicates that the management of the coastal regions is not yet sustainable.

Coastal and marine ecosystems are among the world's most biologically and economically productive ecosystems, and the Mentawai Islands District is no exception. These ecosystems provide a source of livelihood and a variety of ecological services that are critical for the day-to-day well-being of thousands of people, particularly in the district's coastal communities. Coastal and marine ecosystems in the Mentawai Islands are increasingly threatened, despite their enormous ecological and economic importance and a robust legislative and regulatory framework. Coastal and marine biodiversity are being harmed across the islands due to various direct and indirect stresses from economic development and associated activities. Habitat conversion to other land uses, overexploitation of species and associated destructive harvesting practices, the spread of invasive alien species, and the impacts of agricultural, domestic, and industrial sewage and waste are all major anthropogenic direct drivers of ecosystem degradation and destruction. Tsunamis, cyclones, hurricanes, and storms are all-natural meteorological events affecting coastal environments. Demographic, sociopolitical, cultural, economic, and technical variables are indirect drivers of

ecosystem change (Rizal et al., 2019; Khan et al., 2020; Rizal et al., 2020b). The coastal area is the meeting point between land and sea with various resources. The dynamics of coastal resources interact with each other and need each other between these resources. If one of these resources decreases or decreases in quality and quantity, it will disrupt other resources. To reduce the impact of coastal development on its resources, integrated management must be implemented to maintain the sustainability of sustainable coastal resources (Pitcher and Preikshot, 2001; Tesfamichael and Pitcher, 2006; Nielsen et al., 2015; Kumar et al., 2022). Integrated management is sustainable development, namely to meet the needs of today's life without destroying or reducing the ability of future generations to meet their daily needs. Meanwhile, Edwards (1987) states that sustainable development aims to balance economic, social, and environmental sustainability.

The concept of sustainability has been at the center of economic, social, and environmental debate for decades. Sustainable development, according to the Mentawai Islands District Department of Marine Affairs and Fisheries (2020), is "the management and conservation of the natural resource base, as well as the orientation of technological and institutional change in such a way as to ensure the continued satisfaction of human needs for present and future generations." Such sustainable development protects land, water, plants, and animal genetic resources while remaining environmentally friendly, technologically appropriate, economically viable, and socially acceptable" (Mentawai, 2020). The Brundtland Commission (1987) defined it more simply as "development that meets current needs without jeopardizing future generations' ability." The scientific community has derived related definitions of sustainable development. This study aims to analyze the sustainability of coastal resources in the Mentawai Islands District using the Multidimensional Scaling (MDS) model. The benefits obtained from this MDS analysis model can serve as the foundation for ecologically, economically, socio-culturally, and institutionally coastal resource management policies in optimizing coastal area development.

## LITERATURE REVIEW AND METHODS

### Literature Review

The conservation paradigm of sustainable fishing (Rizal et al., 2019; Khan et al., 2020; Rizal et al., 2020b), which focuses on protecting the ecological system without considering human and social goals, has been defined as sustainability in a fishery concerning catch levels that can be maintained (e.g., Maximum Sustainable Yield) (Edwards, 1987; Clarke and Warwick, 1997; Coppedge et al., 2008; Rostika et al., 2018). In contrast to the conservation paradigms, Charles (2002) said that the best means to achieve fishery sustainability is through a complex and systematic social-ecological analysis. This analysis focuses not only on the conservation of the fish and maximizing economic rent but also on the human dimensions of preserving the way of life of fishers and ensuring the principle of justice in fishing communities. Likewise, Norton (1992) defines sustainability as "a relationship between dynamic human economic systems and larger, dynamic, but normally slower changing the ecological system." In the economic dimension, the neoclassical approach to environmental economics aims to turn the environment into a commodity that can be analyzed just like other commodities. In line with this approach, neo-classical economists think that the climate is frequently undervalued because it can often be used free of charge; it tends to be overused and, therefore, degraded (Norton, 1992; Mostafa and Mahmood, 2018; Fuhendorf et al., 2012). Alternatively, ecological economists like Costanza and Daly (1992) argue that "a minimum necessary condition for sustainability is maintaining the total natural capital stock at or above the current level." So, sustainability occurs only when there is no decline in natural capital.

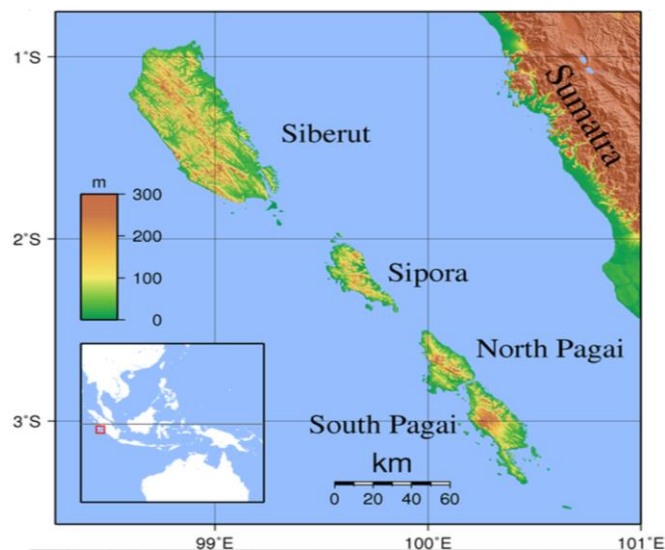


Figure 1. Map of Mentawai Island District, West Sumatra, Indonesia (Source: Regional Infrastructure Settlement Service of The Mentawai Islands District, 2022)

All researchers accept three dimensions of sustainability: social, economic, and ecological, but a deeper analysis requires consideration of ethics (Charles, 2002; Mustaina et al., 2015; Santiago et al., 2015). Justice relates to equity or the fair distribution of benefits and harm, classifying two broad types of justice: ecosystem and social justice. Fisheries that realize the two forms of justice will be prudent, viable, resilient, participatory, equitable, and sustainable (Norton, 1992; Costanza and Daly, 1992; Charles, 2002; Santiago et al., 2015; Nielsen et al., 2017). The sustainability of fisheries is dependent on reconciling fundamental human rights such as food and livelihood with the environmental impacts of fishing.

Sustainable development emphasizes four dimensions, namely the ecological dimension, the economic dimension, the socio-cultural dimension, the institutional dimension, and the utilization of coastal resources using environmentally friendly technology. Of the four dimensions, it must be integrated and synergized in achieving sustainable development goals. Besides sustainable development, resources must be effective, efficient, targeted, and orderly for population growth (Alder et al., 2001; Pitcher and Preikshot, 2001; Alder et al., 2002; Tesfamichael and Pitcher, 2006; Rizal et al., 2020a).

## Methods

The sustainability analysis method used is the Rapfish method. Rapfish (Rapid Appraisal for Fisheries) is a new technique developed by the University of British Columbia, Canada, which is an analysis to evaluate the sustainability of a multidisciplinary fishery. The principles of Rapfish are (1) will be used to quickly assess the status of sustainability by referring to several attributes; (2) the attributes used will be redefined or replaced according to the current information; (3) is a decision-making method referring to multi-criteria with a multidimensional scale; and (4) use the ordinance technique to determine the sustainability status. The Rapfish Flowchart and overall assessment of Rapfish sustainability using the MDS method approach (Fig 2). This method can cover a wide range of dimensions related to the existence of coastal resources (by determining two points as the basis of reference, namely "good" (good) and "not good" (bad) (Tefamichael, and Pitcher, 2006; Rizal et al., 2020a). MDS can thoroughly analyze the description of the state of coastal and marine resources. This multivariate method can handle non-metric data and is also known as ordination in reduced space. The ordination itself is a process in the form of "plotting" object points (positions) along the axes arranged according to a particular relationship (ordered relationship) or in a visual system consisting of two or more (Alder et al., 2001; Pitcher and Preikshot, 2001; Alder et al., 2002; Tesfamichael and Pitcher, 2006; Rizal et al., 2020a). Another advantage of this method is that it can summarize the multidisciplinary data obtained in the field to produce a lot of quantitative and projected information. This method has been developed to analyze the environment (Bustosa et al., 2022).

Each attribute is scored using Multidimensional Scaling (MDS) to analyze coastal resources. The attributes relating to the aspects of coastal resources, ecological, economic, socio-cultural, institutional, and legal, are assessed as "good" and "bad." The number of ratings differs between the two ratings depending on the theoretical basis for the number of ratings. For example, determining the level of coastal land use consists of three (3) ranks: small, medium, and large. If the ranking is not clear in assessing an attribute, it is determined by "scientific judgment." Other assessments related to fishery resources refer to the standard provisions of Rapfish and the conditions of FAO (Alder et al., 2001; Pitcher and Preikshot, 2001; Alder et al., 2002; Tesfamichael and Pitcher, 2006; Rizal et al., 2020a). The application of the MDS method model for coastal resource assessment is a development in SPSS software that combines the rotation process, reversal position (flipping), and sensitivity analysis into a Kavanagh (2001) software package. The analysis using MDS is as follows (Alder et al., 2001; Pitcher and Preikshot, 2001; Kavanagh, 2001; Alder et al., 2002; Tesfamichael and Pitcher, 2006; Rizal et al., 2020a):

- 1) The results of field data (primary and secondary) for coastal areas from all dimensions are scored.
- 2) Determined the primary reference of good and bad by scoring good and bad on all attributes
- 3) Make two other main points, namely the "middle point," which is a bad and good point. These two additional main points of reference become the reference for the vertical direction ("up" or "up" and "down" or "down").
- 4) Create additional reference points known as anchors that can be used to assist with the ordinance results. These points act as stabilizers that form a kind of envelope. The research locations in the Mentawai Islands District and Mentawai Islands District are not outside the envelope. These points are also valuable for performing regression analysis to calculate the "stress" that is part of the MDS

- 5) Standardize the score for each attribute with the method (Pitcher and Preikshot, 2001; Tesfamichael and Pitcher, 2006):

$X_{iksd} = (X_{ik} - X_k) / S_k$  where:  $X_{iksd}$  = the standard score of the research location (including the reference points) to  $i = 1, 2, \dots, n$ , on each attribute to  $k = 1, 2, \dots, p$ ;  $X_{ik}$  = the initial score of the research location (including the reference point) to  $i = 1, 2, \dots, n$  on each attribute to  $k = 1, 2, \dots, p$ ;  $X_k$  = the mean score on each attribute to  $k = 1, 2, \dots, p$ ;

$S_k$  = standard deviation of scores on each attribute to  $k = 1, \dots, 2, \dots, p$ . Calculating the distance between coastal area resource locations using the n-dimensional Euclidean distance method is written.

$$D^2(ij) = \sum (X_{ik} - X_{jk})^2 \quad (\text{Pitcher, and Preikshot, 2001; Tesfamichael, and Pitcher, 2006})$$

Create ordinances for all attributes for each dimension based on aspects of the multidimensional scaling analysis algorithm. In the MDS analysis, the initially many attribute dimensions become only two dimensions remaining which will become the -X and -Y axes. The result of the ordination is a matrix V ( $n \times 2$ ), where n is the number of locations studied.

The distance between objects is calculated by regressing the Euclidean distance ( $d_{ij}$ ) with the origin ( $D_{ij}$ ); the equation can be written, namely:  $d_{ij} = \alpha + \beta D_{ij} + \epsilon$  (Pitcher, and Preikshot, 2001; Tesfamichael and Pitcher, 2006)

Regression analysis in MDS includes stress assessment by doing Goodness of fit in MDS is very important because Goodness of fit reflects an indicator of the magnitude of the S value (stress) when referring to the RAPFISH level of S value (stress > 0.25). For making a sustainability scale from "Bad" to "Good" (0 to 100) on the x-axis, the top point is +50 on the -y-axis scale, and the bottom point is -50 on the -y-axis scale, which refers to: For  $i = 1, 2, \dots, n$ ;



$$f(i,1) = 100 [(V_{(i,1)} - V_{(I_{bad,1})}) / (V_{(I_{up,2})} - V_{(I_{down,2})})] \text{ (Pitcher and Preikshot, 2001)}$$

$$Vf(i,2) = 100 [(V_{(i,2)} - V_{(I_{down,2})}) / (V_{(I_{up,2})} - V_{(I_{down,2})})] - 50 \text{ (Pitcher and Preikshot, 2001)}$$

Then obtained :  $Vf(i,2) = Vf(i,2) - Vf(I_{good}, 2)$  (Pitcher and Preikshot, 2001).

Index values for the dimensions of coastal resources in the Mentawai Islands District. The index value is sustainable if > 50 and the index value < 50 is not sustainable (not sustainable). For this study, four (4) categories of sustainability index were made; the complete details are presented in Table 1 below.

**Sensitivity Analysis**

This sensitivity analysis uses "attribute leveraging" to see changes in the results of the MDS analysis. The effect of each attribute is seen in the form of changes in the root mean square (RMS), especially on the x-axis, especially on the scale of resource sustainability, and changes in the y-axis are not taken into account. This thing is because only to see the changes in the RMS. The RMS formula is:

$$RMS = \sqrt{(\sum_{i=1..n} \{Vf_{(i,1)} - Vf_{(...,1)}\}^2) / n} \text{ (Pitcher and Preikshot, 2001)}$$

Where: Vf(i1) = MDS result value (after rotation and flipping)

Vf(...,1) = The mean value of MDS results in Column 1

**Monte Carlo Analysis**

Monte Carlo analysis helps evaluate the effect of errors (errors) on the results of the MDS analysis. The objectives of the Monte Carlo analysis are (Alder et al., 2000; Pitcher and Preikshot, 2001; Muth'en and Muth'en, 2002; Tesfamichael and Pitcher, 2006):

- 1) Effect of errors in attribute scores caused by understanding resource conditions;
- 2) The effect of variations in scoring due to differences in opinions or judgments by different studies;
- 3) The stability of the repeated MDS analysis process (iterations) looks at the quality of the stability of the reference points. The method used (RapCoastal);
- 4) Error entering data or missing data;
- 5) The high value of stress analysis results. For clarity, the process of MDS analysis, Leverage analysis, and Monte Carlo analysis is schematically described below.

**RESULTS DISCUSSIONS**

**Sustainable Management of Coastal Resources in Mentawai Island District**

The coastal of the Mentawai Islands are residential areas, fish industries, and ports that can directly or indirectly affect the quality of this coastal area. Changes in the quality of the Mentawai Islands' coastal environment can be caused by human activities originating from land and sea waters. The Regional Infrastructure Settlement Service of The Mentawai Islands District report (2022) revealed that The entry of organic and inorganic materials in the form of waste into the coastal waters will affect the biological properties of these coastal waters. The high organic matter in the coastal waters will have an extreme effect on the availability of dissolved oxygen. If this situation lasts a long time, it will cause the seas to become anaerobic, so aerobic organisms will die. The increase in human activities, especially the activities of the sago mill in the Mentawai Islands, is the leading cause of pollution in the waters that causes ecosystem disturbances. In addition, around of coastal of the Mentawai Islands, many residential areas and fish industry activities have the potential to provide input of organic and inorganic materials in these waters. The organic matter at certain levels is a pollutant that pollutes the waters. The input of organic matter starts from the upstream of the river, which has densely populated residential activities, and urban and industrial activities are dumped into the river and carried by the current to the estuary. Some organic matter will experience deposition and form sedimentation, which causes siltation in the waters. Some of the organic material that does not share deposits will be carried away by currents, which causes the waters to have a high organic matter content and potentially disrupt aquatic ecosystems (Regional Infrastructure Settlement Service, 2022).

To determine the condition and status of coastal resources in the Mentawai Islands District, an analysis of the four dimensions (ecological, economic, social, institutional, and legal) was analyzed by analyzing all these dimensions to obtain an index of coastal area resources sustainability. The five dimensions have 56 attributes.

**Condition and Status of Coastal Resources in Mentawai Islands District**

The assessment results of coastal and marine resources in the Mentawai Islands District consisting of ecological,

Table 1. Coastal Area Resource Sustainability Index of Mentawai Islands District (Source: adaptation from Alder et al. (2001) and Pitcher and Preikshot, 2001)

| Index Value | Category   |
|-------------|------------|
| 0 – 25      | Bad        |
| 26 – 50     | inadequate |
| 51 – 75     | moderate   |
| 76 – 100    | Good       |

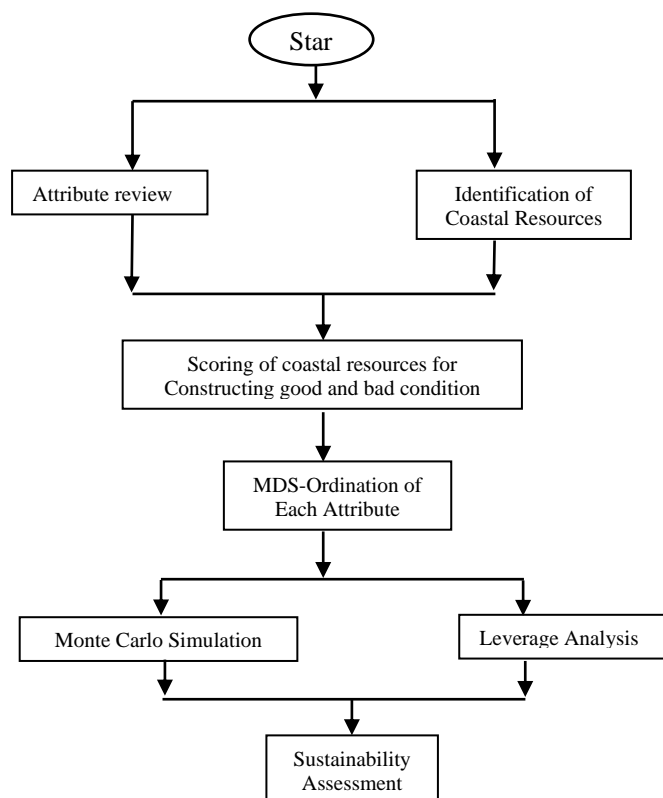


Figure 2. MDS Analysis Flowchart (adopted from Alder et al., 2001)

economic, social, legal, and institutional dimensions are presented in the following figure. The index value in Figure 3 shows that the ecological index is in the interval 26 - 50. In the status of sustainable development, the ecological index in the Mentawai Islands is in the inadequate category. This condition explains that based on the assessment of conditions and the index value in Figure 3, the economic index is 51 - 75. This condition explains that based on the assessment of sustainable conditions and status, the economic index in the Mentawai Islands is in the moderate category.

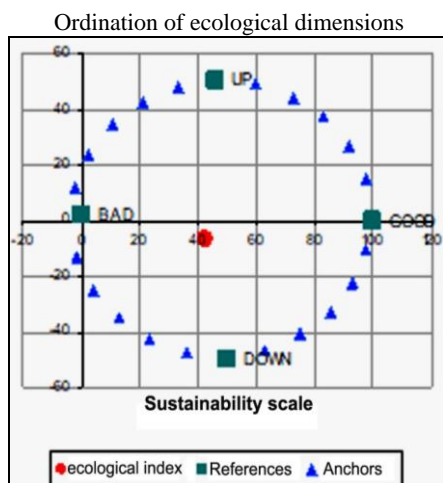


Figure 3. Sustainability index ecological dimension

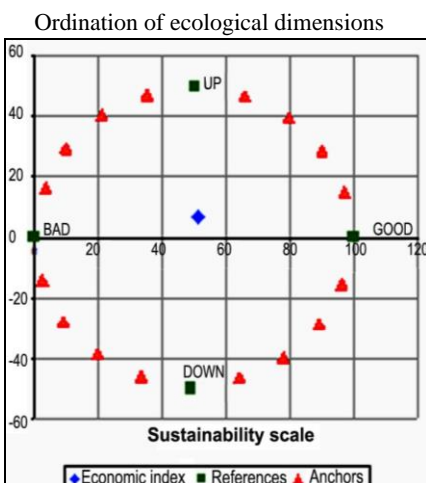


Figure 4. Sustainability index economic dimension

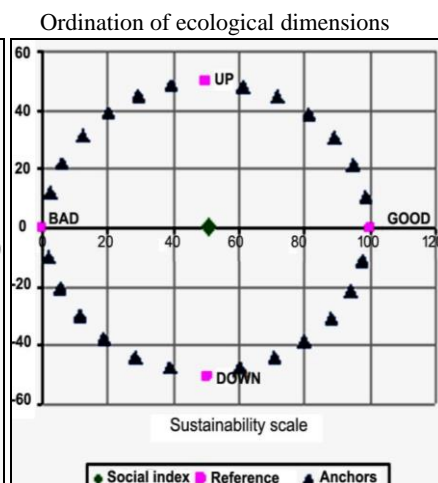


Figure 5. Sustainability index social dimension

The index value in Figure 5 shows that the social index is in the interval 26 - 50. This condition explains that the social index in the Mentawai Islands is in the inadequate category based on sustainable conditions and status. The index value in Figure 4 shows that the institutional index is in the interval 51 - 75. This condition explains that the institutional index in the Mentawai Islands is in a good category based on the assessment of sustainable conditions and status. The analysis of the four dimensions describes the condition and status of coastal and marine resources. The results of consecutive assessments are; the index value of the ecological dimension is 42.32, economic is 51.31, social is 50.01, and legal / institutional is 51.84. Of the four dimensions, the index of the ecological dimension is in the inadequate category, that the utilization of coastal resources in the Mentawai Islands District has not paid attention to the sustainability of the coastal resource ecosystem. The low social dimension index shows that the welfare of coastal communities is not evenly distributed, especially in the level of community income and unemployment. The institutional dimension of the index in the category of being at a sufficient level indicates that this dimension is quite good in the application, especially in monitoring and supervision. Still, evaluating the institutionalization of coastal resources in the Mentawai Islands District is necessary. The total index value is presented in the following table. Table 1 shows that the statistical value of the four dimensions has a value (stress) that follows the Rappfish procedure, which is less than 25%. At the same time, the R<sup>2</sup> level is very significant, namely 0.95 on average with a 5% confidence interval. Thus, all the variation attributes can explain the condition and status of the studied coastal area resources in the Mentawai Islands District.

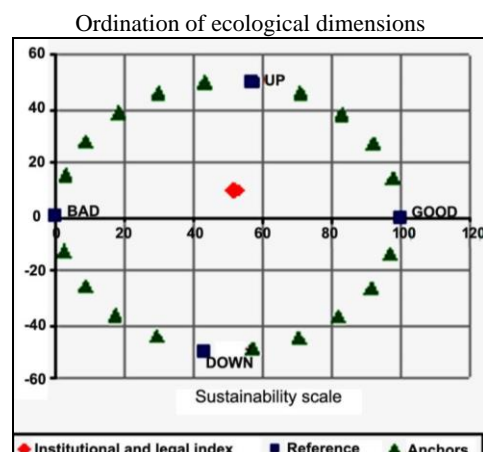


Figure 6. Sustainability index institutional and legal dimension

Table 1. Results of the assessment of index values and statistical values of the four dimensions of the condition and status of the sustainability of coastal resources of the Mentawai Islands District

| Index Values and Statistics | Dimensions and Index Value |           |             |                         |
|-----------------------------|----------------------------|-----------|-------------|-------------------------|
|                             | Ecological                 | Economic  | Social      | Institutional and legal |
| Index                       | 42.32                      | 51.31     | 50.60       | 51.91                   |
| Stress                      | 0.1379575                  | 0.1343904 | 0.130546376 | 0.1565892               |
| R <sup>2</sup>              | 0.9529636                  | 0.9517044 | 0.953791916 | 0.9443238               |
| Number of iterations        | 2                          | 2         | 2           | 2                       |
| Rotation Angle (°)          | 262.87762                  | 196.30698 | -80.2814865 | -6.33529                |

**Leverage Analysis**

Leverage analysis is used to analyze the attributes that play a sensitive role in the index value of the condition and status of coastal and marine resources. The calculation of leverage is based on the difference in standard error between scores and attributes; the results of the total leverage analysis are presented in Figure 6. Ecological dimensions, seven attributes are sensitive to sustainable development (Figure 3) that affect the condition and status of coastal and marine

resources in the Mentawai Islands District. These attributes are coastal abrasion, sedimentation, changes in the size of fish caught and overfished, mangrove rehabilitation, water pollution, and waste disposal in the waters.

The seven attributes that need serious attention, especially sedimentation that is quite disturbing, such as shallow harbor lanes and coastal abrasion, the local government must overcome these problems so that they do not impact coastal land—disposal of waste, especially household waste, in the Mentawai Islands District. To overcome the above, it is necessary to conduct outreach to the community. Furthermore, stricter supervision must reduce the pressure on coastal land, primarily residential land clearing. Economic dimension: There are five attributes (Figure 4) sensitive to the condition and status of coastal and marine resources. The five attributes are Regional Original Income (ROI), economic institutions and contributions to GRDP, the number of economic suggestions, and the total relative income of the regional minimum wage. The five attributes that have a prominent influence on the sensitivity of the economic index are economic institutions, changes in the number of economic facilities, and Regional Original Income. The small regional original income (ROI) of marine fisheries resources on the finances of the Mentawai Islands District Government and the contribution of marine fisheries resources shows the role of coastal area resources, especially marine fisheries resources, has not become a mainstay sector for the Mentawai Islands District Government.

The role of institutions in coastal areas gives a function to agencies that directly foster the fishery sector, in this case, the Department of Marine Affairs and Fisheries. To increase productivity and sustainability of coastal area resources, not only the Marine and Fisheries Service, it is necessary to have an integrated planner that includes the participation of all relevant agencies in the area. Policies that need to be carried out by encouraging the strengthening of economic institutions, especially the banking sector, and fostering carried out by making coordination between related agencies more effective (Baeta et al., 2005; Nielsen et al., 2017; Khan et al., 2020; Rizal et al., 2020a).

For the sustainability of coastal resources management, the operationalization of sustainable development in the management of renewable coastal resources must incorporate environmental aspects in the development planning process from the beginning, utilizing the approach and environmental considerations in the process of resource management of coastal at every stage of Mentawai District development and apply the principles of efficiency and conservation in each step and activity. Therefore, the sustainable management of coastal resources in the management of renewable coastal resources uses an ecological approach in order to generate economic and social benefits of renewable coastal resources, preserve the environment while enhancing the skills, and improve the quality of individuals and communities involved in the management of renewable coastal resources (Butler et al., 2012; Suresha et al., 2015; Rizal et al., 2020b). Sustainable development must be done not only to reduce the impacts of resource conflicts that have occurred but also to prevent the conflicts that may arise. Therefore, to prevent conflicts or violence mostly caused by the scarcity of coastal resources, the environmental aspects should be considered (Rizal et al., 2020a). In the sustainable natural resource management, the main finding of political ecology theory argues that patterns of resource development arise from interactions between natural systems (e.g., quality, quantity, and location of water) and social systems (e.g., the spread of economic power, social, and political in society).

In the context of coastal resource management on forests as the place of biodiversity, it can be a description to show us that we can use the ecological mechanism of political progress, especially for the owner of coastal resources and the authority (Butler et al., 2012; Suresha et al., 2015; Bustosa et al., 2022).

The social dimension that is sensitive to the index value of the condition and status of coastal and marine resources in the Mentawai Islands District; there are six social attributes (Figure 4) that are sensitive to the index of the condition and status of coastal resources, namely fishery business income to total income, the number of households working to utilize the resource. Coastal areas, conflict frequency, family participation in the use of coastal resources. Attributes that should be observed are income because the sensitivity is relatively high. Such conditions indicate that the dependence of coastal communities on coastal and marine resources is enormous. Efforts that need to be made are improving the skills of coastal communities through counseling so that coastal communities are responsible for the sustainability of resources for their

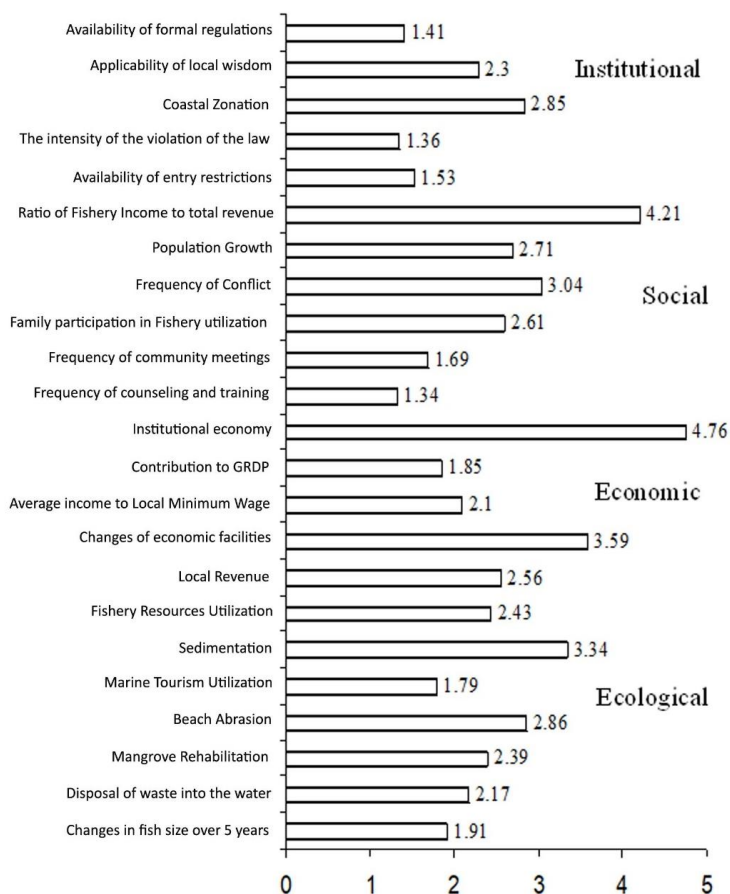


Figure 7. Analysis of leverage attributes of Mentawai Islands District

interests and resource sustainability. Meanwhile, the value of the conflict frequency attribute indicates the level of conflict that occurs between stakeholders is relatively high. The problem is the significant income disparity between small and large businesses in using coastal resources, mainly marine fisheries. Actions that need to be taken by local governments are to manage conflicts by minimizing their disputes (Baeta et al., 2005; Nielsen et al., 2015; Santiago et al., 2015; Viðarsson et al., 2018). Institutional dimensions attribute is sensitive to coastal and marine resources' condition index and status (Figure 6). The most sensitive attribute to the index value of the condition and level of coastal and marine resources in the Mentawai Islands District is the zoning of the coastal area of local archives and the availability of formal regulations.

These three attributes need serious attention. The zoning of the coastal area in the Mentawai Islands District has not run as it should, especially the conservation zoning as an area located in the coastal zone. The determination of conservation zoning is essential. The results of field observations of land use conditions still overlap (change of mangrove land into settlements). The attribute of the availability of regulations (local wisdom) needs to be encouraged to be developed simultaneously that it provides a role of a character. The feature of the availability of formal rules shows that the laws and regulations in coastal areas have not yet been implemented, and conflicts often occur.

### Monte Carlo Analysis

The Monte Carlo analysis test results show that the error rate in the MDS analysis has a high level of confidence in determining the level of sustainability of the coastal resource status of the Mentawai Islands District. The details are presented in Table 2 below. The table above shows that the index value of the condition and status of coastal and marine resources in the Mentawai Islands District at a 95% confidence interval indicates that the index value has not changed too much from the original value. The relatively small change from the Monte Carlo analysis further strengthens the study results of the sustainability level of the coastal area resource status of the Mentawai Islands District at a high and significant level of confidence.

Table 2. Results of Monte Carlo Analysis of the Resource Status Index for the Coastal District of the Mentawai Islands District with a 95% confidence interval

| Status Index            | Rapfish Results | Monte Carlo Results | result distinct |
|-------------------------|-----------------|---------------------|-----------------|
| Ecological              | 42.32           | 42.56               | 0.24            |
| Economic                | 51.31           | 51.48               | 0.17            |
| Social                  | 50.60           | 50.24               | 0.36            |
| Institutional and legal | 51.84           | 51.91               | 0.7             |

### CONCLUSION

The survey results show that the coastal management situation in the Mentawai Islands area is not promising. From the analysis of the sustainability of the coastal resources in the Mentawai Islands area, it can be explained using four dimensions that the state of the coastal resources in the Mentawai Islands area is unsustainable. The analysis results show that the sustainable state of the ecological dimension index is 42.31. Based on this value, it is classified as bad. Therefore, the above situation needs to be resolved as soon as possible. Possible solutions include (i) strong local government and other equipment in implementing regulations and laws, (ii) coordination between authorities on coastal development, and (iii) Zoning policy to overcome the pressure on coastal areas. The moderate category's economic dimension of the sustainable development index has a value of 51.31. However, the economic process does not coincide with long-term economic rents for coastal resources (fishery and mangrove forests). And the economic approach prioritizes production results over other factors such as the socioeconomic status of coastal communities.

The index of sustainable development has a social dimension of 50.01. Coastal stakeholders continue to share a sense of responsibility for the long-term viability of coastal resources. Furthermore, socialization on the sustainability of coastal resources remains insufficient, and community leaders in coastal areas have not been involved. The Mentawai Islands District has a sustainable development index of 51.84 in the legal and institutional dimensions. Understanding the development of coastal resources in the two areas needs improvement, particularly for policymakers, notably the Mentawai Islands District Legislative Institution, to make regional regulations on zoning the Mentawai Islands District's coastal areas.

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## STUDY OF THE PROBLEMS AND PROSPECTS OF SMALL TOURISM BUSINESS DEVELOPMENT IN THE CITY OF ALMATY

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**Abstract:** This study is based on an understanding of the state of development of small tourism businesses in Almaty, one of the oldest settlements located along the Great Silk Road. The aim of the study was to obtain accurate data on the current state of development of small tourism businesses in Almaty and to identify problems and prospects. In the course of the research, 655 questionnaire responses from business owners and managers meeting the selection criteria were selected and rigorously monitored over a period of 3 months. As a result of the study, the most important problems of small tourism businesses in Almaty were identified, which include: 75.7% of respondents lacked knowledge about tourism activities; 53.6% of entrepreneurs do not conclude contracts with employees; 82% of business representatives do not have marketing plans; and, as a consequence, inability to obtain loans from banks; and the consequences of the war in Ukraine. However, we also saw some positive trends in the survey: the willingness of respondents to overcome the consequences and the crisis of the covid pandemic-19; motivation to develop their own business; 28.7% of young entrepreneurs; 74.7% of individual entrepreneurs invest in small tourism businesses. Thus, this study is an auxiliary tool for solving the problem of sustainable development of tourism infrastructure of Almaty, service activities, problems arising in small tourism business.

**Key words:** Small tourism businesses, problems and prospects, Almaty City, Kazakhstan

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### INTRODUCTION

In today's global economic environment, tourism is becoming one of the leading and dynamic industries. After all, tourism contributes to the development of key sectors of the economy by increasing tax revenues to the budget, the inflow of foreign currency, the number of jobs (Haque and Islam, 2018; Mirsayakova, 2016). Tourism can also represent socio-economic and cultural heritage, create jobs, increase investment and products, and provide technological development (Aktymbayeva et al., 2020; Tlesova et al., 2020). Tourism business as an academic field with interdisciplinary linkages focuses on the personal qualities of entrepreneurs, the entrepreneurial process, especially the venture creation process, and the entrepreneurial environment, relationships and interactions (Kirzner, 2009; Abouelhassan et al., 2021).

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Entrepreneurship plays an important role in the formation and development of tourism business destinations (Russell and Faulkner, 1999, 2004; Li, 2008; Shaw and Williams, 2004). A small tourism business is a tourism business with less than 50 employees (Tomassini et al., 2021), so many scholars consider any business offering travel-related services to be a small tourism business, including travel agencies, hotels, eateries, gift shops and more (Thomas and Thomas, 2005).

Small tourism businesses are of great importance within the national economy as they create conditions for job creation, increase total production and relative investment and production (Ateljevic, 2007). In addition, it helps to balance disparities in development between regions ready to adhere to technological development and increase competition. It enables adaptation to innovation in a changing economy. Small tourism enterprises play a key role in local tourism development (Orlovskaya and Bogdanov, 2022). In comparison, in terms of technology and capital, it allows people to start a business, meet the employment needs of the business owner, and gain direct employment for family and other locals (Getz and Petersen, 2005; Bhagat et al., 2022). However, the lack of theoretical and empirical evidence in the study of small tourism businesses is one of the problems of current research. Given the scale of tourism business in many countries, sample surveys or regional studies are usually the only available basis for many academic studies (Ateljevic and Doorne, 2004; Ateljevic, 2022). Kazakhstan is located not only in a favourable geopolitical environment, but also possesses natural (mountains, rivers, lakes, reservoirs), and recreational resources and world historical and cultural heritage sites. Kazakhstan has all the prerequisites to become a major player in the tourism business in Central Asia (Dávid, 2004; Duda-Gromada, et al. 2010; Tóth, et al, 2010; Baiburiev et al., 2018).

However, at present, the pace of tourism business development is declining, and the socio-economic effect on the scale of the country is insignificant. The reason is that the quality of services is low and the price is high (Tursynova et al., 2019). Therefore, it is very important to increase the capacity of the industry by reducing barriers and strategic planning in order to increase the tourist flow across the country (Dávid et al., 2007; Allayarov et al., 2018). In this regard, domestic scholar Yerdauletov et al. (2013) point out that the driver of the tourism industry in the Republic of Kazakhstan is the city of Almaty. Indeed, in the economy of Almaty, the tourism business is in second place after light industry (Kozbagarova et al., 2022).

Thus, the city of Almaty, playing an important role in the development of Kazakhstan's economy, leads in the formation of the tourist market, development of competition, satisfaction of demand for goods and services, introduction of new technologies. However, for the city of Almaty there is no sufficiently accurate data regarding domestic or international travel, tourism revenues, employment in the tourism sector and small tourism businesses. There is no information other than that provided by the Statistics Agency of the Republic of Kazakhstan. Therefore, the purpose of this study was to understand the current state of small tourism businesses in Almaty (assessing their contribution to the development of the tourism industry), to obtain accurate data and to identify problems and prospects for small tourism businesses based on tourism planning in the region. This study helps to understand barriers to increasing efficiency of small tourism business in Almaty, marketing aspects, human resource management structure, the level of development of small tourism business industry, strengths and weaknesses, opportunities and risks of tourism enterprises, major problems and prospects of small tourism business.

## LITERATURE REVIEW

### 1. The concept of entrepreneurship in the tourism business

Entrepreneurship in tourism business covers the fields of behaviour and activities of entrepreneurs, individuals in small business, entrepreneurship education and training, new business and corporate entrepreneurship (Page et al., 1999; Aitzhanova, 2019). Entrepreneurship, as an academic field with interdisciplinary overlap, aims to better understand the social phenomenon of new venture creation. However, as most research is based on individual entrepreneurs and small businesses, research into the venture creation process is limited (Kazmagambet, 2018). Therefore, the decisions made by entrepreneurs directly determine the direction in which the business will evolve. The study of tourism entrepreneurship focuses on the personal qualities of entrepreneurs, the entrepreneurial process, especially the process of setting up an enterprise, and the entrepreneurial environment and the relationships between them. Indeed, the physical and social environment of a region has a significant impact on entrepreneurship. For example, Davidsson and Henrekson (2002) noted the importance of values, beliefs, culture, networks and other regional factors. This is because a free and competitive market, profit generation, introduction of incentive programmes, compliance with business legislation and limited taxation are all conducive to small business development. It also offers significant opportunities for entrepreneurs operating in a rapidly changing environment (Mallinguh et al., 2022). The European Union has defined a small tourism business as a tourism business with less than 50 employees. Thus, there are different types of small tourism businesses.

Many scholars believe that the category of small tourism business includes any enterprise providing travel-related services (Thomas et al., 2011), which includes accommodation, catering, souvenir shops and more. Compared to large and medium-sized tourism enterprises, small tourism enterprises are characterised by low investment, lower margins and flexibility of operations (Sakhidauletulu, 2019). The goal of most small tourism business owners in the UK is to create family needs, income and a better lifestyle (Shaw, 2011). Relatively speaking, life-oriented entrepreneurs get better market opportunities, deliver innovative products to their destination, create market segments and promote the sustainable development of directions (Kassai et al., 2016). Also, as a result of the review of the literature, factors affecting the attraction of entrepreneurs to tourist destinations were named, which include: natural beauty and climate; sports, recreational and educational institutions; infrastructure; cultural and social characteristics; accessibility of the region; price level; trade and commercial facilities; and attitude towards tourists, etc (Bujdosó and Dávid, 2013).

Russell and Faulkner (2004) note that tourist destinations are constantly evolving, creating different opportunities for entrepreneurs. Later, based on the study of the Gold Coast of Australia, he additionally explained how it works. A case study conducted by Fuchs (2022) showed that the development of entrepreneurship is significantly influenced by regional

characteristics and the business environment. The business environment and direction support are key factors in entrepreneurial success. The more popular the entrepreneurial culture in society, the more prone people are to risky actions and failures, and they stimulate the financial independence of young people, helping to develop entrepreneurship, exchange resources. Shaw and Williams (1996) stressed the importance of cooperation and communication within destinations for small tourism businesses. The quantity and quality of support from the local community and the government plays a decisive role in the creation of small tourism business enterprises (Priatmoko et al., 2021).

Thus, it can be said that the study of the impact of regional conditions on entrepreneurship is limited. Although researchers have listed potential influencing factors, it is very rare to find empirical studies of decisions about setting up a venture capital enterprise, especially location decisions. At the same time, all current statements and conclusions are based on the experience of a developed society, therefore, an empirical study of developing economies is necessary. Otherwise, entrepreneurs may have opportunities for cross-border cooperation (Bujdosó et al., 2015).

## 2.2 Economic importance of small tourism business

Small business is known to all of us as an important participant in economic development, job creation, innovation, income generation and national and international economy, health and well-being. Due to the importance of small business, many international and national agencies around the world provide various support for small business development. However, as practice shows, support programs (the specific needs of target small enterprises) did not achieve the desired results due to the fact that they were not taken into account when creating programs. It is known that small enterprises make up a statistically significant share of the national and international economy. For example, small businesses account for 98.4% of all enterprises in Turkey, 99.7% of all firms in the US and about 70% of all jobs in Japan, 99.2% of all enterprises in the UK and about 99% of all enterprises in the European Union (Akbaba, 2012). These statistics are also reflected in the tourism industry. Internationally, the tourism industry has traditionally been described as a small, independent, peripheral, seasonal and often family-run business. Despite the importance of small businesses to a country's economy and their significant role in the tourism industry, the study of small tourism business is insufficient (Sergeeva, 2019). Most studies of small tourism businesses focus on agro tourism, with a particular focus on the accommodation sector (Plokhikh et al., 2022; Ogutu et al., 2023). In addition, small tourism businesses are often less visible in urban and resort settings than large ones, so they receive less attention. Although small enterprises share many characteristics, the medium-sized sector in which they operate needs to be considered when analysing the performance, features or management issues of small enterprises.

From a review of small business and tourism literature, access to the general definition of small tourism business is a big problem. Most studies in this area do not specify the definition they use. Rhodri Thomas and Huw Thomas (2005) define small businesses as "independent commercial enterprises that make operational decisions." Also, the small tourism business considered: "an enterprise with a small number of physical capabilities, production capacity, services, market share and staff, financed by one person or a small group and managed by its owner (s)" (Thomas and Thomas, 2005).

As mentioned in this definition, there are various indicators that can be used to determine the size of the tourism business. Number of employees; salary paid over a period of time; amount of capital; sales revenue; number of rooms / beds; provision of some premises such as conference rooms, banquet halls and restaurant halls and their capacity; availability of ancillary services such as swimming pool, parking, shops, etc.; all this can be counted as the basis for classification. Among them, the number of employees is the most accepted and used indicator. In his research, Thomas et al. (2011) defined a small business as "an enterprise that employs fewer than 50 people." In the world, many countries use the definition of "small business" that Thomas uses. The use of the same definition not only makes it possible to apply a comparative methodology, but also to cover a significant part of tourist enterprises, since the small tourism business makes up the majority of the industry (Bekzhanov, 2018). Morrison and Teixeira (2013) say that "traditionally the tourism industry has been dominated by small businesses". In the UK, the share of small and medium - sized enterprises in the tourism industry is relatively high - they account for 80% of the sector's enterprises (Morrison and Teixeira, 2013).

The Australian Bureau of Statistics defines small businesses as businesses with fewer than 20 people employed, accounting for 91% of businesses in tourism-related industries. A similar picture is observed in Turkey. In Turkey, small enterprises account for 98.4% of all enterprises, they account for 47.1% of employment and 14.1% of gross value added. The situation is similar in the Turkish tourism industry (Yıldırım et al., 2015).

Small enterprises are of great importance in the analysis within the framework of national economies, as they allow creating jobs, increasing the total volume of production and, relatively speaking, investments and products. In addition, it helps balance development inequality between regions that are willing to follow technological development; supports individual accumulation and provides flexibility to adapt to changing economic conditions and innovation. In addition to these general benefits that small businesses offer, they also offer special benefits for the region and community in which they operate. Small tourism business provides jobs for local residents, contributes to economic diversity and stability; accelerates the development of the region and helps to increase the level of Social Development (Orymbaeva, 2014).

Bengtson, Pahlberg and Pourmand (2009) noted that strategic marketing activities in small travel firms are neither permanent nor complex. These shortcomings are the cause of many difficulties in doing business, and this leads to low productivity, failure in business. The development of small tourism business in developing countries is hampered by a number of factors. There are no such factors in developed countries. Rural tourism in South Africa, for example, is dominated by the number of informal sector enterprises operating at the lowest level of livelihood; government support services in marketing, infrastructure, supply chains, business communities and information are essential. According to the Rogersons, structures inherited from the colonial period can interfere with the entrepreneurial activity of residents or restrict them to certain sectors. Incoming or returning migrants often dominate entrepreneurship, while local elites prefer to

develop business ties with international travel agencies (Rogerson and Rogerson, 2010). On this occasion, Getz and Carlsen (2005) studied small and family businesses on the Danish island of Bornholm, noting that these businesses can easily adjust the degree of participation in terms of investment and time. In the low season, many business owners prefer to temporarily suspend their activities and engage in other activities, while in the high season they may restart or even expand the business to cover the increase in demand. Such flexibility is important to minimize the impact of extreme seasonality for the destination.

Although the generally accepted definition of local economic development remains unclear, there is a certain consensus that includes focusing on a particular territory, as well as taking care of sustainable economic, social and environmental well-being. The development of small tourism businesses is consistent with these comprehensive ideas, as they open up the prospect of using local resources and skills and provide significant and proven development benefits for local communities. It is believed that having a small business makes it easier for the local population to control their economic participation and the development of tourism, in addition, it provides greater independence and dynamism in dealing with changing economic conditions. This corresponds to one of the main features of local economic development, namely, it seeks to stimulate growth and diversify the local economic base.

## BACKGROUND

### 1. The state of small tourism business in Almaty

The city of Almaty is one of the oldest settlements on the Great Silk Road, known in the first millennium of our era (Aktymbayeva et al., 2020). It is considered the southern capital and financial center of the Republic of Kazakhstan. The city is located in the foothills of Alatau, has a tourist status, is one of the unique places in Kazakhstan where tourist activity is developed. Therefore, the city of Almaty has a unique natural potential for the development of tourism, a rich historical and cultural heritage, a developed transport and logistics infrastructure and the opportunity to develop the tourism business (Tóth et al., 2012). Strategic priorities for the development of tourism in the country are set out in the state program for the development of the tourism industry of the Republic of Kazakhstan for 2019-2025 (Resolution of the Government of the Republic of Kazakhstan dated May 31, 2019). Within its framework, the mountain cluster of the Almaty region was included in the top-10 destinations of the country (Figure 1) (Makenova et al., 2020). This will help to develop a small tourist business, taking into account the importance and priority of the development of eco and mountain tourism in the region.

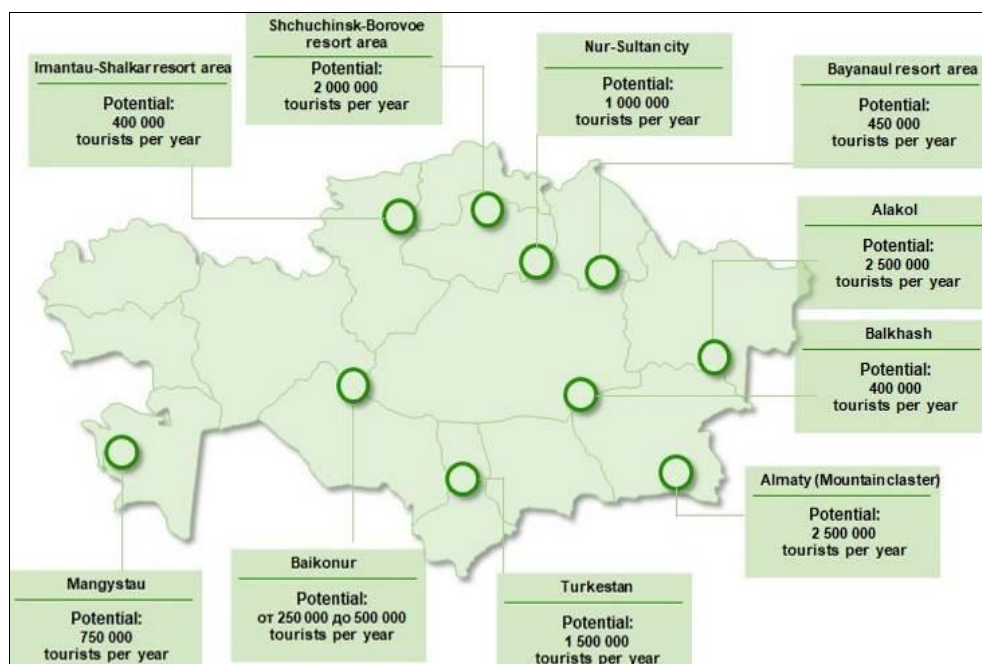


Figure 1. Priority tourist territories for the development of the tourism industry of the Republic of Kazakhstan (Source: Resolution of the Government of the Republic of Kazakhstan dated May 31, 2019)

Before the onset of COVID-19 in Almaty, there was a positive dynamics in the growth of tourists every year. Every second foreign tourist of Kazakhstan comes to Almaty. In the period from 2015 to 2019, the number of foreign tourists in the city increased 1.4 times from 301 thousand to 435.6 thousand, and the number of domestic tourists increased 2.1 times from 420 thousand to 898 thousand. The average annual growth rate was 10-12%. The largest influx of foreign tourists is observed from Russia (26%), China (8%), Uzbekistan (6%), Kyrgyzstan (5%), India (5%) (Research on the portrait of the consumer of travel services in Kazakhstan for May, 2020). There are also tourists from Turkey, South Korea, Germany, USA, France, Italy, Hong Kong and Japan. Most of the tourists from these countries came to the city to participate in business events, while the rest came on a personal visit and to participate in various events. Among them, there is a special demand for the types of excursion, mountain and event tourism (Dávid, 2009).

According to the calculations of the International Tourism Organization (UNWTO), due to the pandemic, international tourist flows around the world fell by 74% (according to the results of 2020). A similar situation was observed in Almaty.

For example, in 2020, 163.8 thousand foreign tourists visited Almaty. This is 72.7% less than in 2019. The number of domestic tourists amounted to 624.9 thousand people (-30.4%, in 2019 – 898.5 thousand people). Taking into account the opinion of international experts, the Department of Tourism of Almaty, according to forecasts for improving the epidemiological situation, will determine the number of tourists by 2024 to the level of 2019 (1.2 million people). The goal was set to achieve. Further, the annual growth is planned to be 6-7% (Report of the mayor's Office of Almaty for 2021).

According to the analysis conducted by the international consulting company "KPMG" by the survey method, it was found that almost half (46.7%) of foreign tourists visiting Almaty received information about the city of Almaty from school textbooks. And the remaining 53.3% marked as sources of information social networks, internet platforms such as "TripAdvisor", "Booking" (Transparency Report. KPMG., 2020). Also, the analysis conducted by Kazakh Tourism JSC showed that Kazakhstan's budget for marketing tourism promotion is 4 times less than in Azerbaijan, 5.5 times less than in Georgia, and 21 times less than in Turkey. However, according to the results of 2021, investments in the tourism industry of Almaty amounted to 56.8 billion tenge (2.4 times more than in 2020). This is 10% of the total investment in the city (Official website of JSC National Company "Kazakh Tourism"). Thus, the tourism industry and small tourism business in Almaty began to gain momentum thanks to the state program for the development of the tourism industry of the Republic of Kazakhstan for 2019-2025 and the efforts of the local administration. Light industry, trade and tourism occupy an important place in the economy of Almaty. Among them, the tourism industry ranks second after the light industry. There are few reliable, accurate data on the small tourism business of Almaty for domestic or international visits, revenues from tourism, employment in the field of tourism, etc. Only general statistics are available. Also, since any successful planning of the city of Almaty requires accurate and reliable data on the current situation in the tourism industry, and small tourism enterprises are the basis of this industry, data on the characteristics of the Almaty tourism industry is of great importance.

## MATERIALS AND METHODS

The lack of academic research on small tourism business and their role in tourism leads to the perpetuation of some generally accepted decisions (Rogerson, 2004). There are several assumptions and opinions on this issue in the literature. For example, the tourism industry is usually characterized by small and medium-sized businesses, the small tourism business is one of the means of spreading the economic and socio-cultural benefits of Tourism and achieving the Sustainable Development Goals of Tourism. Therefore, Morrison and Teixeira (2013) point out the need to reassess and welcome traditionally accepted realities in small tourism business studies for new knowledge and ideas to flourish. In this regard, this study was aimed at a better understanding of the problems and prospects of small tourism business through the analysis of certain aspects of small tourism business in Almaty, the Republic of Kazakhstan. To determine the development of a small tourism business in the study Thomas et al. (1997), Page et al. (1999), Morrison and Teixeira (2004), Akbaba (2012), Koens and Thomas (2015), Fuchs (2022) conducted a theoretical analysis of the research. This made it possible to draw a number of generalizations, as well as to study small businesses in the field of Tourism.

Given the small number of reliable data on the small tourism business of Almaty, we received comprehensive data through an independent survey that gives an idea of the current state of the small tourism business and serves as the basis for planning tourism in the region. The preparation of the questionnaire began with a review of the literature. Relevant literature, survey tools used in other studies and information from small tourism business owners formed the basis for the development of the "survey". The survey was developed to obtain data on the characteristics of the small tourism business, marketing, human resource management and problems of the small tourism business. The survey was attended by representatives of the small tourism business of Almaty, owners and managers of enterprises answered fifteen planned questions. The study involved enterprises that meet the selection criteria, both small (with 1-49 employees) and located in the city. However, companies were identified over the phone to see if they were willing to participate in the study. The main study was carried out from March to September 2022. This period was chosen deliberately, since some tourist enterprises work only in the summer. The survey was distributed among enterprises that agreed to participate in the study and <https://docs.google.com> the site was implemented with the help of. Thus, we received survey responses from 764 enterprises. However, to ensure the accuracy of the research results, 655 responses were selected from enterprises that fully meet the requirements. The selection passed strict control for 3 months. Of the 8 districts of Almaty that took part in the survey, the most active were small tourism business enterprises of Medeu, Auezov, Bostandyk and Almaty districts. At the district level, this level of response was achieved by calling the owner and managers of each enterprise in advance.

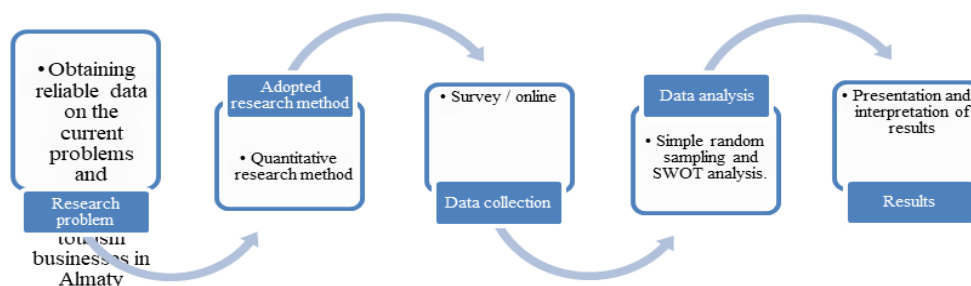


Figure 2. Research method flowchart

## RESULTS

The results of the study were obtained through an independent survey of small tourist business enterprises of Almaty (the largest metropolis of Kazakhstan), located along the Great Silk Road and in the foothills of the Trans-Ili Alatau. 764



enterprises from 8 districts of the city took part in the survey, and a total of 655 respondents were selected. The selection passed strict control in the amount of 3 months. Therefore, in the city: 39 hotels, 147 restaurants, 36 banquet halls, 158 cafes, 109 pubs or bars, 27 karaoke, 48 coffee shops, 6 souvenir shops, 2 museums, 11 tour operators and 72 travel agencies met the requirements (Table 1). Entrepreneurs from Medeu, Auezov, Bostandyk and Almaly districts were active in the study, making up 68.7% of the total number of respondents (Figure 3).

Table 1. Number of small tourist enterprises surveyed, N=655 (compiled by the authors)

| Name of the district | Hotel     | Restaurant | Banquet halls | Cafe       | Pub / Bar  | Karaoke   | Coffee shop | Souvenir shop | Museum   | Tour operator | Travel agent | By district |
|----------------------|-----------|------------|---------------|------------|------------|-----------|-------------|---------------|----------|---------------|--------------|-------------|
| 1. Alatau            | 4         | 12         | 7             | 10         | 3          | 2         | 5           | 2             | -        | -             | 3            | 48          |
| 2. Almaly            | 6         | 23         | 4             | 17         | 14         | 3         | 4           | -             | 1        | 3             | 18           | 93          |
| 3. Auezov            | 9         | 17         | 1             | 33         | 27         | 5         | 9           | 1             | -        | 2             | 11           | 115         |
| 4. Bostandyk         | 5         | 19         | 6             | 21         | 18         | 7         | 10          | -             | -        | 1             | 7            | 94          |
| 5. Medeu             | 6         | 27         | 2             | 27         | 34         | 8         | 14          | 2             | 1        | 5             | 22           | 148         |
| 6. Nauryzbay         | 4         | 21         | 5             | 9          | 6          | 1         | -           | -             | -        | -             | 6            | 52          |
| 7. Turksib           | 3         | 13         | 7             | 28         | 5          | -         | 2           | 1             | -        | -             | 3            | 62          |
| 8. Zhetysu           | 2         | 15         | 4             | 13         | 2          | 1         | 4           | -             | -        | -             | 2            | 43          |
| <b>Total / N</b>     | <b>39</b> | <b>147</b> | <b>36</b>     | <b>158</b> | <b>109</b> | <b>27</b> | <b>48</b>   | <b>6</b>      | <b>2</b> | <b>11</b>     | <b>72</b>    | <b>655</b>  |

After analyzing the responses of the respondents who answered the survey, the sex distribution of the respondents was 53% of men and 47% of women. This result deserves attention, after all, many researchers note the predominance of women leading small businesses in tourism and the hotel business. Getz and Carlsen (2005) declare that culture can influence gender roles and can be the owner or manager of a small tourism business. The data on gender segregation obtained during this study can be interpreted as a consequence of these facts. The largest proportion of respondents (33.4%) falls on the age group 46-55, followed by the age group 36-45 (29%). It was found that the majority of respondents were the sole owner (70.1%) and shareholders (20.1%). The remaining 8.8% were managers (Figure 4). These results show that the survey covered the target audience of business owners or managers who gave an idea of their business and involvement in tourism. Respondents to the question about education in the survey (62.9%) indicated that they have a diploma of incomplete higher education (Bachelor's degree); it turns out that only 13.7% of respondents have a higher education (Master / PhD), and the remaining 23.4% of respondents have a secondary education (college diploma / school graduation certificate). 75.7% of the participants reported that they did not receive any education in the field of Tourism. While the remaining 24.3% of the 151 participants who claimed to have knowledge in the field of Tourism, 71.5% (108 participants) took one or two - month short-term vocational training courses organized by local authorities and private enterprises. As for the characteristics of enterprises, a significant part of enterprises (27.9%) have worked for 11-14 years and (5.6%) for more than 15 years (Figure 5).

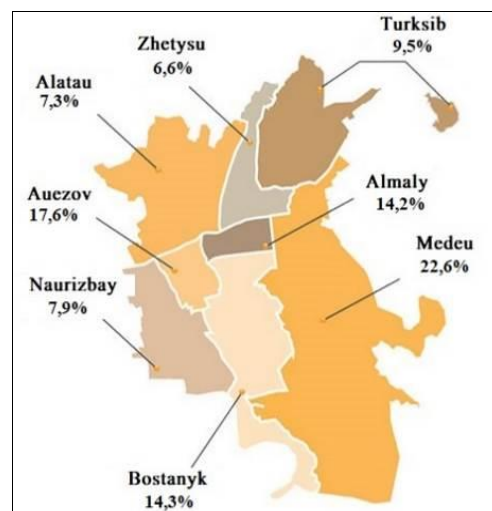


Figure 3. District share of small tourism enterprises that participated in the survey, % (compiled by the authors)

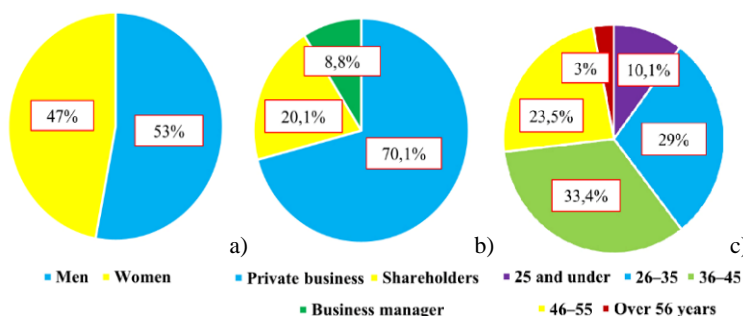


Figure 4. Gender (a), Respondent (b), Age (c). Profile of respondents, % (Source: compiled by the authors)

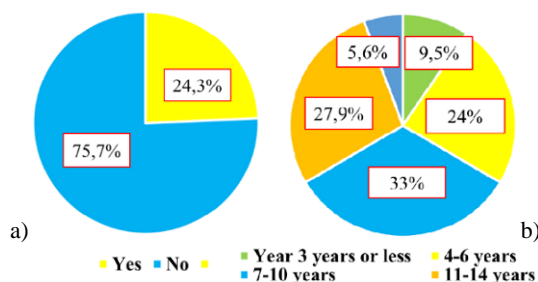


Figure 5. Education in the field of Tourism (a), Work experience in the field of Tourism (b). Education and work experience in the tourist industry, %

When the survey asked about methods of mutual contracting with employees, it was found that 351 respondents (53.6%) used verbal agreements to fill vacancies, while 230 respondents (35.1%) wrote personal statements. 74 (11.3%) respondents who indicated a different choice stated that they or family members worked in the business, so they did not need to contract with anyone. Interestingly, no businesses used the local or national press to find employees. Currently, in the Almaty context, special applications and websites (olx.kz, qyzmet.kz, zarplata.kz and so on) are mostly used. As for the marketing aspect of the business, out of the 655 respondents surveyed, only 118 respondents (18 %) stated that they had a formal or informal marketing plan. Among them were only 21 (17.8%) enterprises with an official plan, the plans of the remaining 97 (82.2%) enterprises were unofficial. In the case of Kazakhstan, banks and other financial institutions

that provide loans or stimulate business require formal planning, therefore, as this study shows, 17.8% of small businesses can receive funds from banks and government sources. From this we can see that the share of enterprises implementing the official marketing plan is very low. However, the report on the state of development of small and medium-sized businesses in Kazakhstan of the Entrepreneurship Development Fund of the Republic of Kazakhstan "Damu" (Joint Stock Company) notes that the portfolio of loans to small businesses in Almaty increased by 33.4% (Report on the state of development of small and medium-sized businesses in Kazakhstan, 2022). As you may have noticed, there is a discrepancy between the report of private small businesses and the reports of the Government (Joint Stock Company "Damu" Entrepreneurship Development Fund). In the survey, we asked respondents to indicate which advertising methods they had used in the last 3 years. As a result, we found that the most frequently used method was "internet networking" (50.7%). Of those, the highest proportion of social media was Instagram (25.6% of respondents), Facebook (10.5%) and Tik-Tok (6.3%). However, among small entrepreneurs, the share of "direct advertising" creators was 16.5%. Another oddity in this result is that 1.8% of respondents said they do not use advertising methods.

Table 2. Advertising distribution tools (total number and percentage %) (compiled by the authors)

| Methods                                      | Type                     | Price             | Entering the target audience | Number (N) | Percentage (%) |
|--|--------------------------|-------------------|------------------------------|------------|----------------|
| Information tools                            | Television               | High (-)          | Low (-)                      | 18         | 2.7            |
|  | Radio                    |                   |                              | 23         | 3.5            |
| Internet network                             | Information sides        | Low (+)           | High (+)                     | 37         | 5.7            |
|  | Facebook                 |                   |                              | 69         | 10.5           |
|  | YouTube                  |                   |                              | 13         | 2.0            |
|  | Instagram                |                   |                              | 168        | 25.6           |
|  | Tik-Tok                  |                   |                              | 41         | 6.3            |
|  | Others                   |                   |                              | 4          | 0.6            |
| Periodicals                                  | Magazines and newspapers | Average ( $\pm$ ) | Low (-)                      | 11         | 1.7            |
| External and internal advertising structures | Billboards               | Average ( $\pm$ ) | Low (-)                      | 35         | 5.3            |
|  | Video screens            |                   |                              | 16         | 2.5            |
|  | Roller displays          |                   |                              | 7          | 1.1            |
|  | Electronic scoreboard    |                   |                              | 19         | 2.9            |
|  | Direct advertising       |                   |                              | 108        | 16.5           |
|  | Poster stands            |                   |                              | 3          | 0.4            |
|  | Decorative indicators    |                   |                              | -          | -              |
| Email-distribution                           | Send message             | Free              | Average ( $\pm$ )            | 17         | 2.6            |
| PR-event                                     | Presentation             | Average ( $\pm$ ) | Average ( $\pm$ )            | 36         | 5.5            |
|  | Conference               |                   |                              | 9          | 1.4            |
|  | Briefing                 |                   |                              | 2          | 0.3            |
|  | Sponsorship activities   |                   |                              | 5          | 0.8            |
| Other  | -                        | -                 | -                            | 2          | 0.3            |
| Did not use advertising methods              | -                        | -                 | -                            | 12         | 1.8            |

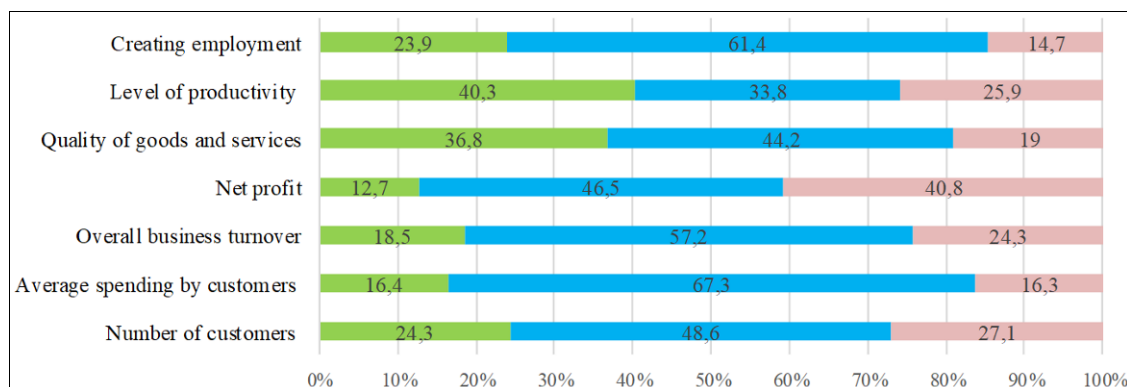


Figure 6. Performance indicators of small tourism business enterprises of Almaty in 2021, % (compiled by the authors)

As for the economic consequences of business, a number of business indicators were studied to study the respondents' perception of trends in business over the past year. These were the number of customers over the past year, average customer costs, net profit, quality of goods and services, productivity level, number of successful new products, and job creation. The results of the answers to these questions can be seen in Figure 6. We asked the respondents if they see any obstacles to improving the efficiency of their business. 18.9% of respondents cited high rental rates (office rent) as the main obstacle, followed by high interest rates in obtaining loans (16.5%) and lack of consumer demand (14.6%) (Figure 7). Of the obstacles, competition among local entrepreneurs was 11.7%, which showed the development of small businesses in the city. In this regard, if we compare the competition between enterprises with the results of the Turkish Akbaba study (2012), we can see that its result showed a percentage of 8%. The respondents' concern about the unstable conditions in the country is explained by the socio-economic structure of the country and the ongoing war in neighboring countries (Ukraine and Russia) and political instability (China and the United States) (Dávid et al., 2007). This can be considered concern, the proximity of the country to this region and membership in small tourism business organizations and business associations,

as well as insufficient support and recommendations from local executive bodies. However, in the course of the study, we conducted a SWOT analysis of the work of 11 tour operators and 72 travel agencies that responded to the survey to identify the strengths and weaknesses of the small tourism business. As a result, the strengths and weaknesses of tourist enterprises and opportunities and threats were clearly known (Table 3). Thus, in order for small travel firms to maintain their competitive position and position in the market, it is necessary: to develop a powerful advertising campaign; develop customer service programs; develop new tourist destinations and be as open as possible to their regular customers. Also, organizational measures aimed at increasing the competitiveness of travel agencies can be presented as follows:

- ensuring quality indicators that prioritize the products of a travel agency in the market;
- identify the advantages and disadvantages of similar products produced by competitors and correctly use the results in the interests of the travel agency;
- research of competitors' similar products that appear on the market and develop measures that give them an advantage over competitors;
- it is necessary to determine the possible types of tourist product by improving such qualitative characteristics as reliability, external design.

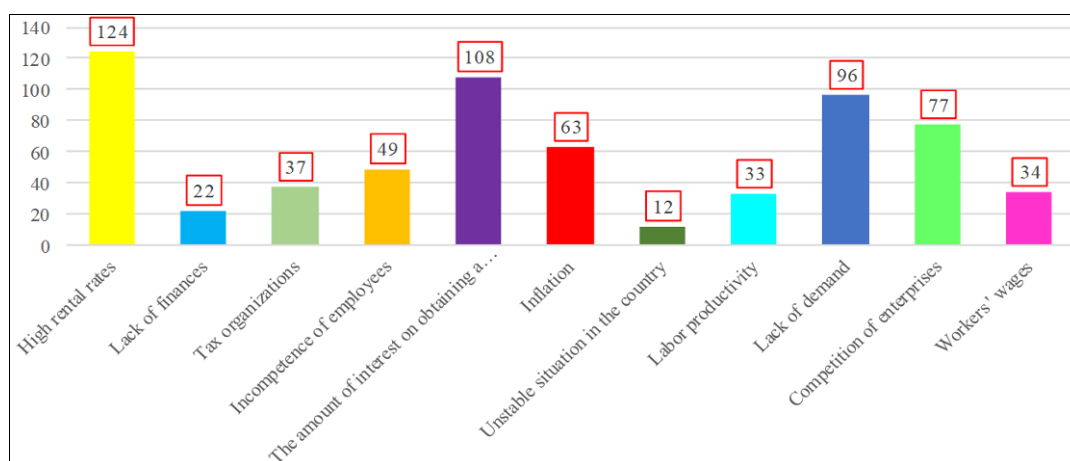


Figure 7. Barriers to improving the efficiency of small tourism business, Quantity (compiled by the authors)

Table 3. SWOT analysis matrix (compiled by the authors)

|   | <b>Opportunities</b>  | <b>Threats</b>   |
|---|---|--|
|   | 1) Development of technologies in the field of Tourism.<br>2) Development of relations between countries.<br>3) Introduction of a flexible system of discounts for regular customers. | 1) Economic crisis.<br>2) Deterioration of the situation between Ukraine and Russia.<br>3) The emergence of new competitors.                                   |
| <b>Strengths:</b>   |   |  |
| 1. Well-established work with major tour operators                              | 1) Increase sales, improve development dynamics, offer new directions.<br>2) Possibility of faster processing of documents, reduction of the cost of the services provided.           | 1) Leads to a decrease in sales volume.<br>2) Development of low-cost tourist routes.<br>3) Tourist safety on new routes.                                      |
| 2. Highly qualified staff.  | 1) The same leads to customers reusing the firm's services. Becomes a regular customer.   | 1) An increase in extreme tourist routes.<br>2) Outflow of customers due to the provision of similar services by competitors.                                  |
| 3. High quality services provided   | 1) Leads to an increase in the client base.<br>2) Customers will be confident in the quality of the service provided.   | 1) Improving customer service technology and retraining of tourist packages.<br>2) Increase in costs.  |
| 4. Stable financial position of the firm  | 1) Gain a large market share.<br>2) Become a leader in the tourism services market.<br>3) Increase sales.   | 1) The cost of the tourist package increases significantly, which leads to a decrease in the net income of the enterprise.                                     |
| <b>Weaknesses:</b>  |   |  |
| 1. Poor development of tourism services to European countries and the Americas. | 1) To work out issues of cooperation with tour operators providing tourist routes to these regions.   | 1) Study and determine the directions of tourist routes to other regions.<br>2) Prevent the departure of customers by creating individual programs and routes. |
| 2. Weak advertising   | 1) Strengthen your advertising campaign to gain a larger market share and build your own brand  | 1) Explore new competitors, apply all the management mechanisms, try to become a leader.   |
| 3. Employees do not upgrade their qualifications                                | 1) Sending employees to various trainings, courses, conferences, exhibitions to strengthen competitiveness.   | 1) Ensuring high-quality professional development of employees, both in financial and practical terms.   |

In conclusion, the indicators of most small tourism enterprises were neither good nor bad, as evidenced by the indicators of the level of satisfaction with business growth and competitiveness, respectively. Business growth was more of a macroeconomic problem than a problem at the individual level, as high-satisfaction respondents and low-satisfaction respondents were grouped in different directions, and no statistically significant differences in demographic and business characteristics were observed between the two groups. This suggests that the development of a small tourism business, that

is, the popularization of the destination, is still important. It was not surprising that the respondents had an impartial assessment of the competitiveness of the business, since in the city enterprises offer the same goods and services.

## DISCUSSION

In the World Tourism literature, there is very little research on the tourism business of the Republic of Kazakhstan. The existing tourist research itself is of a natural and geographical orientation. And there is almost no research on the problems and prospects of business development. Therefore, in this study, we aimed to study the problems and prospects for the development of the small tourism business of Almaty. It was also important to understand the current state of the tourism industry by obtaining data on the general characteristics of small tourism business in Almaty, marketing aspects, Human Resource Management and the level of district development of small tourism business. In this study, we used the survey method to identify and understand the potential of the small tourism business of the city. The study was attended by 655 enterprises from 8 districts of Almaty (total: 39 hotels, 147 restaurants, 36 banquet halls, 158 cafes, 109 pubs or bars, 27 karaoke, 48 coffee shops, 6 souvenir shops, 2 museums, 11 tour operators and 72 travel agents) who shared their current problems and prospects for development. After selecting and analyzing the results of the survey, we saw a set of problems of small tourism business in Almaty. These include: 75.7% of respondents do not have any knowledge in the field of tourism or services; 53.6% verbally conclude mutual contracts with employees; 82% do not have a marketing plan of the enterprise; as a result, 17.8% cannot receive funds from banks and public sources; the ongoing war in neighboring countries (Ukraine and Russia) and political instability (political discord between China and the United States). Therefore, this study differs significantly from the results of a similar study in Turkey, Great Britain, Thailand, New Zealand and South Africa. This is due to the fact that when evaluating the results of the study, the authors set clear limits for 8 districts of Almaty. Thus, the relevant results do not include results for the Republic of Kazakhstan or other areas of mass tourism.

However, since the small tourism business in Almaty accounts for a significant share of the tourism industry of Kazakhstan, all reliable data and results obtained play an important role in the planning of the tourism business. This is due to the fact that the results of entrepreneurs of the local small tourism business show the tourist potential of developed and developing regions and districts (Baiburiev et al., 2018), professional competence of specialists in the tourist and local lore, cultural sphere (Issakov et al., 2022; Ayzhan et al., 2021), the motivation for the use of technology (Nurbol et al., 2020), discloses the socio-economic and environmental situation (Mukhambetov et al., 2014; Dávid et al., 2012). Consequently, the results of this study can be useful for the whole population. Consequently, future studies could use alternative approaches to fully reach out to small tourism entrepreneurs and involve them in voluntary participation. For example, by getting support from local administrations, tourism organisations and other business communities or by providing some kind of incentive to those who agree to participate in the study. Future studies could expand the research area to cover more or less different aspects of small tourism businesses. In this regard, Tinsley and Lynch (2001) believe that family business development plays an important role in the small tourism business, although very little research has been done in this promising area. This is due to the fact that the problems of small family business continue to be the result of neglect in the study of small tourism business. The largest economic profit in Almaty, in comparison, comes from small business owners with limited income of their own. Enterprises run mainly by marginalized groups bring much less economic benefits. However, the above analysis does not mean that the development of small businesses as part of urban tourism is not profitable. Instead, the competent authorities should recognize the complexity of the socio-economic situation of settlements. It should also appropriately consider business development measures and promptly develop small businesses after Covid-19. Although many negative situations are associated with COVID-19, one of the main conclusions is the sustainability of local small tourism business owners, which allowed them to adapt to these conditions and change their business models. This will allow businesses to survive the crisis and lay the necessary foundation for their future achievements. Therefore, we hope that these changes are an automatic, but temporary reaction to the pandemic, and after the start of normalization, enterprises will return to their previous business models.

## CONCLUSIONS

In conclusion, as a result of the theoretical and practical study of the small tourism business of Almaty, the problems and promising areas of small business were identified, and we came to the following conclusion on the way to increasing the competitiveness of the business:

1. Small business in the tourism industry includes the behavior, activities, professional knowledge and training of entrepreneurs and individuals, family business, new business and corporate entrepreneurship.

2. Small tourism enterprises play a key role in the development of local tourism. In terms of technology and capital, in comparison, it allows entrepreneurs to start their own businesses. The business not only meets the employment needs of the owner, but also serves as a direct source of income for the owner's family and other residents.

3. The analysis of the survey showed that 75.7% of respondents do not have any knowledge in the field of tourism or services; 53.6% verbally conclude mutual contracts with employees; 82% do not have a marketing plan of the enterprise; as a result, 17.8% cannot receive funds from banks and government sources; the consequences of the ongoing war in neighboring countries (Ukraine and Russia) and political instability (political disagreement between China and the United States) were identified as the main problems of the small tourism business in Almaty.

4. As well as resilience of respondents to positive development, overcoming the consequences and crisis of the COVID-19 pandemic and willingness to use gained experience and knowledge for the future; motivation of 655 respondents who agreed to take part in the study to develop their businesses; predominance of men 53%; 28.7% of respondents (36-45) are young entrepreneurs; 74.7% are individual entrepreneurs; investment in small tourism business and contribution to the development of small tourism business in Almaty city can be attributed to.

5. In future studies, it is necessary to try to use incentive methods to fully cover representatives of small tourism businesses and involve them in voluntary participation. For example, the provision of incentives from local administrations, tourist organizations and other business associations.

6. Almaty's tourism infrastructure, technology, services, inter-city trade and logistics, education systems and digitalisation need to be developed.

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## ENVIRONMENTAL IMPACTS OF URBAN SPRAWL USING REMOTE SENSING INDICES: A CASE STUDY OF AMMAN CITY – THE CAPITAL OF JORDAN

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**Abstract:** Urban sprawl is known to have a negative impact on the environment and is considered one of the main challenges in urban development. The current work aims to understand the spatio-temporal characteristics of urban growth and its environmental impact in the city of Amman. The paper's empirical method relies on NDVI, NDBI, and LST calculated using remote sensing and GIS techniques. For this study, Landsat Thematic Mapper Landsat 5-TM images from 1990, 1995, 1999, and 2004 were acquired, as well as Landsat 8-OLI images from 2013, 2017, and 2022. The surface temperature of Amman has increased as the area of paved roads, residential, commercial and industrial land use types have increased, while green spaces and vacant lots have decreased. The NDVI analysis revealed that there was variation in the vegetation index during the study year due to human activities as well as climatic change. Correlations between biophysical variables and LST revealed that NDVI had a significant negative correlation, while NDBI had a positive relationship. Further, a significant positive correlation was observed between road networks and built-up areas which enhance the occurrence of urban sprawl due to urbanization. This study highlighted the significance of considering the environmental consequences of urban sprawl when developing and implementing GAM policies and strategies.

**Key words:** Urban sprawl, Remote Sensing (RS), land surface temperature (LST), Normalized Difference Vegetation index (NDVI), Normalized Difference Building index (NDBI), Pearson correlation, Greater Amman Municipality (GAM)

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### INTRODUCTION

According to a United Nations report, more than 55% of the world's population currently resides in urban areas and by 2050 this percentage is expected to rise to 67% (United Nations, 2018). Urbanization has a detrimental effect on the environment and is a sign of socio-economic and political growth. Loss of vegetation, which results in the release of greenhouse gases like CO<sub>2</sub> into the environment, is one effect of urban expansion and sprawl on the environment (Correia Filho et al., 2021; Dobbs et al., 2017). According to (Al-Kofahi et al., 2018a), between 2003 and 2015, urban expansion reduced agricultural land in the city of Amman by 50 per cent (agriculture land represent around 14% of Greater Amman area). The increase in the planet's average surface temperature over the past century has been well-documented as a factor in global warming. This warming is a result of the conversion of green space into urban areas, rising carbon dioxide levels, and increased emissions of other pollutants, all of which are generally attributed to increased human activity (Kaplan et al., 2018). For this reason, it's important to comprehend and research how urban sprawl affects the ecosystem and the environment. Amman city continued to grow, reaching a population of 2.5 million over 680 km<sup>2</sup> by the middle of the 2000s, and today it is a metropolis of 800 km<sup>2</sup>. Amman's urban area increased by 61.73%, from 147.08km<sup>2</sup> in 1987 to 237.86km<sup>2</sup> in 2017. Another notable change is the ongoing reduction in the vegetation area within GAM, which occupied 35.22 km<sup>2</sup> in 1987 and decreased to 16.40 km<sup>2</sup> in 2017, representing a decrease of 18.82 km<sup>2</sup> or 53.54% (Al-Bilbisi, 2019). Amman's rapid population growth is caused by a variety of factors, including rural-urban migration, the capital's concentration of economic activities and services, and, most importantly refugee influx.

Urbanization and rapid growth of the population, have resulted in the alteration of other land uses, particularly vegetated surfaces, to impervious surfaces, are already having an impact on the environment in a variety of ways, including the increase in LST, which can be considered one of the major causes of unplanned and unsustainable and change in land cover in cities (Semeraro et al., 2021; Gazi et al., 2021; Nse et al., 2020; Al-Kofahi et al., 2018a; Al-Kofahi et al., 2018b; Jaber, 2018; Patarkalashvili, 2017). As a result, scientists and urban planners are very interested in vegetation, because

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vegetation plays many important roles in urban systems (Semeraro et al., 2021). Numerous environmental advantages of vegetation include lowering the ambient temperature, lowering air pollution (Janhäll, 2015), decreasing the urban heat island effect (Aboelata and Sodoudi, 2020), decreasing the risk of flooding (Richards and Belcher, 2020; Yan et al., 2016), and reducing noise pollution (Han et al., 2018). Urban vegetation has emerged as one of the most significant potential solutions to a number of urban challenges to support the goal of sustainable development in cities (Cox et al., 2018). In light of this, studying urban vegetation has benefits for both the environment and socio-economic development.

Urban environmental indicators can be calculated using conventional data, but these data are frequently insufficient because of generalization, outdated, or lack of availability. In contrast, Earth observation has established itself as a viable alternate resource of geo-information for environmental monitoring and urban development, adding to scientific understanding by supplying the spatial data required to carry out urban planning projects. The actual advantage of satellite technology over traditional methods is that urban geospatial information can offer effective alternative planning methods and tools by helping in the development of cost effective, precise, and time-efficient urban environmental indicators (Chrysoulakis et al., 2014). For instance, it helps in the analysis of spatiotemporal trends of Earth's surface temperature and can also help assess the impact of road network on urban sprawl and the environment which aids in the assessment of environmental changes (Zhan and Ukkusuri, 2019). Remote sensing (RS) techniques can be employed to acquire "vegetation indices" and then use them to assess vegetation cover. Meanwhile, the NDVI is a popular tool for extracting vegetation. The higher the values of the NDVI imply a greater amount of vegetation in a pixel. Furthermore, the NDBI has been commonly employed in the extraction of urban areas. Researching the relationship between LST and the land cover could be useful for understanding urban environment (Kaplan et al., 2018). The relationship between temperature and NDVI in vegetation is well-established. Whereas the NDVI is deemed as crucial indicator for urban environment (Abebe et al., 2021). Nevertheless, Studies revealed a negative relationship between NDVI and LST (Abdullah et al., 2022; Gui et al., 2019; Deng et al., 2018). In respect to built-up areas, urban density and Ground imperviousness is another aspect that raises temperatures (Momin et al., 2022). NDBI and LST are found to be positively correlated (Kaplan et al., 2018).

Urban areas require the monitoring of land surface temperatures because high temperatures result in higher energy costs for cooling buildings, especially during the summer (Vani and Prasad, 2020; Estoque et al., 2017). The temperature measured in the air close to the earth's surface (1m) in an open area is referred to as land surface temperature (LST). Air temperature, on the other hand, refers to the temperature measured within the atmosphere more than one kilometer above the earth's surface. LST is always greater than the air temperature. The term "land surface temperature" refers to how hot the Earth's "surface" feels to the touch in a particular location (Jaber, 2020).

Whatever a satellite observes when peering down at the earth through the atmosphere is referred to as the "surface". It might be a building's roof, grass on a lawn, snow, or perhaps leaves in a forest canopy. As a result, the temperature of the air as recorded in the daily weather report is different from the temperature of the ground surface. In general, there are two primary methods for assessing the LST phenomenon: either by (i) automatic temperature measurements derived from traditional weather stations (Kaplan et al., 2018); or (ii) temperature measurements from land surfaces which are derived from Thermal InfraRed (TIR) remote sensing data (Mushore et al., 2017; Jiménez-Muoz et al., 2014).

Studies have shown that using both built-up and vegetation indexes together can provide a clearer knowledge of the temperature of the land surface as both affect surface temperature (Momin et al., 2022; Hamed et al., 2019). Over the last three decades, Amman has experienced a significant rise in urbanization, with a rapid increase in the area land built. This trend in the increase of built-up land can be determined by a variety of factors, including government policy, land use patterns, population growth, economic development, and increased road networks. An increase in population density leads to an increase in the use of transportation facilities. The sprawling city is dominated by relatively inefficient private car use, expensive public transportation systems, and high transportation-related energy consumption, all of which contribute to an increase in CO<sub>2</sub> emissions to the atmosphere.

### **Study contribution and objectives**

Only a few researchers have investigated Amman's urban growth and related LULC changes, such as (Al-Bilbisi, 2019; Jaber, 2018; Al-Kofahi et al., 2018), but no research has been conducted on how these changes affect the city's surface temperature and its environmental impacts. This study adds and extends previous work such as which conducted in Amman by Jaber, 2018. The current paper attempts to fill this research gap by building on previous research and aiming to increase and nourish general understanding and knowledge about the relationship between urban sprawl and LST by establishing NDVI and NDBI as independent variables (Abdullah et al., 2022; Vani and Prasad, 2020; Gui et al., 2019; Deng et al. 2018). We filled the gap in the research by explaining the effect of LULC change on LST and vegetation in Amman. We hypothesized that more vegetation would have a lower LST value whereas, the higher NDBI would have a higher LST value. To further test the theory, we expanded our research by examining the relationships between two biophysical variables, NDVI, NDBI, and LST. Therefore, our study aims to (i) analyse the impact of urban sprawl on the environment particularly on surface temperature and vegetation, and to (ii) compare the effects of urban growth and its effects on NDVI and LST in Amman.

## **METHODOLOGY**

### **1. Study area**

Jordan's capital and largest city, Amman, is the nation's most populous city and the country's political, economic, and cultural hub, as illustrated in Figure 1. The research area is characterized by dense human activity, with a population of 4,061,150 as of 2021. The area is located in north-central Jordan and spans 31°25'N -32°1'N latitude and 35°66'E - 36°42'E

longitude. Amman covers an area of 800 km<sup>2</sup> and has elevations ranging from 700 to 1,100 meters above mean sea level (Al-Kofahi et al., 2018a; Abdeljawad et al., 2022). Amman's topography is characterized by narrow valleys and steep hills. Amman falls under the semi-arid climate category because of its proximity to the Mediterranean climate zone. Summers are mildly long, warm, and breezy. Winter typically begins around the end of November and lasts until early to mid-March. Snow may fall in Amman's western and northern districts ( $\geq 1,000$  m above sea level). The majority of the rain falls between November and April, with an annual rainfall average of 300 mm. Amman has grown significantly in terms of geopolitical status, physical land, and population over the last century (Potter et al., 2009). Urban areas in Amman expanded at the expense of other land use land cover classes, particularly vegetation lands, as a result of urban growth that occurred along transportation networks away from the city center (Al-Bilbisi, 2019). Unexpected urban growth has resulted in a number of environmental and infrastructure problems, necessitating the urgent need for monitoring and managing the city using spatial techniques.

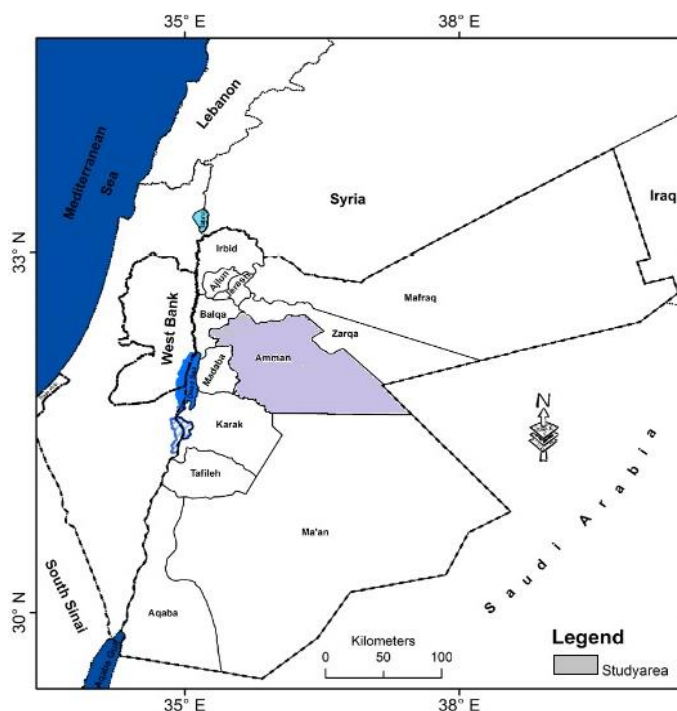


Figure 1. The geographic location of Amman (Source: Khawaldah, 2016)

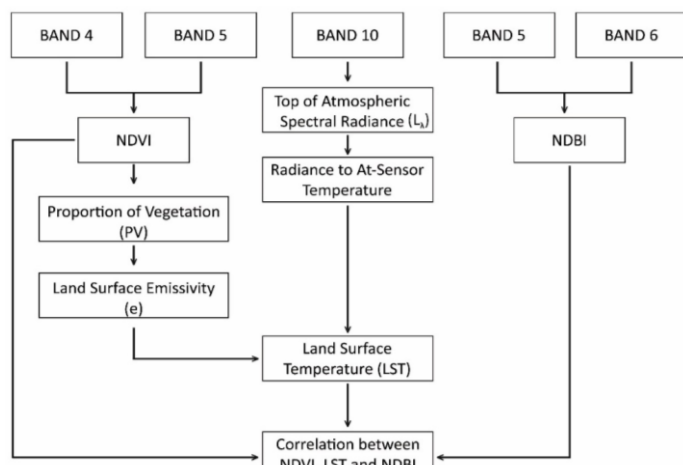


Figure 3. Methodological Flowchart for Landsat 8-OLI satellite imagery

The spatial scope of the study region was then subset into the imagery (data sets). Table 1 demonstrates the specifications of the satellite image bands, wavelength, resolution, and acquisition date. Time series air temperature data were obtained from the National Aeronautics and Space Administration (NASA) and also from the Jordan meteorological department as shown in table 2. The outcomes of this data analysis were contrasted with those of the analysis of land surface temperature.

### 3. Derivation of Normalized Difference Vegetation Index (NDVI)

In 1973, the NDVI that was introduced by Rouse et al., (1973), has been frequently utilized to collect as well as investigating the dynamics of urban vegetation and to monitor urban growth (Jaber, 2018; El Garouani et al., 2017; Escobedo et al., 2016). The NDVI measures the amount of vegetation by comparing the NIR (which vegetation

## 2. MATERIALS AND METHODS

The current study's overall methodology is illustrated in a flowchart (Figure 2 for Landsat 5-TM satellite imagery and Figure 3 for Landsat 8-OLI satellite imagery).

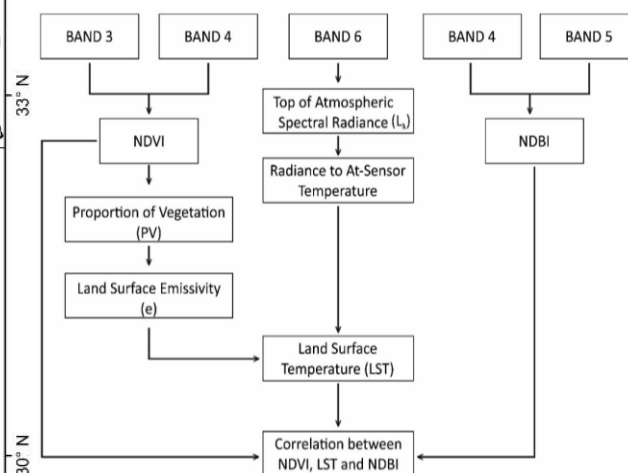


Figure 2. Methodological Flowchart for Landsat 5-TM satellite imagery

The analysis of Land surface temperature involves the application of TIR, RS, NIR data, as well as the red band, were also used to generate the NDVI which serves as an input for analyzing the land surface temperature. Both MIR and NIR were utilized to extract the built-up index. A series of Landsat images having a 3-dimensional resolution (30×30 m) were acquired from the United States Geological Survey (USGS).

The road network of Amman city for the study year (1990 - 2022) were digitized from existing aerial photographs. On the other hand, data on the spatial extent of urbanized area in Amman city was extracted from the LULC archives (as shown on supplementary document). The Landsat 5-TM and Landsat 8-OLI were attained in the current study for the years 1990, 1995, 1999, and 2004 and 2013, 2017, and 2022, respectively, since they offer a suitable and economical source of data for a variation of applications, comprising study of the vegetation index, land surface temperature, and built-up index.

significantly reflects) and red-light contrasts (which vegetation absorbs) (Kundu et al., 2021). The NDVI for the investigated area was calculated using the map algebra function (raster calculator) of ArcGIS Pro 2.5. It is represented mathematically using the formula (Rouse et al., 1974) as shown below:

$$NDVI = \frac{NIR - RED}{NIR + RED}$$

Where, NIR corresponds to band 4 for Landsat-5 TM and band 5 for Landsat-8 OLI photos, whereas red corresponds to band 3 for Landsat-5 TM and band 4 for Landsat-8 OLI images.

$$NDVI (Landsat - 5 TM) = \frac{B4 - B3}{B4 + B3}$$

$$NDVI (Landsat - 8 OLI) = \frac{B5 - B4}{B5 + B4}$$

The NDVI readings are always between -1 and +1. However, each form of land cover does not have a clear limit. If the NDVI value is near to +1, there is a good chance that the plant's densely packed leaves are green (dense vegetation), values between 0.4 and 0.7 depict typical, healthy vegetation, and values between 0.18 to 0.27 corresponds to shrubs or grassland. Whereas negative values represent water

bodies and highly dense urban areas. Values close to 0 show that there are no green covers rather it is likely to be an urbanized area. In general, readings between -0.1 and 0.18 are indicative of desert, a rock outcrop, sand, or snow (Ullah et al., 2020).

Table 1. Satellite image specification of Landsat 5-TM and Landsat 8-OLI (i.e., image bands, wavelength, resolution, and acquisition date) (Source: Adapted from <http://glovis.usgs.gov>. 18th July 2022)

| Image Specification |   |   |
|---------------------|---|---|
| Image Type          | Landsat 5-TM  | Landsat 8-OLI   |
| Swath width (Km)    | 185   | 185   |
| Spectral range (µm) | Red (3) Band (0.63-0.69)<br>NIR (4) Band (0.76-0.90)<br>MIR (5) Band (1.55-1.75)<br>TIR (6) Band (10.4-12.50) | Red (4) Band (0.630-0.680)<br>NIR (5) Band (0.845-0.885)<br>MIR (6) Band (1.57-1.65)<br>TIR (10) Band (10.60-11.19) |
| Resolution (m)      | 30  | 30  |
| Acquisition date    | 1990-07-21<br>1995-07-19<br>1999-07-14<br>2004-07-11  | 2013-07-04<br>2017-07-15<br>2022-07-13  |
| Revisit time (day)  | 16  | 16  |
| Cloud cover (%)     | 0.00  | 0.00  |

Table 2. Air temperature data (Source: National Aeronautics and Space Administration, NASA, Jordan meteorological department)

| Month | YEAR | Mini. Temp (°C) | Max. Temp. (°C) |
|-------|------|-----------------|-----------------|
| July  | 1990 | 19.25           | 40.87           |
| July  | 1995 | 20.51           | 41.37           |
| July  | 1999 | 19.58           | 40.45           |
| July  | 2004 | 19.99           | 43.88           |
| July  | 2013 | 19.87           | 40.02           |
| July  | 2017 | 21.23           | 45.05           |
| July  | 2022 | 19              | 39              |

#### 4. Derivation of Normalized Difference Built-up Index (NDBI)

For the NDBI, it can compute the built-up area by measuring the difference among middle-infrared and NIR. The NIR and MIR bands are used by NDBI to emphasize man-made built-up areas. It is ratio-based to decrease the effects of changes in the illumination of the ground and atmospheric influences. The reflectance increases dramatically from the NIR to the MIR band in the built-up areas and arid country. However, vegetation has a somewhat bigger or smaller DN value (insignificant) on MIR compared to NIR. And this can be observed as the distinct increase between these bands. As a result, after differencing and binary recoding, the built-up region may be distinguished from the other covers and hence from the NDBI Pixel values of typical land covers (Xu et al., 2017). Positive values for built-up pixels are obtained via standardized MIR and NIR differentiation. For the current investigated area, the NDBI was calculated using the map algebra function (raster calculator) of ArcGIS Pro 2.5. It is represented mathematically using the formula below:

$$NDBI = \frac{MIR - NIR}{MIR + NIR}$$

whereas NIR is band 4 for Landsat-5 TM and band 5 for photos from Landsat-8 OLI, MIR is band 5 for Landsat-5 TM and band 6 for images from Landsat-8 OLI.

$$NDBI (Landsat - 5 TM) = \frac{B5 - B4}{B5 + B4}$$

$$NDBI (Landsat - 8 OLI) = \frac{B6 - B5}{B6 + B5}$$

#### 5. Land Surface Temperature (LST)

The application of LST is employed to analyze any impact of LULC and urbanization changes on temperature. Estimating the LST comprises various procedures and steps that are been described by NASA (USGS, 2019b). These procedures range from the transformation of DN to At-sensor spectral radiance, conversion of radiance to At-satellite brightness temperature, to the normalized difference vegetation index, proportional vegetation, and land surface emissivity among others which are described below:

##### 5.1. The conversion of digital number (DN) to At-sensor spectral radiance

The DN of thermal infrared band is converted into  $L_\lambda$  using the equation taken from the USGS webpage. The calibration parameters can be retrieved from metadata of the satellite image (USGS, 2019a).

$$L_\lambda = M_L \times Q_{cal} + A_L \quad (1)$$

where  $L$  denotes TOA Spectral Radiance,  $M_L$  denotes Radiance  $M_{ulr}$ -band  $x$ ,  $A_L$  denotes Radiance Add band  $x$ , and  $Q_{cal}$  is the quantized and calibrated standard product pixel (thermal band).

##### 5.2. The conversion of radiance ( $L_\lambda$ ) to At-satellite brightness temperature ( $T_{sat}$ )

This involves the conversion of  $L_\lambda$  to  $T_{sat}$  so as to obtain the actual temperature received by the satellite during the time when the image is captured. Equation (2) can be used to convert the thermal band data from at-sensor spectral radiance to effective At-sensor brightness temperature (USGS, 2019b).

$$T_{sat} = \left[ \frac{K_2}{\ln \ln \left( \frac{K_1}{L_\lambda} + 1 \right)} \right] - 272.15 \quad (2)$$

where  $T_{sat}$  is the At-satellite brightness temperature,  $L_\lambda$  is the TOA Spectral radiance,  $K_1$  represents the  $K_1$  constant of band  $x$ , and  $K_2$  presents the  $K_2$  constant of band  $x$ . **Note:** The  $K_1$  and  $K_2$  factors can be recovered from the image meta data.



### 5.3. Derivation of Land Surface Emissivity (LSE)

LSE is a crucial surface parameter that may be calculated from radiance emitted from space measurements since it is a characteristic of natural materials. The TIR data from satellites is the primary resource for assessing a region's surface emissivity. It could be employed to estimate surface emissivity using satellite data with high spatial resolution, such as TIR bands from Landsat images (Chakraborty, 2021). The land surface emissivity is an essential factor for estimating the land surface energy budget and determining the land surface temperature from remote sensing data (Nse et al., 2020). The land surface emissivity is computed using Eq. 3 below (Abdullah et al., 2022; Imran et al., 2021; Ullah et al., 2020; Kumari et al., 2018)

$$e = 0.004PV + 0.986 \tag{3}$$

where, e is the Land surface emissivity, PV presents the Proportional Vegetation, Note, and PV is computed from NDVI using Eq. 4 below:

$$PV = \left( \frac{NDVI - NDVI_{min}}{NDVI_{max} - NDVI_{min}} \right)^2 \tag{4}$$

where, PV describes the Proportional Vegetation, NDVI shows the Normal difference vegetation index, NDVI<sub>min</sub> presents the Minimum NDVI value, and NDVI<sub>max</sub> is the Maximum NDVI value.

The final Land Surface Temperature (LST) is estimated using the single Mono-window (Ullah et al., 2020; Kumari et al., 2018) as stated in Eq. 5 below:

$$LST = \frac{T_{sat}}{1 + \left( \lambda + \frac{T_{sat}}{p} \right) \times \ln \ln e} \tag{5}$$

where, LST is the Land surface temperature, T<sub>sat</sub> is the At-satellite brightness temperature, λ presents the Wave length of emitted radiance (thermal band), P is a constant (14380), and e represents the Land surface emissivity.

## RESULT AND DISCUSSION

### 1. NDVI analysis using Landsat imagery

The usefulness of the NDVI index in monitoring vegetation cover and satellite analysis has been sufficiently established during the past two decades. The NDVI values of the pixels range from -1 to +1. A wider variety of healthy plants is indicated by higher NDVI readings. NDVI's analysis shows that in 1990 the study area has a minimum value of -0.52 and a maximum value of 0.72. In 1995 there was a minimum value of NDVI of -0.24 and a maximum value of 0.58. In the meantime, in 1999, the study area has a minimum value of -0.21 and a maximum value of 0.61, while in 2004 there was a minimum NDVI value of -0.60 and a maximum value of 0.82 was. In addition, Amman City has a minimum value of -0.19 and a maximum value of 0.42 in 2013, while in 2017 a minimum value of -0.16 and a maximum value of 0.47, finally, in the year 2022, there was a minimum value of -0.24 and a maximum value of 0.59. In 2013, less value of NDVI may have been as a result of distortion in the ecosystem due to urbanization.

### 2. Analysis of NDBI using Landsat Imagery

The built-up index within Amman City was extracted using the relationship between the MIR and NIR bands of Landsat 5-TM and Landsat 8-OLI for the study year period (1990-2022). The findings demonstrate that in 1990, the investigated area had a minimum NDBI value of -1.0 and a maximum value of 0.51, in the year 1995 there was a minimum NDBI value of -0.81 and a maximum value of 0.56, in 1999 there was a minimum NDBI value of -0.99 and a maximum value of 0.76, in 2004 there was a minimum NDBI value of -1.0 and a maximum value of 0.81, In 2013 there was a minimum NDBI value of -0.69 and a maximum value of 0.53, in 2017 there was a minimum NDBI value of -0.79 and a maximum value of 0.25, most recently in 2022 a minimum NDBI value of -0.94 and a maximum value of 0.42.

### 3. Estimation of LST using Thermal band of Landsat Imagery

As previously explained, the LST was computed at the landscape level for both the Landsat TM and OLI thermal bands. Figure 4 depicts the minimum and maximum temperatures derived from Landsat TM and OLI data. Figure 4 depicts a consistent increase in the maximum temperature of the land surface within the investigated area from 39.50°C in 1990 to 46.00 in 2022, with the highest temperature recorded in 2017 (51.60°C). The conversion of vegetation, agricultural land, and bare surface into urban centers

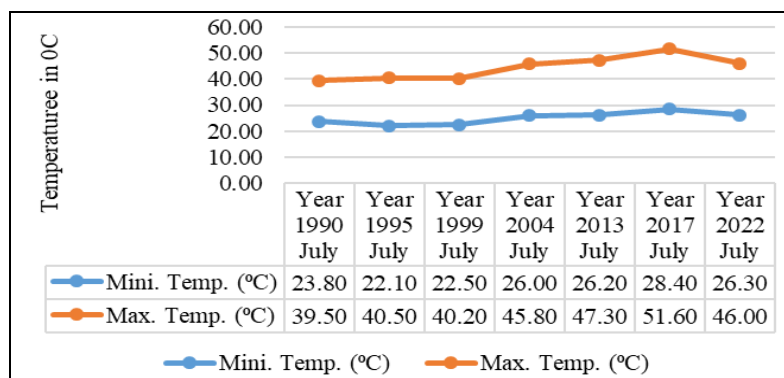


Figure 4. Result of LST analysis of Amman city from 1990 – 2022 (Source: Authors primary data Analysis, 2022. Data Source: Thermal band of Landsat Imageries used)

to accommodate the expanding population is the likely cause of this steady rise in land temperature over the course of the study year. Figure 5-11 depicts the spatial distribution of LST across Amman during the research period.

From Figure 5, Image A, B, C represent the NDVI, NDBI and LST of the investigated area in 1990 respectively. From the result of the LST (image C), built-up area (in city center) recorded the highest land temperature in July 1990, which is shown graphically in figure 5 above, with a temperature range of 33.9°C - 39.5°C. Because of the presence of agricultural land and bare surface, the northern, southern, and eastern parts of the study area recorded the lowest land temperature in 1990, with a temperature range of 23.8°C - 29.5°C.

As shown graphically in figure 6, image A, B, C represent the NDVI, NDBI and LST of the study area in 1995 respectively. From the result of the LST (image C), the built-up area (city center) recorded the highest land temperature in

July 1995 with a temperature range between 32.2°C – 40.5°C. The eastern, northern, and southern regions of the investigated area recorded the least land temperature in the year 1995 with a temperature range between 22.1°C – 33.1°C.

From Figure 7, image A, B, C represent the NDVI, NDBI and LST of the investigated area in 1999 respectively. From the result of the LST (image C), the built-up area (city center) recorded the highest land temperature in 1999 with a temperature range between 33.2°C – 40.2°C. The eastern, northern, and southern parts of the investigated area recorded the least land temperature in year 1999 with a temperature range between 22.5°C – 29.6°C. As seen graphically in figure 8 above, image A, B, C represent the NDVI, NDBI and LST of the investigated area in 2004 respectively.

From the result of the LST (image C), the built-up area (city center) recorded the highest land temperature in July 2004 with a temperature range between 38.0°C – 45.8°C. The eastern, northern, and southern parts of the investigated area recorded the least land temperature in the year 2004 with a temperature range between 26.0°C – 33.9°C. As illustrated graphically in figure 9, image A, B, C represent the NDVI, NDBI and LST of the investigated area in 2013 respectively.

From the result of the LST (image C), the built-up area in the city center, recorded the highest land temperature in July 2013, with a temperature range of 38.9°C - 47.3°C. Because of the presence of vegetated and bare land, the eastern, northern, and southern parts of the investigated area recorded the lowest land temperature in 2013, with a temperature ranging from 26.2°C to 34.6°C.

Figure 10 (image C) depicts the built-up area in city center recorded the highest land temperature in July 2017 with a temperature range between 42.4°C and 51.6°C due to the absence of vegetated land. whereas the southern, northern, and eastern parts of the investigated area recorded the lowest land temperature in the year 2017 with a temperature range between 28.4°C and 37.7°C.

From figure 11, image A, B, C represent the NDVI, NDBI and LST of the investigated area in 2022 respectively. From the result of the LST (image C), the built-up area (city center) recorded the highest land temperature in July 2022 with a temperature range between 38.2°C – 46.0°C, part of the north-east, south-west and north-western region of Amman recorded the lowest land temperature in the year 2022 with a temperature range between 26.3°C – 34.1°C as a result of the existence of vegetated and bare land.

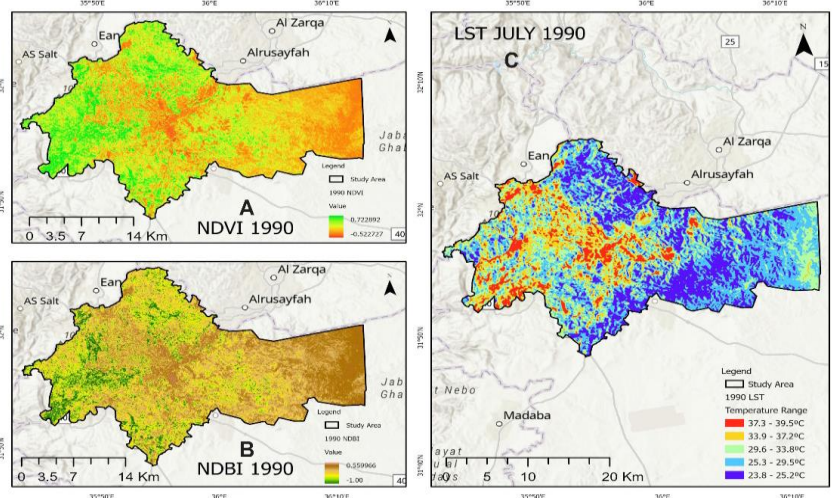


Figure 5. Amman's spatial distribution of NDVI (A), NDBI (B), and LST (C) in 1990 (Source: Authors primary data Analysis, 2022)

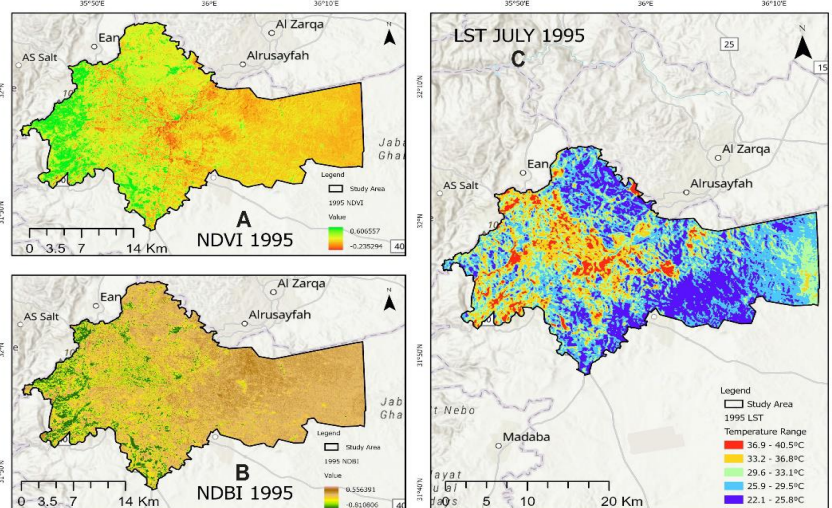


Figure 6. Amman's spatial distribution of NDVI, NDBI and LST in 1995 (Source: Authors primary data Analysis, 2022)

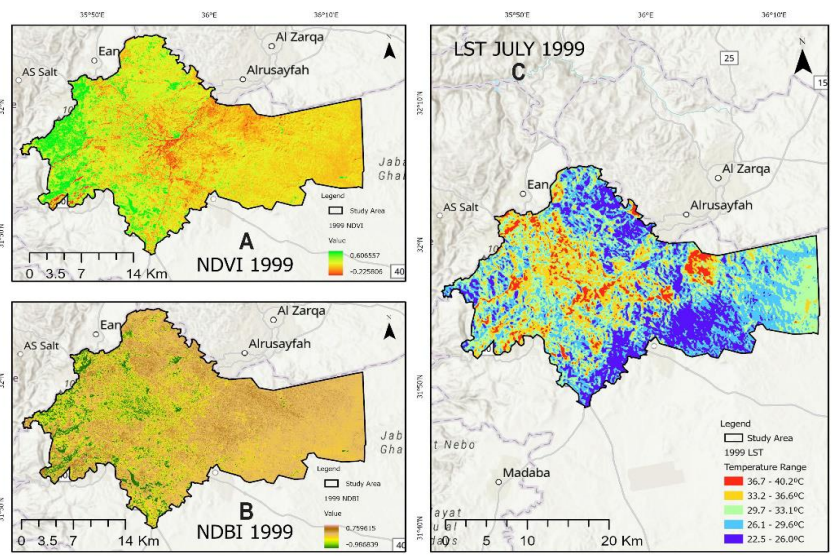


Figure 7. Amman's spatial distribution of NDVI, NDBI, and LST in 1999 (Source: Authors primary data Analysis, 2022)



The results of the LST investigation show that urbanization increases LST by replacing natural vegetation with non-evaporating, non-transpiring surfaces like soil, concrete, and cemented buildings, among others. Due to the dryness of these non-evapotranspiration materials in the urban environment, there is fluctuation in LST within the research region.

#### 4. Spatio-temporal distribution of LST in Amman city

Tables from 3- 9 shows the spatio-temporal areal coverage of the different LST range in Amman city from 1990 to 2022, the statistical data was extracted from the LST analysis.

Table 3. Spatio-temporal distribution of LST in Amman city in 1990

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 23.8 - 25.2°C     | 34.08                   |
| 25.3 - 29.5°C     | 586.20                  |
| 29.6 - 33.8°C     | 2.71                    |
| 33.9 - 37.2°C     | 168.07                  |
| 37.3 - 39.5°C     | 4.91                    |

Table 4. Spatio-temporal distribution of LST in Amman city in 1995

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 22.1 - 25.8°C     | 2.28                    |
| 25.9 - 29.5°C     | 69.79                   |
| 29.6 - 33.1°C     | 250.92                  |
| 33.2 - 36.8°C     | 414.00                  |
| 36.9 - 40.5°C     | 58.98                   |

Table 5. Spatio-temporal distribution of LST in Amman city in 1999

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 22.5 - 26°C       | 69.61                   |
| 26.1 - 29.6°C     | 462.35                  |
| 29.7 - 33.1°C     | 240.36                  |
| 33.2 - 36.6°C     | 22.43                   |
| 36.7 - 40.2°C     | 1.22                    |

Table 6. Spatio-temporal distribution of LST in Amman city in 2004

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 26 - 29.9°C       | 46.38                   |
| 30 - 33.9°C       | 1.88                    |
| 34 - 37.9°C       | 272.24                  |
| 38 - 41.9°C       | 424.59                  |
| 42 - 45.8°C       | 50.88                   |

Table 7. Spatio-temporal distribution of LST in Amman city in 2013

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 26.2 - 30.4°C     | 61.55                   |
| 30.5 - 34.6°C     | 1.04                    |
| 34.7 - 38.8°C     | 449.25                  |
| 38.9 - 43.0°C     | 29.44                   |
| 43.1 - 47.3°C     | 254.69                  |

(Source: Authors primary data analysis, 2022 Data source: Extracted from the 2022 LST analysis)

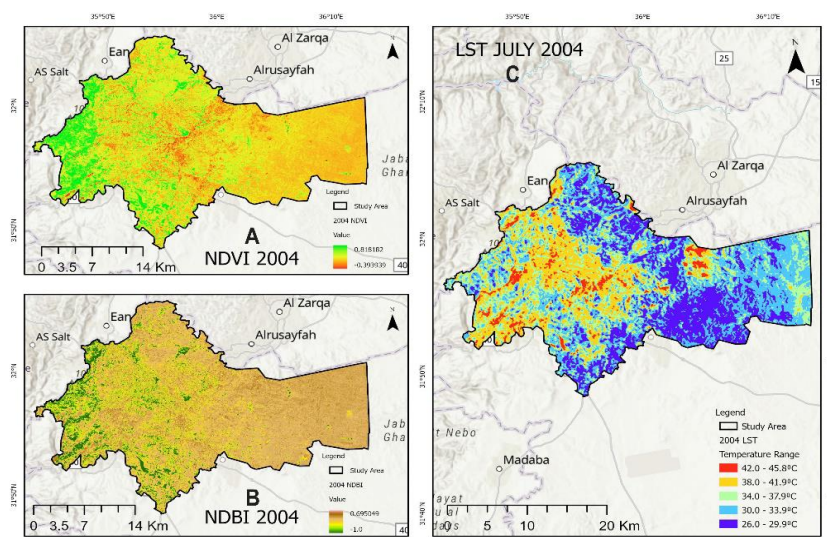


Figure 8. Amman's Spatial distribution of NDVI, NDBI and LST in 2004 (Source: Authors primary data Analysis, 2022)

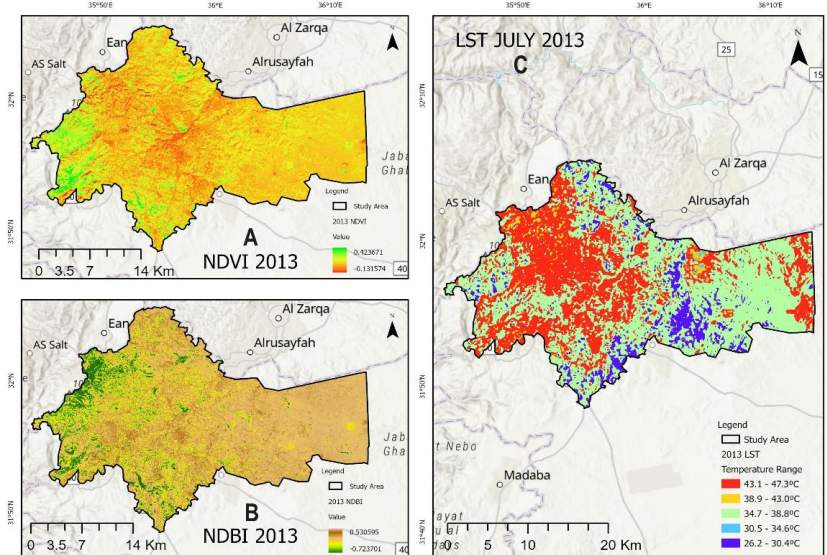


Figure 9. Amman spatial distribution of NDVI, NDBI and LST in 2013 (Source: Authors primary data Analysis, 2022)

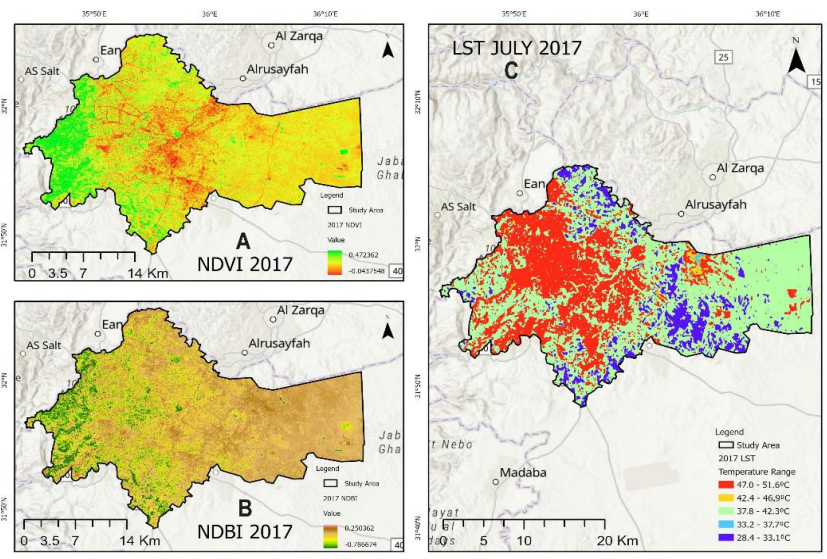


Figure 10. Amman's spatial distribution of NDVI, NDBI and LST in 2017 (Source: Authors primary data Analysis, 2022)



Table 8. Spatio-temporal distribution of LST in Amman city in 2017

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 28.4 - 33.1°C     | 74.83                   |
| 33.2 - 37.7°C     | 19.88                   |
| 37.8 - 42.3°C     | 462.50                  |
| 42.4 - 46.9°C     | 5.99                    |
| 47 - 51.6°C       | 232.77                  |

Table 9. Spatio-temporal distribution of LST in Amman city in 2022

| Temperature Range | Area (Km <sup>2</sup> ) |
|-------------------|-------------------------|
| 26.3 - 30.2°C     | 30.10                   |
| 30.3 - 34.1°C     | 2.49                    |
| 34.2 - 38.1°C     | 400.25                  |
| 38.2 - 42.0°C     | 26.43                   |
| 42.1 - 46.0°C     | 336.70                  |

Source: Authors primary data analysis, 2022; Data source: Extracted from the 2022 LST analysis

**5. Relationship between NDBI, LST and NDVI in Amman city**

To determine the connection between LST, NDVI and NDBI, Pearson's correlation has been applied. The Pearson correlation coefficient quantifies the linear relationship between two data recordings, X and Y. It has a value between -1 and +1, where 1 shows a strong positive correlation, which indicates a strong negative correlation. A correlation coefficient between LST and NDVI, LST and NDBI has been calculated to examine the effects of the land built and agricultural on the temperature of the land surface. Table 10 shows the results of the statistical analysis carried out. Table 10 compares Pearson's correlation coefficients to Spearman's rank correlation coefficients for the LST-NDVI and LST-NDBI relationships.

The result of the correlation coefficient, as shown in Table 10, shows that between 1990 and 2022, there is a significant correlation between NDBI (built) and LST (earth temperature). The fact that LST and NDBI are positively correlated suggests that the research area's built-up urban area can enhance the influence of land surface temperature. Given that a consistent increase in urban area between the study years corresponds to an equivalent increase in land surface temperature, this result explains how urban sprawl and growth affect the environment. The correlation coefficient result, on the other hand, shows that there is a significant negative relationship between the NDVI (agriculture land) and LST (land temperature) between 1990 and 2022. The inverted correlation between NDVI and LST implies that green areas can reduce the impact on the land surface temperature as an increase in agriculture and vegetation covers leads to a decrease in surface temperature and vice versa. The relationship between NDBI, LST, and NDVI shows that increasing the NDBI value increases the LST value and vice versa. Furthermore, Increasing the NDVI value causes the LST value to decrease, and vice versa.

**6. Spatial distribution of road network in Amman city (1990 - 2022)**

As shown in table 11 below, in year 1990 Amman city has a total road length of 173.42 km, 220.95 3km and 246.20 km in year 1995 and 1999 respectively, in year 2004 the total road length increased to 305.95 km. In year 2013 it became 453.91 km, whereas in 2017 and 2022 Amman city recorded the same total length of road network of 556.51 km. This result shows that within the study year (1990 - 2022) because of the increase in population and road demand, there has been an increase in the construction of road networks. Figure 12 depicts the spatial distribution of Amman's road network during the study years.

**7. Spatial relationship between road network and built-up area in Amman (1990 - 2022)**

As shown in figure 13 below, the development of the road networks and built-up area has a direct relationship i.e there is a corresponding increase in built up area and road network. The result shows that in year 1990 Amman city has a total road length of 173.42km with a built-up extent of 107.32km<sup>2</sup>. In 1995, there was a total road length of 220.95km and a built-up area of 139.25km<sup>2</sup>, in 1999 there was a total road length of 246.2km and a built-up area of 152.54km<sup>2</sup>. In 2004 there was a total road length of 305.95km and a built-up area of 178.18km<sup>2</sup>. Furthermore, in 2013 there was a total road length of 453.91km and a built-up area of 204.03km<sup>2</sup>. On the other hand, there was an equal total road length of 556.51km in 2017 and 2022, with a built-up area of 233.90km<sup>2</sup> and 257.35km<sup>2</sup> respectively. This result explains that increase in construction of road network attract land development and further result to the spread of unplanned settlement (sprawl). Figure 14 shows the spatial distribution of the network of roads and built-up area in Amman city during the study year.

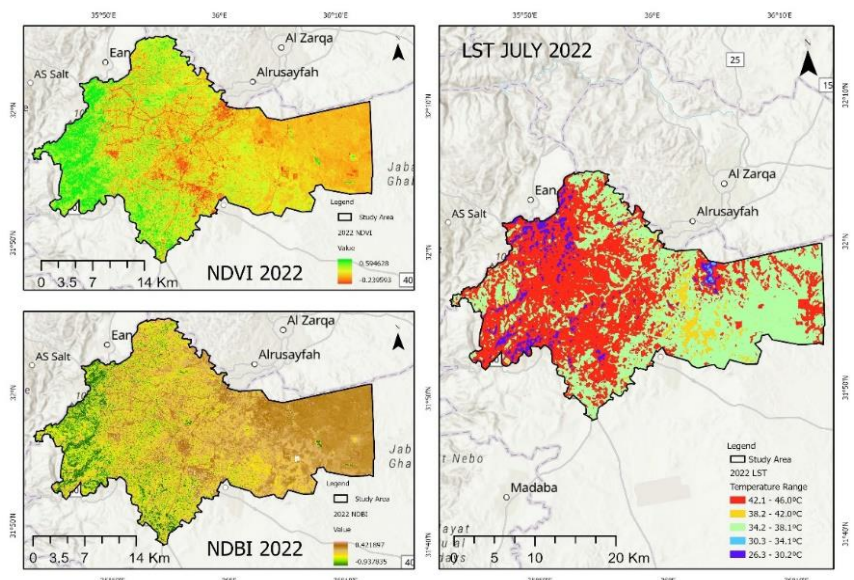


Figure 11. Amman spatial distribution of NDVI, NDBI and LST in 2022 (Source: Authors analysis, 2022)

Table 10. Pearson and Spearman correlation between LST with NDVI and LST with NDBI

| Year | LST-NDVI    |              | LST-NDBI    |              |
|------|-------------|--------------|-------------|--------------|
|      | Pearson's r | Spearman's r | Pearson's r | Spearman's r |
| 1990 | -0.99       | -1.00        | 0.9931      | 1.00         |
| 1995 | -1.00       | -1.00        | 1.00        | 1.00         |
| 1999 | -1.00       | -1.00        | 1.00        | 1.00         |
| 2004 | -1.00       | -1.00        | 1.00        | 1.00         |
| 2013 | -1.00       | -1.00        | 1.00        | 1.00         |
| 2017 | -1.00       | -1.00        | 1.00        | 1.00         |
| 2022 | -1.00       | -1.00        | 1.00        | 1.00         |

Table 11. Length of road network in Amman city per study years (Source: Authors analysis, 2022)

| Year | Length of Road |
|------|----------------|
| 1990 | 173.42 km      |
| 1995 | 220.95 km      |
| 1999 | 246.20 km      |
| 2004 | 305.95 km      |
| 2013 | 453.91 km      |
| 2017 | 556.51 km      |
| 2022 | 556.51 km      |

### 8. Correlation between the road network and the built-up area in Amman city (1990 - 2022)

Pearson's correlation method was employed to generate the correlation between road network and built-up area. The results of the correlation analysis are shown in Table 12.

Table 12. The overall result of the correlation between the road network and built-up area (Source: Authors Analysis, 2022)

| Year        | Road/Built-up |
|-------------|---------------|
| 1990 - 2022 | 0.98          |

Table 12 shows a robust positive correlation (0.98) between the extent of the network of roads and the built-up area in Amman during the study year (1990 - 2022). This finding explains how land development has spread as a result of increased road construction.

### CONCLUSIONS AND RECOMMENDATIONS

Given the complexity of the urban surface (buildings, roof tops, farms, etc.), GIS and RS techniques are crucial for studying urban climate. Due to the challenge of obtaining a representative measure of surface temperature, air temperature data from meteorological stations are typically located at the airport, which is frequently cited at the edge of cities. Due to the heterogeneous nature of the urban surface, it is additionally challenging and time-consuming to obtain climatic data for urban areas. Because of this, the analysis of surface temperature using GIS and RS is crucial for identifying how urban sprawl affects the environment. This research also demonstrates how GIS and RS can be used to estimate how the road network will affect urban sprawl and the environment.

Parameters such as NDVI and NDBI, which extract information on greenness and imperviousness, can be used to demonstrate the spatiotemporal changes in land-cover patterns and, when combined with LST data, show the environmental effects of urban sprawl. Effort was made to determine the NDBI,

LST, and NDVI for Amman. The study demonstrates that a decline in agricultural land is caused by a proportionate increase in built-up area. The findings of the NDVI analysis explains that there has been variation in vegetation index during the study year due to human activities and also climatic change. Result from this study shows that a proportional growth in built-up area result to a reduction in agriculture land. The estimated NDVI and NDBI maps indicated that Amman city steadily witnessed rapid urbanization and urban sprawl as built-up areas increased from 1990 to 2022, vegetation reduced.

The estimated LST maps revealed that surface temperatures in Amman city have been on the increase from 1990 to 2022 (25.2°C– 46.0°C). The high LST dominates the surface of the city, especially within the built-up areas, and the lower LST dominates areas with green cover (vegetation and agricultural land). Therefore, changes in LST is an essential indicator that can be utilized for assessment environmental quality as well as development of socio-economic policy.

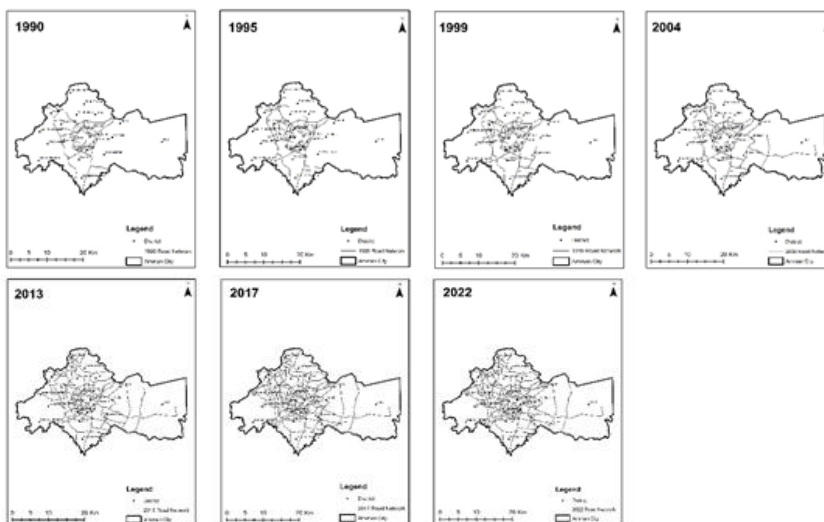


Figure 12. Spatial distribution of road network in Amman city between 1990 and 2022 (Source: Authors analysis, 2022 Based on the road data digitized from aerial photographs)

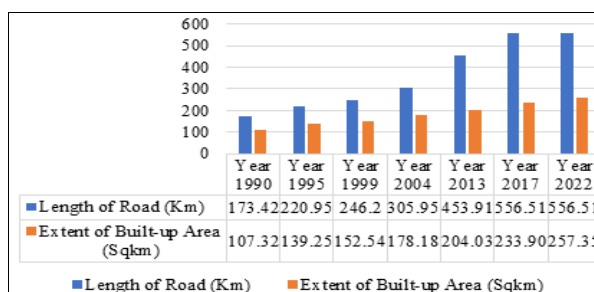


Figure 13. Relationship between the road network and the built-up area in Amman city between 1990 and 2022 (Source: Authors analysis, 2022; Based on the road data digitized from aerial photographs)

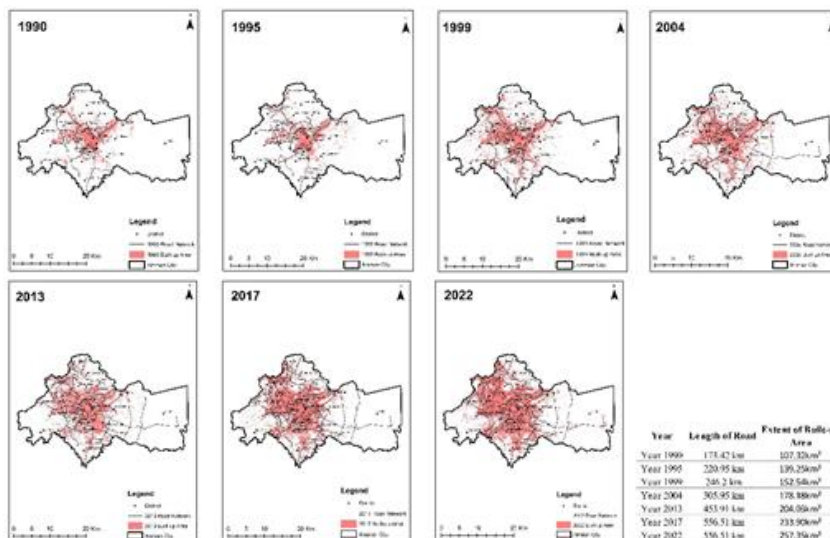


Figure 14. Spatial distribution of the road network and the built-up area in Amman city (1990 - 2022) (Source: Authors analysis, 2022; Data source: Aerial photographs and Landsat Imagery)



Amman's rising surface temperature is a result of the conversion of agricultural and bare land into developed regions to meet the needs of the city's expanding population. However, since the LST is one of the crucial variables for the investigation of urban morphology, the findings of this study clearly demonstrate that the LST varies in distance and time. Given the strong positive link between NDBI and LST, it follows that land surface temperature will rise as urbanization increases. In order to mitigate the effects of LST, towns should create more green spaces in densely populated metropolitan areas.

Our new results show that the built-up area (as an indicator of urbanization) and the vegetated area play a crucial role in assessing the effects of urbanization and human activity on the environment by estimating the temperature of surface. Another finding is that as built-up land increase within the city center, temperature also increases. This factor can be measured only by correlating the NDBI and NDVI factor with LST. Our finding proof that urbanization shows a key part in the occurrence of urban sprawl as this work demonstrates that there is a strong positive correlation between road network and built-area (0.98). Built-up areas increase proportionately to the extent of road network (accessibility) through urbanization process which has adverse socio-economic and environmental impact. Since urbanization cannot be stopped, but it can be sustainably redirected with the proper urban planning, management, and application of policies, and this study is an attempt in that direction. To stop the current condition of land cover change, immediate action must be done by creating a sustainable city plan. Greater Amman municipality should set the goal of becoming a sustainable model city and take appropriate measures to achieve it. Some of the recommendations include the following:

- a. The necessity for local governments to encourage afforestation initiatives to increase the amount of green space that reduce the impact of high LST.
- b. Since 14% of Greater Amman still falls under the category of agricultural land. For sustainable development, planners and decision-makers should place a high priority on reducing urban sprawl and preserving the remaining agricultural lands and supporting policies related to the development of urban agriculture and incentives to the public and private sectors.
- c. Support smart growth initiatives: Smart growth initiatives focus on compact development and redevelopment of built-up areas in cities.
- d. incorporating green and cool roofing techniques into building designs because of their high albedos and low heat absorption.
- e. Urban managers and planners should start redesigning cities so that many parks, buffer zones, gardens, orchards, and open spaces will be included in the city's physical plans.
- f. Finally, it is recommended that Amman municipality adopt effective data management experiences, regulations, and policies from developed countries as well as successful developing countries in which Amman shares the same city feature to reduce the adverse environmental impacts of urbanization and enhance the sustainability of Amman city.

### Limitations

Since LST and NDVI can be affected by a wide variety of environmental factors, future research should characterize these factors. The results of this study are only applicable to cities with similar characteristics to Amman, which is another limitation. Therefore, to verify these findings, additional research that considers cities with various morphological features should be carried out.

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## THE ENVIRONMENTAL CONSERVATION VALUE OF TENGGER TRIBE'S TRADITIONAL CEREMONY IN SUPPORTING THE MOUNT BROMO TOURISM AREA

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**Abstract:** This research aimed to determine the environmental conservation value of the Tengger tribe's traditional ceremony in supporting the Mount Bromo tourism area. This research applied a qualitative ethnographic approach in Sukapura District, Indonesia. The data was collected through in-depth interviews, non-participatory observations, and documentation, then analyzed using six steps of a qualitative approach. The pujan kasanga, pujan kasada, and unan-unan ceremonies show the value of belief in the sacredness of Tengger's land, harmonious relationship with the environment, worship of the occupied land, respect for the environment, and gratitude for the blessing of fertile land. The values are expressed in daily life for self-regulating the environment of the Mount Bromo tourism area. The series of traditional ceremonies provided an additional attraction in the form of the beauty of agroforestry land management, the cultural attraction that many are concerned with reducing plastic waste, and the cultural attractions that show the man and environment harmony.

**Key words:** environmental conservation, local wisdom, Tengger tribe, traditional ceremony, value

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### INTRODUCTION

The Mount Bromo tourism area preserves its natural environment. This area has a unique characteristic, which is The Tengger tribe's cultural values related to the environment in the Mount Bromo tourism area, which promotes tourism. It is supported by research about local wisdom that benefits the area, such as the Kanikaran Tribe in Ghat, India, who live on the Tirunelveli hill, conserves 54 plant species for medicinal uses (Ayyanar and Ignacimuthu, 2005).

The Mount Bromo tourism area is featured in the famous Indonesian tour that attracts local and international tourists. According to the Bromo Tengger Semeru National Park Center, there were 825,205 visitors to the National Park Tourism Area of Bromo Tengger Semeru in 2020, generating an annual income of IDR 394 billion. The availability of the main tourism in supporting by natural and cultural environment increased both the duration of tourist visits and the number of tourists (Bargeman and Richards, 2020). Mount Bromo tourism is based on ecological and Tengger's cultural knowledge supported by the environmental sustainability of the area's tourism and accommodation facilities. The culture that affect the environment, such as the Bajo tribe in the Wakatobi National Park and the Balinese on the island of Bali, attracts tourists to the cultural attractions themselves and the effects of the behavior of cultural actors on the environment that support the sustainability and beauty of the supporting tourist area (Marlina et al., 2020, 2021; Sumarmi, 2017).

Mount Bromo tourism area, with the beauty of its natural landscape in a concrete way, holds sacred values for the culture of the Tengger tribe in the abstract. Mount Bromo, also known as *Brahma* (volcano) in the local language, is recognized as a holy mountain and the home of *Dewa Kusuma* (God) and *Dewa Brahma* (God). A tribe's belief directs its members to behave in a certain way, such as the beliefs of the African tribe, which tell them to respect the forest, and the beliefs of the Caicara tribe in Ilhabela, Brazil, which direct them to respect the sea (Dei, 1993; Modeen, 2020). Certain tribes' cultures will follow the environment in which they live, such as the Bajo tribe, who protect the marine environment

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in the Wakatobi Islands, Indonesia, and those of African-American origin in Georgina Beach, USA, which preserve some of the habitats of marine life while fishing (Hoskins-Brown, 2020; Marlina et al., 2020).

The Tengger tribe has its calendar system and a variety of ceremonies, both those related to that calendar and unrelated to it. The calendar include the *pujan* and *unan-unan* or *mayu bumi* ceremonies. The *pujan* is further classified into six ceremonies. The *pujan kasanga* ceremony is related to avoiding disaster and purification from sinful activities in the village and is believed to be directly associated with the environmental protection of the Mount Bromo tourism area. Moreover, the *pujan kasada* ceremony is connected to the preservation of Mount Bromo's environment and appreciation for the agroforestry ecosystem. Meanwhile, the *unan-unan* ceremony is believed to motivate the Tengger tribe to live in the agricultural environment in general. Ceremonies can provide confidence and action to follow the principles, which is a positive thing, as demonstrated by the Ammatoa tribe's ceremony that protects forests in South Sulawesi, Indonesia and *tumpe wariga* ceremony by Tenganan community Bali, Indonesia (Sumarmi et al., 2020b; Syarif et al., 2016).

The *pujan kasada* ceremony is still performed consistently and with many participants of the Tengger tribe in the Mount Bromo tourism area of Probolinggo, East Java. The event is held once a year on the 10<sup>th</sup> month of the Tengger calendar. Participants to the ceremony throw *ongkek* (offerings) into the crater of Mount Bromo. The offerings mean of purity and holiness of the Mount Bromo tourism area to increase a deeper connection between the tribe and their surroundings. This sacred activity demonstrates the interaction between locals and their surroundings (Evstrop'eva, 2013).

The *pujan kasanga* and *unan-unan* ceremonies are typically performed by the lower level of Tengger tribe. Sacred ceremonies enhance the process and its application to life with wisdom, particularly in the environment. The torch relay and the planting of buffalo skulls became a tourist attraction with cultural nuances while also giving environmental issues in this ceremony. The cultural attractions must disseminate to increase the new special interest in tourism (Bargeman and Richards, 2020). This interpretation is similar with the Bajo tribe, which performs ceremonies and prays to *Mbo* (God of the ocean) and must follow *Mbo*'s instructions when going to sea, so it indirectly protects the marine environment (Basri et al., 2017).

These ceremonies are followed with respect by all the people of the Tengger Tribe so that the culture can be sustainable. Cultural extinction occurred in various tribes that did not provide knowledge to the next generation, such as the use of *empyak raguman* (using bamboo in building a house), which was no longer applied in Java, and the culture of the Utila-Caribbean community, which caused damage of their island and maritime environment (Kent and Brondo, 2020; Vitasurya et al., 2020).

## LITERATURE REVIEW

Several previous researchers have conducted studies on local wisdom concerning the environment. The first research by Gadamus et al. (2015) on the tribes in Bering Strait, the territory of Alaska, protects seal and walrus habitats from uncontrolled hunting and natural death. Experience values in the availability of food for seals and walruses, as well as explanations about marine pollution, are essential inputs from the tribes studied on government policies regarding habitat conservation.

The second research by Marlina et al. (2020) explores the local wisdom of the Bajo tribe in preserving the ocean in the Indonesian tourism zone of Wakatobi National Park. The values in *duata sangal*, *parika*, and *pamali* support marine conservation with traditional fishing and high respect for the sea. Third, research by Hoskins-Brown (2020) focused on African-American fishers on Georgina Beach, United States, that use basic equipment and vessels to avoid exploitation. This community uses simple tools and boats to adopt a subsistence or part-time fishing model. This way has implications for an exploitative catches, as in the fishing industry. The fourth research by Modeen (2020) examined the Caicara tribe of Ilhabela Island in Brazil, which prioritized catching large fish and releasing smaller ones to keep sustainability.

The community does artisanal fishing with simple fishing tools and boats. Fish is the main thing in this community that makes them pay attention to its sustainability. The fifth research by Dei (1993) related to the mystic belief of African tribes to preserve forest trees, passed down from generation to generation. The sacred trees are founded in the forest, especially the giant trees. The community does not dare to cut down trees carelessly, and this belief has been passed down from generation to generation. The sixth research by Ayyanar and Ignacimuthu (2005) examined the knowledge of the Kani tribe in the mountainous area of Tirunelveli, Tamil Nadu, India, which linked plant species with traditional medicine.

Fifty-four plants are used as medicine, and their sustainability is maintained. Seventh, in research by Matteucci et al. (2022) on cultural tourism, cultural actors must coexist with existing tourism policymakers. Community activities and social movements need to be increased to form cultural tourism. Furthermore, the design and management of cultural tourism also need to be given to the local community. Eighth, research Moayerian et al. (2022), the role of local communities must be sharpened in developing cultural tourism, such as culture in Central Appalachia. Community capacity, citizen participation, and local partnerships in tourism management can enhance cultural tourism.

This research is different from the six researches mentioned above. The difference in this study is that it discussed the environment concerning culture. In contrast, the previous research focused on the environment of the sea and forest, specifically in the maritime environment with various maritime species, as well as the forest environment of certain trees or plants. The second to fourth studies have implications for tourism activities, as in this study. However, national park tourism in the form of a mountainous environment has yet to be seen from the studies above. The seventh and eighth studies are models for the development of cultural tourism as a reinforcement of this research, where the concept of development in terms of local community participation is widely discussed in this study.

Previous research related to the Tengger tribe and its environment, first Sumarmi (2018a) focuses on the economic activities of the Tengger people in managing forests using an agroforestry system by following local wisdom in the *Tri Hita Karana* values. The community performs rituals at harvest time and plants under pine trees in flat or steep areas. Cutting pines to clear land for vegetable farming is a concern for the Bromo Tengger Semeru National Park Center to control.

The second research by Sumarmi (2018b) focuses on *Sesanti Panca Setia's* local wisdom in understanding community-based forest conservation actions. *Sesanti* five faithful is a doctrine in protecting the forest environment of the Tengger people, with *setya budaya* meaning independent, *setya wacana* meaning faithful to words, *setya semya* meaning loyal to promises, *setya laksana* meaning obedient, and *setya mitra* representing loyal to friends. These five local wisdoms are implemented in managing and conserving forests based on a sustainable agricultural business. The research also mentions the *yadnya kasada* ceremony. Third, research by Astina et al. (2021) regarding the traditional ceremony of the Tengger tribe concerning sustainable tourism and sustainable resources. Identified ceremony are *kasodo*, *karo*, and *unan-unan*.

Ceremonies related to activities within the Bromo Tengger Semeru National Park tourist attraction are sustainable and maintain sustainable natural resources. The three researches above examined the Tengger Tribe, which focused on philosophy, while this research focused on the traditional ceremonies of the Tengger Tribe. The Astina et al. (2021) research is the same as examining the ceremonies of the Tengger Tribe. However, there are differences in the types of ceremonies studied and their contribution to tourism. The focus of the previous research is within the Bromo Tengger Semeru National Park area, while this research is on the inside and outside of the Bromo Tengger Semeru National Park area, especially in four villages in Sukapura District, Indonesia, which are the main entrances to the Mount Bromo area. The contribution of previous research in tourism focuses on ecotourism within the Bromo Tengger Semeru National Park area, while this research is on supporting natural and cultural tourism in the Mount Bromo Tourism Area.

This study is expected to show positive results from ceremonies performed by the Tengger tribe that lived far from Mount Bromo to strengthen their culture. Furthermore, communities surrounding Mount Bromo are more knowledgeable and objectively aware of the elements beyond cultural traditions that make the tourism industry more appealing to travelers. Moreover, this research is intended to be used by the general public and students as contextual learning material and as a role model for cultural activities that preserve the environment. Local wisdom research can serve as contextual material that students can follow (Andriana et al., 2017; Hartini et al., 2018; Sejati et al., 2019). This research aimed to determine the environmental conservation value of the Tengger tribe's traditional ceremony in supporting the Mount Bromo tourism area.

## METHODOLOGY

This research applied a qualitative ethnographic approach. The research analyzed the meaning of the Tengger tribe's traditional ceremonies associated with the Tengger calendar through listening, observing, translating, and documenting events. Ethnomethodological research aims to understand the lives of individuals or communities (Fatchan, 2015). The primary participants of the study were key informants from the villages of Ngadisari, Wonotoro, Jetak, and Ngadas in Sukapura District, Probo lingo Regency, East Java Province. The location was selected because there are four villages close to the Bromo Tengger Semeru National Park, and most of the villagers are Tengger Tribe who actively practice traditional ceremonies. These four villages were near the major road to the Mount Bromo tourism area directed from Probolinggo Regency. Furthermore, the four villages offer supporting tourism activities such as engaging farming activity, homestays/lodging, jeep rentals, horse rentals, motorbike rentals, and food kiosks. The research location map is shown in the following Figure 1.

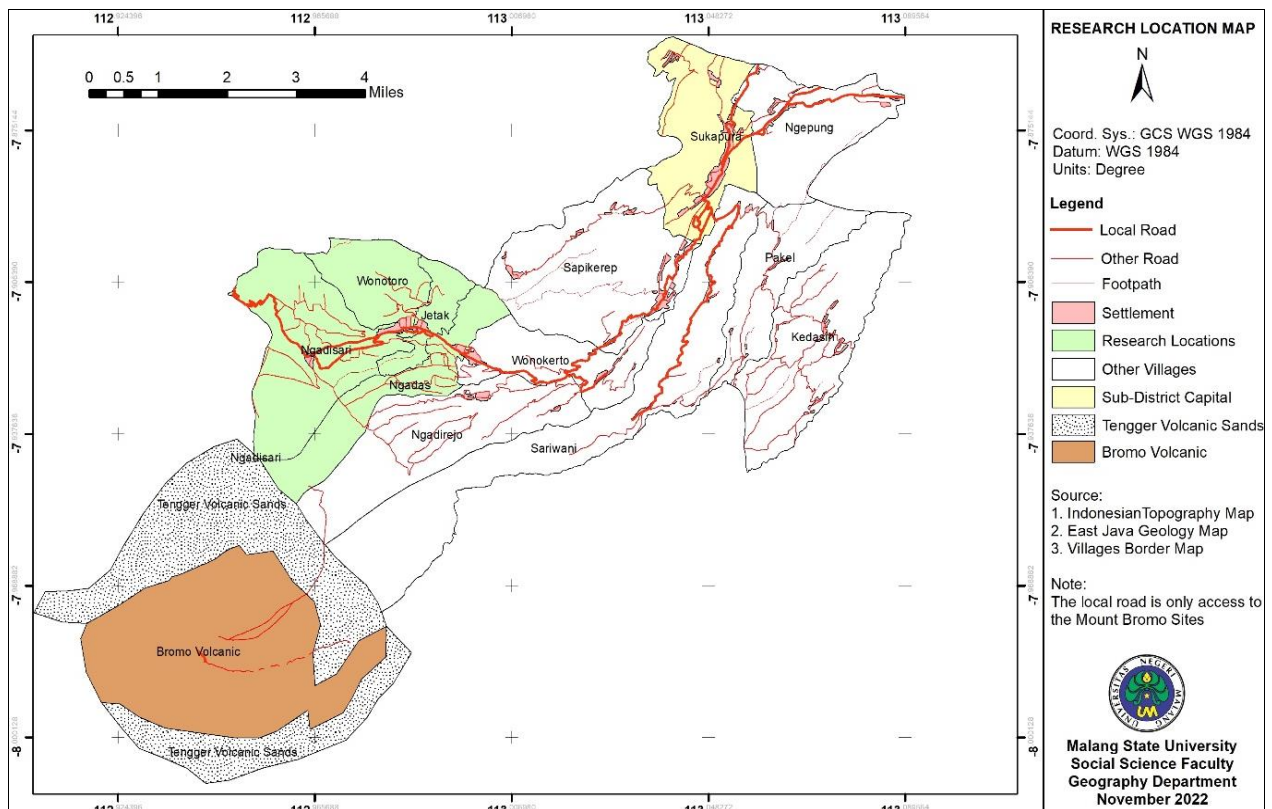


Figure 1. The research location map (Source: Map by research documentation elaborated by authors, 2022)



Figure 1 shows the map of the research location, namely the Mount Bromo tourism area, according to Toulrier et al. (2019), consisted of Tengger sea sand caldera and peripheral zones of volcano structure and went through the research location as the main road leading to the entrance of Probolinggo Regency. These four villages are the closest to Mount Bromo and offer various supporting tourism services. According to the documentation data in the map and villages monograph, the length Tengger sea sand caldera from Local Road to Ngadisari village is 2.44 miles, Wonotoro villages 3.78 miles, Jetak village 4.03 miles, and Ngadas village 4.25 miles. The next villages in line with local roads are Wonokerto, and Sapikerep is farther than the four villages. Furthermore, the four villages offer supporting tourism activities such as beauty vegetable, and fruit farming activities, tourism guides, homestays, jeep rentals, motorbike rentals, horse rentals, food kiosks, and fuel kiosks. The research subjects were selected using a purposive technique sampling method. The study participants are the community familiar with and participate in Tengger tribe ceremonies, including traditional shamans, village officials, and older peoples. Interventions of qualitative research in identifying research subjects based on consideration or a solid foundation (Cresswell, 2019; Sugiyono, 2019). The research informant is shown in the following Table 1.

Table 1. The research informant (Source: Research analysis, 2022)

| Nu. | Initial  | Position  | Selection  |
|-----|----------|---|--|
| 1   | Mr. STM  | Head of the Shaman in Tengger and Shaman in Ngadisari village | Leader of traditional ceremonies in Ngadisari village and main leader of <i>Pujan Kasada</i> ceremony in Tengger areas |
| 2   | Mr. JT   | Shaman in Wonotoro village                                    | Leader of traditional ceremony in Wonotoro village   |
| 3   | Mr. SYT  | Shaman in Jetak village                                       | Leader of traditional ceremony in Jetak village  |
| 4   | Mr. SMT  | Shaman in Ngadas village                                      | Leader of traditional ceremony in Ngadas village   |
| 5   | Mrs. SS  | Head of General Affair in Ngadisari village                   | The government representative who led the traditional ceremony in Ngadisari village.                                   |
| 6   | Mr. STK  | Secretary in Wonotoro village                                 | The government representative who led the traditional ceremony in Wonotoro village                                     |
| 7   | Mr. SJN  | Head of Desa Jetak village                                    | The government representative who led the traditional ceremony in Jetak village  |
| 8   | Mr. MLY  | Secretary in Ngadas village                                   | The government representative who led the traditional ceremony in Ngadas village                                       |
| 9   | Mrs. RHY | Villager in Ngadisari village                                 | Representatives of Ngadisari village who participated in the Tengger traditional ceremony                              |
| 10  | Mrs. IR  | Villager in Wonotoro village                                  | Representatives of Wonotoro village who participated in the Tengger traditional ceremony                               |
| 11  | Mr. MTR  | Villager in Jetak village                                     | Representatives of Jetak village who participated in the Tengger traditional ceremony                                  |
| 12  | Mrs. EN  | Villager in Ngadas village                                    | Representatives of Ngadas village who participated in the Tengger traditional ceremony                                 |

Informants also contributed to the completion of the data by adding Mr. STR as Head of the Community Welfare Department for Wonotoro village, Mr. GP as representative of Ngadisari village, and Mr. SG as a tourism actor in the Bromo Tengger Semeru National Park tourism area. In qualitative research, increasing the number of respondents is expected to collect the required data (Fatchan, 2015; Moleong, 2016; Spradley, 2007).

The research instrument is in the form of the interview guide developed by Sugiyono (2019) question types relating to the informant’s experience, opinion, and knowledge. The content of questions related to traditional ceremonies in terms of the phenomenon of plastic materials, flowers used, cleaning garbage in ceremonies, proper equipment, offerings, sacrifices, and the role of respondents in traditional ceremonies. The interview guide consisted of 12 questions per traditional ceremony and was developed through in-depth interviews in the field. Three expert validators validated the instrument.

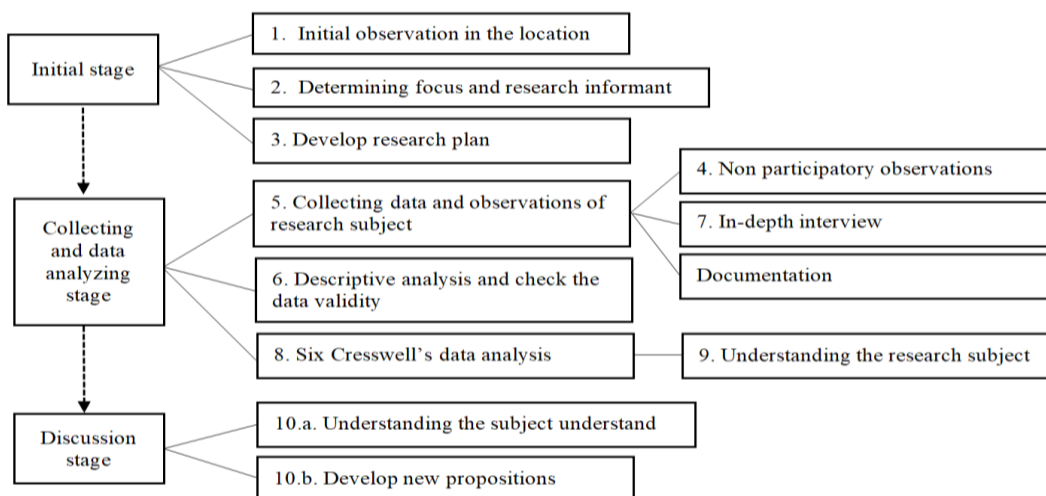


Figure 2. The research steps flowchart (Source: Modified by Fatchan, 2015)

The research procedure used ten qualitative research steps by Fatchan (2015). First, make initial observations regarding the environment at the research location and sacred places. Second, determining research informants with components of shamans, village government representatives, and community representatives. Third, develop a research plan. Fourth, conduct further non-participatory observations. Fifth, make observations of research subjects. Sixth, perform descriptive

analysis and check the validity of the data. The seventh step is to conduct in-depth interviews with research subjects. Eighth, do a substantial analysis. Ninth, understanding the research subject. Tenth, understanding the subject understand and developing new propositions. The data of this study consisted of primary data in the form of ceremony values of *pujan kasanga*, *pujan kasada*, and *unan-unan* related to the environment, which was collected through in-depth interviews and non-participatory observation. Secondary data was collected through documentation in the form of village monographs, research photos, and report documents at the Bromo Tengger Semeru National Park Center.

Data were analyzed using qualitative analysis by Cresswell (2019). First, all data for analysis is transcribed as part of data processing and preparation. Second, read and input all obtained data. Third, reduce data by selecting, reducing, simplifying, abstracting, and transforming data. Fourth, evaluate the *pujan kasanga*, *pujan kasada*, and *unan-unan* ceremony data in further detail by assigning and classifying the data to components of local wisdom that are relevant to environmental conservation in the Mount Bromo tourism area. Fifth, investigate the local knowledge aligned with environmental conservation based on code categories at a deeper level. Sixth, study distinctive and interesting things and make conclusions. The flowchart of the research procedure shown in the following Figure 2.

**RESULTS AND DISCUSSION**

**Tengger areas and Tigo Weningan**

The Tengger tribe considers their land to be sacred. Mount Bromo means *Brahma* (volcano), where *Dewa Brahma* stays with *Dewa Kusuma*, responsible for protecting the mountain. The value beliefs in the sacredness of the Tengger's land and Mount Bromo required the community to conserve the land with care. The sacred areas have a sacred impact on nature, and it is anticipated that they would not be over-exploited, such as the Ammatoa tribe's belief in the sacred forest and the Bajo tribe's belief in the holiness of the sea (Basri et al., 2017; Syarif et al., 2016). The Tengger area is considered sacred land as indicated in Table 2. It means that the sacred of the Tengger or Mount Bromo areas must be respected daily. Respect for the environment becomes more lasting due to the sacredness and holiness of religious beliefs. Sacred Tengger land values are also expressed in the Bromo Tourism Area location by offering places and various cultural buildings such as *Danyang*, Hall, *Patmasari*, and *Patmasana*, which add to the uniqueness of culture as a complement to nature tourism. This appreciation is similar to what the XiZhou tribe does for sacred stones in the XinDian river; when migrating, a ritual is performed to return the stones to where they were initially (Chang, 2015). Furthermore, Matteucci et al. (2022) Anthropocene impact on cultural tourism with expressed in the historic building, ancient cities, and cultural treasure buildings.

Table 2. Statement of sacred land in Tengger area (Source: Research interview, 2022)

| Nu. | Informant | Statement   | Meaning   |
|-----|-----------|---|---|
| 1   | Mr. STM   | Mount Bromo and its surroundings are a sacred area ruled by Gods; in Bromo, <i>Dewa Brata Kusuma</i> represents the God <i>Brahma</i> (volcano) or <i>Sang Hyang Batoro Geni</i> (Volcano of Fire). In history, Raden Kusuma, the son of Joko Seger and Roro Anteng, was not hidden, but he was given the job of replacing him as <i>Prabu</i> (king) at the Supreme Palace of Mount Brahma, which looks like a mountain if you look closely. | The Mount Bromo tourist area is considered as the palace of the Gods and is guarded by <i>Dewa Kusuma</i> , who was given the responsibility by <i>Dewa Brahma</i> . This indicated that this place has been cleaned by the Tengger Tribe and that all operations in the area must be conducted with respect. |
| 2   | Mr. SMT   | <i>Hilaila</i> is a sacred land, it must be kept natural. Bromo is the <i>Brahma</i> (volcano), where the God stayed.   | The Tengger area is the sacred land. Mount Bromo is also the home of the Gods, who must be respected by the villagers.  |

*Tigo Weningan* is a principle expressed in Tengger tribe culture that contains a harmonious relationship with God, fellow humans, and nature. Regarding their value of the harmonious relationship with the natural environment, the Tengger tribe participates in actions like growing flowers and allowing amethyst trees to flourish, whose leaves can nourish the soil and provide oxygen. Residents also protect pine trees that serve as barriers between one agricultural property and the agricultural land of other residents. The explanation about *Tigo Weningan*, as stated below: "We should not treat nature carelessly since we understand its importance in our lives. In fact, nature is something large (*Jagad Agung*) filled with human (*Jagad Alit*). Humans and nature are identical (macrocosm and microcosm). We must understand that life in general is dependent on nature, as oxygen is created by nature, and that human conduct that destroys the ozone layer so that oxygen levels are not optimal causes diseases, natural disasters, and so much more. This is not nature's anger, but rather a warning to humanity not to exploit nature too much; nature must be cherished, as humans cannot survive without it. Free oxygen and minerals are provided by nature to sustain human life. Our ancestors left to us *Tigo Weningan* so that we shall never forget nature. Manifested spiritually (prayers) and physically (not cutting down random trees), there is the unique ceremony if forced to cut down trees needed for buildings" (Interview with Mr. STM, 2022). Communities are aware of the benefits of having good relationships with the environment. Planting activities are carried out independently.

Table 3. *Tigo Weningan* (Source: Research interview, 2022)

| Nu. | Informant | Statement  | Meaning   |
|-----|-----------|--|---|
| 1   | Mr. SYT   | The amethyst plant is not used in ceremonies, but can be found in ravines and on the edges of villages. This plant is poisonous if consumed, yet it should be left untouched because it is lovely and produces oxygen. | The flower is permitted to thrive as a means of achieving harmony between the Tengger tribe and nature due to their mutually beneficial relationship. |
| 2   | Mr. MTR   | Amethyst flowers are not used in traditional ceremonies. This plant only serves to keep the air cool. But the cypress trees were allowed to grow, and so did the <i>Eucalyptus</i> trees.                              | Allow the flower to grow to provide coolness.   |

When new trees grow, the old ones will be cut and logged. These activities are done as an acknowledgment from the community as trees are used for residential reasons. This effort also aims to preserve natural beauty for future generations. In Bali, the relationship between oneself, God, fellow humans, and the environment is referred to as *Tri Hita Karana* (Sumarmi, 2018a). The natural environment of the Tengger tribe in *Tigo Weningan* is explained in Table 3. Living in harmony with the natural environment creates a beautiful environment. The beauty of the landscape may be seen in the numerous pine trees that line the edges of roads and agricultural areas. Amethyst plants can be found growing in a variety of locations. Some of the property was turned into community forests, with trees like cypress, edelweiss, and bamboo planted. This beauty is an attraction for tourists that pass by or stay overnight in the Mount Bromo tourism area. Natural beauty is a tourism attraction (Chang, 2015; Murtini et al., 2018; Sumarmi et al., 2021). The result aligns with Pham et al. (2022) state that culture and nature can shape or even improve each other. The pine trees and amethyst plant guarded by *Tigo Weningan* in Ngadas village are shown in Figure 3.



(a) The view of pine trees in Ngadas village (b) The view of the amethyst plant in Ngadisari Village  
 Figure 3. The trees guarded by *Tigo Weningan* (Source: Research documentation, 2022)

Figure 3 (a) shows the pine trees that serve as the community forest in Ngadas Village. The community owns this pine forest. Pine trees are frequently used to mark the boundaries of agroforestry agricultural fields. These trees are seen from the main road of Ngadas Village, which serves as the primary route to the Mount Bromo tourism area. Figure 3 (b) shows the amethyst plant growing in Ngadisari Village. This plant has trumpet-shaped flowers that add to the attractiveness of the road leading into and out of the Mount Bromo tourism area in Ngadisari Village. This plant is easy to grow and let go wild because the Tengger Tribe applied the *Tigo Weningan* values. Another tree is the bamboo plant in Cemoro Lawang Hamlet, Ngadisari Village. This plant is allowed to grow to improve the beauty of the road leading to the Seruni Point Bromo tourism area. The attractiveness of the surroundings in the tourism area is enhanced by the shaded and green appearance of bamboo plants.

**Pujan Kasanga**

The regular ceremonies of the Tengger tribe have environmental meaning. The *pujan kasanga* ceremony contains the value of worshiping the occupied land as a protector against damage and negative incidents in the village. The event is held in the ninth month, according to the Tengger calendar. The *pujan* ceremony honors God, ancestors, and the natural environment. This ceremony involved sweeping the village clean. The ritual started with the community working to clear the environment of trash and weeds. Environmental cleaning is essential for reducing pollution (Che et al., 2016).

Table 4. Environmental cleaning activities before the *Pujan Kasanga* ceremony (Source: Research interview, 2022)

| Nu. | Informant | Statement  | Meaning  |
|-----|-----------|--|--|
| 1   | Mr. SMT   | Before a ceremony, it is necessary to clean yourself. During the cleansing ceremony, it is symbolic. Previously, the village chief commanded them to start; but, after studying and understanding the importance of the ceremony, they independently accepted it.  | Before to the <i>pujan kasanga</i> ceremony, efforts are made to integrate and internalize environmental cleanup activities.   |
| 2   | Mr. MLY   | Cleaning the village before the <i>pujan kasanga</i> , <i>kasada</i> , and <i>karo</i> ceremonies is done in mutual cooperation. Before to the employment of torches by <i>mubeng deso</i> , house owners and landowners cleaned up without being instructed to do so. The government has nothing to worry about except when it's <i>karo</i> (collaborating to clean graves). | Before the <i>pujan kasanga</i> ceremony, environmental cleanup activities have already become a routine.  |
| 3   | Mr. MTR   | The activity includes cleaning the village before the <i>pujan kasanga</i> ceremony. Before it was carried out, the Neighborhood Association directed the community to clean up the environment that will be passed through. The community is encouraged to maintain cleanliness after the ceremony by putting plastic bags for the daily cleaners to collect later.           | Before the <i>pujan kasanga</i> ceremony, the village government made an attempt at internalization, and after the ceremony, a habit was developed that was adopted into daily life. |
| 4.  | Mrs. EN   | Plastic can harm farmland. Plastic is collected separately and burned, resulting in a dramatic loss of agricultural fertility. Possible cause of plant death among residents is trash. Similarly, trees should not be cut down. This is written unconsciously.   | Clean environmental practices become habitual in everyday life.  |



Removing debris from the environment, particularly plastic and weeds, is a kind of environmental care that promotes local tourism (Angriani et al., 2018; Marlina et al., 2020). This result is consistent with Bargeman & Richards (2020), stating that mutual interaction in the ritual influences the good effect on cultural tourism and the local environment. Environmental cleaning activities before the *pujan kasanga* ceremony are explained in Table 4.

The offerings, in this case, *tumpeng*, represent the elimination of misfortune or sins. Other offerings include *jenang* of five different colors. A traditional shaman conducts the *puja mantra* ritual. The offerings are later sent to the village office hall as a symbol of the village's purity. The sacrifice is a five-colored chicken representing the five directions, which is buried at the village hall or the village chief's home to protect the village. Offerings and sacrifices are evidence of the sacredness of customary cultural practices that benefit the environment (Milton, 1997). Furthermore, Kurniawati et al. (2020) that the offering can give the tourist experience of tasting the local food just a little with the leader of traditional ceremony granted. The final event is a march of torches followed by traditional music. This cultural activity might be the main attraction for tourists who wish to experience the enthusiasm of Tengger tradition during the *pujan kasanga* ceremony. The entire series of ceremonies illustrated the connection between communal gardening activities and the utilization of nature and culture against disasters. This effect is similar to the Egyptian tribe; the majority are farmers and ranchers whose character and culture are influenced by the condition of their land and soil and the sacredness of the Nile (Puji et al., 2019). This result is consistent with Sumarmi et al. (2020a) state that traditional music accompanying the parade is a good cultural attraction in the Kemiren Village, Banyuwangi, Indonesia.

### Pujan Kasada

*Kasada* refers to the 12<sup>th</sup> month according to the Tengger calendar. In one *Saka* year, the Tengger tribe holds six ceremonies. Implementation of the *Kasada* ceremony as stated below: "The regular ceremonial of the Tengger tribe is carried out six times: *karo*, *kapat*, *kapitu*, *kawolu*, *kasanga* and *kasada*" (Interview with Mr MLY). "*Pujan karo* is performed at the beginning of the annual seedling activity, *pujan kapat* is a salvation of nature for the people, and *kasada* is performed as the final ceremony of a Tengger calendar year to express thanks for the crops given" (Interview with Mr. SYT).

Every 14<sup>th</sup> day or when the moon is full, *pujan kasada* or *yadnya kasada* is performed. This ceremony's value expresses respect for God, ancestors, and the environment. God and the ancestors gifted the Tengger tribe farmers with abundant natural resources for their daily activities of developing the agroforestry field in Mount Bromo (Sumarmi, 2018a). This ceremony demonstrated the harmony between man, God, and nature. The ceremony is meant to be a communal petition to God to save them and their families (Kongprasertamorn, 2007). During the *Kasada* ceremony, *penjor* is placed in front of dwellings as decoration. *Penjor* is a curved bamboo at the top and decorated with coconut leaves. Purchasing coconut leaves from lower areas or the city of Probolinggo demonstrated the interaction of agricultural products. Cultural attributes have an attraction that complements natural tourism (Ensiyawatin et al., 2021).

*Penjor* symbolized respect among human beings in life, including in managing agricultural areas. The owner of the field must treat field workers or farm labourers well. The value of togetherness in environmental cleanliness and area management for economic activities is obtained from conservation efforts far from land exploitation (Cahyadi and Newsome, 2021). The *penjor* used during the *Kasada* prayer is shown in the following Figure 4.



Figure 4. The view *Penjor* used in Jetak village (Source: Research documentation, 2022) Figure 5. The use of *ongkek* di Poten temple

Figure 4 shows the *penjor* along the road leading to Jetak village, which is a tourist attraction. Tourists use this road to leave the Mount Bromo tourism area. Jetak village is one of the villages that participated in traditional Tengger Tribe activities. *Penjors* are placed along the roadway, even in the alley leading straight to the Mount Bromo tourist area. The fact that tourists can see *penjor* from the main road increases the attraction of this cultural attribute. The local attributes reinforce the tourist attraction, like the traditional boat in the Wakatobi National Park, Indonesia and Ilhabela Island, Brazil (Marlina et al., 2021; Modeen, 2020). The *Pujan Kasada* ceremony provides offerings such as carrots, corn, cabbage, potatoes, bananas, and other agricultural produce owned by villagers. If people have a special request, the offerings may be chickens, goats, cows, or money. Individual offerings may be made, but at least one village must provide one *ongkek* (offering) if, one month prior to the *pujan kasada*, no villagers from that village have died. *Ongkek* is created from curled bamboo and banana leaves. The use of *ongkek* is as stated below:

“Ongkek is straight bamboo that has been curved as a substitute for agricultural products and ornamental blooms. Each community brings these gifts. If there are no issues within one month of the Kasada, but someone dies prior to the Kasada, they are not permitted to bring an ongkek” (Interview with Mr SYT, 2022)

The offerings represent the Tengger Tribe's belief in the sacredness of Mount Bromo. The agricultural offerings demonstrate that natural resources must be presented to God and ancestors for the blessing to obtain abundant harvests and avoid natural disasters. This value is similar to a fishing village that observes the Patorani tradition of making sacrifices to the sea for protection (Hasriyanti et al., 2017). The curving *ongkek* symbolized the shape of a mountain, as well as spirit, cleanliness, and optimistic thought. This value can be seen in the management of agricultural areas with enthusiasm, cleanliness and order, positive thinking and full respect for nature will produce positive returns. The values and assumptions that develop in a culture become an established worldview or paradigm (Peery, 1972). The activity of giving spells to *ongkek* is shown in Figure 5. Figure 5 shows an ongkek with agricultural offerings that the shaman *panditha* will bless. This procession is performed as a process of *pujan kasada* before the *ongkek* is floated into the crater of Mount Bromo. This process influenced environmental management and tourism in the Mount Bromo tourism area.

Following the ceremony, villagers distribute food wrapped in plastic. This plastic is indeed unfavourable in regards to non-environmentally friendly materials. The shamans and community officials have made efforts to take the snack's contents and place them in a leaf-made container. The villagers' excitement, which includes 33 villages in four regencies located next to the Mount Bromo tourism area, has caused several ongkeks made of plastic to pass through. Plastic is degraded garbage that should be placed in the trash (Sumarmi, 2017). The use of plastics is mentioned below:

"*Kerupuk* (crackers) are children's food, thus even if it were wrapped with leaves, it will still be accepted. At the annual local citizens' gathering, it is announced that plastic-containing offerings are impossible to dispose. Residents replied positively because participation in *pujan kasada* improves the quality of agricultural products. It is known by village chief, officer, elders, that when preparing *ongkek*, plastic-containing components must be placed on a banana leaf" (Interview with Mr JT, 2022). The *pujan kasada* ceremony is performed at Ponten temple in the Mount Bromo tourism area, *ongkek* and offerings are recited by chanting mantras around the temple, and *ongkek* is recited by circling the temple. Then, collect the holy water from the drops dripping from Mount Widodaren. Spells are cast to ensure the protection of locals and to express appreciation to God and the Ancestors. Trust, represented by offerings, is supported by a phrase that increases people's respect for the environment (Sumarmi et al., 2020b). The water dripping from Mount Widodaren also represents the community's appreciation for the water resources they use. Nature, in general, is the location for agricultural land management, and water usage is visible at this level. According to data from the Bromo Tengger Semeru National Park Center, the National Park contains 50 water sources, of which 18 are consumed with a daily flow of 5,359,392 litres and are consumed by 82,033 people in 18 villages. Moreover, the community frequently makes use of wood. The amount of firewood needed for cooking, boiling water, heating the room, and other activities varies with height and need, with higher altitudes requiring more firewood than lower altitudes (Rawat et al., 2009).

The ceremony ended with *larung sesaji* (giving the offering) to Mount Bromo's crater. Typically, the series of events last for two days. The primary ritual occurs at night. However, some locals perform the offerings during the day. As stated below:

"The contents of the *dowo tandur* have been placed in a location that can be transported to the Bromo crater. After the completion of the ceremony at the sea of sand and the inauguration of the shaman, we will be taken to the summit between 04:00 and 05:00" (Interview with Mr SMT, 2022). This final process demonstrates that the symbol in the offering was sacrificed or given to nature with sincerity. This process emphasises the sincerity of the Tengger Tribe's belief in the sacredness of the Mount Bromo environment, which they respect and preserve with care. They fear crop failure and bad fortune. Tribe belief in sacred objects or rule-breaking will result in a curse or disaster (Basri et al., 2017). The procession of *larung sesaji* at the *Pujan Kasada* ceremony is shown in Figure 6.



(a) An agricultural offering brought by a villager for the *pujan kasada* ceremony

(b) The process of *larung sesaji* in one of the Tengger tribe villages

Figure 6. Giving the Offering to Mount Bromo's crater when *pujan kasada* ceremony (Source: Research documentation, 2022)



Figure 6 (a) shows the cabbage and green onions that the Tengger Tribe took individually to the crater of Mount Bromo. Offerings can be made individually or in groups. *Ongkek* can represent offerings from a particular community. Figure 6 (b) shows an *ongkek* containing agricultural produce taken to Mount Bromo's crater by Tengger tribe villagers. Before bringing the offerings, the locals pray and burn incense. Cows and other livestock are not required to be sacrificed during the *pujan kasada* ceremony. This sacrifice is performed individually by villagers of the Tengger tribe who have made specific requests before the ceremony.

The *pujan kasada* ceremony is highly supported by the Bromo Tengger Semeru National Park office. The National Park also designates the Ponten Temple, part of the *pujan kasada* ceremony, as a protected religious zone of four hectares. The objective of the Bromo Tengger Semeru National Park Center is to completely support the Tengger Culture by becoming a home for diverse ecosystems, tengger culture, ecotourism, and society water towers. The goal associated with Tengger culture to the second mission is to combine Tengger culture and national park management. Collaboration between managers of the usage of national parks as tourism destinations with cultural activities to improve natural attractions. This collaboration is similar to the management of Wakatobi National Park, which is near the Bajo Tribe, the traditional floating market on the Kuin river, cultural tourism in the Baikal area, and the eco-cultural tourism village in Sage Village, Central Lombok (Angriani et al., 2018; Evstrop'eva, 2013; Marlina et al., 2020; Muaini et al., 2021).

The issue of the *pujan kasada* ceremony that required improvement is the plastic offerings, which must be aligned with environmental conservation. The National Park officials, tourists, and environmental activists participate in collecting plastic waste offerings in Mount Bromo's crater that can still be accessed. The problem of non-environmentally friendly residual usage must be addressed or managed seriously (Riniwati et al., 2021; Salampessy et al., 2021). The condition after the *pujan kasada* ceremony is shown in the following Figure 7.



Figure 7. The condition after the *pujan kasada* ceremony with plastic waste (Source: Research documentation, 2022)

Figure 7 shows the offerings that leave plastic waste. This plastic material is found in children's food containers and places for offerings when brought to the Mount Bromo Crater. Some residents carried plastic containers in addition to bamboo containers. This plastic material is neither recommended by the traditional shaman nor National Park officers. However, the excitement of the villagers who attended the ceremony needed to be increased to prevent this.

### Unan-unan

The *unan-unan* ceremony is held once every five years with the value of gratitude for fertile land and protecting it against various cosmic disasters. Buffalo is the essential component in the *unan-unan* ceremony. The buffalo represents hard work, fertilizer for agricultural land, perseverance, and obedience. The buffalo's head, tail and skin are put together in *ancak* (woven) for the process of praying. The *ancak* is covered with *ubo rampe* (buffalo head) and crops as an expression of thanks for the harvest and dedication from the Tengger Tribe to their ancestors and the universe. Animals become symbols in human cultural activities reflecting good behaviours, particularly economic ones (Bertalanffy, 2015).

Buffalo meat is prepared for consumption in *gembul bujono ondrowino* as an expression of community, thanks, and sharing. This part is similar to village cleaning activities in the *pujan kasanga* ceremony but has a wider application. The tradition of eating the sacrifice together is cultural tourism way. *Gotong royong* (cooperation) is a noble Indonesian national value that must be protected (Vitasurya et al., 2020). Furthermore, Sumarmi et al. (2020a) stated that all people attending the *Barong Ider Bumi* Ceremony eat the offering and sacrifice together. *Ancak* led a procession through the village to the hall. The main ritual at the village hall includes prayers for the safety of the Tengger people, the Indonesian people and the nation in general. The ceremony is made more sacred by the addition of incense and gamelan. Meanwhile, traditional music can be a cultural attraction. Humans use music as a symbol to express emotions or events (Bertalanffy,

1972). Enjoying local music is a tourism and leisure activities (Bargeman and Richards, 2020). In contrast to the *pujan kasanga* and *pujan kasada*, the buffalo sacrifice and agricultural products are given to villagers after the end of the ritual. The buffalo head is buried in the village hall as a symbol of gratitude to the Tengger Tribe. The materials used in the series of ceremonies are natural and easily recyclable, so the burial of buffalo heads also decomposes into the soil without problems. Agricultural products and animals dissolved in the soil are easily degraded (Finnis, 2021).

The village hall is a unique location for weaved traditions. The hall area is always planted with big trees. The hall's areas and trees are greatly valued and treasured. They did not dare to cut down trees in the hall, and villagers even collected and returned falling branches to the hall. A sacred location typically contains sacred trees, and the preservation of these trees will be protected (Su et al., 2020). Statements about the ceremony process as stated in the following Table 5.

Table 5. Village hall in the *unan-unan* ceremony process (Source: Research interview, 2022)

| Nu. | Informant           | Statement   | Meaning   |
|-----|---------------------|---|---|
| 1   | Mr. STM             | The tree in front of the village hall has existed for centuries. No one has the courage to cut the tree down, and it does not need to be cut down because new roots are growing from it. Some of the old ones are dry/dead and will be let to break on their own till they dry because they are old or diseased. There were fallen branches that no one dared to pick up. Someone is responsible for managing the maintenance of the hall's trees and branches. The central zone of the village hall may only be used once every five years for the ceremonial of burying a buffalo head. | The village hall is a sacred and holy place with preserved trees. It is thought that if the tree is harmed, bad luck will follow the culprit. |
| 2   | Mr. STK and Mr. STR | When trees are saved, they cannot be cut down or cropped, and if they fall (dropped), they are not burned. When anything falls, it is returned to its original spot.  | The villagers understands the sacredness of the village hall  |
| 3   | Mrs. IR             | You have to doing <i>nuwun sewu</i> (asking permission) before going to village hall.   | Everyone who visits the hall must get guardian permission (God).  |

The beauty of the village hall is the main attraction for tourists who stay overnight or travel across villages in the Mount Bromo Tourism area. The view of the alley in the homestay area at the village hall is shown in figure 8.



(a) The village hall in Ngadisari village



(b) The village hall in Ngadas village

Figure 8. The village hall in Ngadisari village (Source: Research documentation, 2022)

The village hall in Ngadisari village is located in the temple complex, specifically the Tunggal Jati Temple. The village hall is identified by the presence of large trees upon which buffalo heads are buried during the *unan-unan* ceremony. The calm alley is crossed by tourists returning from the Mount Bromo tourism area. Traditional and sacred buildings are the unique culture of International tourist attractions (Sumarmi et al., 2020a). The village hall in Ngadas Village is in the temple complex, Tunggal Jati Temple. This hall is a permanent location for performing traditional *unan-unan* ceremonies. Not all halls are located within the temple complex, such as the Jetak Village and Wonotoro village halls, which are in separate locations from the temple. Tourists visit the Ngadas village hall on their way to the Mount Bromo tourism area.

## CONCLUSION

The values of preservation in the cultural ceremonies of the Tengger tribe, in general, are the value beliefs in the sacredness of Tengger land and the value of the harmonious relationship with the natural environment, part of *tigo weningan*. Furthermore, the value of the *pujan kasanga* ceremony is worshipping the occupied land as a protector against damage and negative incidents in the village. The value of the *pujan kasada* ceremony expresses respect for God, ancestors, and the environment. The value of the *unan-unan* ceremony is held once every five years with the value of gratitude for the blessing of fertile land and to protect against various cosmic disasters. The series of traditional ceremonies provided an additional attraction in the form of the beauty of agroforestry land management, the cultural attraction that many are concerned with reducing plastic waste, and the cultural attractions that show the man and environment harmony.

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## DEVELOPING HOST COMMUNITY'S SUPPORT MODEL FOR TOURISM DEVELOPMENT IN PURI REGION, INDIA

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**Abstract:** The study aims to develop a host community's support model for tourism development based on the principles of Social Exchange Theory for heritage tourism destinations in a developing country. For the case study, three communities from the Puri region, a popular heritage tourism destination of eastern India, are selected. The survey instrument was a questionnaire survey, and 450 samples were collected. A scale was developed to measure the host community's attitudes and perceptions. The measurement scale comprises seven factors: six exogenous factors: Economic Impact; Positive Socio-Cultural Impact; Development and Maintenance of Heritage and Infrastructure; Image of the Region; Negative Socio-Cultural Impact; Environmental Issues, and one endogenous factor: Support for Tourism Development. The structural relationship between exogenous factors and endogenous factors was examined through Structural Equation Modelling. The result confirmed that the perceived tourism impacts significantly influence the host community's attitude. The findings suggest that when the host community perceives the positive tourism impacts, their support for tourism development gets influenced positively and vice versa. This confirms the explanatory power of the perceived tourism impacts to explain the host communities' attitude toward tourism development and the applicability of Social Exchange Theory. However, the findings contradict Butler's Tourism Area Life Cycle model in describing the host community's attitude toward the destination in the development stage.

**Key words:** host community's attitude, perceived tourism impacts, social exchange theory, support for tourism development, butler's tourism area life cycle model

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### INTRODUCTION

Tourism is an important industry contributing to the economic growth of the tourism destination. It brings numerous opportunities and challenges (economic, socio-cultural, and environmental) to the region and the host communities (Uslu et al., 2020). The positive and negative impacts incurred due to tourism define the host community's perception. The perception of tourism impacts influences their support and attitude for tourism development (Dyer et al., 2007). For sustainable tourism development, the support and cooperation of the host communities are essential (Choi and Sirakaya, 2005; Kurniawan et al., 2021). Hence it is necessary to understand the determinants influencing their support for tourism development. Numerous research has been conducted since mid-1970, examining the host community's attitude (Sirakaya et al., 2002a). These studies primarily focused on the host communities from developed countries like the United States, European countries, Australia, etc. Lesser attention has been paid to the host communities from developing countries (Sirakaya et al., 2002a). The destinations studied in previous literature were mainly in the *mature stage* of Butler's 'Tourist Area Life Cycle' (TALC) model. Chigozie Jude Odum (2020) found that the *development stage* of TALC model is less studied and they emphasized on more research on different stages of TALC model in different locations around the world, to confirm the applicability as well as limitations of TALC model globally. Sirakaya et al. (2002a), also claimed that host communities are heterogeneous in nature. Their perceptions and attitudes vary with their physical locations and stages of development (Ap and Crompton, 1993; Deery et al., 2012; López et al., 2018; Swain and Sthapak, 2022). To increase the explanatory power of the behavioral models many researchers have emphasized the need to study more host communities worldwide (Dyer et al., 2007; Gursoy and Rutherford, 2004; Nunkoo et al., 2013; Sharpley, 2014).

This establishes the necessity to study host communities from different geographical locations with varied social, cultural, and economic backgrounds and destinations in different stages of development. This paper examines the determinants influencing the host community's support for tourism development for the heritage destination in the *development stage* in the Puri region, India, and examines the applicability of behavioral models.

### LITERATURE STUDY

Perceived tourism impacts and their influence on the support of tourism development are researched from many prospective. Brida et al. (2011); Ouyang et al. (2019); Yoon et al. (2001) claimed that both the positive and negative

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impacts of tourism influence the host community's support for tourism development. To explain the host community's perception of tourism impacts; and their support towards tourism development, the Social Exchange Theory (SET) is widely adopted (Adongo et al., 2019; Eslami et al., 2019; Nunkoo, 2016; Shtudiner et al., 2018). SET is the oldest theory of human social behavior (Nunkoo, 2016). According to SET, host communities are likely to be engaged in the exchange process with tourists if they believe tourism benefits are more than the cost (Kurniawan et al., 2021). The economic impact of tourism is the most significant impact and has been widely studied. The host community recognizes the economy-boosting power of tourism. Tourism generates employment opportunities and promotes the growth of local businesses (Dyer et al., 2007; Nunkoo, 2016); it also contributes to the individual income (Liu and Var, 1986; Slabbert et al., 2021). Almost all the previous studies confirmed that economic impact positively and directly influences the support of the host community (Dyer et al., 2007; Gursoy and Rutherford, 2004; Nunkoo, 2016; Nunkoo and Ramkissoon, 2011; Slabbert et al., 2021).

The socio-cultural impacts are perceived both positively as well as negatively. Several studies such as Ap and Crompton (1993); Choi and Sirakaya (2005); Sirakaya et al. (2002b); Tosun (2002) found that when the host community perceives impacts like increase in crime rate, illegal gaming, prostitution, cultural erosion, change in the value system, etc. due to tourism (Khoshkam, Marzuki, and Al-mulali, 2016; Lankford and Howard, 1994; Nunkoo and Ramkissoon, 2011; Zamani-Farahani and Musa, 2012), their attitude for tourism development gets negatively influenced (Gursoy and Rutherford, 2004). While Khoshkam, Marzuki, and Al-Mulali (2016); Long and Kayat (2011); Raj Sharma et al. (2022); Uslu et al. (2020) confirmed that when host communities perceive the impacts like more scope of cultural exchange, the revival of cultural heritage, more recreational opportunities, etc. their attitude towards tourism development tends to get positively influenced (Dyer et al., 2007; Gursoy and Rutherford, 2004).

Hence socio-cultural impact can positively and negatively influence the host community's attitudes. Apart from this, some physiological impacts like destination image also have a significant influence that can positively influence the host community's perception as it makes them feel proud of their culture and region (Lee et al., 2005; Ramkissoon and Nunkoo, 2011). The environmental impacts like pollution, littering, damage to the natural environment, over-crowding, etc., are mostly perceived negatively by the host community (Chen, 2001; Yoon et al., 2001) therefore, it negatively influences their attitude towards tourism development (Uslu et al., 2020).

The physical development of the region, like the development of new infrastructure, amenities, and services, maintenance of existing infrastructure and heritage structures are also found to significantly and positively influence the host community's attitude (Nunkoo and Ramkissoon, 2011; Vargas-sánchez, 2011).

However, most of these findings are from developed countries. Due to limited studies, it is still premature to draw firm conclusions about the validity of SET and the predictive potential of the perceived tourism impacts for the host communities from heritage tourism destinations where pilgrimage is prevalent in developing countries.

Apart from tourism impacts, (Butler, 1980) claimed that the stages of development of the destination also influence the host community's attitude. He explained this with the '*Tourist Area Life Cycle*' (TALC) model. The model describes the evolution of a tourism destination through six predictable stages: exploration, involvement, development, consolidation, stagnation, and decline or rejuvenation Butler (1980). This model not only defines the physical changes in the destination but also explains the tourist typology and the host community's attitude during each stage. Several researchers extensively used TALC as the framework like Zhong et al. (2008); Schlemmer et al. (2020) etc. and confirmed its applicability. However, studies like Chigozie Jude Odum (2020) found it difficult to establish its relevance for destinations in the *development stages* for the global South and emphasized the need for further research in different geographical regions. For South Asian countries like India, lesser studies have been conducted to verify the applicability of TALC. The aim of the present study is to identify the factors influencing the host community's attitude in Puri, a heritage tourism destination in India. Additionally, the application of the SET and TALC models will be examined. The objectives of this paper are:

1. To identify the underlying constructs measuring the host community's perception of tourism impacts and their attitude towards tourism development for the Puri region using Exploratory Factor Analysis (EFA) and examining the validity of each construct (using the Cronbach Alpha reliability test).

2. To examine the reliability and validity of the measurement scale by Confirmatory Factor Analysis (CFA).

3. To propose a structural model for explaining the relationship between the host community's support for tourism development and perceived tourism impacts using Structural Equation Modeling (SEM).

## STUDY AREA

India is geographically a large country with substantial economic, social, and cultural diversity. It has numerous tourist sites with several kinds of tourism, however, heritage tourism is most prevalent as the country is enriched with several tangible and intangible heritage. For the present study, host communities from a popular heritage tourism destination, the Puri region from Odisha, an eastern state of India (refer to Figure 1), is selected. Puri region has many important Hindu pilgrimage and heritage sites, like the Jagannath temple (one of the most sacred places for the Hindu religion), Konark temple (UNESCO World Heritage site), Lokhanath temple, Sakshi Gopal temple, holy water bodies, and several other temples with significant religious and heritage value. Puri region is also known for its Golden beaches, Chilika lake (the world's largest brackwater lagoon), and other natural features. Several religious festivals, like *Rath yatra*, *Chandan yatra*, etc., are celebrated throughout the year, marking the religious and cultural richness of the region.

These attributes attract numerous tourists, especially heritage and pilgrimages. The region is going through several noticeable developments (new infrastructure and amenities) like roads, bus stands, hotels, restaurants, public facilities, etc. The elaborate and modern facilities are replacing the conventional one. Investors from outside are investing in

hotels, cafes, resorts, shopping malls, etc. Natural and cultural attractions are developing in the region, and various fairs and festivals are organized, such as the Konark festival, Puri beach festival, eco-retreat festival, etc., to increase tourist footfall and popularity of the region. Tourism is not just limited to pilgrimage and heritage; but also other kinds of tourism, like nature tourism, leisure tourism, etc., is also taking place in the region. These indicate that the destination is in the *development stage*, as explained by Butler (1980) in the TALC model. Javed and Tučková (2020) also confirmed that tourism in India is mostly in the *development stage*.

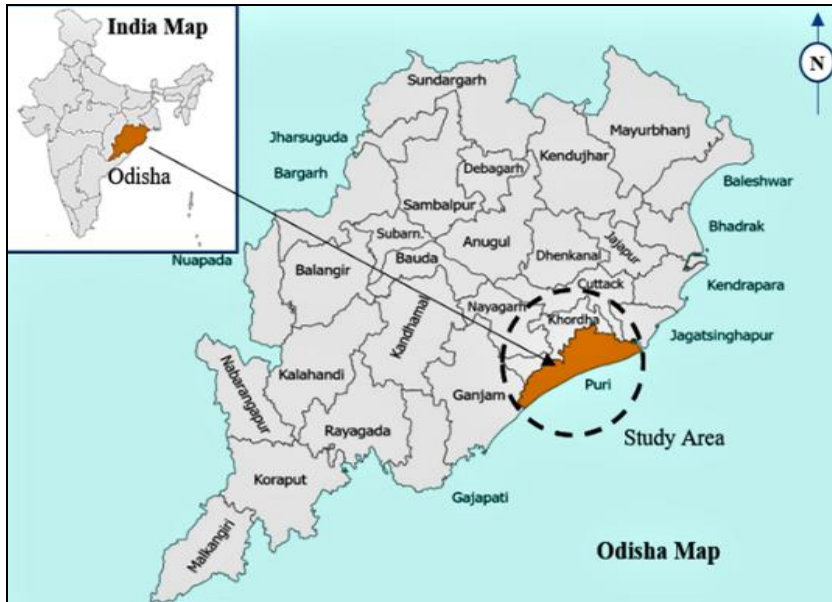


Figure 1. Map of Study area (Source: Author, 2022)

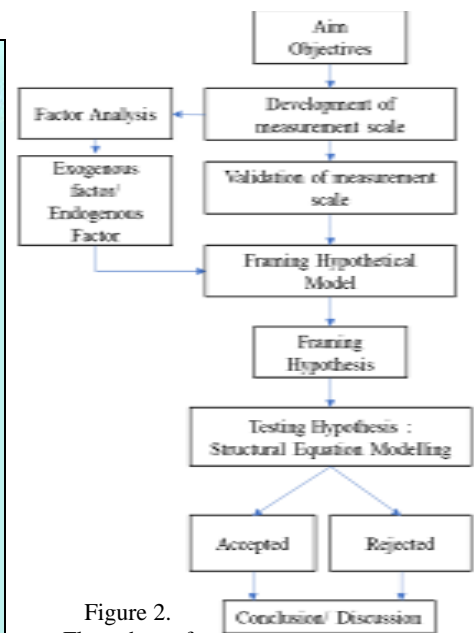


Figure 2. Flow chart of research methodology (Source: Author, 2022)

## METHODOLOGY

A brief description of the research method followed in this study is shown in Figure 2. The measurement scale to measure the tourism impacts for the study has been adopted from the study of Gursoy and Rutherford (2004). SET is used as the theoretical base to understand the attitude of host communities, and the validity and reliability of the scale were checked through the measurement scale development approach.

### 1. Sampling and Data Collection

The targeted population for this study was the host communities from three popular tourist destinations: Puri town, Konark town, and Satapada village of the Puri region. A total of 450 samples were collected from the three communities through self-administered questionnaires. Cochran's formula recommended a minimum sample size of 385. The sample size also holds good for Structural Equation Modelling (minimum of 300 samples), as recommended by Hair et al. (1987). The simple random sampling technique was used to collect the samples. This gives each population unit an equal chance of being drawn into the sample. The survey was conducted from mid of August to the end of November 2022.

### 2. Questionnaire Development

The first section of the questionnaire aims to understand the host community's socio-demographic profiles. The second section aims to measure perceived tourism impacts. From the literature, 26 indicators were selected, broadly covering economic, social, cultural, and environmental impacts; psychological wellbeing, and development of physical infrastructure in the region. Expert opinion was solicited to check the relevance of indicators for the heritage tourism destination of a developing country. Seven experts were engaged for this purpose, including community representatives, urban planners, and government officials working in tourism development in heritage regions. Based on expert opinion, eighteen indicators were selected for further analysis. The questionnaire was developed from these indicators. These indicators are referred as the variable (VAR) in the analysis section. The impact statements were measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Three indicators were added to the questionnaire to assess the host community's support for tourism development. These three indicators were also evaluated on the same scale.

To check the clarity of the questionnaire, a pilot survey was conducted on 25 community members of the Puri region. A few rectifications were made based on their comments and suggestions, and the questionnaire was finalised.

### 3. Data Analysis

The data analysis was carried out through several statistical methods using Excel, Statistical Package for the Social Sciences (SPSS), and Analysis of Moment Structures (AMOS). Descriptive statistics, like the mean, median, and mode, were used to describe the data. Exploratory Factor Analysis (EFA) was carried out to identify the dimensionality of the impact statements. The unidimensionality of the constructs was tested with Confirmatory Factor Analysis (CFA),

ensuring that each indicator cluster has one underlying construct. The reliability and validity of the measurement model were checked. To test and evaluate the causal relationship between the constructs, Structural Equation Modeling (SEM) is utilized. In the last decade, SEM has been widely used to examine the relationship between the factors in tourism research (Dyer et al., 2007; Eusébio et al., 2018; Gursoy and Rutherford, 2004; Nunkoo and Ramkissoon, 2011; Papastathopoulos et al., 2020; Rasoolimanesh et al., 2017; Yoon et al., 2001).

## FINDINGS

### 1. Sample Characteristics

A total of 450 samples were analysed. The respondents are predominantly male ( $n = 326$ , 72%). The distribution of age was: less than 20 years ( $n = 46$ , 10%), 20 - 40 years ( $n = 169$ , 38%), 41 - 60 years ( $n = 182$ , 40%), more than 60 years ( $n = 53$ , 12%). Most respondents are educated up to matric level ( $n = 151$ , 34%) or up to higher secondary level ( $n = 158$ , 35%). Maximum respondents reside in the community between 10 - 20 years ( $n = 145$ , 33%), while 27% of respondents reside there between 21 - 30 years. Most of the respondents ( $n = 145$ , 32%) have a moderate economic dependency on tourism, whereas 23% of the respondents are not dependent on tourism. Around 30% of the respondents are actively involved in tourism, while the rest primarily engage in the agricultural or service sectors (Table 1). The respondents have displayed high degree of willingness to participate in tourism sectors if they get an opportunity, as they see tourism as a prosperous industry.

### 2. Descriptive Statistics

The distribution of mean values ( $m$ ) reflects that the respondents have a favorable perception (as  $m > 3$  for all positive impacts) (refer to Table 2) towards tourism development and its positive impacts. The respondents agree that there should be more tourism, and they also agree that it contributes significantly to the development of the region (VAR 1,2 and 3;  $m > 3$ ) (refer to Table 2). The respondents also recognize the economic and employment-generating power of tourism (VAR 4 & 5;  $m > 3$ ), and they also strongly feel that property price has increased due to tourism development (VAR 6;  $m > 3$ ). The respondents agree that tourism contributes to the socio-cultural upliftment of the region through cultural exchange, the revival of cultural heritage, etc. (VAR 7, 8 & 9;  $m > 3$ ). At the same time, they disagree that tourism exerts negative socio-cultural impacts in their region like an increase in the crime rate; illegal activities such as drugs and prostitution; customization of cultural practices; development of artificial culture; change in value system or behavior, etc. (VAR 16,17,18 & 19,  $m < 3$ ) (Table 2). The respondents also disagree that tourism contributes to environmental pollution or overcrowding (VAR 20 & 21;  $m < 3$ ). On the other hand, the respondents strongly agree that due to tourism, new infrastructure, and public facilities are developing, and heritage (tangible and intangible) conservation and maintenance is taking place (VAR 10, 11, 12 & 13,  $m > 3$ ). They are also in agreement that tourism has enhanced their sense of pride in their culture and region (VAR 14, 15;  $m > 3$ ) (Table 2).

### 3. Constructs Dimensionality

Factor Analysis (EFA) (varimax rotation) was carried out for 21 variables (VAR), i.e., eighteen perceived impact indicators and three general perceptions for tourism support, to find its dimensionality. Before conducting the EFA, the suitability of the data or sampling adequacy was checked by performing Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity. Both test confirmed that the sample is adequate to perform factor analysis. EFA resulted in a seven-factor solution based on their underlying relationship, which explains 77.49% of the total variance (Table 2).

The factor loading for all the items were above 0.4 for a single factor only, with no cross-loading on multiple factors above 0.4 (as suggested by Hair et al., 1987). The Cronbach alpha value for all seven factors is more than 0.7 (Table 2). Nunnally and Bernstein (1994) recommended a value of more than 0.7 as reliable, hence establishing the reliability of the measurement instrument. The factors are named based on the characteristics of the tourism impact indicators (variables) it comprised off. Factor 1 is "Support for Tourism Development" (STD); it has three variables (VAR 1, 2 & 3) (Table 2) related to the perception of the host community towards their support for tourism development. Factor 2 is "Economic Impact" (ECI); has three variables (VAR 4, 5 & 6) focusing on the economic benefits incurred due to tourism. Factor 3 is "Positive Socio-cultural Impacts" (PSC), which is comprised of three variables (VAR 7, 8 & 9) that reflect the positive contribution of tourism toward the socio-cultural structure of the community. Factor 4 is a physical

Table 1. Socio-demographic profile of the respondents  
(Source: Author, 2022) Note: Total sample size is 450

| Sr. No.  | Variables                                       | N   | Sample (%) |
|----------|---|-----|------------|
| <b>1</b> | <b>Age</b>                                      |     |            |
| i        | Less than 20yrs                                 | 46  | 10%        |
| ii       | 20yrs – 40 yrs.                                 | 169 | 38%        |
| iv       | 41 yrs. – 60 yrs.                               | 182 | 40%        |
| v        | More than 60 yrs.                               | 53  | 12%        |
| <b>2</b> | <b>Gender</b>                                   |     |            |
| i        | Male  | 326 | 72%        |
| ii       | Female  | 124 | 28%        |
| <b>3</b> | <b>Religion</b>                                 |     |            |
| i        | Hindu   | 422 | 94%        |
| ii       | Other religions                                 | 28  | 6%         |
| <b>4</b> | <b>Level of Education</b>                       |     |            |
| i        | No school                                       | 39  | 9%         |
| ii       | Matric level                                    | 151 | 34%        |
| iii      | Higher secondary level                          | 158 | 35%        |
| iv       | Graduation level                                | 102 | 23%        |
| <b>5</b> | <b>Length of stay in the community</b>          |     |            |
| i        | Less than 10 years                              | 120 | 27%        |
| ii       | 10 – 20 years                                   | 149 | 33%        |
| iii      | 21 years – 30 years                             | 121 | 27%        |
| iv       | Above 30 years                                  | 60  | 13%        |
| <b>6</b> | <b>Economic dependency on tourism</b>           |     |            |
| i        | High  | 99  | 22%        |
| ii       | Moderate  | 145 | 32%        |
| iii      | Low   | 104 | 23%        |
| iv       | Not at all                                      | 102 | 23%        |
| <b>7</b> | <b>Involvement in tourism (decision making)</b> |     |            |
| i        | Involved  | 136 | 30%        |
| ii       | Not Involved                                    | 314 | 70%        |

factor that is “Development and Maintenance of Infrastructure and Heritage” (DMI); it is comprised of four variables (VAR 10, 11, 12 & 13), which focuses on the influence of tourism on the development of new infrastructure, services, and amenities. It also includes the maintenance and conservation of the tangible and intangible heritage of the region. Factor 5 is a psychological factor that is the “Image of the region” (ITR) which is comprised of two variables (VAR 14 & 15) that describe the role of tourism in improving the image of the region and uplifting the pride of the host community for their region and culture. Factor 6 is “Negative Socio-cultural Impacts” (NSC); it has four variables (VAR 16, 17, 18 & 19) that focus on the adverse effect of tourism on the socio-cultural characteristics of the community. Factor 7 is “Environmental Issues” (ENV); it consists of two variables (VAR 20 & 21), which highlight the negative impact of tourism on the environment of the region (Objective 1 is achieved). The overall mean for the factors indicates that the respondents have favorable responses for STD, ECI, PSC, DMI, and ITR (as  $m > 3$ ). In contrast, the respondents show disagreement towards the negative impacts that are NSC and ENV (as,  $m < 3$ ) (Table 2).

Table 2. Exploratory Factor Analysis (Source: Author, 2022)

|                 | Factors / Variables   | Mean m     | Factor Loading | EV   | TVE (%) | Cronbach's alpha |
|-----------------|---|------------|----------------|------|---------|------------------|
| <b>Factor 1</b> | <b>Support for Tourism Development (STD)</b>  | <b>3.3</b> |                | 1.3  | 6.06    | 0.816            |
| VAR1            | Tourism has made a significant contribution to the development of my region   | 3.12       | 0.857          |      |         |                  |
| VAR2            | Tourism is an integral part of my region  | 3.31       | 0.774          |      |         |                  |
| VAR3            | There should be more tourism in my region   | 3.57       | 0.63           |      |         |                  |
| <b>Factor 2</b> | <b>Economic Impact (ECI)</b>  | <b>3.9</b> |                | 2.03 | 9.68    | 0.93             |
| VAR4            | There are more economic opportunities in my region  | 3.92       | 0.853          |      |         |                  |
| VAR5            | Local business is thriving in my region   | 3.92       | 0.872          |      |         |                  |
| VAR6            | The price of property has increased   | 3.92       | 0.872          |      |         |                  |
| <b>Factor 3</b> | <b>Positive Socio-Cultural Impact (PSC)</b>   | <b>3.1</b> |                | 1.62 | 7.7     | 0.827            |
| VAR7            | There are many interesting things to do in my region.   | 3.06       | 0.827          |      |         |                  |
| VAR8            | Tourism provides an opportunity to interact with tourists and know other culture  | 3.08       | 0.881          |      |         |                  |
| VAR9            | Tourism helps in the revival of the cultural heritage of my region (folk dance, music, local cuisine)   | 3.13       | 0.736          |      |         |                  |
| <b>Factor 4</b> | <b>Development and Maintenance of Heritage and Infrastructure (DMI)</b>   | <b>3.6</b> |                | 3.13 | 14.9    | 0.835            |
| VAR10           | New facilities and infrastructure have developed, which improved the appearance of my region  | 3.55       | 0.84           |      |         |                  |
| VAR11           | The local bodies are promptly maintaining the public facilities   | 3.79       | 0.746          |      |         |                  |
| VAR12           | There is better shopping, dining, and recreational opportunity in my region   | 3.5        | 0.814          |      |         |                  |
| VAR13           | The local government is interested in maintenance and conservation of the tangible (built and natural heritage etc.) and intangible heritage. | 3.55       | 0.746          |      |         |                  |
| <b>Factor 5</b> | <b>Image of the Region (ITR)</b>  | <b>3.1</b> |                | 1.08 | 5.14    | 0.874            |
| VAR14           | Due to tourism, my region is more popular, and it showcases my region in a positive light.  | 3.07       | 0.911          |      |         |                  |
| VAR15           | Tourism has made me feel proud of my region and culture   | 3.04       | 0.92           |      |         |                  |
| <b>Factor 6</b> | <b>Negative Socio-Cultural Impact (NSC)</b>   | <b>2.6</b> |                | 6.13 | 29.18   | 0.871            |
| VAR16           | Crime, alcohol consumption, illegal gaming, drugs, prostitution, etc. have increased in my region   | 2.46       | 0.847          |      |         |                  |
| VAR17           | Customization of cultural practices, rituals, festivals, etc. is taking place to fulfil tourist demand  | 2.78       | 0.806          |      |         |                  |
| VAR18           | Artificial culture is developing in my region, which leads to cultural erosion in the region  | 2.66       | 0.837          |      |         |                  |
| VAR19           | The behaviour and value system are changing negatively among the youth  | 2.52       | 0.82           |      |         |                  |
| <b>Factor 7</b> | <b>Environmental Issues (ENV)</b>   | <b>1.8</b> |                | 1.01 | 4.81    | 0.794            |
| VAR20           | Due to tourism, my region is more crowded   | 1.85       | 0.878          |      |         |                  |
| VAR21           | Due to tourism, my region is more polluted  | 1.75       | 0.893          |      |         |                  |

Total variance explained: 77.49%; Note: Variable is denoted as VAR; Mean as  $m$ ; Eigen Value as EV; Total Variance Explained as TVE

Table 3. The measurement models (Source: Author, 2022)

CR = Construct Reliability, AVE = Average Variance Explained

| Sr.No    | Impact Factors   | CR    | AVE   |
|----------|--|-------|-------|
| Factor 1 | Support for Tourism Development (STD)                            | 0.816 | 0.601 |
| Factor 2 | Economic Impact (ECI)  | 0.93  | 0.816 |
| Factor 3 | Positive Socio-Cultural Impact (PSC)                             | 0.837 | 0.633 |
| Factor 4 | Development and Maintenance of Heritage and Infrastructure (DMI) | 0.836 | 0.561 |
| Factor 5 | Image of the Region (ITR)  | 0.876 | 0.779 |
| Factor 6 | Negative Socio-Cultural Impact (NSC)                             | 0.872 | 0.631 |
| Factor 7 | Environmental Issues (ENV)                                       | 0.796 | 0.662 |

Table 4. Correlation Matrix (Source: Author, 2022)

Note: <sup>a</sup> = Average Variance Extracted;

<sup>b</sup> = Inter-construct squared correlations

| Factors    | NSC                      | DMI                      | ECI                      | PSC                      | STD                      | ITR                      | ENI                      |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>NSC</b> | <b>0.794<sup>a</sup></b> |                          |                          |                          |                          |                          |                          |
| <b>DMI</b> | -0.212 <sup>b</sup>      | <b>0.749<sup>a</sup></b> |                          |                          |                          |                          |                          |
| <b>ECI</b> | -0.374 <sup>b</sup>      | 0.488 <sup>b</sup>       | <b>0.903<sup>a</sup></b> |                          |                          |                          |                          |
| <b>PSC</b> | -0.055 <sup>b</sup>      | 0.377 <sup>b</sup>       | 0.365 <sup>b</sup>       | <b>0.796<sup>a</sup></b> |                          |                          |                          |
| <b>STD</b> | -0.39 <sup>b</sup>       | 0.573 <sup>b</sup>       | 0.563 <sup>b</sup>       | 0.553 <sup>b</sup>       | <b>0.775<sup>a</sup></b> |                          |                          |
| <b>ITR</b> | 0.226 <sup>b</sup>       | 0.062 <sup>b</sup>       | -0.197 <sup>b</sup>      | 0.271 <sup>b</sup>       | 0.157 <sup>b</sup>       | <b>0.883<sup>a</sup></b> |                          |
| <b>ENI</b> | 0.368 <sup>b</sup>       | -0.09 <sup>b</sup>       | -0.234 <sup>b</sup>      | -0.217 <sup>b</sup>      | -0.319 <sup>b</sup>      | 0.067 <sup>b</sup>       | <b>0.813<sup>a</sup></b> |

#### 4. Measurement Model

The unidimensionality of the scale, measuring each measurement model, was tested through Confirmatory Factor

Analysis (CFA) as recommended by Anderson and Gerbing (1988). The CFA (maximum likelihood estimation method) was conducted to measure the construct's reliability (CR) and validity (convergent and discriminant). The factors identified through the process of EFA were utilized in this analysis. All the constructs of the present model are considered reliable as CR is more than 0.70 (refer Table 3) as recommended by Nunnally and Bernstein (1994).

The convergent validity is assessed through Average Variance Extracted (AVE) as it shows the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. The AVE value for all the factors is more than 0.5, which is satisfactory as per the recommendations of Hair et al. (1987) (Table 3).

For examining the Discriminant Validity, the AVE values are compared with squared correlations between paired constructs, and all the AVE values are found comparatively more (Table 4). This indicates that all the constructs are statistically different as suggested by Hair et al. (1987). The overall fit indices support the acceptability of the measurement model with a Co-efficient of Discriminant Value (CMIN/DF) = 1.883; the Goodness of Fit Index (GFI) = 0.937; Comparison Fit Index (CFI) = 0.971 and Root Mean Square Error of Approximation (RMSEA) = 0.044 as recommended by Hair et al. (1987); Tabachnick and Fidell (2019). Hence the seven-factor measurement scale of the host community's perception of tourism impact scale was established for the Puri region. The seven factors are STD, ECI, PSC, DMI, ITR, NSC, and ENV. Each of the seven factors is measured through multiple indicators (variables). (Objective 2 achieved).

### 5. Framing Hypothesis

The literature study indicated that the perceived impact factors (ECI, PSC, DMI, ITR, NSC, and ENV) are exogenous, and support for tourism (STD) is an endogenous factor. Based on the theoretical and empirical findings of the previous studies, six hypotheses are proposed to examine the relationship between the perceived tourism impacts (exogenous factor) and their influence on the host community's support for tourism development (endogenous factor) for the Puri region. The six hypotheses (H) are:

**H1:** There is a direct and positive relationship between *Economic Impacts* (ECI) and the host community's *Support for Tourism Development* (STD).

**H2:** There is a direct and positive relationship between *Positive Socio-Cultural Impact* (PSC) and the host community's *Support for Tourism Development* (STD).

**H3:** There is a direct and positive relationship between the *Development and Maintenance of Heritage and Infrastructure* (DMI) and the host community's *Support for Tourism Development* (STD).

**H4:** There is a direct and positive relationship between the *Image of the Region* (ITR) and the host community's *Support for Tourism Development* (STD).

**H5:** There is a direct and negative relationship between *Negative Socio-Cultural Impact* (NSC) and the host community's *Support for Tourism Development* (STD).

**H6:** There is a direct and negative relationship between *Environmental Issues* (ENV) and the host community's *Support for Tourism Development* (STD).

### 6. Structural Model: Perceived Tourism Impacts and Support for Tourism Development

After the identification of the host community's perceptions of tourism impacts, the influence of their support for tourism development was assessed. Gursoy and Rutherford (2004) confirmed a strong and direct relationship between the perceived tourism impacts and support for tourism development.

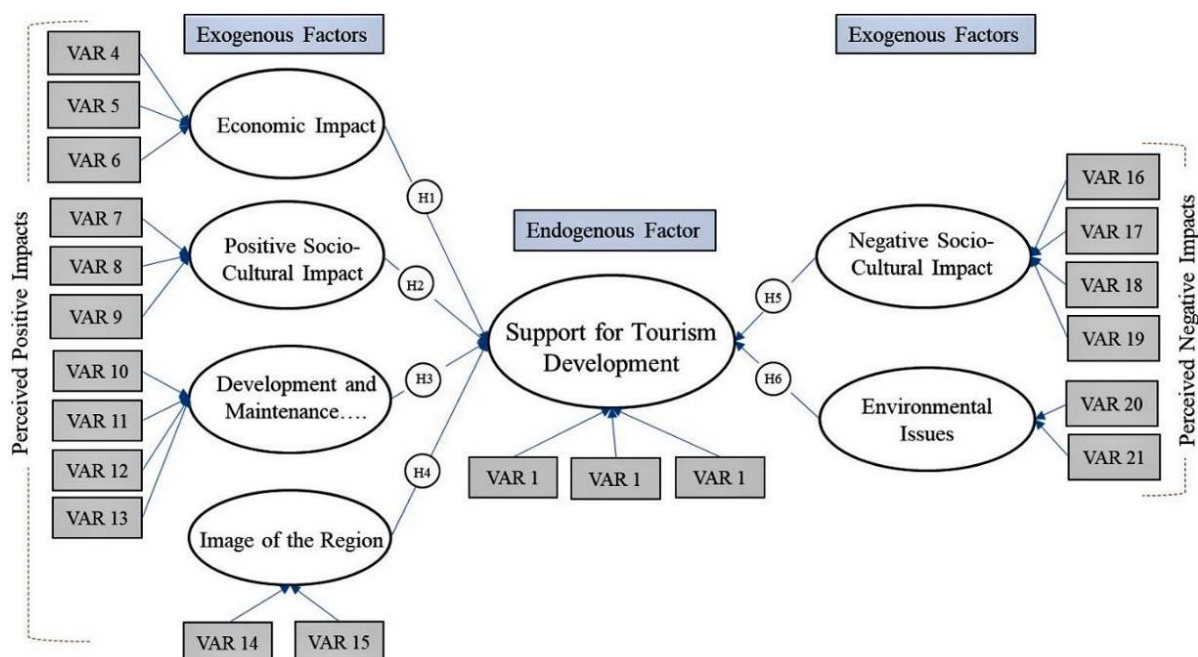


Figure 3. The Structural Model (Source: Author, 2022)



This is in agreement with the Social Exchange Theory (SET) that if the perceived positive impact is more than the perceived cost, then the host community will be involved in the exchange with the tourist and will support more tourism development (Adongo et al., 2019; Dyer et al., 2007; Eslami et al., 2019; Nunkoo, 2016; Sharma et al., 2008). Based on these discussions, a structural model was proposed (refer to Figure 3) to test the construct validity of the six-factor measurement scale for the Puri region, Odisha, India. The structural model examines the relationship between six exogenous factors (that are ECI, PSC, ITR, DMI, NSC, and ENV) and the endogenous factor (that is, STD).

The Structural Equation Model (SEM) relates one construct to the other constructs by providing a path co-efficient for each proposed hypothesis to determine their relative significance. The data fit of the proposed structural model indicates a good fit with  $CMIN/DF = 1.883$  (should not be more than 2 as suggested by Dion (2008)),  $CFI = 0.971$  (more than 0.95 indicates satisfactory fit as recommended by Dion (2008)),  $GFI = 0.937$  (value more than 0.9 indicates satisfactory fit as suggested by Malhotra and Dash (2019)),  $RMR = 0.041$  (value less than 0.05 indicates good fit as per Hooper et al. (2008)), and  $RMSEA = 0.044$  (less than 0.05 indicates good fit as per the recommendation of Dion (2008)). As all the value exceeds the cutoff criteria, hence the hypothesized model is acceptable.

The six hypothetical relationships of the structural model were found to be significant (as  $p < 0.05$ ) and in the proposed direction (Table 5) as shown in the Structural Model (Figure 3). Therefore, it can be concluded that all the hypotheses are accepted. The Standardize Path Estimate value for ECI & STD is 0.289 (at  $p = 0.00$ ), PSC & STD is 0.292 (at  $p = 0.00$ ), DMI & STD is 0.193 (at  $p = 0.00$ ) and ITR & STD is 0.181 (at  $p = 0.00$ ) which indicates that these factors significantly influence the STD in a positive manner. Whereas the Path Estimate value for NSC & STD is -0.230 (at  $p = 0.00$ ) and ECI & STD is -0.098 (at  $p = 0.04$ ) indicates a significant negative influence on the host community's perception towards their support for tourism development (STD) (refer Table 5). (Objective 3 achieved).

Table 5. Structural Equation Model (SEM) Analysis (Note: result significant at  $p < 0.05$ ) (Source: Author, 2022)

|              | Path Relationship | Standardize Path Estimate | p-value | Hypothesis |
|--------------|-------------------|---------------------------|---------|------------|
| Hypothesis 1 | ECI - STD         | 0.289                     | 0.00    | Accepted   |
| Hypothesis 2 | PSC - STD         | 0.292                     | 0.00    | Accepted   |
| Hypothesis 3 | DMI - STD         | 0.193                     | 0.00    | Accepted   |
| Hypothesis 4 | ITR - STD         | 0.181                     | 0.00    | Accepted   |
| Hypothesis 5 | NCS - STD         | -0.230                    | 0.00    | Accepted   |
| Hypothesis 6 | ENV - STD         | -0.098                    | 0.04    | Accepted   |

## DISCUSSION AND CONCLUSION

The study aimed to develop a host community's support model for tourism development in the Puri region, taking Social Exchange Theory as a theoretical base. It was carried out in three-fold. Firstly, a measurement scale was developed, specifically for the Puri region, by adopting a scale development process. Secondly, the reliability and validity of the scale were ensured. The measurement scale comprised seven factors: six perceived tourism impact factors (exogenous factors) that are *economic impact*; *positive socio-cultural impact*; *development and maintenance of heritage and infrastructure*; *image of the region*; *negative socio-cultural impact*; *environmental issues*, and one factor (endogenous factor) representing the host community's *support for tourism development*.

Thirdly, the relationship between these six impact factors and *support of tourism development* was assessed using Structural Equation Modeling. The findings confirm that all six perceived tourism impact factors significantly influence the support of the host community for tourism development in the proposed direction.

The findings of this study confirm that economic and non-economic factors play a significant role in shaping the attitude of host communities. Like several other previous studies (Dyer et al., 2007; Gursoy and Rutherford, 2004; López et al., 2018; Nunkoo and Ramkissoon, 2011; Raj Sharma et al., 2022), the present study also confirmed that the economic impact of tourism has a direct and positive influence on the attitude of the host community. Along with this, the significance of the socio-cultural impacts and environmental impacts is also supported in the findings (Table 4). The positive socio-cultural impacts have the power to influence the host communities' attitude positively, and vice versa. This is consistent with the findings of Gjerald (2005); Gursoy and Rutherford (2004); Papastathopoulos et al. (2020); Uslu et al. (2020).

Similarly, environmental issues can adversely influence host communities' support, as previously Andriotis (2005); Uslu et al. (2020) suggested in their study. The study assessed the physical factors, which are, the development and maintenance of new infrastructure and services; the maintenance and conservation of tangible and intangible heritage, and found it as a determinant factor influencing the host community's attitude (Table 4) significantly. This indicates that the host community's attitude towards tourism development is positively influenced if they perceive that the region's development is taking place due to tourism and the heritage (tangible or intangible) is maintained and conserved properly as they consider the heritage as part of their identity. The findings also confirmed the importance of the psychological factor, i.e., the image of the region, in shaping the attitude of the host community (Table 4).

The study's general findings mostly support the findings of previous studies from developed countries; however, considering the predictive power of the factors DMI and ITR, the study recommends the inclusion of these factors in the tourism support model for heritage destination of developing countries. The study also aimed to check the applicability of Social Exchange Theory (SET) in the heritage tourism destination of the Puri region. Several studies have confirmed the relevance of this theory, mainly in American, European, and Australian tourism destinations (Nunkoo, 2016; Sharma et al., 2008). The finding of this study confirms the robustness of the Social Exchange Theory for the heritage destinations of the South Asian region, specifically for India.

The main contribution of this study is the development of a community support model for tourism development for heritage destinations of India (Figure 3) by integrating all the significantly influencing determinants.

The findings of the study, however, contradicted the *Tourism Area Life Cycle* model of Butler (1980), which suggests that when the destination is in the development stage, the host community's involvement will decline, and there will be some antagonism among them. In contrast, the finding indicates that the host community supports tourism development. They are perceiving tourism's positive impacts more than the negative influence.

They are also willing to get more involved in the tourism sector. Hence it can be inferred that the host community's hostile behavior and decline in the participation rate are not observed in the *development stage*. Since ancient times, pilgrims and tourists with a religious bent have travelled to this location. The pilgrims are an enduring part of the religious community and contribute to the area's increased spirituality and religiosity. Spirituality and religiosity are positive indicators of someone's welfare (Villani et al., 2019). As pilgrimage is the most common type of tourism in the area, this may be the most psychologically plausible explanation for the favourable attitude of the host community toward tourism in Puri. Hence, the welcoming community's optimistic prospective. However, more investigation is required to determine which stage of the TALC model this type of attitude emerges within the host population in a heritage destination of a developing nation where pilgrimage is the predominant type of tourism.

The model and findings of this study can provide useful insights for the tourism planner, decision-makers, government authorities, etc., of the Puri region. By identifying the host community's perception that support or is likely to resist tourism development, planners and managers can address the concerns through strategically targeted community consultation. The model identifies constructs that represent community attitude towards tourism development in the context of the Puri region. The findings may serve as a basis for more comprehensive research in the future. The model can be generalised for the heritage destinations of Odisha but for the generalisation of the model for all heritage tourism destinations of India model needs to be further tested in other heritage regions across the country, as India is a vast country with a diverse socio-cultural condition.

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## THE FEASIBILITY OF RURAL TOURISM IN FOSTERING REAL SUSTAINABLE DEVELOPMENT IN HOST COMMUNITIES

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**Abstract:** Although tourism is identified as a tool for development, it also leads to negative and detrimental impacts. Thus, a survey from the literature point of view is done to ensure that tourism is still available strategy for sustainable rural development. This paper uses four reliable databases, including Web of Science (WOS), Scopus, SAGE Publication, and Emerald Publishing, to look for prior investigations. Systematic Literature Reviews (SLR) were employed as past investigations with a qualitative approach, and data were retrieved using the PRISMA protocol. To be a viable development strategy for rural areas, it is crucial to harmonize the local communities' economies, social structures, cultures, environments, identities, and values. The key fundamental aspects to creating a sustainable rural tourism development model are also identified in this paper. The development of rural tourism is thought to have a significant impact on creating a sustainable socio-economic system. A well-planned and well-executed rural tourism strategy will inevitably lead to sustained rural development. Here, sustainability refers to improved quality of life, a strong economy, and environmental responsibility.

**Key words:** rural tourism, sustainable development, systematic literature review, local economy, rural tourism development model

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### INTRODUCTION

Based on the numerous promising benefits, tourism appears very "popular" and is the "main way" selected as a developmental tool by governments, communities, and local stakeholders (Cheng and Zhang, 2020; Gao and Wu, 2017; Manaf et al., 2018). Tourism also engages local elements in its expansion process, particularly in terms of management and decision-making, as well as to convince potential communities in appreciating the essence of its integration (Aas et al., 2005; Simmons, 1994; Wager, 1995). As a consequence, more opportunities are generated that benefit the host residence (Sebele, 2010). This leisure industry is a well-established development option, which possibly leads to natural and cultural conservation while improving rural living standards (Chang et al., 2018). Human roles are very important in tourism development, due to the ability to manage and utilize nature effectively (Liu, 2003). However, the largest obstacle would be trying to alter the mindset of locals (Kyriakaki and Kleinaki, 2022) and the ability of the community to participate meaningfully in their own development (Setokoe and Ramukumba, 2022). Community involvement also ensures greater opportunities for successful and sustainable development (Campon-Cerro et al., 2017; Choi and Sirakaya, 2005).

Nevertheless, rural regions appear more probable in supporting tourism development, under a definite guarantee that encompasses life quality improvement (Kim et al., 2013; Woo et al., 2014). The obstacles experienced in achieving sustainable development are mostly due to the reality, identity, and cultural values of the local culture, absent in the implementation process (Miltojevic and Ilic-Krstic, 2011). The concept of rural vision is well respected for its complex and multi-functional capabilities with diverse interest groups, claiming the right to explore the region for welfare improvement (McAreevey and McDonagh, 2011). In consideration of rural characteristics, there is a need to initiate a sustainable strategy using various tourism activities that harmonize the environment, its cultures, and lifestyles, as well as by developing

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products from the surroundings, cultural history, local wisdom, and other resources (Paresishvili et al., 2017). The strategy also should be related to sustainable community, economic and environmental development approaches (Wijijayanti et al., 2020). The role of rural tourism in economic diversification creates a retention mechanism, especially for young people. This is due to its ability to rapidly generate new jobs, without any need for high standards or qualifications (Muller and Jansson, 2007). Moreover, the enormous benefits are reflected in income growth, job creation, new work ethic, increased business capabilities, nature conservation, identity reinforcement, community cohesion, and economic reforms (Daniloska and Naumova-Mihajlovska, 2015; Hall, 2004; Iorio and Corsale, 2010; Irshad, 2010; Sharples, 2000). The importance of rural tourism also enhances the development and preservation of its natural heritage and culture, minimizes immigration as well as contributes extensively to various economic activities (Canoves et al., 2004; Gannon, 1994; Paniagua, 2002).

As a consequence, several jobs are produced, poverty is reduced and socio-economic development is promoted in disadvantaged areas (Bulin, 2011; Croes, 2014; Lee and Jan, 2019). Although, tourism activities are known for producing several benefits from the economic aspect to local survival (Campon-Cerro et al., 2017; Chang, 2011; Chuang, 2010; Idris and Salleh, 2018; Kataya, 2021; Muresan et al., 2016; Park and Yoon, 2010; Salleh et al., 2014; Tangit et al., 2014). This industry is not able to solve the overall societal problems but tends to introduce additional complications, while aggravating existing issues, such as widening the gap between inequality and poverty, prostitution, landscape change, and various social problems (Alam and Paramati, 2016; Almeida-Garcia et al., 2016; Boz and Karakas, 2017; Enemu and Oduntan, 2012; Hajimirrahimi et al., 2017; Mahadevan and Suardi, 2019; Matiza and Oni, 2014; Spanou, 2007). Several negative impacts instigate rejection and obstacles during the implementation of rural tourism activities (Diedrich and Garcia-Buades, 2009; Harrill, 2004). As a consequence, the success of sustainable development expected to promote diversification, economic transition, and rural growth, appears difficult (Canoves et al., 2004; Gannon, 1994; Melichova and Majstrikova, 2017).

However, the main purpose of rural tourism is to achieve sustainable development that improves local life quality (Polukhina et al., 2021), apart from aligning the importance of economic growth with superior living conditions, especially for developing areas (Marzo-Navarro et al., 2015). Under these circumstances, a wide variety of results have been generated by previous studies that seek to comprehend tourism outcomes and its appropriate timing as a rural advancement tool. This potentially leads to the research question whether tourism is actually capable of producing sustainable development in rural communities. If it is true, subsequently the aspects needed in building a feasible model are to be defined.

## MATERIALS AND METHODS

### 1. Search Sources

The search for past studies involved four reliable databases, such as Web of Sciences (WoS), Scopus, SAGE Publication, and Emerald Publishing. Web of Sciences is a trusted database of about 33,000 journals in more than 256 disciplines, including subjects related to environmental studies, interdisciplinary social sciences, social problems, and development as well as planning. This platform encompasses over 100 years of comprehensive background data and collections, created by Clarivate Analytics, and ranked on three separate measurements, termed quotes, papers, and collections per paper. Scopus is the second database used in this survey and also occurs among the largest abstract and collection of literary fields surveyed by peers with 22,800 journals from 5,000 publishers worldwide. This catalog comprises various subjects, such as environmental, social, agricultural, and biological sciences.

SAGE is, however, a global academic publisher of books and journals as well as a wide range of library products and services. This database has printed over 1,000 journals from various disciplines and also focuses on publishing impactful research and enabling robust research methodologies. Meanwhile, Emerald is among the first digital publishers in the world, known to commission, manage and provide research, with a real difference. This platform helps researchers tell their stories more meaningfully, with an exciting new format that generates research in journals, case studies, and books, as well as new innovative channels that promotes a wider distribution. Furthermore, the database supports openness and transparency, as well as shares a passion for quality, trust, and confidence.

Table 1. The search string used for the systematic review process (Source: Prepared by author)

| Use of Keywords   | Database |
|---|----------|
| TITLE-ABS-KEY(("rural tourism*" OR "tourism village*") AND ("rural development*" OR "rural improvement*" OR "rural advancement*" OR "local development*") AND ("tourism development" OR "sustainable tourism" OR "rural tourism development"))  | Scopus   |
| #1 ((TI=(rural tourism* OR tourism village*)) AND AB=(rural tourism* OR tourism village*)) AND AK=(rural tourism* OR tourism village*)<br>#2 ((TI=(rural development* OR rural improvement* OR rural advancement* OR local development*)) AND AB=(rural development* OR rural improvement* OR rural advancement* OR local development*)) AND AK=(rural development* OR rural improvement* OR rural advancement* OR local development*)<br>#3 ((TI=(tourism development OR sustainable tourism OR rural tourism development)) AND AB=(tourism development OR sustainable tourism OR rural tourism development)) AND AK=(tourism development OR sustainable tourism OR rural tourism development); ((#1) AND #2) AND #3 | WOS      |
| [[All "rural tourism*" OR [All "tourism village*"]] AND [[All "rural development*" OR [All "rural improvement*" OR [All "rural advancement*" OR [All "local development*"]]] AND [[All "tourism development" OR [All "sustainable tourism" OR [All "rural tourism development"]]]   | SAGE     |
| (content-type:article) AND ("rural tourism*" OR "tourism village*" AND ("rural development*" OR "rural improvement*" OR "rural advancement*" OR "local development*") AND ("tourism development" OR "sustainable tourism" OR "rural tourism development"))  | Emerald  |

## 2. Criteria for Eligibility, Exemption, and Systematic Process

Previous studies only considered journals with quantitative, qualitative, or mixed methods. Review articles, book series, and chapters, as well as conference proceedings were not inclusive. These publications focused on journals in English Language, in order to avoid translation difficulties. The search terms encompassed "rural tourism as tools of development" and "rural tourism development model" which are limited to titles, abstracts, and/ or keywords. Searching activities apply synonymous attempts, keywords of previous studies, related terms, and various words. Afterward, basic symbols and encodings such as boolean operator, search for phrases, truncation, wild card, and field code functions are employed. Subsequent activity after obtaining the desired article involves a thorough examination to eliminate duplicates.

## 3. Search String

The search uses the facility term "advanced search" and is limited only to titles, abstracts, and/ or keywords in the first phase can be seen in Table 1.

## 4. Research Method

Forming the research question is the first step in this study, which is followed by a reporting method that adheres to the PRISMA protocol (Preferred Reporting Items for Systematic review and Meta-Analysis) shown in Figure 1.

This method is primarily aimed at the systematic review in medicine but allows for its transparency, reliability, and validity in tourism (Pahlevan-Sharif et al., 2019). Furthermore, the PRISMA statement permits the search for terms related to rural tourism development.

This method is also used to observe whether creating tourism activities in local resettlements eventually improves the socio-economic perspectives and living standards sustainably. A qualitative approach was performed in this study using content analysis to identify themes related to rural tourism as a tool of development.

## RESULTS

The search results from the first phase obtained 1,461 articles, but 316 were generated in the second screening stage, based only on English Language. There are time limitations in relation to the publications (journal articles published between 1993 and 2021), and with the deletion of duplicates, the journals were reduced to 284. Subsequently, the abstracts were screened for the purpose of relevance, where the literature decreased from 284 to 96. However, the third phase involved re-screening the articles according to additional selection criteria on the research qualifications and scope (Xiao and Watson, 2019). The text from the 96 selected articles were further analyzed to confirm that the main study theme discusses rural tourism as a development tool. This process eventually produced 74 articles, although certain relevant pieces cannot be identified in the two phases, termed cross-screening and cross-examination (Pickering and Byrne, 2014). As a consequence, 4 additional articles from the reference list were included. Figure 2 represents the optional reporting items for systematic surveys and meta-analysis flow charts (PRISMA) in describing the sample selection process. After being analyzed, the geographical distribution of the previous studies was obtained. Figure 3 shows that the majority were conducted in China (8 cases); Romania (7 cases); Spain and Serbia (6 cases each); Greece, Poland, and Ireland (4 cases each); South Africa and Slovenia (3 cases each); Hungary, South Korea, Algeria, Finland, England, Germany, Canada, and Iran (2 cases each) as well as in Sri Lanka, Turkey, Lithuania, United States of America, Peru, Argentina, Malaysia, Portugal, Republic of Macedonia, Austria, Kenya, Croatia, Georgia, France, Botswana, Bulgaria, Italy, Ukraine, New Zealand, Cyprus, Sweden and Estonia (1 case each).

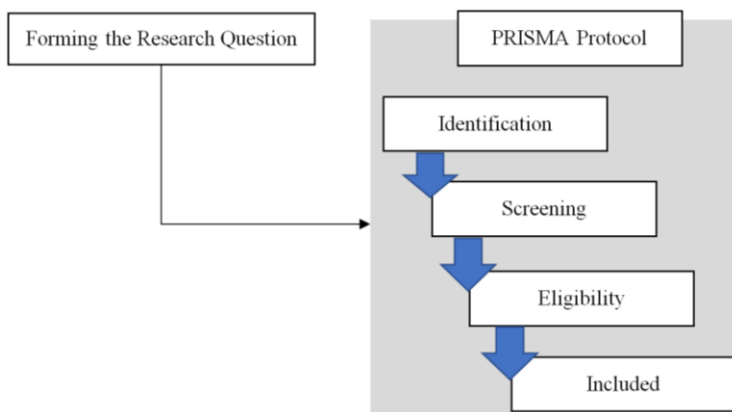


Figure 1. The research methodology stages (source: prepared by author)

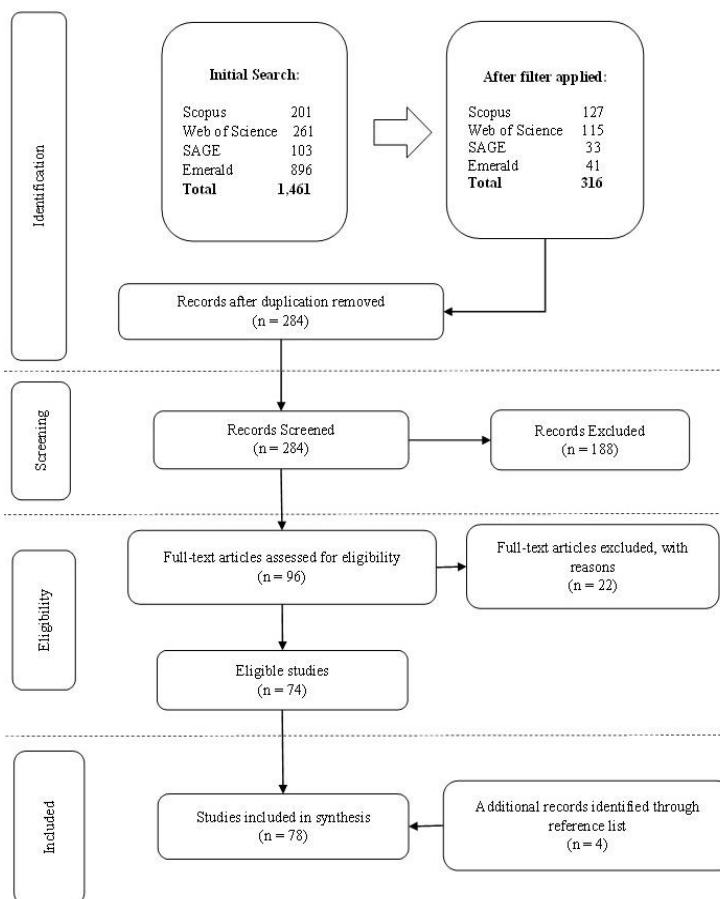


Figure 2. The PRISMA Protocol (Source: Prepared by author)

Figure 2 represents the optional reporting items for systematic surveys and meta-analysis flow charts (PRISMA) in describing the sample selection process. After being analyzed, the geographical distribution of the previous studies was obtained. Figure 3 shows that the majority were conducted in China (8 cases); Romania (7 cases); Spain and Serbia (6 cases each); Greece, Poland, and Ireland (4 cases each); South Africa and Slovenia (3 cases each); Hungary, South Korea, Algeria, Finland, England, Germany, Canada, and Iran (2 cases each) as well as in Sri Lanka, Turkey, Lithuania, United States of America, Peru, Argentina, Malaysia, Portugal, Republic of Macedonia, Austria, Kenya, Croatia, Georgia, France, Botswana, Bulgaria, Italy, Ukraine, New Zealand, Cyprus, Sweden and Estonia (1 case each).

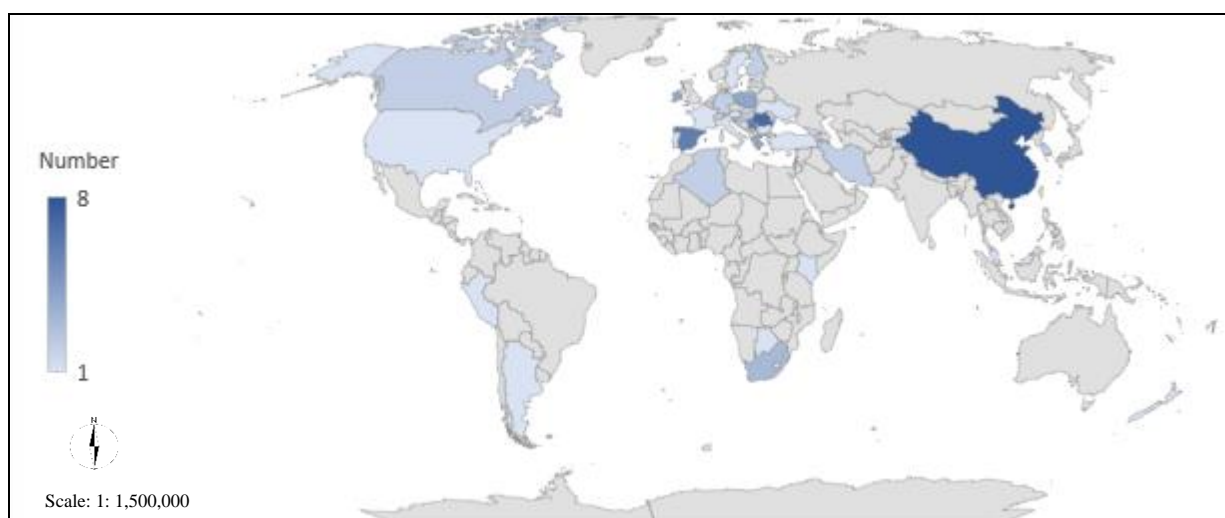


Figure 3. Geographical distribution of rural tourism case study (Source: Prepared by author)

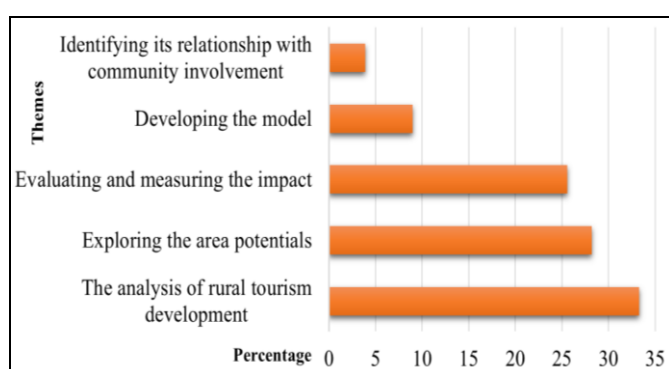


Figure 4. Themes of study on 78 articles (Source: Prepared by author)

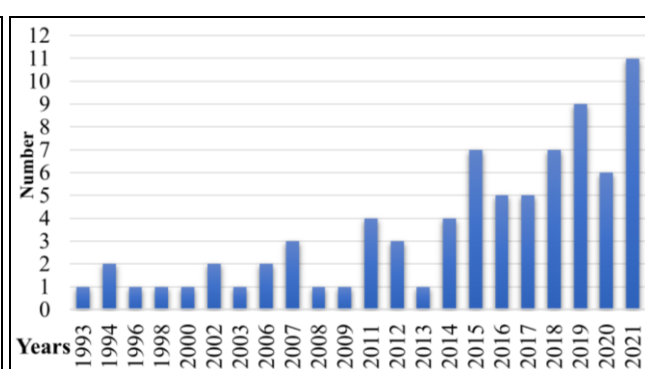


Figure 5. Growth frequency of research throughout the year

Table 2. Methods of study on 78 articles (Source: Prepared by author)

|                |  | Number    | Percentage |
|----------------|--|-----------|------------|
| <b>Themes</b>  |  |           |            |
| 1.             | Exploring the potential of the area: (Abellán and Martínez, 2021; Ateş and Ateş, 2019; Baum, 2011; Fusté-Forné and Cerdan, 2021; Gilbert, 1993; Gjorgievski and Nakovski, 2012; Jacobs et al., 2020; Juma and Khademi-Vidra, 2019; Kantar and Svržnjak, 2017; Kelfaoui and Rezzaz, 2021; Lantitsou, 2017; Lenao et al., 2014; Lulcheva and Arseniou, 2018; Lun et al., 2016; Matic et al., 2019; Mazilu and Bădiță, 2014; Mirani and Farahani, 2015; Popescu, 2014; Prentovic et al., 2016; Serra-Cantalops et al., 2021; Stratta Fernandez et al., 2018; Zamarreño-Aramendia et al., 2021)                  | 22        | 28.2       |
| 2.             | Evaluating and measuring the impact of rural tourism development that has been implemented: (Ali pour et al., 2011; Badulescu and Badulescu, 2017; Bidwell and Murray, 2019; Butler and Rogerson, 2016; Ćurčić et al., 2021; Gao et al., 2019; García-Delgado et al., 2020; Gica et al., 2020; Ibanescu et al., 2018; Jordan et al., 2016; Kneafsey, 2000; Li et al., 2016; Mthembu and Mutambara, 2018; Neumeier and Pollermann, 2014; Nooripoor et al., 2021; Ristić et al., 2019; Romanenko et al., 2020; Skuras et al., 2006; Svets, 2015; Yang et al., 2019)  | 20        | 25.6       |
| 3.             | Perceiving and finding out the relationship of community involvement with rural tourism development (Fong and Lo, 2015; Gannon, 1994; Sheridan et al., 2009)   | 3         | 3.9        |
| 4.             | Studying the development of rural tourism: (Apostolopoulos et al., 2020; Aslam and Awang, 2015; Baležentis et al., 2012; Barcus, 2013; Chen and Kong, 2021; Dai et al., 2017; Fotiadis, 2011; Ghidouche et al., 2021; Kachniewska, 2015; Keyim, 2018; Khartishvili et al., 2019; Kim and Jamal, 2015; Lane, 1994a; López-sanz et al., 2021; MacDonald and Jolliffe, 2003; Mair, 2006; McAreavey and McDonagh, 2011; Mukwada and Sekhele, 2017; Petrović et al., 2018; Radović et al., 2020; Riddle and Thompson-Fawcett, 2019; Sharpley, 2002, 2007; Šimková, 2007; Unwin, 1996; Verbole and Cottrell, 2002) | 26        | 33.3       |
| 5.             | Forming a development model of rural tourism (Cawley and Gillmor, 2008; Chen et al., 2018; Hwang et al., 2012; Idziak et al., 2015; Koscak, 1998; Liu et al., 2020; Sharpley, 2007)  | 7         | 9          |
| <b>Total</b>   |  | <b>78</b> | <b>100</b> |
| <b>Methods</b> |  |           |            |
| 1.             | Qualitative  | 58        | 74.4       |
| 2.             | Quantitative   | 14        | 17.9       |
| 3.             | Mixed Mode   | 6         | 7.7        |
| <b>Total</b>   |  | <b>78</b> | <b>100</b> |

The research themes include the analysis of rural tourism development (33.3%), exploring the area potentials (28.2%), evaluating and measuring the impact (25.6%), developing the model (9%) as well as identifying its relationship with community involvement (3.9%) as demonstrated in Figure 4 and details listed in Table 2. The studies analyzed also reveal

that they applied qualitative (74.4%), quantitative (17.9%), and mixed mode (7.7%) methods. Meanwhile, the frequency of timeline studies on tourism as a creator of rural sustainable development was represented in Figure 5. It shows the publications of 11 articles in 2021; 9 in 2019; 7 in 2018 and 2015; 6 in 2020; 5 in 2016 and 2017; 4 in 2011 and 2014; 3 in 2007 and 2012; 2 in 1994, 2002 and 2006; as well as 1 in 1993, 1996, 1998, 2000, 2003, 2008, 2009 and 2014.

## DISCUSSION

This paper presents the findings of a systematic literature review of journal articles published between 1993 and 2021 and explores issues related to how tourism activities have become a very popular regional development tool in various parts of the world. The substantial increase in publications in the field shows growing interest in rural tourism, largely from within the disciplines of tourism and rural studies. However, this review is not without limitations. The study was limited to English-language peer-reviewed journals. In the same way, the scope of the review is limited to exploring what and how rural tourism implementation for development could focus on potentials, policies, strategies, actions, and the impacts felt by the local communities. Despite these limitations, some key findings arise. Rural tourism emerges as a strategic element for local and sustainable development (Abellán and Martínez, 2021). The concept aims at defending the culture and characteristics of the host community, landscape, and habitat, as well as the rural economy and the tourism industry for a successful long term. Rural tourism is expected to develop an adequate comprehension of leadership and places a vision among policymakers as well as to continue working towards a balanced diversity of local economies (Aslam and Awang, 2015; McAreavey and McDonagh, 2011). This is because the strategy serves as the main driver of socioeconomic development, in terms of enhancing employment opportunities and generating new enterprises and infrastructure, with an increased social welfare (Shahbaz et al., 2019). However, the approach is occasionally a result of planning and implementation, with minimal positive and diverse negative impacts that are naturally short and long-term (Baum, 2011; Bidwell and Murray, 2019). Rural development programs are not only targeted at tourism expansion but also on a general scale, with the relative considerations of local residents (Apostolopoulos et al., 2020). Subsequently, these efforts stimulate the perfect collaboration in generating rural tourism activities with high tendency to sustainably develop the host communities (Aslam and Awang, 2015). Rural tourism is possibly developed in various forms such as walking, hiking, adventure/ wilderness holiday, canoeing, rapid rafting, skiing, nature studies, hunting, cycling/cycle tours, horse riding, landscape appreciation, rural heritage studies, village tours, relaxation/self-healing, small scale conventions/gatherings, village festivals and sports that require natural settings (Lane, 1994b). Specific areas of rural tourism are achieved by considering a holistic approach (Ateş and Ateş, 2019; Lantitsou, 2017; Mukwada and Sekhele, 2017). This measure promotes sustainable development aimed at progressively improving the quality of life, reducing migration outside the rural areas, and maintaining environmental resources for future generations (Koodsela et al., 2019).

Rural tourism activities tend to succeed with close collaboration between local communities and stakeholders (Riddle and Thompson-Fawcett, 2019; Verbole and Cottrell, 2002). This potential growth is possibly the result of an effective negotiation and communication across several social actors (Lun et al., 2016). Furthermore, joint efforts by the government and local stakeholders are very significant toward achieving a high level of economic development (Petrović et al., 2018). Therefore, the involvement of local forces at every stage of rural tourism development appears highly organized (Fong and Lo, 2015; Hwang et al., 2012). This interaction plays a very important role in offering long-term benefits to the social, cultural, economic, and environmental aspects of the society (Gannon, 1994). However, the competition between stakeholders is compensated by areas beneficial to sustainable development through rural tourism (Svels, 2015).

The potential of an area is also among the essential factors in creating tourism activities. These capacities occur in form of agricultural products, plantations, and farming (Fusté-Forné and Cerdan, 2021; Ghidouche et al., 2021; Sheridan et al., 2009; Zamarreño-Aramendia et al., 2021), culture (MacDonald and Jolliffe, 2003; Mazilu and Bădiță, 2014), unique landscape (Gao et al., 2019; Lulcheva and Arseniou, 2018; Lun et al., 2016; Serra-Cantallops et al., 2021), alternative living area (Mirani and Farahani, 2015), tourism village (Kantar and Svržnjak, 2017) and challenging activities (Prentovic et al., 2016). Potential needs are developed according to the necessities of local communities and subsequently utilized on ethical bases (Sheridan et al., 2009). More importantly, countryside is not only an area of conquest but also a public ecosystem with economic values (Gao et al., 2019). The positive impact of rural tourism occurs in terms of well-being (Barcus, 2013; Li et al., 2016), economic and political stability (Ibanescu et al., 2018) as well as the increase in economically active population (Butler and Rogerson, 2016; Mthembu and Mutambara, 2018). However, a negative effect was observed in the form of identity, physical and cultural damages (Ali pour et al., 2011; Cawley and Gillmor, 2008; García-Delgado et al., 2020; Unwin, 1996), future losses and uncertainties (Kachniewska, 2015), disagreements and limitations (Keyim, 2018) as well as dissatisfaction (Yang et al., 2019). Various negative influences are known to emerge from tourism activities, mainly due to the inequality of benefits arrangements (Kachniewska, 2015; Mitchell and Ashley, 2009; Postma and Schmuecker, 2017) and lack of visitors as well as the competitiveness of existing tourist attractions (Baležentis et al., 2012).

There is a crucial need to reduce these negative impacts, as rural areas are physically and specially fragile in style and quality of life (Bramwell, 1994). Subsequently, the adverse effects are possibly minimized by the involved parties, through constant promotions (Kelfaoui and Rezzaz, 2021), strategically designed construction linked to government development plans (Chen and Kong, 2021), adequate pricing policy (Dai et al., 2017; Radović et al., 2020), quality and the provision of a wide range of services and products (Dai et al., 2017; Skuras et al., 2006), leadership partnerships between stakeholders at different levels (Gica et al., 2020), local community approach (Lenao et al., 2014; Mair, 2006) as well as by building superior rural infrastructure (Radović et al., 2020). Several attempts are involved in generating diverse positive effects as well as in achieving success in rural tourism development. The realization is based on well-planned rural tourism, with "good" and "correct" implementation. In this context, a model encompassing a development strategy is built in accordance



with the geographical conditions of the tourism activities (Kisi, 2019). A rural tourism event is not only formed on the principle of sustainability in terms of the environment and nature but also demonstrates the traditional friendliness and living values of the local population (Ćurčić et al., 2021). There is also a focus on the improvement of new efficient service systems, leading to contradictory solutions between sustainability (environment) and local development (efficiency) (Chen et al., 2018). Furthermore, the model is created by insinuating community development and rural tourism expansion (Liu et al., 2020), followed by the involvement of the central and local governments as drivers and marketers as well as managers and service providers, respectively. The unique characteristics of the area including weather, landscape, history, style of residence, religion, type of society, morphology, background from the host, and the reasons for the development of rural tourism are among the main factors to consider in building a successful rural tourism development model that contributes to economic growth and improvement (Fotiadis, 2011). This sample was adapted from the previous prototypes (Gilbert, 1993; Idziak et al., 2015; Jacobs et al., 2020; Jordan et al., 2016; Kneafsey, 2000; Koscak, 1998; López-sanz et al., 2021; Nooripoor et al., 2021; Stratta Fernandez et al., 2018) which includes the following aspects in Figure 6.

Figure 6 shows the key fundamental aspects that should be applied in the rural tourism development model. These steps commenced from the special characteristics of an area, referred to as the seeds in creating the development, and subsequent extension by identifying the potential, demographics, and available tourist attractions. Furthermore, it is necessary to consider the level of government and local involvement, tourism promotion, and marketing activities as well as the state of existing infrastructure. There is also a need to comprehend the importance of providing opportunities for rural tourism actors towards improving tourism services and products (Umam et al., 2022). This is related to the demand and loyalty level of visitors, based on the object of tourist attractions. Support programs and policies are equally significant. Similarly, the training of actors and locals is also required to create sustainable development from rural tourism activities. The real impact of rural tourism development is perceived as a viable and accurate strategy in enhancing a sustainable socio-economy (Badulescu and Badulescu, 2017; Gjorgievski and Nakovski, 2012; Juma and Khademi-Vidra, 2019; Kim and Jamal, 2015; Li et al., 2020; Nooripoor et al., 2021; Romanenko et al., 2020; Sharpley, 2007). In this context, sustainability referred to the quality of life (standard of living, public transportation, infrastructure, public services), a prosperous economy, and environmental responsibility (Šimková, 2007). Possible challenges in the implementation of rural tourism development include poor central support structure; a general understanding of limited rural tourism; insufficient innovative products and marketing; poor awareness and capacity at the local as well as national level, and low declaration at national and international levels (Khartishvili et al., 2019; Matić et al., 2019; Petrović et al., 2018; Sharpley, 2002) 2018; Sharpley, 2002).

This is also due to the lack of "support-mentality" expansion, inaccurate strategies for built areas, and initial positive potential development, but ultimately are short-termed (Neumeier and Pollermann, 2014).

In consequence, it is important to evaluate the rural tourism development strategy / model at a certain period, in order to gain the necessary innovation in preserving beneficial and competing for tourism (Ballesteros and Hernandez, 2020; Madanaguli et al., 2021; Nosratabadi and Drejeris, 2016).

## CONCLUSION

Rural tourism is a complex concept that includes the interest and contribution of various parties. Previous studies stated that there are more significant detrimental effects than beneficial effects on local community values as a result of implementing rural tourism as a development strategy. However, this could be overcome by planning and implementing rural tourism properly, which are expected to be able to create more positive impacts as well as sustainable development in all aspects of the rural. The key fundamental aspects to building a sustainable rural tourism development model also identified in this study, consist of the potential, community, marketing, facilities, opportunities, policies, market demands, training, and environments of the rural areas. The involvement of these key fundamental aspects are crucial for creating a beneficial rural tourism for local communities. Overall, attaining sustainability in rural tourism development necessitates resolving vulnerabilities and problems. Therefore, the need for a holistic and adaptive rural tourism development model appears very critical which is aimed at gaining sustainable advantageous impact for the local.

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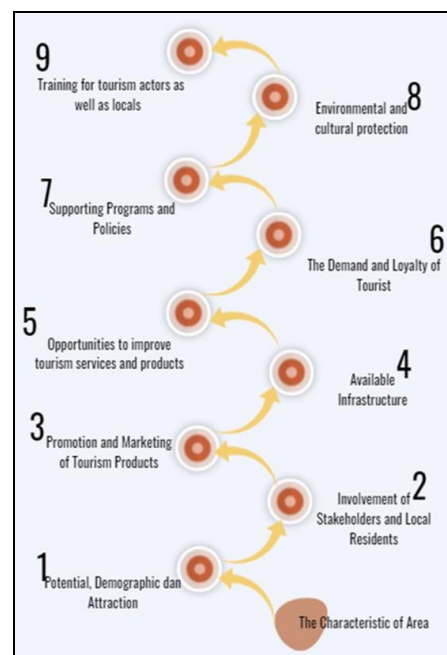


Figure 6. The key fundamental aspects of sustainable rural tourism development model (Source: Developed by author)

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## NEUROMARKETING ACTIONS FOR THE DIGITAL PROMOTION OF TOURISM IN CUBA

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**Abstract:** The alliance between neuroscience and marketing makes it possible to study user reactions to different purchasing stimuli. The descriptive exploratory research had the objective of proposing neuromarketing actions for the tourist promotion of the Cuba destination on the Cubatravel website. Web analytics tools and a survey of digital users were applied on the eye-tracking biometric technique. The qualitative and quantitative were integrated, with multivariate analysis methods. As main results, the portal needs to be improved, essentially its attractiveness, usability and web quality. The proposed action plan was validated by a group of experts from neuroscience, psychology, tourism and informatics, using the Delphi method and the ANOCHI coefficient as very adequate.

**Key words:** Cubatravel, neuromarketing, neuroscience, e-commerce, digital promotion, eye tracking

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### INTRODUCTION

Is it possible to read the consumer's mind, reveal their desires and know how they plan to make their purchase to outline effective marketing strategies? The answer to this question is the premise of neuromarketing for tourism.

Since the development of science, the study of the mind has had a primarily psychological approach and has had restricted areas such as neurology and psychology based on organic criteria (Murphy et al., 2008). The alliance between neuroscience and marketing makes it possible to study user reactions to different purchasing stimuli and outline their behavior from a cognitive angle. In the current scenario, it is valuable to analyze from neuroscience the impact of the health crisis caused by the Covid-19 pandemic, in the way customers buy, to adapt marketing strategies and promote the promotion of tourist destinations (Robert et al., 2020; Caciora et al., 2021a; Morar et al., 2021; Grama et al., 2022). Understanding the emotional imprint on users is a starting point for analyzing their psychology, conveying confidence and security in enjoying the tourist offer (Herman et al., 2021a). Neuromarketing arises to explore purchasing behavior by incorporating neuroscientific foundations into the design of business strategies (Mandal and Joshi, 2016). Its benefits are palpable in the so-called network society, marked by the development of information technologies and the consumption patterns of the digital traveller, where the tourist promotion of destinations is relevant (Deac et al., 2019; Herman et al., 2020; Berdenov et al., 2021; Gozner et al., 2021; Herman et al., 2021b). Countries such as the United States, Colombia, Spain, England and Germany have positive experiences with the application of neuromarketing in business management (Méndez et al., 2021).

In areas such as tourism, strategies for the promotion of destinations, image and brand positioning, neuro-learning, sales management in social networks and web portals are visualized (Caciora et al., 2021b; Ilies et al., 2020). This is supported by the case of Expedia, an American online agency; To simplify the travel booking process, users are tracked with eye-tracking and electromyography technologies. With them, gestures and facial expressions are studied to obtain results on the emotional impact that searches have. Another example was the Destination Meter presented at the 2014 International Tourism Fair in Madrid, an interactive activity in which participants were connected to non-invasive sensors while viewing images of different Spanish tourist destinations on the web. Thanks to the measurement of the emotional impacts, it was determined which was the ideal for each of the users (Braidot, 2017). In the Cuban environment, the Institute of Neurology and Neurosurgery stands out as the leading center for neurosciences on a national scale. Currently among its investigations, the human brain mapping program is located, to analyze the structure and brain functions, thanks to the advanced technology for obtaining neuroimaging. It has a cycle of development and commercialization of neurotechnology, a characteristic that allows it to be part of the Cuban Biotechnology Business Group BioCubaFarma. In addition, Neuropsychology is part of the national public health system with programs accessible to the entire society (Fernández et al., 2009). On the scientific production of neuromarketing in the country, a study carried out by researchers from the National School of Public Health was found, which deals with the convenience of integrating marketing into the Cuban health system. It ratifies its basis in the

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conservation of the regulations that safeguard the population, given and as it is referred to, the conceptual framework of neuromarketing and the studies that prove its superiority over conventional marketing methods are still insufficient (Suárez, 2020). Regarding tourism promotion in the digital scenario, Cubatravel is the official Cuban tourism portal for the dissemination of products and services in the industry. It responds to the policies of the Commercial and Promotion Directorates of the Ministry of Tourism (Mintur). Its web site is: <https://www.cuba.travel>. For the analysis of its web quality and consistency with the good international practices of the destinations of the competition, the investigations of Pavón et al. (2018) belonging to the Mintur, in addition to Calderín and Díaz (2020) of the Faculty of Tourism of the University of Havana. They deal with the migration of the portal from a 1.0 platform to a 2.0 platform and the factors that affect user dissatisfaction in terms of its functionality for the promotion of the territory, respectively. Cubatravel does not exhibit a relational approach that responds to the needs of contemporary tourists and presents problems to differentiate the destination from its direct competitors. This affects the transmission of trust and credibility to its users. In essence, both studies are limited to diagnosis, but include among their recommendations the making of a proposal for actions to improve the portal.

**Approach of the problematic situation**

In the Cuban tourism sector, the culture of implementing new marketing strategies with the application of neuroscience is not yet considered vast, and at the Mintur many companies develop traditional models in their market research. For this reason, the need to collect existing information on the scope of neuromarketing was identified and take advantage of the theoretical contributions of techniques such as eye tracking to increase tourism promotion in the Cuba travel portal. It is necessary to promote the dissemination of tourism products and services in Cuba, to improve its position in the network and consolidation as one of the most competitive tourist destinations in the insular and Caribbean region. In this order of ideas, and in pursuit of the objectives, the following scientific problem is formulated. How to contribute to the improvement of the dissemination of the Cuba destination and the user experience on the Cubatravel website? In order to solve the aforementioned scientific problem, the following hypothesis is proposed: The design of a proposal for Neuromarketing actions allows improving the tourist promotion of the Cuba destination and the user experience on the Cubatravel website.

**General objective:** Make a proposal for Neuromarketing actions that increase the digital promotion of tourism in Cuba on the Cubatravel website.

**METHODOLOGY**

A cross-sectional descriptive study was carried out, where the qualitative and quantitative aspects were integrated. A bibliometric analysis of the scientific production of Neuromarketing was carried out. Historical-logical, hypothetical-deductive and analytical-synthetic methods were used (Figure 1). The Cubatravel Portal was analyzed using the methodologies of the Online Communication of Tourist Destinations (CODETUR) 2014 project (cited in Calderín and Díaz, 2020), together with online tools such as Google Analytics, Woorank, GtMetrix, Alexa and Nibbler. A survey with a sample value of 64 units was designed, obtained through probabilistic random sampling for a finite population of 73 users of the Cubatravel portal, mostly nationals and other countries. Their calculations were based on a probability of occurrence of 0.5; maximum estimation error of 0.04 and confidence of 97.5%. Formula 1, used by Moráquez in 2011 (cited in Velázquez, 2020) in social research was used. The applied survey was validated by Cronbach's Alpha (internal consistency index that takes values between 0 and 1); It is a reliable instrument that makes stable and consistent measurements. It is calculated through formula 2 (Ranisav and Branislav, 2019):

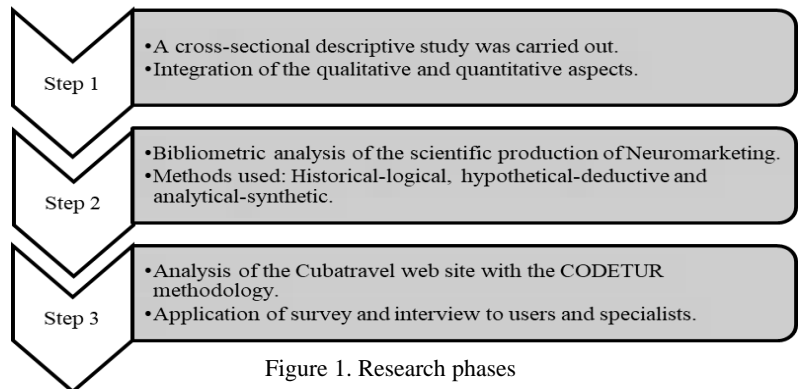


Figure 1. Research phases

$$n = \frac{n_0}{1 + \frac{n_0}{N}} \text{ donde: } n_0 = p \cdot (1 - p) \cdot \left[ \frac{z(1 - \frac{\alpha}{2})}{d} \right]^2 \quad (1)$$

$$\alpha = \frac{K}{K-1} \left[ 1 - \frac{\sum S_i^2}{S_T^2} \right] \quad (2)$$

Where:  $n_0$ : preliminary sample size;  $N$ : population size.  
 $n$ : sample size with correction for finite population.  
 $p$ : proportion of success in the analysis that is carried out  
 $K$ : The number of items;  $S_i^2$ : sum of variances of the items;  $S_T^2$ : variance of the sum of the items  $\alpha$ : Cronbach's Alpha coefficient

**Consult to experts**

It was used to analyze the validity of the proposed strategy. The Delphi method is a qualitative technique for collecting information; allows obtaining the consensus and representative opinion of a group of experts through repeated consultation. It is characterized by anonymity (no expert knows the identity of the other), iteration (the questionnaire is presented several times) and the group's response in statistical form (it presents all the opinions presenting the degree of agreement).

As neuromarketing is a new topic for tourism in Cuba, a group of specialists in branches that contribute to it were consulted: neurosciences, psychology, web design and marketing fundamentally. The application of the statisticians and their results ensured the presence or absence of concordance between the specialists' criteria. The statistical results of the consultation to these enabled the author to discuss the criteria in the improvement of the strategy.

**Specialist selection process**

Three essential stages were considered:

1. Determination of the number of specialists.
2. Preparation of the list of specialists.
3. Obtaining the consent of the specialist in their participation.

Among the methods to determine the optimal number of specialists, the method proposed by Cyret and March (1992) was considered, since the mean of the population was unknown. If the above condition is met, the number of experts to be consulted is calculated by applying expression 1 (Ranisav and Branislav, 2019):

$$\text{exposed: } n = \frac{N \left( \frac{i^2}{k} \right) + N(p-p^2)}{N \left( \frac{i^2}{k} \right) + p-p^2} \quad (1)$$

n: the number of experts; N: the size of the population of experts; i: precision level; p: error proportion.  
k: constant set from the confidence level.

With this information, the preliminary number of experts (n) is calculated for a confidence level of 99%. Compliance with the condition  $n > 0.5 N$  is analyzed

The precision level of  $i = 0.05$  and an error rate of  $p = 0.09$  were defined; for 99% reliability, the value of k is 6.6564; since they are the ones recommended for investigations similar to this one. A preliminary number of experts of 9 was obtained and the size of the population of experts was estimated at  $N = 13$ , when  $8 > 0.5 N$  was met. The optimal number of experts was calculated, achieving an optimal value of  $n = 12$  experts. To assess the degree of competence of the expert, the expert's own self-assessment was used. The "Methodology to determine the coefficient of competence of the expert" proposed by the State Committee for Science and Technology of the former Soviet Union was applied. It indicates that the coefficient K is calculated using the formula (Herrera et al., 2022):

$K = (K_c + K_a) / 2$ , where: K: Competition coefficient;  $K_c$ : knowledge coefficient; It is calculated by the self-assessment of the expert on a 0-10 scale, multiplied by 0.1;  $K_a$ : argumentation coefficient; It is achieved with the self-assignment by the expert of scores to different sources of argumentation on which his expertise is based.

The competence coefficient must be  $0.85 \leq K \leq 1$ , so that the expert is selected. In this investigation, of 35 experts analyzed, 12 were selected, taking into account the competence coefficient from the data obtained in the applied survey. Qualities such as professional ethics, expertise, impartiality and intuition, breadth of focus and independence of judgment were inherent to them; in addition to competence, creativity and analytical skills. The processing and analysis of the information determined whether or not there was convergence in their opinions.

Statistical-mathematical methods used

- Descriptive statistics: It was used for the processing of the results, their interpretation and the generation of useful considerations for the investigation.

- Multivariate statistics: it was used for the multivariate study of the research object through Multiple Correspondence Analysis (MCA).

Due to the costs, in the present investigation the eye tracking technology has not been applied to the analyzed website, which would have improved the analysis data, through a user test; however, an application of the theoretical contributions of this technique is pursued first, to evaluate its subsequent implementation in tourism web portals in Cuba. Web quality parameters on the home page such as brand treatment, interactivity, mobile communication and page map were considered.

Research phases:

1. Determination of the correspondence of the portal with international good practices in web design (Benchmarking) and evaluation of its quality. It was supported by the research of specialists from the Informatics Directorate of the Mintur (Pavón et al., 2018), as well as thesis of the Faculty of Tourism, University of Havana (Calderín and Díaz, 2020).

2. Results of the diagnosis and indication of causes that break the web quality and the consequent dissatisfaction of the users.

3. Proposal of the Neuromarketing action plan for the tourist promotion of Cuba as a destination on the Cubatravel website.

## RESULTS AND DISCUSSION

The parameters considered in the Cubatravel web portal were the home page, in the indicators news section, agenda and events, web map and icons of web 2.0 applications; quality, quantity of published content and information architecture. Based on the scientific observation and the diagnosis made, it was determined that the site needs to reduce its loading speed and page size, in addition to improving its interaction with users to improve their trust and loyalty, aspects similar to those referred by Braidot (2017) and Velázquez (2020) respectively. Text and multimedia content lack large formats; the portal is limited to images and videos, with no audio and voice synthesizers. This makes access difficult for users with special needs. It does not have virtual tours or webcams, interactive resources or a trip planner or experiences of other users. It does not present the option to vote or comment on the contents, similar to what was proposed by Calderín and Díaz (2020). It was found that it did not present a slogan, description of the brand and its values. In that order, it does not adapt to the requirements of the 2.0 tourist who frequently resorts to the comments of other travelers for trust and security. The fact of not using storytelling or not describing the values of the brand affects the purpose of the site of capturing the user's attention and influencing their decision, and even the image that they take of the tourist destination, since it is not achieved a differentiation of the destination with respect to the competition, even more so in times of international health crisis caused by Covid-19, where the choice of a tourist destination is so complex; results similar to those proposed by (Ramos et al., 2020). That is why it is necessary to identify a purpose capable of generating trust and establishing an emotional bond with the user. The survey showed that just over half (61%) had visited the portal at least once; of the total, 84% found it attractive. Table 1 shows that females (70%) of the age groups between 18-25 years (48%) and 26-35 (38%) predominated, corresponding mainly to the "Millennials" and the "Z generation", generations of young people and young adults, known for their high connectivity to the Internet and social networks.



Table 1. Distribution of users by age groups and gender

| Age group | Gender    |     |           |     | Total     |        |
|-----------|-----------|-----|-----------|-----|-----------|--------|
|           | Female    |     | Male      |     |           |        |
|           | Frequency | %   | Frequency | %   | Frequency | %      |
| 18 a 25   | 26        | 87  | 4         | 13  | 30        | 100,00 |
| 26 a 35   | 13        | 59  | 9         | 41  | 22        | 100,00 |
| 36 a 45   | 1         | 33  | 2         | 67  | 3         | 100,00 |
| 46 a 55   | 4         | 57  | 3         | 43  | 7         | 100,00 |
| 56 a 65   | 1         | 100 | 0         | 0   | 1         | 100,00 |
| Over 66   | 0         | 0   | 1         | 100 | 1         | 100,00 |
| Total     | 45        | 70  | 19        | 30  | 64        | 100,00 |

Table 2. Survey variables legend (Source: Authors)

| Variables   | Codes    |
|---|----------|
| Presence navigation web portal Cubatravel                           | PNPWC    |
| Presence attractive graphic design of the portal                    | PADGP    |
| Element of greatest importance                                      | EMI      |
| Presence emotions web portal  | PEPW     |
| Emotions awakens web portal   | EDPW     |
| Presence good job attributes  | PBEA     |
| Presence scroll to final page find information                      | PDHPFEI  |
| Presence attraction web portal                                      | PAPW     |
| Elements caught attention   | ECA      |
| Presence stimulus distracted attention                              | PEDA     |
| Stimulus distracted attention                                       | EDA      |
| Presence simple easy navigation                                     | PNFS     |
| Areas   | A        |
| Presence need to change add or remove something from the web portal | PNCAEAPW |
| Element change add or remove something from the web portal          | ECAEAPW  |
| Agree to apply knowledge psychology neuroscience web portal         | EAACPWP  |
| Sex   | S        |
| Nationality   | N        |
| Age   | E        |
| Academic level  | NA       |

Regarding the academic level, the reference value of higher repetition or mode was university (48; 75%) Figures 2 and 3 (the table 2 shows the legend). These sociodemographic data are similar to the results of the study by Echarri et al. (2017) professors of the Faculty of Tourism, University of Havana, they analyze the profile of tourists who travel to the Capital as a cultural destination, grouping more than half of the number of foreign visitors who arrive on the Island. Regarding their study samples, a high number of professional employees was observed, both young as adults.

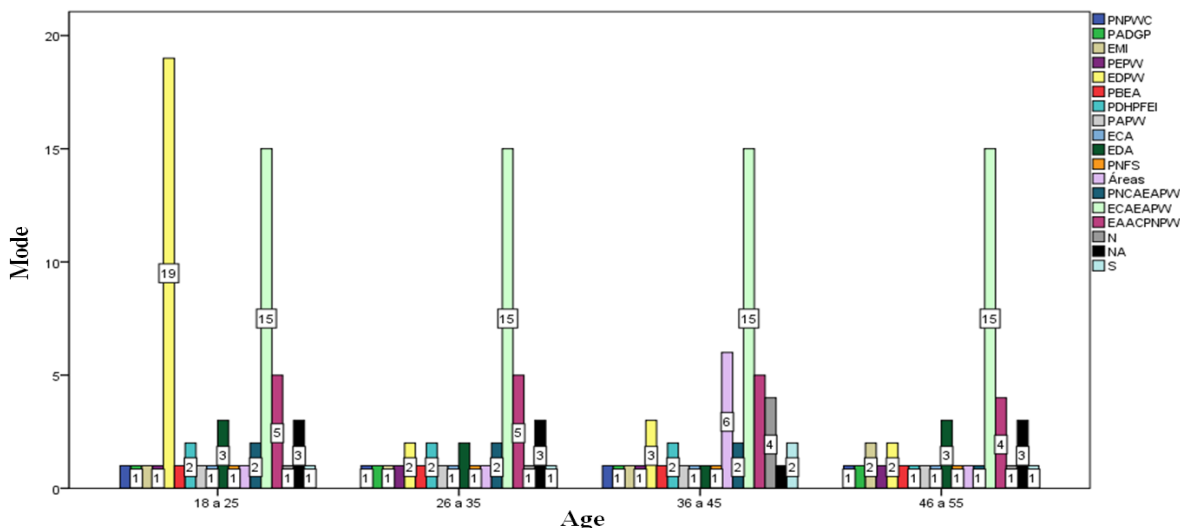


Figure 2. Mode of neuromarketing variables and age group (Source: Authors)

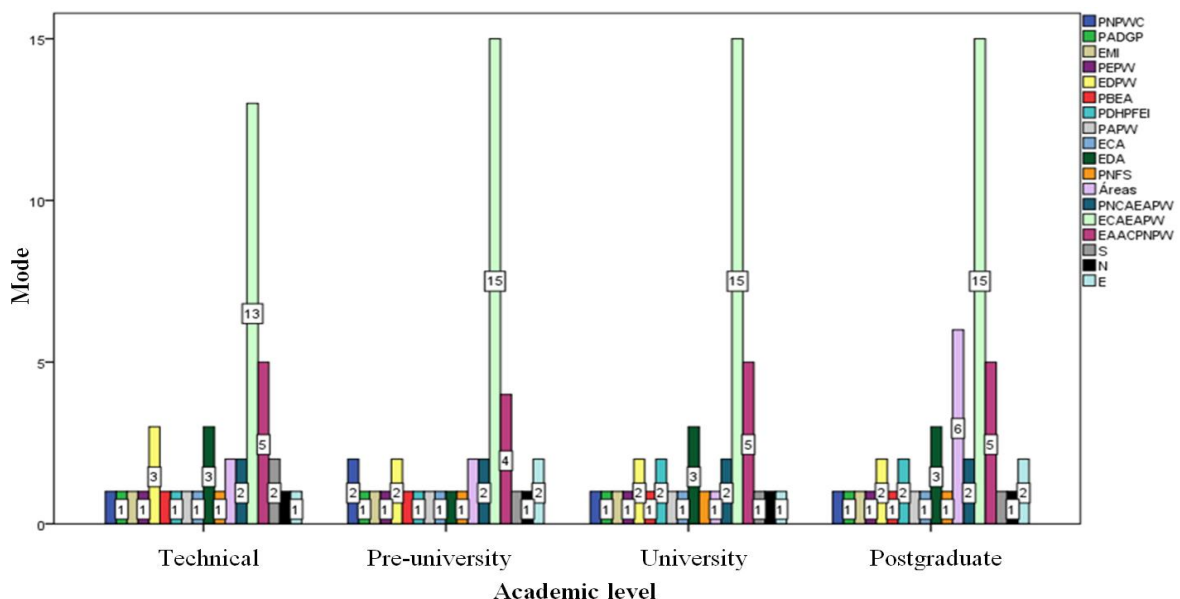


Figure 3. Mode of neuromarketing variables and academic level (Source: Authors)

Of these, the predominant nationality was Cuban (91%) because the simulation was initially carried out with national clients, followed in smaller percentages by clients from Ecuador, Turkey, Angola and Colombia, the latter one of the international benchmarks in the use of neuromarketing. Figure 4 illustrates that more importance was given to images (55%), followed by animations, which indicates that these elements should be enhanced on the web, since the brain is easily attracted by these types of visual elements. those that are not sufficient or varied in the portal.

A hypothesis raised by Djamasbi (2010), is to match the images with the age groups of the tourist demand of the websites. The majority -81%- reported that the portal transmitted emotions such as happiness and surprise, a figure that could be corroborated with the application of neuromarketing, since these were expressed by the rational or conscious part of the client. Other states mentioned were curiosity, distraction, disorientation and nostalgia, results similar to the investigations of (Brenninkmeijer et al., 2019).

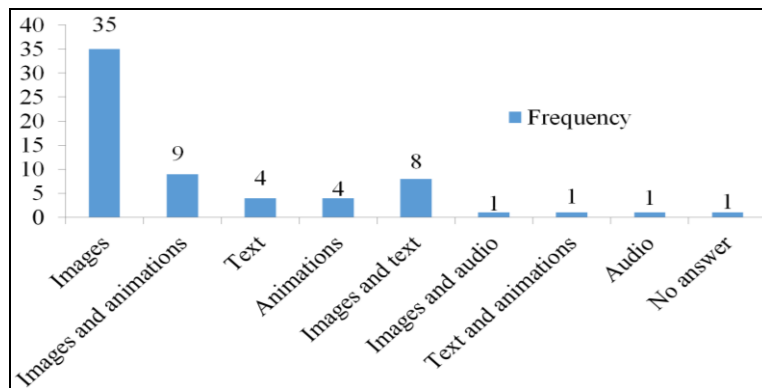


Figure 4. Elements of greatest interest in users of the Cubatravel portal (units of clientes)

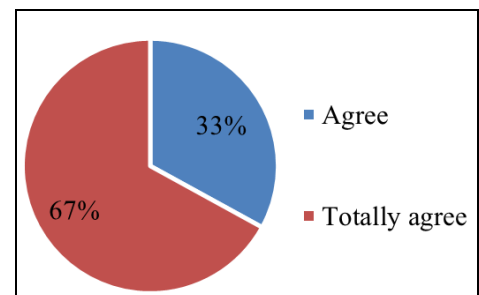


Figure 5. Acceptance of applying neuromarketing knowledge to Cubatravel (Source: Authors)

It means that 47% indicated that they had to scroll to the end of the home page to find the information they were looking for (figure 6), such as the map of Cuba and data on tourist destinations, which could require relocating them to higher areas. The hot or most focused areas by users were the upper, center and left strip, where the main image of the site and the reservation box appear; however, this option was the least selected as an element of interest (2%), but not destination information (70%) and tourist modalities (6%). This does not have to coincide with the preferred one for them, but as the one with the most striking visual. Figure 5 illustrates that 67% agreed to apply knowledge of neuroscience and psychology to the Cubatravel portal, a favorable element for the analysis in question, since one of the essential elements in the study of eye tracking is the user's consent. Coincidence with the studies by Romeu et al. (2019) is detailed. In general, with eye tracking it is also possible to measure the time that a client remains in the same, the reading order of the contents, the section to which he looks continuously, what intentions he has, etc.

Eye tracking could go hand in hand with what is also called mouse tracking, a time and sensitivity tool (Méndez et al., 2021). With the tracking of the cursor, its position is determined and where the user clicked and therefore what caught their attention the most. Also within digital marketing, the movements of a user on a web page can also be tracked by HTTP headers, JavaScript or cookies (Roldán, 2018). These tools allow managers to know the access points of users on the web, the most frequented pages, the duration, the links with which they leave the site, if they made purchases or subscriptions, among other benefits (Javor, 2013). Its analysis and interpretation makes it possible to improve the content structure, that is, to determine where the information of value for the user should be placed, to know if the visual signals of the web lead effectively to it and to enhance the brand image (Ranisav and Branislav, 2019). With the improvement in web usability, the aim is for a user to easily interact with the digital information system and create an accessible and intuitive site that generates emotions from the first phase of the journey.

### Stock plan proposal

The plan consisted of 4 essential phases: diagnosis, planning, execution and evaluation, each one with the use of methods and techniques that contributed to making the assessments in relation to the subject and object of study.

**Diagnosis:** it begins with the analysis of the internal and external environment of the organization. A theoretical approach is made on the application of neuroscience to conventional marketing research and the most used techniques at an international level. Subsequently, the application of eye tracking to digital marketing is deepened and a description of the Cubatravel website is made. According to the diagnosis made, Cubatravel presents insufficiencies in its web quality and accessibility; It requires reducing the size of pages, in addition to improving its interaction with users to achieve their trust and loyalty.

**Planning:** The organizational and instructional tasks will be projected to ensure an efficient management of Cubatravel's tourist promotion; In addition, the contents and work on the home page itself will be planned. Short, medium and long term objectives will be determined.

**Execution:** Based on the diagnosis made, the actions reflected in the planning are synthesized. It indicates how to proceed to increase the tourist promotion of the destination on the home page of the portal, through neuromarketing.

**Evaluation:** the portal will continue to respond to the policies of the Commercial and Promotion Directorates of the Ministry of Tourism and managed directly by the National Tourist Information Office, the entity in charge of managing the National Visitor Information System. The contents published on the home page of the portal could be configured with an

analogy to social networks, allowing users to indicate options such as: like, comment and share. Likewise, the Facebook tool can be used, which allows through emoticons to express the emotion generated by the published content.

### **Main actions**

Through the eye tracking technique, it is proposed to record the frequency of blinking and the dilation of the pupils of the users of the Cubatravel web portal. The information obtained can be qualitative, by identifying reactions to different stimuli, which allows improving the design of the ad, and quantitative by recording the number of elements that are attractive. These data will serve as support for different communication strategies and increase their impact on potential clients of the Cuba destination. The parameters to take into account and that have been described in the scientific literature as the most applicable for tourism portals are eye fixations, saccades, scanpath and heat maps (Suárez, 2012 and Tscheke et al., 2019):

- Eye fixations: Once the main image of a website is located, the first fixations are usually concentrated around this image, and in the areas where it is expected to find a certain type of content, for example, the expectations of finding a contact telephone number at the end of the web (Giudici et al., 2017).

- Saccade (saccades): The longer the journey from one fixation to the next on the web, the more beneficial it will be, since users do not have the need to change their viewing point on the web after having easily found what they needed.

- Scanpath: Through the spatial arrangement of a sequence of fixations, analyze the user's exploration paths on the web and identify which visual elements received the most fixations and in what order (Eraslan et al., 2016).

- Heat Maps: Examine the average reactions to specific areas of the web page of high interest. Analyze them by color and determine those without color and therefore not fixed by the participants during their viewing (Lee et al., 2006).

Along with this analysis, visual hierarchy theory should be considered as the composition of elements in a design, with an established visual order. It makes a design look neater, organized, understandable, aesthetically appealing. It is essential to consider for such purposes, the theory of color, contrasts, typography, blank spaces and focal points mainly. According to this theory, location is a primary factor to attract the attention of users, observers can determine which are the most relevant areas of the website and those spaces from which users have expectations to extract useful information for them, as well as which could be improved (Alonso and Sánchez, 2018). The user's reading is usually done with a horizontal movement in the upper left part where it is expected to find the logo of the organization or image of the destination. Subsequently, users scroll to the lower areas of the page, also prioritizing the left side (Tscheke et al., 2019).

### **Complementary actions**

1. Favor visual content: the brain quickly captures images, which makes it possible to remember a brand in long-term memory. Graphic elements must be included that provoke emotions in the visitor and expeditiously reflect the good that is aspired to be sold.

2. Preconceive the design: for the human brain, curved and round objects are more attractive and easier to assimilate than those that are flat and straight.

3. Inciting a crush: since web browsing time is generally short, it is estimated that approximately the first 50 seconds are enough to choose between staying or leaving the site, it is intended to seduce the user from the first moments. Tools such as Reelapp or ClickTale allow us to know the user's behavior and opinion about the design of a website.

4. Do without disruptive advertising or advertising that hinders the search: emotionally, the client does not react favorably to the continuous advertising messages, which could cause abandonment in the visit (Kotler et al., 2021).

5. Ease and clarity of use: the chances of acquisition increase the simpler and more understandable the use of interfaces and navigation through the site.

6. Include experiences from other customers: for e-commerce, testimonials build trust. Word-of-mouth marketing tends towards the sincerity and simplicity of those who communicate it, who act as brand spokesperson (Peris, 2021). However, one must be cautious about recommendation platforms, which must be attended to and consider customer service in all phases of the purchase, including after consumption and experience, hence there are authentic brand leads or brand detractors.

7. Opt for closed figures since they are more impressive than percentages: a saving of 20 dollars is more attractive than one of 20%, despite the fact that the amount reduced is lower (Smykova et al., 2020).

8. Reduce uncertainty when paying: international neuromarketing experiences reveal that the economic transaction generates concern in customers, so it is recommended to replace the expression "purchase" with alternatives such as "take me home" or "add to cart". Regarding this last element, the Amazon.com site stands out, which enjoys a position fundamentally in the US market.

9. Incorporate gamification, a tool associated with the use of challenges and competitions, which releases dopamine; for example, winning a prize, a discount and other unusual incentives; being able to share experiences of travelers on social networks, as well as progress bars on a hotel page ("you have 10% left to complete your reservation..."), among others. As long as a brand, message or product encourages the production of this neurochemical, the customer will feel pleasure, be satisfied and yearn to repeat the experience.

### **Assessment of the viability of the proposed action plan**

#### **Application of the Delphi method**

Once the action plan was prepared, it was consulted by the experts to verify its level of acceptance given the experience in neurology, psychology, tourism and computer science, respectively. Mintur workers with direct participation in the

management of the Cubatravel web portal were included. The Delphi method was applied and the derived results were based on ensuring the existence of concordance or not, between the emanated criteria. The statistical data of the consultation enabled the author to take into account the criteria of the experts in the improvement of the strategy.

An anonymous dialogue was organized with the 12 experts individually, in order to obtain a general consensus. In the first round, the initial version of the proposed plan was submitted for evaluation. In the structure of the survey, the Likert-type response scale was approached with the following values: very adequate, quite adequate, adequate, not very adequate and inadequate. The generality of the indicators was assessed as quite adequate (fundamentals of the procedure, objective and three of its stages); only the one corresponding to the execution was qualified as very adequate. To determine the reliability of the experts' criteria, the ANOCHI coefficient was used. It indicated a moderate or fair evaluation (range between 0.41 and 0.6) taking a value of 0.57 for a maximum range difference (MRD) of 144 on a scale of 1-5 and 12 experts.

Modification, addition and deletion changes were made, which allowed the plan to be adjusted and corrected. Once the proposal was modified based on the evaluations of the specialists in the first round, they underwent a second round of consultation in case they considered reconsidering or maintaining their judgments. All aspects were rated as highly adequate. The ANOCHI index (0.81; range greater than 0.8) indicated high or very good reliability of the experts' criteria and therefore of the proposal. Due to the consistency and reliability of the results described, it was considered that the structure of the strategy was sufficient for the present investigation, which is why it was not decided to carry out a third round, which coincides with that expressed by other authors in their studies such as Vega (2016), Pineda (2018) and Calderín (2020).

## CONCLUSIONS

- The theoretical approach to the international scientific production on neuromarketing, allowed to know the fundamentals of psychology and neuroscience applicable to commercial strategies of tourism, specifically associated with the tourist promotion of the destination Cuba in the digital scenario.
- The diagnosis of the Cubatravel website revealed the main problems for promotion, the design of the home page, information architecture, usability and accessibility, interaction with users, treatment of the brand and communication.
- The proposal of neuromarketing actions is an added value to the current tourist promotion of the Cuba destination in the Cubatravel portal, based on the study of the cognitive processes that occur in the mind of the client, determinants of their behavior during the purchase process.
- The designed actions were based on the theory of the eye tracking biometric technique. As the surveyed users mentioned, they would contribute to the gradual improvement of tourism promotion in the Cubatravel portal, through variables such as usability and user experience. The gradual progress in brain research and its understanding will make its practical application in the advertising scenario foreseeable.
- According to the criteria of experts, the proposed action plan is viable, as all its aspects are evaluated as highly adequate, which indicates a generalized level of acceptance.

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