# Geojournal of Tourism and Geosites

Year XVII

2024 / no. 4 supplement

vol. 57

Editura Universităţii din Oradea

# GTG

## Geojournal of Tourism and Geosites
Oradea University Press





**ISSN 2065-0817, E-ISSN 2065-1198**

The Journal is issued under aegis and with financial support of:

University of Oradea, Romania
**Department of Geography, Tourism and Territorial Planning**
**Territorial Studies and Analysis Centre**
1 University St., 410087, Oradea, Romania

Gdansk University of Physical Education and Sport, Poland
**Faculty of Tourism and Recreation**
ul. Kazimierza Górskiego 1, 80-336 Gdańsk, Poland

# GTG

## Geojournal of Tourism and Geosites

**Year XVII, no. 4 supplement, vol. 57**

**Oradea - Gdańsk**
**2024**

## PUBLICATION REQUIREMENTS OF ARTICLES IN THE GEOJOURNAL OF TOURISM AND GEOSITES

The Editorial Board goes trough each article, which in then submitted to two referees' judgment. Names of referees are confidential to the Editorial Board. Authors may be asked to make revisions to their manuscript. If substantial revision is required manuscripts may be re-reviewed before a decision to accept/publish is made. Final acceptance of manuscripts for publication is at the discretion of the Editors.

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**SCOPUS:** http://www.scopus.com/

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**INDEX COPERNICUS:** http://journals.indexcopernicus.com/karta.php?action=masterlist&id=3947
IC Value: **134.41** - 2022; **134.64 -** 2021; **132.41** - 2020; **121.20** - 2019; **121.25** - 2018; **109.97** - 2017; **88.82** - 2016; **84.53** - 2015; **68.79** - 2014; **6.59** - 2013; 2012; **4.84** - 2011; **4.83** - 2010; **4.15** - 2009; **3.91** - 2008

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Review accredited by **C.N.C.S.I.S.,** "**C**" Categoryhttp://vechi.cncsis.ro/cenaposs/2008/Arhiva/reviste_cat_C_08.pdf

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**Price of journal:**

| | |
|---|---|
| Individual | 10 € |
| Institutional | 15 € |
| Annual subscription | 20 € |

**Address of the Editorial Office:**
University of Oradea Department of Geography,
Tourism and Territorial PlanningTerritorial Studies and Analysis Centre 1 Universităţii St.,
410087, Oradea, Romania, Phone/fax: +40 259 408 475 e-mail: gtg.uoradea@yahoo.com

**On line version**:
http://gtg.webhost.uoradea.ro

## C O N T E N T S

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Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1877-1884
DOI 10.30892/gtg.574spl01-1354

# TOURISTS' AWARENESS AND UNDERSTANDING OF GAME DRIVE PROTOCOLS POST COVID-19 IN SOUTH AFRICA

**Rabelani NEMAKANGA**
University of Johannesburg, School of Tourism and Hospitality, College of Business and Economics, Johannesburg, South Africa, e-mail: chyulu.rn@gmail.com

**Vyasha HARILAL**
University of Johannesburg, School of Tourism and Hospitality, College of Business and Economics, Johannesburg, South Africa, e-mail: vyashah@uj.ac.za

**Tembi M. TICHAAWA***
University of Johannesburg, School of Tourism and Hospitality, College of Business and Economics, Johannesburg, South Africa, e-mail: tembit@uj.ac.za

**Citation:** Nemakanga, R., Harilal, V., & Tichaawa, T.M. (2024). TOURISTS' AWARENESS AND UNDERSTANDING OF GAME DRIVE PROTOCOLS POST COVID-19 IN SOUTH AFRICA. *Geojournal of Tourism and Geosites*, 57(4spl), 1877–1884. https://doi.org/10.30892/gtg.574spl01-1354

**Abstract:** Embarking on a safari is a highly sought-after experience, attracting both local and global tourists in substantial numbers. Despite its widespread appeal, this type of experience entails inherent risks to both tourists and wildlife. This study aims to investigate the awareness and understanding of game drive protocols by tourists in South Africa. Using the Greater Kruger National Park, adopting an explanatory qualitative research approach, thirty-one semi-structured in-depth interviews were conducted from different safari tourism stakeholders, including safari lodge managers, park authorities and tour guides. The study revealed varied levels of awareness and understanding of game drive protocols by tourists during safari experiences in both private and national park contexts. The causes are attributed to a lack of awareness of protocols and guidelines, self-guided safaris, lack of law enforcement presence (field guides and rangers), insufficient induction, and language and cultural barriers, among others. As a consequence, tourists non-compliance behaviour was found to not only have negative consequences on wildlife and the ecosystem generally, but also endanger themselves and other tourists, and threaten the safari tourism sustainability and livelihoods. The study has implications for the enforcement of tourist compliance to game drive protocols, to ensure tourists safety and animal welfare, as well as to increase the overall experience whilst on guided or self-guided safari in game reserves.

**Keywords:** Safari tourism, Kruger National Park, Greater Kruger Park, Con-compliance behaviour

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## INTRODUCTION

The safari industry is a leading economic sector globally, including in South Africa (Saayman et al., 2020). Safari is one of the fastest growing segments in the tourism industry, with it offering a range of products aimed at satisfying wildlife visitors' needs (Manrai et al., 2020). In South Africa, the industry is acknowledged to significantly contributes to economic growth through job creation, improving people's welfare and poverty alleviation (Mudzanani, 2017). Before the eruption of the Covid-19 pandemic, recreation and entertainment in the tourism sector experienced rapid growth, due to an increase in the number of tourists visiting South African ecotourism sites, including game reserves (Mbatha et al., 2021; Van der Schyff et al., 2019). South African game reserves are considered as wildlife custodies for protected animal species, as well as a principal source for leisure and adventure trips (Sims-Castley et al., 2015).

Despite their growth and popularity over the past few decades, South African game reserves still experience challenges in terms of managing their game reserves, while promoting the welfare of the wildlife involved.

This is owed in part, to the increasing number of demands from tourists, who are motivated by the desire to visit popular game reserves featuring wildlife (Signé, 2018). During safari expeditions, tourists either directly or indirectly interact with animals (Von Essen et al., 2020). To minimise the adverse consequences that could result from such interactions, protocols and guidelines governing human behaviour have been set by the relevant authorities and game reserve managements (Lloyd et al., 2021). The aim of such protocols and guidelines is to regulate behaviour, increase awareness and understanding by tourists in order to preserve their safety and the welfare of the wildlife, and to contribute toward a positive experience of the expedition in the game reserves concerned.

Some studies have reported alarming findings deploring tourists' propensity towards engaging in behaviours that contravene the set protocols and guidelines (Chow-Fraser, 2018; Ramaano, 2021; Tarver et al., 2019). Nonadherence to existing protocols and guidelines can have negative consequences for tourists, as well as for the well-being of the

* Corresponding author

wildlife concerned, with such consequences ranging from endangering animals' life to exposing tourists to animals' reactive and aggressive behaviours (Von Essen et al., 2020).

While research findings have widely recognised the negative effects of tourists' nonadherence behaviours during and after safari expeditions, and the negative impacts of such behaviours on the tourism industry in general, we argue in this study that little is known of tourists' awareness and understanding of game drive protocols. Moreover, such a lack of research-related interest in factors contributing to tourists' non-compliant behaviours has recently been recognised by Hodgson et al. (2022), who found that animals' reactions to tourists' non-compliant behaviours during safaris can not only elicit a stress response in the different animal groups involved, but it can also compromise visitors' safety. It is within this premise that this study is developed and presented in the context of South Africa.

**LITERATURE REVIEW**

Most of the National parks and game reserves already have protocols in place, indicating how tourists should behave once on a self or guided tour. However, in some instances, the messaging is not always correctly and uniformly interpreted by tourists, leading to visitors engaging in noncompliant behaviours. In their work, Gessa and Rothman (2021) focused on the framing the message to get tourists to comply with established protocols. The study identified effective communication as an important factor in ensuring that tourists comply with existing guidelines. Similarly, Kusmanoff et al. (2020) found that being strategic while communicating with tourists can lead to improved compliant behaviours. According to Gessa and Rothman (2021), tourists that received negatively framed messaging had a good probability of following the regulations as set out while those who received positively framed messages were more likely to disregard the regulations as set out by the park authorities. While investigating the importance of communication between tourists and tour guides in order to enhance tourists' awareness and understanding of protocols and guidelines during a safari trip, Gessa and Rothman (2021) establish that nature-based tourism such as Gorilla trekking in both Uganda and Rwanda contribute significantly to conservation as well as persevering the local communities, but this should be done in compliant with the parks regulations to ensure sustainability. The study concluded that communicating with tourists in a strategic manner is more likely to yield positive results and improve compliance by tourists which could significantly reduce the possibilities of conflict between wildlife and tourists.

Elsewhere in extant literature, Hausmann and Schuhnauer (2022) investigated the importance of using various information and communication technologies (ICTs) as a means of communicating with tourists during their journeys. They found that tourists frequently rely on ICTs to acquire information about their destination. This includes using such ICT tools to direct their attention to regulations pertaining to good practices while on safari. Hausmann and Schuhnauer (2022) therefore suggested that it is important for park authorities to understand their visitors' ICT preference for them to be able to communicate important information about the destination.

It is also paramount for holiday organizers to invest in understanding their clients' wants and needs before travel to be able to provide them with information that will promote compliance. This is because of cultural diversity that can affect the perception of the wildlife, leading to the adoption of compliant or non-compliant behaviours. For example, Moorhouse et al. (2019), found that the attitudes of Asian tourists differ from those of Westerners when it comes to how they appreciate viewing animals in captivity against protected areas where animals are allowed to roam freely.

It is believed that one of the fundamental functions of the green market which was formed to promote the safety of Wildlife Tourist Attractions (WTA) is to ensure that tourists' behaviours do not impact on the welfare and species conservation (Moorhouse et al., 2019). Furthermore, while research work has been conducted on consumer behaviour in tourism, there is still a lack of extensive reviews of the body of knowledge in the area which has led to some of the unruly behaviour witnessed in the field (Cohen et al., 2014).

In their study Cohen et al. (2014) define tourist's behaviour which is also referred to as consumer behaviour as decisions, actions and ideas about their safari that will satisfy their own needs and wants. Van Vuuren and Slabbert (2011) refers to tourists' mode of conduct reflecting their perception and attitude, which occurs before, during and after their travel. It is clear from the definitions above that consumer behaviour is mostly linked to personal attitude, wants, and needs, occurring at different stages of the holiday including after travel. Failure to address this problem may result in a decline in the tourism industry, tourists' negative experience after a safari trip, and degradation of the ecosystem. Tourist practitioners and researchers in the field of tourism should be sensitive to the current environmental-related issues and contribute toward aligning the protection of the wildlife (Drosos and Skordoulis, 2018). However, their contribution in ensuring the safety of tourists during safari expeditions is also crucial in developing the tourism industry and enhancing tourists' positive experience of their visits in the game reserves.

Although viewing animals in their natural habitat remains exciting and attracts millions of tourists from across the globe, the risk of undesired incidence remains significant to both tourists and wildlife. Abrams et al. (2020) investigated the importance of viewing wildlife in protected areas from a safe distance and looked at campaigns aimed at communicating with tourists' acceptable and non-acceptable behaviours. Viewing animals at close proximity could have undesirable consequences to both tourists and wildlife. Although there are pamphlets which are handed out at the entrances to these protected areas, most of the tourists still do not read them to understand what is acceptable and what is not.

Hence, Abrams et al. (2020) advocate the need to introduce effective communication with tourists which will easily reach its audience and reduce tourists' non-compliant behaviours. The study suggested platforms such as community-based social marketing to combat noncompliance behaviour by tourists. In its conclusion, the study recommend communication approaches and strategies that are easily accessible to tourists with an element of interaction and fun that could yield more positive results from tourists (Abrams et al., 2020). According to Mekonen (2020) it is important for protected areas to manage tourists and wildlife conflict which usually happens when the behaviour of tourist’s impact on the natural way of life. Human and wildlife conflict refers to a situation where the existence of the one party negatively impacts on the other which could result in injuries, death, and many other occurrences (Mudimba and Tichaawa, 2019; Mekonen, 2020).Even though there is a need to improve accessibility to protected natural areas such as the Kruger National Park in the context of this study, this has a major impact on the numbers of tourists as well as behaviour. Tverijonaite et al. (2018) investigated the access to protected areas as well as visitor behaviour and found that it is important to align accessibility to a protected area with the number of tourists that will be generated as an improved ease of access to an area leads Safari is not merely a tourism-related concept, but also carries cultural, social, and economical meaning that has raised the interest of many researchers in a variety of research sectors, including business management, animal psychology, geography, and history, to name but a few.

The study found that development of accessibility to any protected area should be done in line with the objectives and goals of each area. For Mateos et al. (2020) it is important for each protected area that attracts high numbers of tourists to have a management and participation agency that oversees and evaluates the effectiveness of tourism and its sustainability in an area.

Many studies have been conducted on behaviour of animals when tourists are present against moments of absence of tourism activities (see for example Barnes et al., 2016; Ranaweerage et al., 2020; Gessa and Rothman, 2021). Most of these studies, unearth evidence that several animals behave more naturally and peacefully in the absence of tourists. When investigating the impact of tourists in protected areas, Ranaweerage et al. (2020) found that large mammal animals such as elephants behaved more peacefully and calmly in the absence of tourists.

The study further looked at the importance of finding a balance when allowing tourists into protected areas to ensure that wild animals are afforded an opportunity to roam freely and undisturbed by tourists. Although an increased number of visitors to places such as National Parks is a desirable outcome and generates a lot of revenue for the area including the local community, there is a need to manage tourists’ noncompliant behaviour and visiting hours to limit the impact on the environment and the wildlife (Ranaweerage, 2020). The study concluded that there is a need to develop guidelines for viewing animals which could include the proximity to the animals, number of vehicles at a sighting and proper management of tourist guides. Some of the challenges encountered included no compliance by tourists’ guides, this is mainly the case when they ignore the rules to get close to animals including over speeding in their quest to satisfy their clients to be able to get a better tip or petronage (Ranaweerage, 2020).

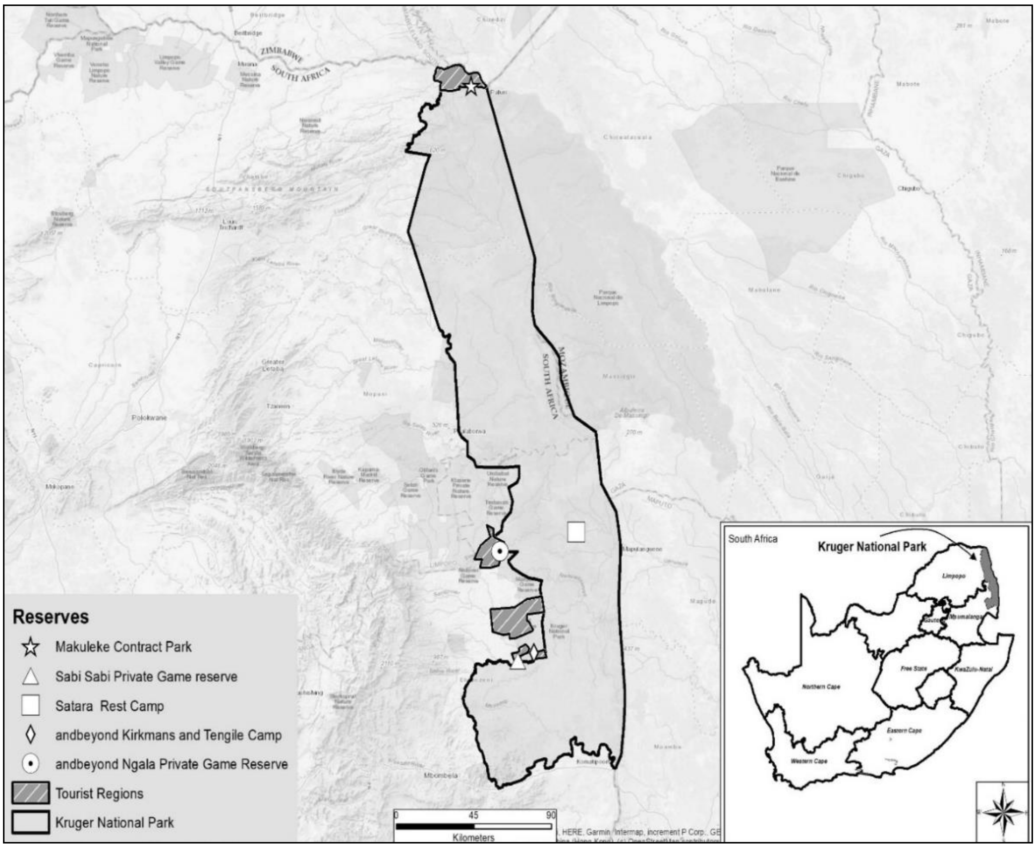

Figure 1. Great Kruger National Park Map (Source: Author’s own work)

Regrettably, there has been limited research that specifically focused on investigating factors that influence tourists’ non-adherence to existing protocols, guidelines, and rules regulating tourists’ behaviours during safari trips. Chili (2018) recognized and emphasized the importance of ensuring the safety of tourists during their visits to places of interest however, the study investigated tourists' safety from a broader perspective and did not focus on the causes leading to tourist's non-adherence behaviours to existing safety-related protocols as one of the reasons of the risk to which they might be exposed during their visits to the game reserves. Szott (2019) identified tourists' traffic in game reserves as one of the causes of aggressive behaviours exhibited by elephants towards other animals and tourists.

However, the study did not provide any further explanation on factors associated with tourists' non-compliance to the rules regulating their behaviours during safari expeditions. From the existing literature, it therefore appears that there is a paucity of studies on raising tourists' awareness on factors that may hinder the adoption of recommended behaviours during safari expeditions. By investigating factors that obstruct tourists' adherence to protocols and guidelines during safari trips, the current study intends to contribute towards improving awareness while ensuring tourists' safety, and enhancing their positive experience during and after a safari.

**METHODS**

This study was undertaken in the Kruger National Park and surrounding private game reserves in South Africa (Figure 1). The region of the Kruger National Park and surrounds is one of the most popular safari destinations in the country, attracting a large number of tourists who engage in guided and self-guided safari. As such, there is a great focus on safety of tourists. The study adopted a qualitative research approach, utilising in-depth, semi-structured interviews with purposively selected key informants, as illustrated in Figure 2 below.

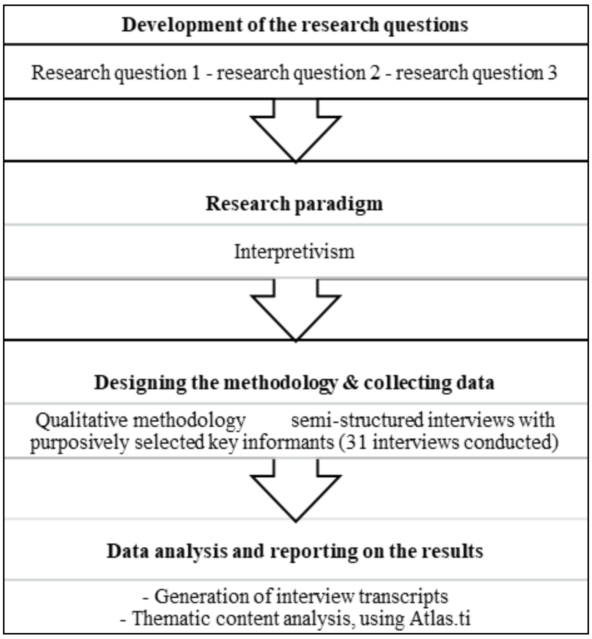

Figure 2. Summary of research design (Source: Author's own work)

Semi-structured interviews facilitate a deep understanding of the phenomenon being investigated (Ruslin et al., 2022), and was therefore deemed appropriate in this study, given the exploratory nature of the research, and the need to gain nuanced information and perspectives on the issue of (non)compliant behaviour of tourists whilst on safari from those who have first-hand knowledge and experience of such. The key informants selected for this study included a selection of tourist guides, game lodge managers and park authorities. Tourist guides have direct contact with tourists during safari trips, and have closely observed tourists behaviour.

Therefore, tourist guides were able to provide information on tourists awareness and understanding of protocols, based on their experiences and observations. Game lodge managers were selected as a key informant group, owing to their daily experiences in the safari and hospitality industry, as well as their interactions with and observations of tourists who participate in guided or self-guided safari. Importantly, game lodge managers are responsible for inducting/educating tourists on compliance, appr. Lastly, park authorities were identified as key informants, given their comprehensive knowledge on rules, regulations and guidelines that are related to park management, guided and self-guided safari, as well as enforcement thereof. All interviews were audio recorded and transcribed verbatim. The transcripts were then used for thematic, content analysis, using Atlas.ti software.

**RESULTS**

**Tourists' awareness of protocols**

Data collected regarding tourists' awareness of protocols is varied as some of the participants reported that the tourists they guide seem to understand the policies, whereas others reported encountering tourists who do not seem to understand the protocols. Importantly, participants agreed that the level of awareness was better in the private reserves, which resulted in low levels of non-compliance. Conversely, there were lower levels of awareness in the national reserves, mainly amongst self-guided tourists. One of the tour guides conducting his game drives in a private game reserve cited the following about his tourists who appeared to know and respect the protocols:

"I have on many occasions driven with guests that will say to me, let's not go where there are other vehicles, let's just find other animals away from everyone because they are so sensitive about the issue of overcrowding on a sighting" – R 29

The following is what some of the participants expressed when it comes to tourists' awareness level:

"One of the causes of this non-compliant behaviour, is that tourists just do not understand the risks associated with non-compliant behaviour." – R 26 (Park Authority)

"In the case of the Kruger there is no one that askes you before you enter if you know and understand the regulations, not even when you pay and sign the indemnity no one asks. So tourists are so excited to start their adventure in the park, they do not bother to read and understand." R6 (Tour Guide)

**Non-compliance due to lack of knowledge by tourists**

The results revealed that several of the non-compliant behaviours that took place was as a result of a lack of knowledge on the tourist's part. Although there were reports of non-compliance due to a lack of knowledge in the private game reserves, it became evident from the interviews with participants that this was mainly the case in the national reserve. Some of the participants attributed this to the lack of induction at the main gates into the park, including tourists not allocating time to familiarise themselves with and understand the rules and regulations before entering the park. One of the participants had the following to say when asked about non-compliance due to lack of knowledge:

"Ah, totally. They're not aware because you find tourists who are first time in the Kruger National Park not knowing anything about the wilderness. So, some of their behaviour is as a result of not knowing" – R13 (Tour Guide)

Another guide felt that it was mainly international tourists who would engage in non-compliance due to a lack of knowledge: "I think, when it comes to tourists locally and internationally, this is influenced by various things. I would say, let's start with international tourists, I feel in most cases it's a situation where they are not aware of the rules, so when they engage in non-compliant behaviour, they are not fully aware that they are breaking the rules" – R 14

Other participants indicated that some tourists did not fully comprehend the dangers of being on safari viewing wild animals. Below is an example of what one of the managers had to say about this:

"I think most tourists don't grasp that this is in the wild and these animals are wild. They don't get it; they watch National Geographic and what they see is, you know is animals hunting out there in the bush" – R23 (Lodge Manager)

**The role of tourism stakeholders in raising regulations awareness to tourists before travel**

Interestingly, most of the participants reported a lack of regulation awareness for tourists before they embark of their safari. Some of the participants suggested that it would be helpful for key stakeholders in the tourism industry, such tour operators and many others, to invest in awareness campaigns to educate tourists about the importance of rules and regulations adherence before travelling. As an example, one of the Park Authorities said: "We could also maybe do similar campaigns to our international market through trade shows such as Indaba, which is held annually in Durban, but I think we should target South Africans and this could start even from school, just to teach them about the importance or the role that safari plays and I am talking about both the wild animals and the environment" – R 12 (Park Authority)

His sentiments were also supported by one of the lodge managers from a private game reserve in the Sabi Sands, who said:

"If anything, I think the industry just needs to maybe invest in a lot more education that is targeted at prospective tourists just to ensure that when the tourists arrive at our lodges, they are already aware of some of the issues that might arise from non-compliance behaviour" R20 (Lodge Manager)

Though this research did not include tour operators as key informants, it was interesting to observe that majority of the participants felt that there were no campaigns aimed at the prospective tourists on the awareness of the regulations.

**Information sharing before arrival**

The results revealed that no or very little information was being shared by booking agents and tour operators with their tourists about the destination they were visiting. The participants opined that was a lack of engagement with tourists on protocols and regulations, at the time of booking, which resulted in most of the tourists arriving at the game reserves with little or no knowledge. Thus, because of lack of information sharing with tourists before arrival, there is increased pressure for the participants to go through everything with their tourists on the ground, which at times, was a lot for the tourists to absorb in a short period of time before embarking on their safari. Although most of the participants would like to share information such as the regulations and general information about the destination, they did not have access to these tourists until they arrived for their safari. As an example, one of the Tour Guide conducting his safari in the Kruger said:

"We do not do a lot before they arrive, I mean, most of the international tourists that I get, I only have contact with them when they are here. Even the tourists that I get directly, most of whom I meet for the first time at the gate or at their overnight accommodation" – R13

Another tour guide mentioned below when it comes to Tour Operators sharing information:

"We do however encourage our booking agents when they make a booking for tourists that do not speak good English to share some of this information in advance so that we can prepare accordingly from our side." R16

**Communication with tourists**

A key theme that emanated from the data was communication with tourists, where it shown that there was no communication with self-guided tourists once they entered the Kruger National Park, due to a lack of law enforcement in the park. Some of the tour guides that conducted their game drives in the park reported that they would try to reprimand tourists that they come across engaging in non-compliance behaviour, but because they do not have the authority to penalise them, most of the tourists ignored their reprimands and continued to with their non-compliant behaviour. As an example, a tour guide noted: "I mean, personally, when I see these things taking place, I try to reprimand the culprits although it's not easy" – R13 (Tour Guide).

Communication with tourists in the private reserves seems to take place on a regular basis, with the participants noting this to be an important aspect of a safe and successful safari. This was noted below by one of the tour guides in the private reserve: "And communication is also very important with your guests/tourists. As guides we must always be communicating with our tourists during a safari" – R10 (Tour Guide)

## DISCUSSION

Tourists embark on their journeys to explore tourism destinations, and their choices often hinge on their knowledge and comprehension of the protocols established by park and game reserve authorities. The degree to which tourists grasp the intricacies of these protocols and guidelines profoundly influences their overall experience and their inclination to revisit or recommend the destination to others. Therefore, the responsibility of ensuring the accessibility of these existing protocols and guidelines falls upon the game reserves and park authorities (Goh, 2023). Nevertheless, tourists also bear the responsibility of ensuring their thorough understanding of these regulations.

The results alluded that the majority of tourists exhibit awareness of the policies in place. However, some nuances within these policies may escape the notice of certain tourists. For instance, while many tourists may be well-informed about regulations such as refraining from feeding animals or littering, others may remain unaware of rules regarding appropriate viewing distances from wildlife. According to Goh (2023), tourists are more likely to comply with regulations when the information is readily accessible and correctly understood. To illustrate, one participant reported that tourists sometimes engage in non-compliance in the Kruger National Park due to their lack of awareness regarding the consequences of their actions. Additionally, some terms or concepts contained within these protocols may prove perplexing. Language barriers can be a significant hindrance to tourists' comprehension of existing protocols (Lusby, 2021). Thus, tourists should be afforded the opportunity to seek clarification on any terminology or concepts that may appear convoluted before finalizing their decision to embark on the trip; linking to the notion of having inductions for all tourists before they embark on safari (Abrams et al., 2019). Furthermore, park and game reserve authorities can employ relevant technology to translate protocol content into languages understood by tourists.

A lack of clear understanding regarding the content of existing protocols can yield consequences ranging from a subpar overall trip experience to accidents stemming from non-compliance (Brannstrom et al., 2015). Awareness of protocols can be bolstered through the adoption of plain language to convey the meaning of the regulations, explicit explanations of the repercussions resulting from non-compliance, and highlighting the benefits of strict adherence to established guidelines. The significance of tourists' awareness lies, in part, in the complexity of the interactions between tourists and wildlife. In certain situations, animals may perceive tourists as intruders posing a potential threat to their habitat and comfort, or, conversely, animals may change their behaviours as they become accustomed to people, approaching them for food, thus creating a false perception of domestication to tourists. This could consequently sway tourists into making dangerous decisions about interacting with wildlife, and therefore being non-compliant with the safety regulations (Abrams et al., 2019). In this context, adherence to protocols established by relevant authorities and management fosters a peaceful and harmonious temporary coexistence between visitors and wildlife.

Effective information sharing is of paramount importance. Szott (2019) suggests that, to enhance the positive safari experience, ensure visitor safety, promote wildlife welfare, and facilitate harmonious interactions, information exchange should occur between both visitors and game reserve management. Management should gain insights into visitors' backgrounds, past safari experiences, and expectations through informal discussions, aiming to gather comprehensive information about visitor expectations that may not have been outlined explicitly in the formal agreements between park management and tourists. To increase the likelihood of tourist compliance with existing protocols, effective communication between park or game reserve management and tourists is indispensable, with this approach being supplemented with signage and pamphlets (Ward et al., 2011). Poor or absent communication among stakeholders can lead to disconnection between the parties, jeopardizing tourist safety and negatively impacting wildlife welfare and harmonious cohabitation between visitors and wildlife. Leveraging technology can enhance communication, covering aspects such as the game reserve's location, types of animal species present, and emergency procedures (Abrams et al., 2019).

## CONCLUSION

This study has contributed valuable insights into the awareness and compliance of tourists with game drive protocols in South Africa following the Covid-19 pandemic. The findings reveal a nuanced landscape where awareness levels vary among tourists, with distinctions also observed between private game reserves and national parks. On one end of the spectrum, non-compliant behavior occurs actively, while on the other end, it occurs passively - some tourists demonstrate a good understanding of the protocols, while others exhibit a concerning lack of awareness. Furthermore, lack of pre-travel awareness campaigns and limited communication from booking agents represent missed opportunities to educate tourists on the significance of adhering to game drive protocols.

To address these challenges, there is a need to improve communication strategies while tourists are on safari, particularly in national parks where self-guided tourists may lack guidance and oversight. Effective communication channels can facilitate better compliance and mitigate the risk of non-compliant behavior (Gessa and Rothman, 2021). Furthermore, it is imperative to leverage technological innovations, to educate tourists and empower them to enjoy game reserves experiences safely. Whilst there have been many studies conducted within the South African context on wildlife reserves (see Smith and Fitchett, 2020; Lee and Du Preez, 2016; Sims-Castley et al., 2015; Ferreira and Harmse, 2014), much of this research is focused on issues related to conservation, visitor preferences and perceptions and tourism development. The current paper is therefore significant, as it provides an insight into the complexities surrounding tourists' awareness and compliance with game drive protocols, laying the groundwork for future research and practical interventions aimed at enhancing tourist safety and wildlife welfare in South Africa and beyond.

The study acknowledges its limitations, particularly regarding the subjective nature of stakeholder perceptions, on tourists' compliance-related behavior. The perspectives of stakeholders like lodge managers, park authorities, and tour guides were considered, but the study did not include the viewpoint of tourists themselves. Future research is therefore suggested to address these limitations by directly exploring tourists' perspectives and attitudes toward safety protocols in game reserves. Additionally, comparative analyses across different game reserves, including those located beyond the Greater Kruger National Park, are recommended to gain a more comprehensive understanding of safety policies and compliance behavior, potentially uncovering regional variations and best practices.

**Author Contributions:** Conceptualization, T.M.T, V.H and R.I.N.; methodology, T.M.T, V.H and R.I.N.; software, T.M.T, V.H and R.I.N.; validation, T.M.T, V.H and R.I.N ; formal analysis, T.M.T, V.H and R.I.N.; investigation, T.M.T, V.H and R.I.N; data curation, T.M.T, V.H and R.I.N.; writing - original draft preparation, T.M.T, V.H and R.I.N; writing - review and editing, T.M.T, V.H and R.I.N; visualization, T.M.T, V.H and R.I.N.; supervision, T.M.T, V.H; project administration, T.M.T, V.H and R.I.N. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research is developed based on a master's dissertation at the University of Johannesburg by the same authors.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 16.07.2024 Revised: 23.09.2024 Accepted: 20.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1885-1892
DOI 10.30892/gtg.574spl02-1355

# LEVERAGING GEOGRAPHY TEACHERS' PEDAGOGICAL SKILLS TO ENHANCE SECONDARY STUDENTS' UNDERSTANDING OF TOURISM CONCEPTS

**Rommel Mahmoud AlALI** *

King Faisal University, The National Research Center for Giftedness and Creativity, Al-Ahsa, Saudi Arabia, e-mail: ralali@kfu.edu.sa

**Ali Ahmad AL-BARAKAT**

Yarmouk University, Faculty of Educational Sciences, Irbid, Jordan, e-mail: aliah320033@gmail.com

**Citation:** AlAli, R.M., & Al-Barakat, A.A. (2024). LEVERAGING GEOGRAPHY TEACHERS' PEDAGOGICAL SKILLS TO ENHANCE SECONDARY STUDENTS' UNDERSTANDING OF TOURISM CONCEPTS. *Geojournal of Tourism and Geosites*, 57(4spl), 1885–1892. https://doi.org/10.30892/gtg.574spl02-1355

**Abstract:** This study assesses the application of pedagogical skills in geography teaching environments and their influence on students' understanding of tourism concepts. A random sample of 197 teachers was selected from the Irbid district of Jordan, and data were collected using a validated questionnaire focusing on pedagogical performance skills and social pedagogical skills. The findings revealed limited proficiency among teachers in employing both skill sets to improve students' understanding of tourism concepts, with notable deficiencies in facilitating student interaction, effective communication, and active learning strategies. The study underscores the urgent need for improved professional development for teachers and curriculum revisions to better integrate tourism concepts. The implications of this study suggest that educational stakeholders should adopt diverse interactive teaching methods to foster an engaging learning environment that encourages student participation. Furthermore, there is a critical need for training programs that equip teachers with innovative learning techniques based on active learning strategies, ultimately aiming to enhance the quality of education and deepen students' understanding of tourism concepts.

**Keywords:** tourism concepts, pedagogical skills, geography curriculum, learning environments

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## INTRODUCTION

Amid the rapidly evolving global landscape, education systems worldwide are undergoing substantial reforms aimed at enhancing the quality of learning outcomes (Al-Barakat et al., 2023). Central to these reforms is the enhancement of curricula and the professional development of teachers, with a focus on equipping them with advanced pedagogical skills. These skills are critical for organizing and managing effective learning environments (Al-Dosari, 2024; Virranmäki et al., 2021). Such strategic efforts aim to prepare a generation of learners who can adapt to continuous change and integrate new knowledge into their learning experiences (Al-Barakat and Al-Hassan, 2009; AlAli and Al-Barakat., 2023a).

In geography education, specifically, the goal is to aid students in understand and responding to social and economic transformations, including the growing importance of tourism (Virranmäki et al., 2021). Geography plays a crucial role in developing students' awareness of tourism and related concepts (AlAli and Aboud, 2024; Al-Hassan, 2009; Mansour, 2018). Scholars such as Al-Hassan et al. (2022) and Alali and Al-Barakat (2024a) highlight that pedagogical strategies should move beyond rote memorization to foster creative and analytical thinking. These strategies enable students to apply theoretical knowledge practically, particularly in tourism education, which requires a more dynamic and engaging approach. Recent research has increasingly focused on the broader influence of pedagogical practices on tourism education, noting their role in improving cognitive abilities such as creative thinking, analysis, and problem-solving (Boluk et al., 2019; Ramos-Vallecillo et al., 2024; Rizwan, 2018; Rosas-Jaco et al., 2020).

These skills are essential for understanding tourism concepts in real-world settings (Al-Barakat et al., 2022; AlAli, 2024; Al-Ajlouni, 2016; Al-Amro and Bahatheq, 2019; Kerimbayev et al., 2023). However, despite these advances, a notable gap remains in how geography teachers implement these pedagogical strategies when teaching tourism concepts, indicating the need for further investigation into the extent of their application.

## LITERATURE REVIEW

The transformative role of pedagogical practices in tourism education has been underscored by numerous studies. Al-Barakat et al. (2022) and Al-Hassan et al. (2012) highlight the effectiveness of assigning real-world tasks that allow students to apply theoretical knowledge practically. This approach not only enhances essential skills such as data analysis and logical reasoning but also shows particularly valuable in the tourism sector. Similarly, Dzaiy and Abdullah (2024) demonstrate that linking conceptual knowledge with procedural understanding through effective pedagogical strategies is critical for fostering tourism-related experiences. Supporting this view, McKercher et al. (2023) explored university graduates' perceptions of the effectiveness of their tourism, hospitality, and events education in preparing

* Corresponding author

them for careers. Their findings display that pedagogical knowledge, particularly in curriculum development, is vital for job readiness and the promotion of lifelong learning and personal growth. This aligns with the research by Karioti and Vathi-Sarava (2022) which analyzed the role of education in enhancing tourism awareness in Greek society. They concluded that teachers and institutions considerably influence the promotion of tourism awareness, contributing to broader social and economic benefits. Similarly, Rosas-Jaco et al. (2020) found that improving educational policies directly influences tourism awareness, especially in developing countries.

Innovative curriculum design is further emphasized by Huang et al. (2022) and Wang et al. (2024), who advocate for continuous evaluation of teaching methods to meet the evolving demands of the tourism industry. McKercher et al. (2023) also stress that tourism education should go beyond technical skills, fostering enthusiasm, motivation, and a commitment to lifelong learning among students. Amangeldi et al. (2023) conducted a study assessing the effectiveness of pedagogical methods in tourism education within Kazakhstani secondary schools. The study identified problem-based learning, inquiry-based learning, and group work as key methods for improving the quality of tourism education, underscoring the need for innovative teaching approaches aligned with students' preferences. Similarly, Issakov et al. (2023) focused on the effectiveness of organizing tourism and local lore activities in Kazakhstan. Their findings revealed that geography teachers faced challenges such as a lack of equipment, insufficient funding, and numerous commitments imposed by local education departments, highlighting the need for better support and resources for effective implementation.

Building on the importance of pedagogical skills among geography teachers, Farsari's (2022) study provides an in-depth analysis of the role of learning curricula in promoting sustainability concepts within tourism education. The study emphasizes the need to move from traditional learning methods to more interactive and experiential approaches, highlighting the necessity of adopting pedagogy as a fundamental teaching strategy. This approach enhances students' awareness of environmental, social, and economic issues related to sustainable tourism. The study further notes that achieving sustainability in the tourism sector requires greater integration between theoretical knowledge and practical application, with the prerequisite that teachers possess the necessary pedagogical skills. Additionally, it emphasizes the importance of developing students' practical skills and critical thinking. These findings align with modern trends that emphasize the adoption of comprehensive, action-oriented curricula to attain sustainability, fostering a collective awareness of the role of education in enabling learners to become responsible citizens capable of addressing the challenges of sustainable tourism in the future. Despite the well-documented advantages of these pedagogical practices, research displays that many geography teachers underutilize these strategies in teaching tourism concepts (Al-Rashid, 2014). This study seeks to address this gap by analyzing how geography teachers apply pedagogical skills in tourism education and examining the extent to which these approaches enhance learners' understanding and practical application of tourism knowledge in the Jordanian context. By raising awareness among teachers and supervisors about the importance of pedagogical skills, this study emphasizes their role as a core element of effective teaching.

A deep understanding of pedagogical skills is essential for teachers to effectively utilize these strategies, enhancing the quality of education and influencing educational policies (Audat, 2013; Boyle et al., 2013; Edelheim, 2020; Prayag, 2023; Yli-Panula et al., 2020). The findings from this research can guide policymakers in integrating these skills into curricula, resulting in an improved learning experience.

Moreover, the research highlights the critical role pedagogical skills play in enhancing the learning of tourism concepts. It demonstrates the relationship between these skills and learning quality, showing how improvements in pedagogical practices lead to better outcomes in both tourism and geography education. By adopting innovative learning strategies, geography teachers can transform the way tourism concepts are taught, fostering active learning and student engagement .

Moreover, this research contributes to designing effective training programs that help teachers develop professional skills sustainably, thereby enhancing the quality of education. Continuous professional development is crucial for teachers to adapt to evolving curricula and learning methods. Furthermore, the findings raise students' cultural awareness regarding the importance of tourism in Jordan, fostering a sense of heritage and national belonging that positively reflects their societal role.

Finally, this research paves the way for future studies by exploring additional aspects of pedagogical skills and their influence across various learning fields. Future research could investigate the relationship between pedagogical skills and students' critical and creative thinking abilities, further clarifying how these factors influence learning outcomes. In doing so, this study represents a significant step toward improving tourism and geography education, highlighting the pivotal role of pedagogical skills in achieving effective and sustainable education. Expanding the research scope and applying these findings can enhance learning experiences and prepare a generation of competent students equipped to address future challenges.

## RESEARCH PROBLEM

Geography learning environments often rely on traditional pedagogical practices, which impede the effective enhancement of students' understanding of tourism concepts. Observations and site visits conducted by the researchers have revealed a significant deficiency in the application of modern learning practices within geography classrooms, adversely affecting students' comprehension of tourism concepts. This situation contradicts current global educational trends that advocate a shift from conventional knowledge transmission models to student-centered approaches. These modern pedagogical strategies emphasize the development of skills that enable students to construct their own knowledge, enhance their scientific reasoning and analytical abilities, and engage with tourism concepts in a more practical and effective manner.

Given the critical role of teachers in guiding students toward gaining knowledge, skills, positive attitudes and values related to tourism, this study aims to investigate the extent to which geography teachers utilize pedagogical skills to enhance students' understanding of tourism concepts as presented in geography textbooks. Pedagogical skills are essential for the successful implementation of educational innovations and constitute the foundation of effective teaching practices. Consequently, Jordan's educational philosophy underscores the importance of developing these skills to improve students' learning outcomes in geography. Therefore, this study seeks to address the following research questions:

1. To what extent do geography teachers employ their pedagogical performance skills to enhance secondary school students' understanding of tourism concepts?
2. To what extent do geography teachers apply their social pedagogical skills (communication and interaction) to improve secondary school students' understanding of tourism concepts?

**Hypotheses:** Based on the research questions, the following two hypotheses have been derived:

**Hypothesis 1**: Geography teachers' pedagogical performance skills significantly enhance secondary school students' understanding of tourism concepts.

**Hypothesis 2**: Geography teachers' social pedagogical skills (communication and interaction) significantly improve secondary school students' understanding of tourism concepts.

## METHODS AND PROCEDURES

### 1. Participants

A random sample of 197 geography teachers from secondary schools in the Irbid district of Jordan was selected based on a set of criteria designed to enhance the accuracy and reliability of the study. Choosing teachers from the Irbid area allows for a diverse representation of the learning environment in Jordan, reflecting potential differences in teaching methods and learning strategies. Moreover, focusing on geography teachers in secondary schools provides accurate information about the teaching methods and challenges they face, as this age group is critical in forming students' geographical understanding. Furthermore, the use of random sampling reduces bias and helps ensure that the findings are generalizable to the teacher population in the region. The specified sample size of 197 teachers achieves a high level of statistical precision, aiding in drawing reliable assumptions that reflect the realities of geography education. The demographic characteristics of the study sample are detailed in Table 1.

Table 1 finds a relatively balanced distribution of the sample between males (50.8%) and females (49.2%), reflecting an equitable representation of both genders. In terms of teaching experience, the majority of teachers have 5 to 10 years of experience (40.6%), followed by those with less than 5 years (30.5%) and those with more than 10 years (28.9%). Regarding academic qualifications, most respondents hold a Bachelor's degree (60.9%), followed by those with a Higher Diploma (25.4%) and those with a Master's degree or higher (13.7%). These demographic characteristics contribute to a diverse and representative sample, thereby enhancing the validity and generalizability of the study's findings. In light of the above, it can be noted that the sample selection was limited to geography teachers. The decision to concentrate exclusively on geography teachers stems from the unique nature of the geography subject, which naturally integrates various concepts, including tourism, environmental studies, and cultural awareness. Furthermore, the Jordanian Ministry of Education has emphasized the inclusion of tourism education concepts within the field of tourism geography in geography curricula. Therefore, geography teachers play a vital role in enhancing students' understanding of spatial relationships and the connections between human activities and the environment, which are essential elements when discussing tourism.

Table 1. Demographic Characteristics of the Study Sample

| Variables | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| **Gender** | Male | 105 | % 50.8 |
| | Female | 92 | % 49.2 |
| **Teaching Experience** | Less than 5 years | 60 | % 30.5 |
| | 5 to 10 years | 80 | % 40.6 |
| | More than 10 years | 57 | % 28.9 |
| **Academic Qualification** | Bachelor's degree | 120 | % 60.9 |
| | Higher Diploma | 50 | % 25.4 |
| | Master's degree or higher | 27 | % 13.7 |

### 2. Study instrument

To achieve the study's objectives, a questionnaire was developed to assess the extent to which secondary school geography teachers utilize pedagogical skills to improve students' understanding of tourism concepts. The design of the questionnaire was informed by the researchers' expertise in pedagogy and curriculum development, as well as a comprehensive review of relevant literature (Al-Barakat et al., 2022; Al-Dosari, 2024; AlAli and Al-Baraakt, 2024b; Boluk et al., 2019). The initial version of the questionnaire comprised 37 items, which were meticulously crafted to ensure linguistic and scientific precision, specificity, clarity, and unambiguity. Each item was rated on a five-point Likert scale: *very high = 5, high = 4, moderate = 3, low = 2, very low = 1*.

To ensure validity, the questionnaire was reviewed by 13 specialists in the fields of geography curriculum and teaching methods, curriculum development, tourism education, learning psychology, and measurement and evaluation. Based on their feedback, seven items were rephrased, and four were removed to better align with the study's objectives, resulting in a final instrument consisting of 33 items. The specialists recommended categorizing the items into two domains: pedagogical performance skills and social pedagogical skills related to communication and interaction in teaching tourism concepts. Following their review, the researchers determined that the domain of pedagogical performance skills included 19 items, while the domain of social pedagogical skills comprised 14 items.

To ensure the reliability of the instrument, it was administered to a pilot sample of 28 geography teachers, who completed the questionnaire twice with a two-week interval between administrations. Reliability was assessed using Pearson correlation coefficients and Cronbach's alpha to determine internal consistency. The analysis revealed Cronbach's alpha coefficients of 0.95 for pedagogical performance skills, 0.94 for social pedagogical skills, and 0.95 for the overall questionnaire, indicating high internal consistency. The reliability coefficients for repeated measures were 0.91 for pedagogical performance skills, 0.93 for social pedagogical skills, and 0.91 for the entire questionnaire, all reflecting high and acceptable reliability for the study's purposes. To assess construct validity, the questionnaire was administered to a separate pilot sample of 28 individuals from the study population. Pearson correlation coefficients were calculated between each item and its corresponding domain, as well as with the overall instrument. Statistical analysis demonstrated that the correlation coefficients for items within both the pedagogical performance skills and social pedagogical skills domains exceeded 0.40, and for the entire questionnaire, they exceeded 0.38, all statistically significant at the level ($\alpha \leq 0.05$). These findings indicate robust correlations and acceptable validity for the study's purposes (AlAli and Al-Barakat, 2022).

**3. Data collection**

After the development of the questionnaire through a comprehensive design and validation process to ensure its reliability and relevance to the research objectives, data was collected from geography teachers using a structured questionnaire that was distributed in person by the study authors and research assistants. This approach facilitated effective communication with respondents from various schools. The administration of the questionnaire was carried out over a period of five weeks, during which each selected teacher was visited, allowing sufficient time for respondents to complete the questionnaire at their convenience. It is important to note that prior to distributing the questionnaire, approval was obtained from the Jordanian Ministry of Education to ensure compliance with ethical standards. Respondents were assured of the confidentiality of their responses, encouraging honest and accurate feedback. As a result of the personal distribution of the questionnaire by the research team, all questionnaires were retrieved, with none missing, leading to a 100% response rate, totaling 197 teachers.

**4. Statistical analysis**

Data analysis involved calculating descriptive statistics, including means and standard deviations, for each item on the questionnaire to evaluate teachers' responses concerning their use of pedagogical skills in teaching tourism concepts. The psychometric properties of the questionnaire were assessed by examining correlations between items and their domains, as well as with the entire instrument, to determine the relationships among the items.

Pearson correlations were employed to calculate reliability coefficients, and Cronbach's alpha was used to assess internal consistency, ensuring the instrument's quality and reliability.

**Study findings:** The findings of the study are presented in relation to the main research questions as follows:

**1. Findings of the first question**

The first research question was: "To what extent do geography teachers employ their pedagogical performance skills in enhancing secondary school students' understanding of tourism concepts?" To address this question, means and standard deviations related to pedagogical performance skills were calculated. Table 2 provides a detailed analysis of the data.

Table 2. Means and Standard Deviations of Respondents' Responses on Pedagogical Performance Skills

| No. | Items | Mean | St. Dev | [1]Rating |
|---|---|---|---|---|
| 1 | I train students to rely on themselves when learning tourism concepts. | 2.49 | 0.75 | Low |
| 2 | I develop students' ability to use tools for learning tourism concepts effectively. | 2.45 | 0.78 | Low |
| 3 | I provide learning opportunities through practical experience with tourism concepts. | 2.40 | 0.80 | Low |
| 4 | I raise awareness of the risks of dealing with tourism concepts inaccurately. | 2.35 | 0.82 | Low |
| 5 | I train on evaluating the tools and resources used in teaching tourism concepts. | 2.30 | 0.85 | Low |
| 6 | I enhance students' ability to apply tourism concepts in dealing with tourists. | 2.28 | 0.87 | Low |
| 7 | I train students to be able to research and understand tourism concepts deeply. | 2.25 | 0.90 | Low |
| 8 | I provide various means and activities to achieve the learning objectives of tourism concepts. | 2.22 | 0.92 | Low |
| 9 | I teach students safety rules in dealing with learning resources related to tourism concepts. | 2.20 | 0.95 | Low |
| 10 | I train on designing new activities to test and apply tourism concepts. | 2.18 | 0.97 | Low |
| 11 | I focus on the sequence of implementing activities related to tourism concepts. | 2.15 | 0.98 | Low |
| 12 | I enhance students' ability to complete learning activities on time. | 2.12 | 1.00 | Low |
| 13 | I enhance students' ability to use learning resources and information related to tourism concepts. | 2.10 | 1.02 | Low |
| 14 | I develop students' ability to translate tourism knowledge into practical skills. | 2.05 | 1.05 | Low |
| 15 | I develop students' ability to repeat and implement learning activities easily. | 2.02 | 1.07 | Low |
| 16 | I encourage students to visit different tourist sites. | 1.90 | 1.10 | Low |
| 17 | I strive to deepen positive tourism concepts such as respecting tourists and hospitality. | 1.85 | 1.12 | Low |
| 18 | I urge students to suggest solutions to problems hindering tourism development. | 1.80 | 1.15 | Low |
| 19 | I aim to train students in ideal skills for dealing with tourists. | 1.75 | 1.18 | Low |
| **Total** | | 2.23 | 0.80 | Low |

Table 2 indicates that all items related to geography teachers' pedagogical performance skills in enhancing students' understanding of tourism concepts received low scores, reflecting a general deficiency in performance. The means for these

[1] To determine the level of pedagogical skills utilization, the following scale was used: Low (<2.5), Medium (2.5–3.49), High (3.5–5)

items ranged from 1.75 to 2.49, with each item receiving a low rating. This distribution underscores that pedagogical practices such as fostering student self-reliance and utilizing effective learning tools for tourism concepts did not meet acceptable performance standards. Additionally, the standard deviations reported in Table 2 ranged from 0.75 to 1.18, revealing some variability in responses among respondents. Despite this variation, the range of standard deviations still reflects an overall low performance level. The observed variation may indicate differences in how teachers perceive their pedagogical skills or their application in learning settings. However, this variability does not mitigate the fact that all items received low ratings, highlighting a pervasive need for improvement in the deployment of pedagogical skills.

The analysis of the table reveals that all aspects of pedagogical skills were rated poorly, indicating that the shortcomings in pedagogical effectiveness are not confined to specific areas but are widespread across all measured items. The lack of any items exceeding others in performance suggests that the deficiency in pedagogical skills is a general issue affecting all facets of teaching tourism concepts. Consequently, these findings emphasize a broad weakness in pedagogical performance that necessitates the development of more effective learning strategies.

**2. Findings of the second question**

The second research question was: "To what extent do geography teachers employ their social pedagogical skills (communication and interaction) in enhancing secondary school students' understanding of tourism concepts?" To address this question, means and standard deviations related to social pedagogical skills were calculated. Table 3 provides a detailed analysis of the data. Table 3 highlights a notable deficiency in the application of social pedagogical skills to enhance students' understanding of tourism concepts. Specifically, Item 10, which assesses the provision of opportunities for developing students' oral expression and effectiveness in discussing tourism, received the lowest rating of 2.05. This score underscores a critical need to improve strategies aimed at enhancing students' communication and expression skills.

The findings also reveal significant shortcomings in fostering teamwork and collaboration skills. Item 2, which focus on encouraging teamwork during field visits, received a rating of 2.42, while Item 7, which pertains to the application of teamwork principles in external activities, was rated 2.30. These ratings suggest that practical activities are not effectively contributing to students' understanding of tourism concepts, indicating a need for more effective teaching strategies in this domain. Additionally, Item 3, which addresses teaching students to respect roles and adhere to guidelines, received a rating of 2.40, and Item 8, which emphasizes valuing others and respecting peers' opinions, was rated 2.28.

These ratings highlight a need to enhance teaching methods that foster a cooperative and inclusive learning environment. The identified weaknesses in promoting fundamental values such as respect and appreciation suggest a deficiency in strategies that support effective learning. Overall, the cumulative rating of 2.25 reflects a general inadequacy in employing social pedagogical skills related to teaching tourism concepts. This low overall rating indicates a significant gap in the effectiveness of current teaching strategies, necessitating a thorough review and enhancement of how learning content and activities are delivered to better support tourism education.

Table 3. Means and Standard Deviations of Geography Teachers' responses on Social Pedagogical Skills

| No. | Items | Mean | St. Dev | Rating |
|---|---|---|---|---|
| 1 | Enhance students' social interaction and communication skills about tourism in their country. | 2.45 | 0.78 | Low |
| 2 | Develop teamwork skills by encouraging collaboration among students during field visits to tourist sites. | 2.42 | 0.80 | Low |
| 3 | Focus on teaching students to respect roles and adhere to guidance, especially when interacting with tourists. | 2.40 | 0.82 | Low |
| 4 | Train students to respect different roles within a team, contributing to improved cooperation and teamwork. | 2.38 | 0.75 | Low |
| 5 | Enhance students' abilities to be more active and positive in social and tourism interactions. | 2.35 | 0.79 | Low |
| 6 | Encourage students to prepare scientific reports and analyze tourist visits to improve their writing and analytical skills. | 2.32 | 0.77 | Low |
| 7 | Promote the application of teamwork principles during external activities. | 2.30 | 0.80 | Low |
| 8 | Train students on techniques for appreciating others in communication and respecting peers' opinions. | 2.28 | 0.83 | Low |
| 9 | Provide learning opportunities to motivate students to actively participate in discussions and dialogues about tourism concepts. | 2.25 | 0.85 | Low |
| 10 | Offer learning opportunities to develop students' oral expression skills and effectiveness in discussing tourism. | 2.05 | 0.80 | Low |
| 11 | Focus on Training students how to communicate with tourism entities to obtain discounts and promotional offers, enhancing their practical experience | 2.23 | 0.78 | Low |
| 12 | Enhance tourism culture among students through classroom discussions and participation in annual tourism activities. | 2.20 | 0.82 | Low |
| 13 | Encourage student participation in tourism trips. | 2.18 | 0.76 | Low |
| 14 | Involve students in preparing promotional materials for tourist sites. | 2.15 | 0.74 | Low |
| **Total** | | 2.25 | 0.76 | Low |

**DISCUSSION**

**1. Discussion of the First Question**

The study's findings reveal that the pedagogical skills of geography teachers, particularly in enhancing students' comprehension of tourism concepts, received low ratings. This finding can be attributed to several interrelated factors. Firstly, there appears to be a significant deficiency in the application of these skills, indicating an urgent need for a comprehensive examination of the underlying causes and logical explanations supported by previous research. One plausible explanation for this weakness is the evident lack of professional training and development opportunities for teachers. Previous studies (AlAli and Al-Barakat, 2024c; Bani-Irshid et al., 2023; Fraihat et al., 2022; O'Connor, 2021) have demonstrated that continuous teacher training is crucial for enhancing the effectiveness of pedagogical practices. For instance, multiple studies (Bani-Irshid et al., 2023; O'Connor, 2021; Rizwan, 2024; Virranmäki et al., 2021) indicate that training programs specifically designed to enhance pedagogical skills significantly improve teachers' performance and their ability to implement effective teaching strategies. Without specialized training in these approaches, teachers are likely to encounter difficulties in applying their skills in ways that yield significant improvements in student learning outcomes.

Additionally, inadequacies within the learning curriculum itself could also contribute to these findings. The findings may reflect, as noted by Mustafa (2021), deficiencies in the design of geography curricula, particularly regarding their focus on tourism concepts, which makes them less responsive to students' needs. Educational scholars (AlAli and Al-Barakat, 2023b; Al-Hassan et al., 2012; Khasawneh et al., 2023; O'Connor, 2021) emphasize the necessity of curricula that integrate practical activities and real-life examples to enhance students' conceptual understanding. If the curriculum presents tourism concepts in a manner that is unclear or misaligned with the teaching methods employed, teachers may struggle to effectively apply their pedagogical skills. Supporting this perspective, Al-Omairi (2013) suggests that developing curricula to be more interactive and relevant can foster better student learning and help mitigate the challenges associated with applying pedagogical skills effectively. Furthermore, the study highlights significant weaknesses in the strategies employed to motivate students to engage in active learning activities based on a student-centered learning approach. Research conducted by Khasawneh et al. (2022) and Rizwan (2024) indicates that teaching strategies promoting active interaction and critical thinking lead to a better understanding of tourism concepts among students. The absence of effective motivational strategies may contribute to lower levels of comprehension regarding these concepts. Effective pedagogical skills heavily rely on interactive teaching strategies, such as participatory and experiential activities, which can enhance both interaction and understanding of tourism concepts. Previous findings (Khasawneh et al., 2023; Wertheim and Edelson, 2013; Virranmäki et al., 2021) further confirm that students who participate in interactive learning activities tend to perform better in grasping complex concepts.

In summary, the combination of insufficient professional development, curriculum deficiencies, and inadequate motivational strategies appears to significantly hinder the pedagogical effectiveness of geography teachers in imparting tourism concepts, necessitating targeted interventions to address these issues.

**2. Discussion of the Second Question Findings**

The findings highlight a substantial gap in the pedagogical skills currently employed to enhance students' understanding of tourism concepts, revealing that existing teaching strategies do not adequately meet students' needs or foster sufficient motivation. A particularly concerning aspect is the lack of emphasis on developing students' interaction and communication skills. This shortcoming may finding from learning activities that are either incomplete or insufficiently designed to encourage meaningful engagement with tourism content. Consequently, the effectiveness of teaching strategies grounded in pedagogical skills appears limited in promoting essential social skills among students. Moreover, the study indicates weaknesses in the integration of practical activities, such as field trips, which have not achieved the intended learning influence. This misalignment suggests that such activities are not effectively designed to reinforce tourism concepts or to facilitate learning through direct, collaborative experiences that promote interaction. The lack of contemporary techniques, such as group projects based on real tourism experiences, further underscores the inadequacy of providing a tangible context for enhancing students' understanding. Additionally, the findings reveal deficiencies in instilling tourism education values that promote respect and appreciation for tourists and visitors.

This gap contrasts with global trends (Al-Barakat and Bataineh, 2011; Al-Barakat and AlAli, 2024; Al-Omairi, 2013; O'Connor, 2021; Rizwan, 2018), which emphasize the importance of integrating social values into tourism education as a means of fostering a supportive and inclusive learning environment. The researchers argue that this deficiency reflects a lack of positive learning environments, which could be improved through training sessions focused on communication and respect, as well as activities that facilitate the constructive exchange of opinions. This suggests that the current learning methods used in teaching tourism concepts are anchored in traditional approaches, which are inadequate for effectively enhancing students' understanding and learning. These methods neglect to incorporate experiential learning strategies that could boost student engagement and interest, ultimately leading to improved learning outcomes in tourism education.

## CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

The study can conclude that there is a general weakness in the application of pedagogical skills, necessitating an analysis of contributing factors such as professional training, curriculum relevance, and student motivation strategies. Supporting evidence from previous studies supports that improving these factors can significantly develop teaching effectiveness and better support students' learning of tourism concepts. In light of the current findings, it is recommended to implement comprehensive training programs for geography teachers that focus on developing pedagogical skills and teaching strategies that effectively integrate tourism concepts in practical and engaging ways. This also leads to the recommendation of revising and updating the learning curriculum to ensure its relevance to students' needs, incorporating learning activities that foster a deeper understanding of tourism concepts. Additionally, the adoption of motivational strategies that promote active interaction and critical thinking among students is essential, as these strategies contribute to improved learning outcomes and a more profound understanding of tourism concepts.

A critical review of the study's findings further underlines a significant conclusion: the clear weakness in the pedagogical skills of geography teachers negatively influences the learning of tourism concepts. This deficiency is likely related to a lack of professional development opportunities for teachers, where training programs designed to enhance pedagogical skills are crucial for improving teachers' performance and their ability to implement effective teaching strategies.

Furthermore, the inadequacies in the design of the geography curriculum contribute to the ineffective use of pedagogical skills, as the curriculum fails to focus sufficiently on tourism concepts that align with students' needs, thereby undermining the effectiveness of teaching strategies. The study's findings also point out a clear absence of initiatives aimed at promoting interaction and communication among students through learning activities. This lack suggests a deficiency in the design of activities that encourage active learning and social interaction through practical experiences, such as field trips, group projects, and experiential activities that could enrich the learning experience by allowing students to involve directly and realistically with tourism concepts. Lastly, the study highlights a weakness in promoting social values within learning environments focused on tourism concepts. It is imperative to review and improve the learning methods used in teaching these concepts to ensure they incorporate experiential learning approaches, which are likely to increase student engagement and interest, ultimately leading to better learning outcomes.

Regarding the study's limitations, the sample size may be insufficient to provide comprehensive insights into the effectiveness of pedagogical skills, indicating the need for a larger and more diverse sample to obtain more accurate data and enhance the generalizability of the findings. Additionally, the reliance on surveys as a data collection tool may affect the accuracy of the findings. Therefore, it is recommended to use multiple research tools, such as direct observation and interviews, to gain a more comprehensive understanding of the application of pedagogical skills in the classroom.

**Author Contributions:** Conceptualization, A.A. and R.A.; methodology, A.A. and R.A.; software, R.A. and A.A.; validation, R.A. and A.A.; formal analysis, R.A. and A.A.; investigation, A.A.; data curation, A.A. and R.A.; writing - original draft preparation, A.A. and R.A.; writing - review and editing, A.A.; visualization, R.A. and A.A.; supervision, A.A.; project administration, A.A. All authors have read and agreed to the published version of the manuscript.

**Funding:** This work was financially supported by the Deanship of Scientific Research, King Faisal University, Saudi Arabia [Grant number KFU241987].

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** We thank the Deanship of Scientific Research at King Faisal University for providing financial support to this research. We also would like to thank all the respondents who participated in this study for their time and valuable contributions.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 31.07.2024 Revised: 01.10.2024 Accepted: 20.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1893-1901
DOI 10.30892/gtg.574spl03-1356

# EVALUATION RESULTS ON FACTORS AFFECTING REGIONAL LINKAGE IN AN GIANG TOURISM DEVELOPMENT FROM A GEOGRAPHICAL PERSPECTIVE

**To Minh CHAU***

An Giang University, Department of Geography, Vietnam National University, Ho Chi Minh City, Vietnam; Faculty of Geography, University of Social Sciences and Humanities, Vietnam National University, Ho Chi Minh City, Vietnam, e-mail: tmchau@agu.edu.vn

**Citation:** Chau, T.M. (2024). EVALUATION RESULTS ON FACTORS AFFECTING REGIONAL LINKAGE IN AN GIANG TOURISM DEVELOPMENT FROM A GEOGRAPHICAL PERSPECTIVE. *Geojournal of Tourism and Geosites*, 57(4spl), 1893–1901. https://doi.org/10.30892/gtg.574spl03-1356

**Abstract:** This study was conducted in An Giang province, Vietnam, aiming to examine the variables and explain the factors affecting the tourism development of An Giang province in regional linkages from a geographical perspective. This research employed a non-probability sampling method with 300 visitors by distributing a survey. The data gathered from the survey was encoded and processed using SPSS version 29.0. Pearson correlation was used in this study to investigate the relationship between factors of natural tourism resources, cultural tourism resources, infrastructure, safety in tourism, and tourism policy with the tourism development of An Giang province in regional linkages. The results showed that factors of cultural tourism resources and natural tourism resources have a high correlation with regional linkages in tourism development; factors of infrastructure and tourism safety with regional linkages in tourism development have a medium correlation; tourism development policy factors have a low correlation but are worth considering with regional linkages in tourism development.

**Keywords:** An Giang province, Mekong Delta, regional linkages, infrastructure, tourism resources, tourism policy, tourism safety

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## INTRODUCTION

Tourism is “the sum of phenomena and relationships arising from the travel and stay of non-residents” (Gossling, 2002). At present, tourism is recognized as a crucial economic pillar that generates employment, boosts foreign currency revenues, enhances the quality of life for local communities, and fosters the development of various other sectors (Gabriel et al., 2017). Tourism is one of the essential industries in the world. It is highly appreciated as the “smokeless industry”, or tourism, which is also known as the "green economy" (Petrovic et al., 2018) and is prioritized as an essential economic driver. In 2021, travel and tourism directly contributed about 5.8 billion USD to global GDP (Citaristi, 2022).

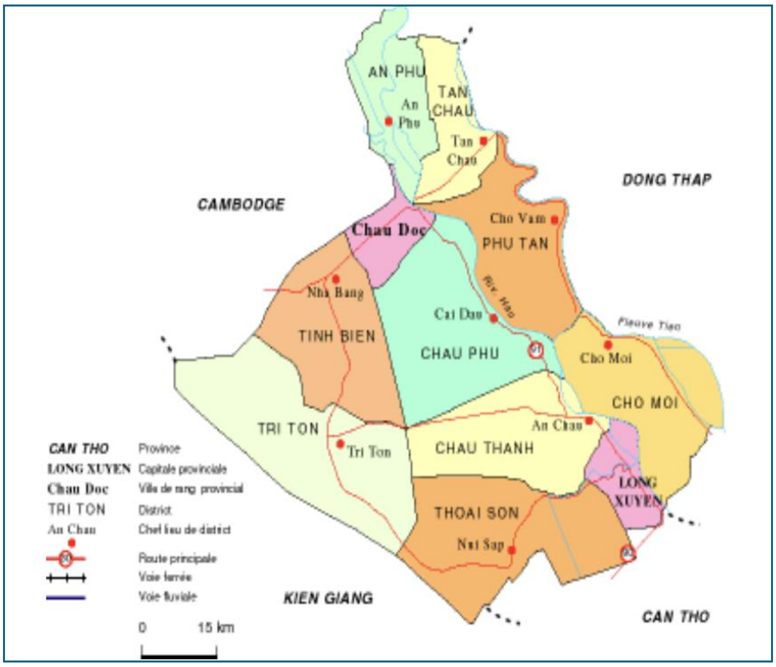



Figure 1. Administrative map of An Giang province, Vietnam (Source: Author, 2024)

* Corresponding author

Tourism is closely related to local life, culture, heritage (Everett and Aitchison, 2008), and natural attractions (Petrovic et al., 2017). As a result, tourism can enhance national identity and greatly benefit society (Lucchetti and Arcese, 2014). Furthermore, tourism is crucial in safeguarding and enhancing cultural heritage value, including tangible and intangible assets in various regions. The growth of this sector is also crucial in alleviating hunger and poverty while driving economic transformation (Giao et al., 2021). In tourism development, regional linkage is becoming popular because of its benefits to localities and linked regions (Rogerson, 2015; Telfer, 2014). The regional linkage allows the exploitation of advantages regarding resources, location, infrastructure and other resources for tourism development (Moscardo et al., 2017; Scheyvens, 2018). In the plan for Tourism development in the Mekong Delta region to 2030 Vietnam, regional tourism linkage is mentioned to enhance competitiveness, attract investment, and attract tourists to the linked areas. For some territories with high similarity in resources, regional linkage will effectively limit fragmentation and duplication, create typical tourism products of the region and locality, and maintain more sustainable and long-term benefits from tourism development. Recognizing the importance of tourism development in regional linkage, An Giang province has focused on developing tourism into a spearhead economic sector while focusing on strengthening regional linkages in tourism development to make An Giang one of the attractive tourist destinations in the Mekong Delta (Figure 1) (Department of Culture, Sports and Tourism of An Giang, 2023).  Therefore, to promote tourism development, it is essential to identify and assess the factors influencing regional linkages between An Giang and neighbouring areas. This approach will help leverage local strengths, create tailored tourism products, and enhance the effectiveness of tourism activities.

## LITERATURE REVIEW

### Regional linkage in tourism development

The book "Tourism Geography" emphasized that the expansion of distribution space in the 1950s changed the nature of business tourism in some European countries, thereby turning tourism into an economic sector. Highly connected and accessible tourism relationships are not limited to a specific local area but are extended to a much larger area (Ashworth, 2001).Tourism growth in the direction of linkage and cooperation is a popular trend in the modern era. In the context of globalization and global economic integration, the practice of tourism development in linkage and cooperation between countries, regions, and localities is of considerable concern and reinforces the importance of regional relationships related to tourism (Song et al., 2018). In this area of research, tourism scientists and managers seek to demonstrate the advantages of connecting tourist destinations, especially in the context of globalization and international economic integration. Regional tourism development strategies have emphasized the importance of tourism connectivity and integration to achieve the goal of sustainable landscape protection (Oliver and Jenkins, 2003).

National governments have emphasized the importance of connecting tourist areas, and it has become an essential part of tourism development planning (Kauppila et al., 2009; Manhas et al., 2016). Linkage analysis is considered a supplement to traditional tourism impact analysis to examine the economic impact on the destination economy (Hor, 2021). There are many links between tourism and the socio-economic structure of countries, regions and territories (Hor, 2021; Moscardo et al., 2017; Rogerson, 2015). Tourism development concerns the nature of tourism relations and cooperation between regions, countries and cities (Calero and Turner, 2020; Czernek, 2013). According to this field of study, tourism development is not limited to a specific territory but goes beyond the borders of a city, country or region (Telfer, 2014).

### Factors affecting regional linkage in tourism development

Tourism resources play an essential role among the factors affecting regional linkage in tourism development. The uniqueness and diversity of tourism resources mainly determine tourist destinations. Therefore, tourism management must pay attention to maintaining the quality of tourism resources at tourist sites (Khuong et al., 2017). In the tourism industry, it is evident that all tourism activities are closely tied to natural resources, including landscapes, water bodies, topography, and plant and animal life (Fossgard and Fredman, 2019; Nonthapot, 2024). Cultural tourism resources include historical relics, customs, lifestyles, religions, festivals, historical landscapes, and the friendliness of local people (McKay, 2018). Moreover, the cultural setting highlights specific attributes like "historic structures, palaces, museums, theatres, galleries, and various festivals and events" (Martin et al., 2016).

Additionally, travelers seek to explore and understand the history, language, and everyday life of ethnic minorities. An Giang province is selected as a tourist destination by visitors from various regions because it is home to numerous ethnic groups with a rich diversity of languages, cultures, and environments (Hai et al., 2023). The emergence of many types of tourism based on the exploitation of specific tourism resources, such as the difference in the distribution of different tourism resources, is one of the factors that require tourism cooperation linkage between countries and regions to develop diverse tourism routes and provide tourism chains (Jesus and Franco, 2016; Mendonça et al., 2015).

### Infrastructure in tourism development

Numerous studies have explored the connection between infrastructure and tourism development in the context of regional connectivity. These investigations have analyzed how infrastructure relates to tourist spending, distance, pricing, and overall satisfaction. Tourist satisfaction at a destination is evaluated by assessing how well the provided facilities meet their needs and preferences (Chau et al., 2023). Many studies have highlighted the strong link between infrastructure and tourist satisfaction (Khuong et al., 2020). Infrastructure is considered transportation networks, including roads, railways, sea routes, airways, hotel systems, residential areas, and entertainment areas. Additionally, the satisfaction of tourists is shaped by the ease of access to locations, which encompasses infrastructure, operational factors, governmental policies, and available amenities (Virkar and Mallya, 2018). Previous research has demonstrated that infrastructure and accessibility are crucial in expanding tourist destinations and developing new attractions. Additionally, creating sufficient public infrastructure is essential for ensuring high-quality amenities at tourist destinations (Jovanovia and Ilia, 2016). Enhancing tourism infrastructure is crucial for boosting the appeal of a destination and attracting visitors. A country's infrastructure significantly influences its potential as an attractive tourist destination (Seetanah and Khadaroo, 2011).

**Safety in tourism**

Safety in tourism is the protection of tourists from unwanted incidents and risks for the entire trip (Ngoc and Trinh, 2015). Safety and security are consistently among the most critical issues most tourists are concerned about before visiting a place (Rittichainuwat et al., 2012). When the safety and security of a destination are well-maintained, tourists are likely to have enjoyable experiences during their visit, feeling at ease and secure while exploring.

This not only enhances the image of the destination as more beautiful, welcoming, and safe but also encourages these tourists to share their positive experiences with others, thereby strengthening regional connections in tourism development (Burch, 2009). Tourism safety is a crucial factor influencing travelers' decisions when selecting a destination, as it directly impacts their health, well-being, and overall satisfaction throughout the journey (To, 2023).

**Tourism development policy**

Tourism development policy is critical to achieving success in tourism growth, fostering connections, and ensuring sustainability (Le et al., 2024). Effective tourism strategies and policies can advance or impede tourism development, depending on how well they align with practical needs. In the "An Giang Provincial Planning for the period 2021-2030, vision to 2050", policies are proposed to focus on strengthening regional connectivity in tourism development to vigorously develop An Giang tourism industry in the Mekong Delta region (Department of Culture, Sports and Tourism of An Giang, 2023).

**Hypothesis**

In this study, the author uses the dependent variable “Regional linkages in tourism development”, which is affected by five independent variables: “natural tourism resources, cultural tourism resources, infrastructure, tourism safety and tourism development policy” (Figure 2). Based on the literature review, the following five hypotheses have been developed for this study:

**H1:** Natural tourism resources have a positive relationship with regional linkages in tourism development.
**H2:** Cultural tourism resources have a positive relationship with regional linkages in tourism development.
**H2:** Infrastructure and regional linkages in tourism development have a significant relationship.
**H4:** Tourism safety and regional linkages in tourism development have a meaningful relationship.
**H5:** Tourism policy and regional linkages in tourism development have a significant relationship.

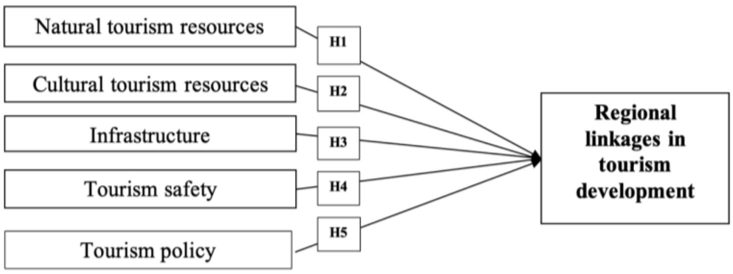



Figure 2. Research hypothesis

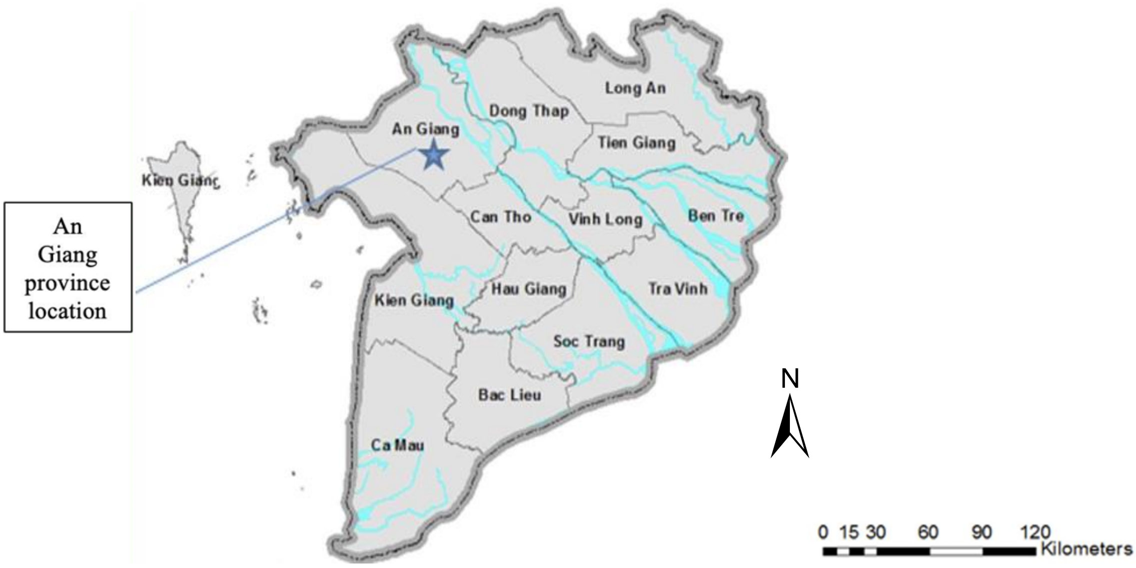



Figure 3. Location of the research area - Mekong Delta, Vietnam (Source: Author, 2024)

## MATERIALS AND METHODS

### Research area

An Giang province is situated west of the Mekong Delta, nestled between the Tien and Hau rivers, and has a 100 km long northern boundary with Cambodia. Additionally, it is adjacent to Kien Giang Province to the southwest, Dong Thap Province to the east, and Can Tho City to the southeast (Figure 3). The terrain of An Giang province consists mainly of alluvial plains, low hills, and river islands. An Giang has many famous tourist attractions such as Sam Mountain National Tourist Area, Cam Mountain Tourist Area, Oc Eo Relic Site, and President Ton Duc Thang Memorial Site. With the above benefits, An Giang is becoming an attractive tourist destination, attracting both domestic and international visitors (Chau, 2023).

The tourism sector in An Giang province, Vietnam, has played a significant role in the country's socio-economic progress, notably in generating revenue and creating jobs for the local population. In 2023, An Giang saw over 9.2 million tourists, marking a 35% rise compared to 2022, with 9,000 international travellers, reflecting a 75% increase from the previous year. The total earnings from tourism activities exceeded 4,800 billion VND, up 24% from the same period in 2022. Domestic tourists accounted for 87% of the total visitors to An Giang (Chau et al., 2023).

### Data collection and research sample

For this study, the survey targeted domestic tourists in Vietnam, employing a convenience sampling method. Out of 350 questionnaires distributed, 342 were returned. However, after review, 42 were deemed invalid due to incomplete responses, choosing only one option, lack of seriousness in answering, or overly neutral responses. Consequently, 300 valid questionnaires with complete and satisfactory answers were used for the analysis, meeting the sampling criteria.

### Measurement scales and research design

The questionnaire comprised 25 variables evaluated using a five-point Likert scale (1 - Strongly Disagree; 2 - Disagree; 3 - Neutral; 4 - Agree; 5 - Strongly Agree). Data collected from the survey were analyzed using SPSS software to calculate Cronbach's Alpha reliability coefficient, which helped identify and remove variables with reliability coefficients below 0.6. This process ensured that the questions consistently reflected the intended content. The refined data were then used for Pearson correlation testing in the study. Quantitative research investigated factors associated with regional linkages in tourism development. Descriptive statistics were also utilized to identify the characteristics of the observed variables in the study. The steps of the study are shown in Figure 4.

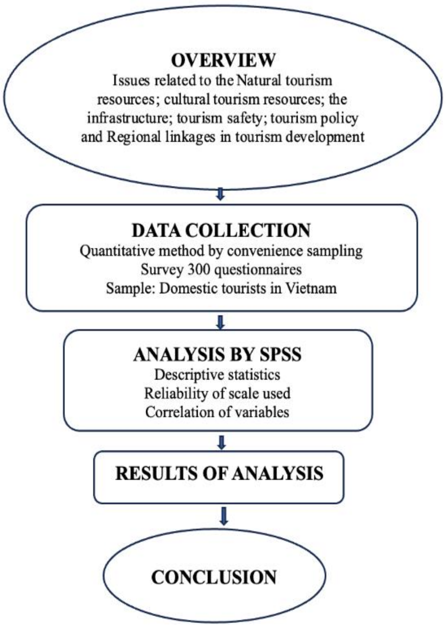



Figure 4. The steps of the study

## RESULTS AND DISCUSSION

### Descriptive statistics of the study sample

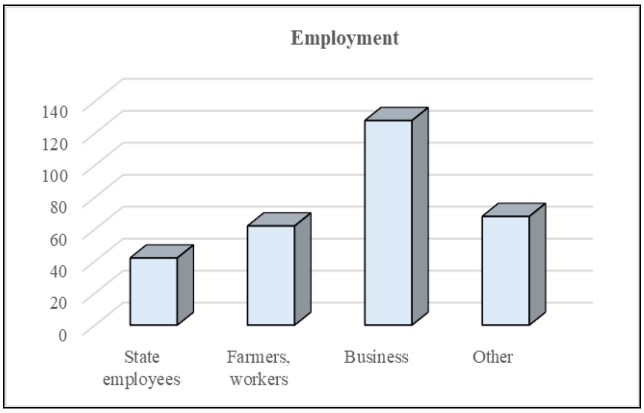
The characteristics of gender, employment, and the time for travelling of 300 survey samples for the study are descriptively summarized by the author in Table 1. **Cronbach's Alpha test results:** The values of Cronbach's Alpha coefficient for five of the independent and dependent variables (Regional linkages in tourism development) in this study are shown in Table 2.

Table 1. Characteristics of the survey sample (n = 300) (Source: Author, 2024)

| Factors | Component | Amount | Percent |
|---|---|---|---|
| Gender | Female | 168 | 56.0 % |
| | Male | 132 | 44.0 % |
| Employment | State employees | 42 | 14.0 % |
| | Farmers, workers | 62 | 20.6 % |
| | Business | 128 | 42.7 % |
| | Other | 68 | 22.7 % |
| The time for travelling | Summer vacation | 170 | 56.7 % |
| | Tet holiday | 80 | 26.7 % |
| | Leisure time | 19 | 6.3 % |
| | Weekend | 31 | 10.3 % |

Table 2. Cronbach's Alpha test results (n = 300) (Source: Author, 2024)

| Variables | Item | Value of Cronbach's Alpha | Mean | SD |
|---|---|---|---|---|
| Natural tourism resources | 5 | 0.898 | 3.017 | 1.192 |
| Cultural tourism resources | 5 | 0.880 | 3.024 | 1.125 |
| Infrastructure | 5 | 0.899 | 3.120 | 1.119 |
| Tourism safety | 5 | 0.895 | 3.030 | 1.140 |
| Tourism policy | 5 | 0.882 | 3.109 | 1.116 |
| Regional linkages in tourism development | 3 | 0.937 | 3.114 | 1.142 |



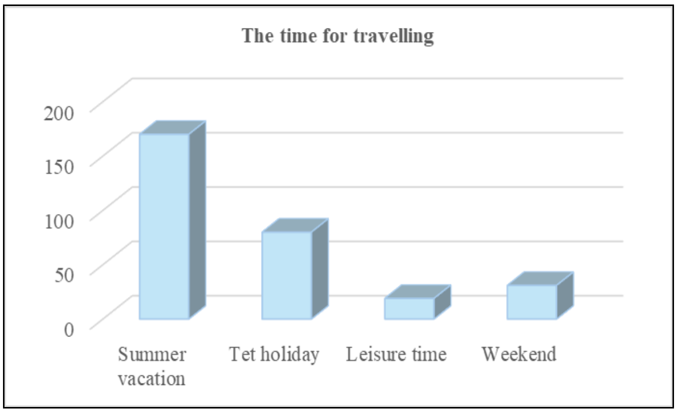




Figure 5. The chart shows the characteristics of the survey sample

The Cronbach's Alpha coefficient values for the five independent variables and the dependent variable (Satisfaction with tourist destinations) in this study are shown in Table 2. Regarding the reliability of the scale, Hoang Trong and Chu Nguyen Mong Ngoc (2008) stated that Cronbach's Alpha values ranging from 0.7 to nearly 0.8 are considered acceptable for a measurement scale, while values from 0.8 to nearly one are considered excellent. Based on the evaluation of the 28 variables, all had Cronbach's Alpha coefficients above 0.7. This indicates that the questionnaire was highly reliable and suitable for further study. The reliability analysis of the questionnaire demonstrated that respondents comprehended the questions effectively, indicating that the instrument was suitable and accepted for use in this study. The mean and standard deviation of the five independent variables and the dependent variable are shown in Table 2. For the dependent variable (Regional linkages in tourism development), the mean score is 3.114, and the standard deviation is 1.142. For the five independent variables, the highest mean score is for the variable "infrastructure" at 3.120, followed by the variable "tourism policy" at 3.109; the variable "safety in tourism" at 3.030, the variable "cultural tourism resources" at 3.024 and the lowest mean score is for the variable "natural tourism resources" at 3.017.

Table 3. Descriptive statistics of natural tourism resources (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | An Giang has a unique terrain with the Seven Mountains region having many famous tourist attractions | 3.34 | 1.198 |
| 2 | An Giang has a favorable climate for tourism development and a flood season that attracts tourists | 3.01 | 1.014 |
| 3 | An Giang has diverse rivers that are favorable for tourism development in regional linkages | 2.82 | 1.124 |
| 4 | An Giang has a diverse and typical ecosystem with many values for tourism development | 3.11 | 1.139 |
| 5 | Natural tourism resources are considered the main attraction for tourists in the surrounding areas | 2.80 | 1.121 |

Table 3 and Figure 6 show the results of the analysis of the mean and standard deviation of the respondents for the independent variable "natural tourism resources". Item number one has the highest mean value of 3.34. This shows that the respondents perceive that "An Giang has a unique terrain with the Seven Mountains region having many famous tourist attractions". Item number five has the lowest mean value of 2.80. Only a few respondents agree that "Natural tourism resources are considered the main attraction for tourists in the surrounding areas". From a dataset of 300 respondents with most standard deviations less than 1.5, the values are close to the mean and less scattered.

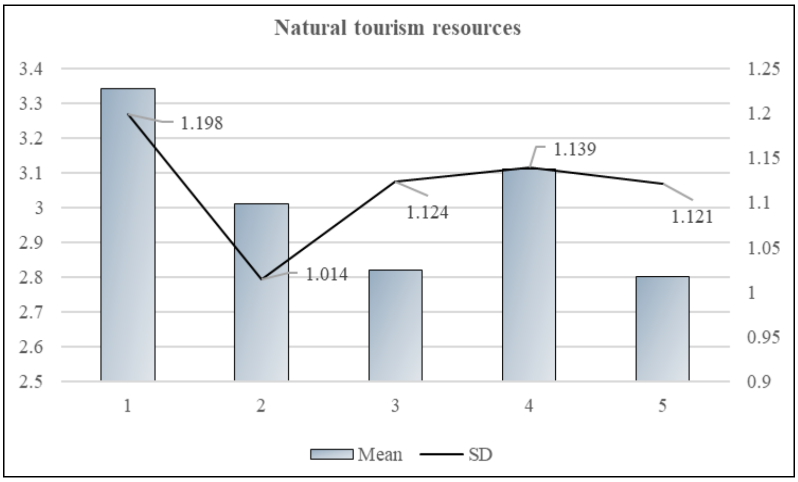



Figure 6. The chart displays descriptive statistics of the mean (Mean) and standard deviation (SD) of natural tourism resources

Table 4 shows the analysis of the mean and standard deviation on the independent variable "cultural tourism resources". The highest mean value is item number two, which is 3.18. Most respondents agree that "An Giang has many cultural and historical relics that are valuable in tourism development". The lowest mean value is item number one, which is 2.84. Only a few respondents agree that "An Giang has many long-standing craft villages with unique products that attract tourists".

Table 4. Descriptive statistics of cultural tourism resources (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | An Giang has many unique festivals | 2.92 | 1.091 |
| 2 | An Giang has many valuable cultural and historical relics in tourism development | 3.18 | 1.290 |
| 3 | An Giang has many long-standing craft villages with unique products, attracting tourists | 2.84 | 1.034 |
| 4 | An Giang has many types of typical and attractive cuisine | 3.15 | 1.085 |
| 5 | There are many sports, cultural and social events held in An Giang that attract a large number of tourists | 3.11 | 1.191 |

For the data set of 300 respondents, most of the standard deviation values are more significant than 1, which indicates that the values are less dispersed.Table 5 shows the analysis of the mean and standard deviation of the respondents on the independent variable "Infrastructure". Item number two has the highest mean value of 3.31. Among them, the majority of the respondents agree that "High-quality tourism services will attract tourists to destinations". The lowest mean value is item number one, with a mean value 2.96. A few respondents found that "Enhanced infrastructure at tourist destinations will ensure the delivery of high-quality tourism services". From the data set of 300 respondents, most of the standard deviation values are less than 1.5, indicating that the values are close to the mean value and less dispersed.

Table 5. Descriptive statistics of infrastructure (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | Enhanced infrastructure at tourist destinations will ensure the delivery of high-quality tourism services | 2.96 | 1.072 |
| 2 | High-quality tourism services will attract tourists to destinations | 3.31 | 1.272 |
| 3 | Comprehensive infrastructure will influence the attraction and presence of tourists at destinations | 3.00 | 1.047 |
| 4 | Offering appealing and convenient facilities is a key factor in drawing tourists | 3.03 | 1.103 |
| 5 | Infrastructure can facilitate a variety of tourism activities and serves as a major draw for visitors from nearby areas | 3.30 | 1.222 |

Table 6. Descriptive statistics of tourism safety (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | The destination is secure | 3.11 | 1.035 |
| 2 | The destination consistently implements safety measures to protect tourists | 3.03 | 1.275 |
| 3 | You feel at ease using public services at the destination | 3.07 | 1.190 |
| 4 | The staff and customer care system at the tourist destination have ensured tourists' safety | 2.78 | 1.009 |
| 5 | Tourism safety at the destination is a key factor influencing tourists' decision to return | 3.17 | 1.254 |

Table 6 shows the analysis of the mean and standard deviation of the respondents on the independent variable "tourism safety". Item number five has the highest mean value of 3.17. Most respondents agree that "Tourism safety at the destination is a key factor influencing tourists' decision to return". Item number four has the lowest mean value of 2.78. A few respondents found, "The staff and customer care system at the tourist destination have ensured tourists' safety". From the data set of 300 respondents, most of the standard deviation values are more significant than 1, indicating that the values are close to the mean value and have very little dispersion.

Table 7. Descriptive Statistics of tourism policy (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | Strengthening local tourism promotion | 3.31 | 1.198 |
| 2 | Developing diversified tourism products | 3.05 | 1.175 |
| 3 | Improving infrastructure in regional linkages | 2.96 | 1.027 |
| 4 | Taking into account the policy of regional tourism linkages | 3.25 | 1.162 |
| 5 | Enhancing investment attraction in tourism linkages with localities | 2.98 | 1.061 |

Table 7 shows the analysis of the mean and standard deviation of the respondents for the independent variable "tourism policy". Item number one has the highest mean value of 3.31. Most respondents agree that "Strengthening the promotion of local tourism" will help develop tourism in regional linkage. The lowest mean score is item number three, with a mean value of 2.96. Among them, a few respondents find that "Improving infrastructure in regional linkage" is needed. From the data set of 300 respondents, most of the standard deviation values are more significant than 1, indicating that the values are less dispersed. Table 8 shows the respondents' mean and standard deviation analysis for the dependent variable "regional linkages in tourism development". Item number three has the highest mean value of 3.17. Most respondents agree that "Tourism promotes cooperation between An Giang province and neighboring localities".

Table 8. Descriptive statistics of regional linkages in tourism development (n = 300) (Source: Author, 2024)

| No | Item Description | Mean | SD |
|---|---|---|---|
| 1 | An Giang province's tourism develops rapidly in regional linkages | 3.06 | 1.120 |
| 2 | An Giang province's tourism industry has made important contributions to socio-economic development | 2.78 | 1.018 |
| 3 | Tourism promotes cooperation between An Giang province and neighboring localities | 3.17 | 1.157 |

The lowest mean score is item number 2, with a mean value of 2.78. The respondents perceive that "The tourism industry of An Giang province has an important contribution to socio-economic development".

From the data set of 300 respondents, most of the standard deviation values are more significant than 1, indicating that the values are close to the mean value and have very little dispersion.

Table 9. Correlation analysis between factors and regional linkages in tourism development (Source: Author, 2024)

| | | **Regional linkages in tourism development** | Cultural tourism resources | Natural tourism resources | Infrastructure | Tourism safety | Tourism policy |
|---|---|---|---|---|---|---|---|
| **Regional linkages in tourism development** | Pearson correlation | 1 | **0.709**** | **0.498**** | **0.379**** | **0.330**** | **0.260**** |
| | Sig. (2- sides) | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | N | 300 | 300 | 300 | 300 | 300 | 300 |

**Significant at the 0.01 level (2-tailed)

**Pearson Correlation Test**

Table 9 analyzes the correlation between the five factors and regional linkages in tourism development, showing that all Sig values are equal to 0.000. The Pearson correlation coefficient between cultural tourism resources and regional linkages in tourism development is 0.709. This shows a robust and positive correlation. The coefficient between natural tourism resources and regional linkages in tourism development is 0.498, indicating a relatively strong positive correlation. The correlation coefficient between the two factors, infrastructure, tourism safety and regional linkages in tourism development, is 0.379 and 0.330, respectively, indicating a moderate positive correlation. Finally, the correlation coefficient between Tourism policy and regional linkages in tourism development is weakly positive, with a correlation coefficient of only 0.260.

**DISCUSSION**

The conducted analysis shows that the correlation between cultural tourism resources and regional linkages in the tourism development of tourists is robust ($r = 0.709$, $N = 300$, $p < 0.01$). The findings show the highest relationship between cultural tourism resources and regional linkages in tourism development. This aligns with reality, as An Giang province boasts numerous renowned temples, pagodas, and festivals. These elements have generated tourism resources characterized by distinctive architectural styles and profound historical and cultural significance. Such attributes provide An Giang with a significant opportunity to leverage cultural tourism, thereby advancing the development of the province's tourism sector (To, 2023). Tourism resources are essential to serve the needs of tourists while creating diversity and attractiveness of products. The increase in cultural tourism resources drives tourism attraction and relationships between places with minimal resources (Jesus and Franco, 2016). Cultural and historical tourism resources play an essential role in building a favorable reputation of a place for tourists and making them satisfied when returning (Haneef, 2017).

The results of the subsequent analysis show a strong correlation between natural tourism resources and regional linkages in tourism development ($r = 0.498$, $N = 300$, $p < 0.01$). The study has found a positive and significant relationship between natural tourism resources and regional linkages in tourism development. The study's findings will assist local authorities and tourism operators in identifying effective strategies for enhancing and preserving An Giang province's natural tourism resources. These results align with Jarvis (2016), who emphasized that the quality of natural tourism resources significantly influences tourist satisfaction and the attractiveness of a destination. Thus, natural tourism resources play a crucial role in shaping the overall satisfaction with a tourist destination (Jarvis, 2016).

The results also showed that the correlation between infrastructure and regional linkages in tourism development was at a moderate level ($r = 0.379$, $N = 300$, $p < 0.01$). The findings revealed a positive and significant connection between infrastructure and regional linkages in tourism development. Infrastructure plays a crucial role in tourism, as a well-equipped service environment is necessary to attract visitors to a destination. Tourism is a diverse industry encompassing a range of components such as attractions, activities, services, and infrastructure, all contributing to the overall appeal of a location's natural and artificial features. Cooper et al. (2005) highlighted that the physical facilities at a destination are crucial for tourism. A destination must offer exciting sites and provide comprehensive amenities, including accommodation, activities, and transportation, to fulfil tourists' needs and ensure their satisfaction (Cooper et al., 2005).

The correlation between tourism safety and regional linkages in tourism development is moderate ($r = 0.330$, $N = 300$, $p < 0.01$). The findings show a positive and significant relationship between tourism safety and satisfaction with the destination. This also suggests that tourism managers in An Giang province need to strengthen the monitoring and handling of security violations such as soliciting tourists to buy tourism products in tourist areas, homeless people begging, and theft in tourist areas. Authorities should re-plan specific areas for trading and parking lots to increase tourist destinations' beauty while ensuring tourist safety.

Moreover, finally, the correlation between Tourism policy and regional linkages in tourism development is weak ($r = 0.260$, $N = 300$, $p < 0.01$). The results show a positive and significant relationship between tourism policy and regional linkages in tourism development. In An Giang province, the policy system and the attention of agencies and units are necessary to promote the growth of the An Giang tourism industry and strengthen regional connectivity.

This result is consistent with studies on tourism policy and planning, affirming the importance of regional linkage strategies for tourism development in countries and territories (Mendonça et al., 2015; Zhang, 2017). Regional linkage in tourism development begins with the formation and implementation of linkage policies, which serve as a legal basis for implementing linkage contents between regions and territories (Czernek, 2013). Policies supporting units participating in tourism linkage, especially enterprises, will remove some obstacles and support enterprises in implementing them by their actual conditions (Adnyana et al., 2020).

The limitation of this study is that it only focuses on examining the correlation between tourism resources, infrastructure, safety in tourism and tourism policies with regional linkages in tourism development. Therefore, future studies can be conducted to examine other factors such as service quality, specific tourism products of An Giang province or multivariate regression analysis to find effective tourism development models.

## CONCLUSION

This research has made a substantial contribution to broadening the understanding of the factors affecting tourism development in An Giang province, particularly within the framework of regional integration. By conducting an in-depth and comprehensive analysis of these influencing factors, the study establishes a robust theoretical basis for evaluating the significance and impact of each factor on the sustainable growth of the local tourism sector.

The findings serve as valuable guidance for policymakers and tourism managers in crafting targeted strategies to maximize the province's tourism potential. Moreover, they assist businesses, local communities, and other relevant stakeholders in gaining a clearer understanding of their roles within the interconnected regional framework.

This allows for more informed decision-making, fostering greater collaborative efficiency, capitalizing on competitive advantages, and addressing existing challenges. While the insights from this research focus on An Giang, their applicability extends to other regions pursuing tourism development through regional partnerships.

These findings offer a valuable reference model for future studies, furthering sustainable tourism development and contributing to the region's overall economic growth.

**Author Contributions:** Conceptualization, T.M.C. and T.M.C.; methodology, T.M.C. and T.M.C.; software, T.M.C. and T.M.C.; validation, T.M.C. and T.M.C.; formal analysis, T.M.C. and T.M.C.; investigation, T.M.C. and T.M.C..; data curation, T.M.C. and T.M.C..; writing - original draft preparation, T.M.C. and T.M.C.; writing - review and editing, T.M.C. and T.M.C.; visualization, T.M.C. and T.M.C.; supervision, T.M.C.; project administration, T.M.C. The author has read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The author sincerely thanks the journal's editorial board and reviewers for their comments on this article. This research is funded by An Giang University, Vietnam National University, Ho Chi Minh City under grant number 24.04.SP. The article belongs to the field of cultural studies.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 31.07.2024 Revised: 02.10.2024 Accepted: 21.11.2024 Available online: 31.12.2024

# ASSESSMENT OF RECREATIONAL DISTURBANCE IN THE FOREST MASSIFS OF KOSTANAY REGION

**Zhanar OZGELDINOVA**
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: ozgeldinova@mail.ru

**Altyn ZHANGUZHINA***
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: altyn8828@mail.ru

**Zhandos MUKAYEV**
Shakarim University, Department of Science Disciplines, Semey, Kazakhstan, e-mail: zhandos.mukaev@mail.ru

**Kairat SAGINOV**
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: kairatsaginov@mail.ru

**Aliya AYAPBEKOVA**
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: alya1960@list.ru

**Citation:** Ozgeldinova, Z., Zhanguzhina, A., Mukayev, Z., Saginov, K., & Ayapbekova, A. (2024). ASSESSMENT OF RECREATIONAL DISTURBANCE IN THE FOREST MASSIFS OF KOSTANAY REGION. *Geojournal of Tourism and Geosites*, 57(4spl), 1902–1910. https://doi.org/10.30892/gtg.574spl04-1357

**Abstract:** The article discusses the results of assessing the recreational disturbance of forest massifs within the Kostanay region. The objective of this research is to assess the recreational disturbance of forests in the Kostanay region based on field data utilizing GIS. In the first stage of the work, evaluation indicators and observation points were selected in each forest massif. Recreational disturbance was assessed using ArcGIS 10.8 software and by introducing weighted coefficients for individual indicators. The research indicated that the natural environment near the "Sosnovy Bor" sanatorium, located in an area with high visitor traffic, is in a relatively disturbed condition.

**Keywords:** forest massifs, recreational disturbance, recreational degradation, integrated assessment, Kostanay region

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## INTRODUCTION

Recreation is considered as one of the anthropogenic factors of influence on the components of the natural environment, leading to its qualitative change (Winter et al., 2020; Miller et al., 2022; Zhang and Smith, 2023). Recreation is recreation outside the dwelling for the purpose of restoring health and ability to work, taking place in the bosom of nature, or during a tourist trip associated with visiting places of interest (Morse et al., 2022).

Disturbed recreational areas - lands that have lost their original natural and economic value due to recreational activities and, as a rule, represent a source of negative impact on the environment (Galdin et al., 2021).

The accumulated domestic and foreign experience shows that the negative consequences of tourism and recreational use of natural areas can be minimized under the condition of scientifically sound planning, monitoring of the ecological state of the object and regulation of tourism and recreational activities (Zigern-Korn and Solomina, 2020; Zaburaeva et al., 2018). A review of the works of the last decades in the field of recreational ecology and geography showed that most of the scientific research is devoted to the assessment of the condition of vegetation and soils changing under the action of intensive trampling (Miller et al., 2022). At the same time, researchers paid special attention to trails, picnic meadows, areas near viewpoints and objects of excursion display (Haris et al., 2020; Lukoseviciute et al., 2023).

The natural landscape, with forests as an integral part, fulfills recreational functions. These functions arise from the need to satisfy the population's demand for rest, restoration of vitality (physical, emotional, and spiritual), and health improvement in a forest environment. However, these natural complexes inevitably experience negative impacts, causing damage to the reserves and quality of biota, reducing the resilience of forest systems, which in turn diminishes the forests' capacity to fulfill their recreational functions. Therefore, humans directly utilize a certain natural (forest, landscape) recreational resource, which can recover if the magnitude of impact is limited. According to the ecological classification of natural resources, it is considered an exhaustible but renewable resource, provided that natural systems are maintained in a

* Corresponding author

stable state (Wang, 2021). Moreover, this resource can be artificially enhanced by humans, though such enhancement will no longer be natural. The objective of this research is to assess the recreational disturbance of forests in the Kostanay region based on field data utilizing GIS. Currently, various forms of forest recreation have become a significant factor of anthropogenic impact on forests. The forests of the Kostanay region are characterized by their uniqueness and favorable conditions for tourism and the organization of various forms of leisure. However, uncontrolled visits to forest massifs often lead to exceeding recreational capacities, which affects the ecological condition of forest systems and their components, potentially leading to complete degradation (Tokarieva et al., 2022).

Since natural resources are the means of human existence, the degree of their exploitation is naturally increasing, and the degree of forest use for recreational purposes is also increasing. Man, satisfying his recreational needs by staying in the forest environment, directly consumes or destroys some stocks of wood and non-wood products in the course of mining and other, more aggressive forms of recreation. In addition, the very presence of people in the forest, even if the road form of recreation prevails, causes various damages to ecosystems due to trampling of the ground cover, compaction of the upper layer of soil, etc. All this together causes digression of the forest environment. All this together causes degradation of the forest environment, critical values of which cause degradation of biogeocenosis. This occurs, more often than not, gradually, as environmental disturbances accumulate (increasing stages of recreational digression). Moreover, forest natural systems and plant communities are resistant to recreational loads, i.e. at permissible values of anthropogenic impact the composition, structure and internal interrelationships of ecosystems are preserved (restored). These possibilities are different for different natural systems, however, the presence of any stock of their stability creates prerequisites for managing the process of recreational use of forests in order to ensure its environmental friendliness.

In this regard, it should be emphasized that determining the stages of recreational degradation of the forest environment solely based on the "percentage of area trampled down to the mineral horizon of the ground cover" is unacceptable, as the condition of all elements of the phytocenosis and the forest environment must be assessed. This method may be applicable for determining the stages of recreational degradation in non-forest areas and lands not covered by forest vegetation, but with adjustments for the overall condition of the ground cover, its composition, and the degree of soil compaction (Winter et al., 2019). Recreational loads are classified into safe, which includes both low and maximum permissible loads, dangerous, critical, and catastrophic (Scherbina, 2022). A load can be considered safe if it does not cause irreversible changes in the natural complex. The impact of such loads on a natural complex leads to the 2nd or 3rd stage of degradation. The load corresponding to the 2nd stage is conventionally called "low," as the natural complex can withstand a greater load without losing its restorative ability. The maximum permissible recreational load brings the natural complex to the 3rd stage of degradation.

When a natural complex moves from the 3rd to the 4th stage of degradation, crossing the threshold of resilience, the recreational loads affecting it are considered dangerous. Critical loads correspond to the 4th stage of degradation. Finally, catastrophic loads are those that bring the natural complex to the 5th stage of degradation, where connections between both natural components and their constituent parts are disrupted (Terent'eva et al., 2023). The stages of vegetation community changes are used as indicators of degradation, with general characteristics of these stages provided in related works (Musin et al., 2020). At the beginning of the degradation process, while the impact of recreation is still low, only biotic components: vegetation and fauna undergo noticeable changes. These changes can be considered reversible, because if the external impact is stopped, the natural complex will eventually return to its original state through self-recovery. The process of restoration of the original natural complex after the removal of recreational pressure can be called reversion of digression, and the process of digression of the natural complex can be considered reversible. The essence of the process of digression consists in the change of the entire natural complex as a result of gradual accumulation of changes not only in its biota, but also, more significantly, in the geomagnetic environment, as a result of which by the 4th stage of digression it reaches a state in which the phytocenosis loses its ability to regenerate stands. Thus, on the territory experiencing high recreational load, there is a change in the species composition of fauna and flora. This can lead to partial or complete changes in the biocenosis and ecosystem as a whole (Asmelash and Kumar, 2019). One of the tasks of complex determination of geo-ecological state of recreational objects of Kostanay region was the assessment of recreational loads on their components. The state forest fund of Kostanay region is 1 million 146 087 ha (Mayor Office of Kostanay Region).

## MATERIALS AND METHODS

The research was conducted between 2023 and 2024 at sampling points in the forested areas of the study region. Five sampling points were identified within the forest areas, for each of which recreational disturbance was calculated. Based on the objectives of the study and taking into account the peculiarities of the study area, indicators were identified and calculated for each forest area. Most of the forest areas in the study area are covered with pine trees and shrubs. Pine and birch forests of recreational use ("Borovskoye", "Amankaragai", "Arakaragai", "Kazanbasy", "Naurzum Colony Forest") were selected as the object of the study (Figure 1) "Borovskoye". According to the data of the Borovskoye Forestry Institution, the area of the Borovskoye woodland occupies 93 hectares. The surface of the forest massif is composed of uvals interspersed with sandy hills composed of ancient alluvial deposits. The forest area is characterized by mixed forests (pine, birch, aspen), where the dominant species are mainly light coniferous forests. Pine forests are confined to gentle slopes of high sand hills and to depressions between them. The most common phytocenoses are phytocenoses including herbaceous, early sap-sedge, horsetail, lichen, eagle and other pine forests. "Amankaragai". The Amankaragai pine forest with a length of about 320 km² geomorphologically represents a larger ancient dune forest massif, predominantly with pine forests. This massif is characterized by the predominance of hilly uplifts and high emplacement of Paleogene sediments. The crests and slopes of sand ridges and dunes are occupied by pine forests with communities of rare steppe grasses and lichens and sand herbs. In interdune hollows there are grassy, often slightly waterlogged birch and aspen-birch stands on maltings. On lowered lake terraces one can notice the predominance of halophytic meadows (barley, beskilnitsa, wheatgrass, etc.), which are replaced by birch forests at the foot of sand dunes (Kropinova et al., 2023).

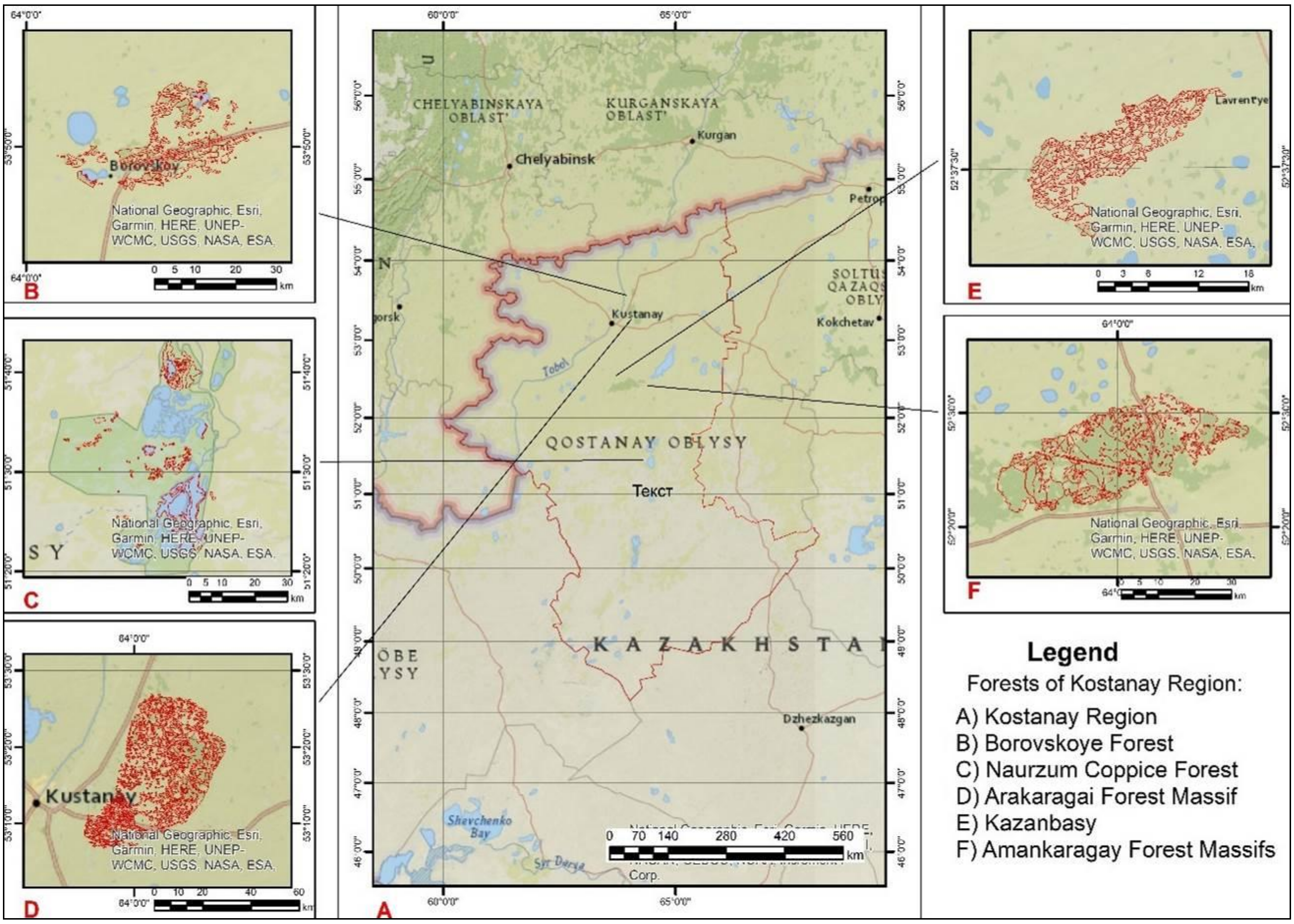


Figure 1. Forests of Kostanay Region (Source: Created by the authors using ArcGIS 10.8 with the "National Geographic World Map"): A) Kostanay Region, B) Borovskoye Forest, C) Naurzum Coppice Forest, D) Arakaragai Forest Massif, E) Kazanbasy, F) Amankaragay Forest Massifs

The most productive plantations from phytocenoses of formerly sedge, reed-vein-grass, birch horsetail-bone and mixed-grass-ground-vegetable pine forests occupy areas with shallow groundwater table (Ozgeldinova et al., 2022).

"Arakaragai". The Arakaragai pine forest with a length of 616 $km^2$ is located in the central part of the Tobol-Obagan interfluve and is composed of the Lower Pliocene-quaternary strata of alluvial sandy sediments with traces of ancient aeolian processes. Forest plantations are represented by middle-aged and young birch forests of the colony type, which are widespread in the western low-lying part of the interfluve. Pine forests grow in the eastern part of the interfluve on sandy hills of the Arakaragai massif. Phytocenoses of early-sedge, early-sedge-ground-veinaceous, spirea-cherry, mixed-grass-ground-veinaceous and fescue-lichen pine forests are widespread. Herbaceous steppe and mossy-grass pine forests are found in places, and they are characterized by rare undergrowth of cherry and briar. Pine forests in the Arakaragai boron are not represented as a continuous massif, but consist of separate islets (Chazdon et al., 2016; Cutler et al., 2018; Tokpanov et al., 2021). Naurzum Coppice Forest. The Naurzum coppice forest, part of the Naurzum Reserve, is located at a latitude of 51° North, 100 kilometers north of the semi-desert boundaries. The forest is situated in the Turgai Depression between the Sarymoin and Aksuat lakes, covering no more than 5% of the total area of the drifting sands.

At the western and eastern edges, the forest has a park-like character. It is predominantly composed of dune and gently rolling ridge pine forests. In the interdune depressions and on the lake terraces, there are grassy associations, birch forests with thickets of rosehip, meadowsweet, and hawthorn. The pine forest in this area is park-like, with pine forest coverage amounting to 934 hectares. Pine stands are more commonly found on the slopes of sandy dunes and relatively flat areas, and less frequently on high sandy dunes. There are also fescue and fine fescue, sand grass, mixed herbaceous, and other age-diverse pine forests, as well as areas with hanging and Kyrgyz birch.

Kazanbasy Forest Massif. The Kazanbasy forest massif is a sandy, isolated area stretching in a northeast direction in the northwestern part of the Amankarağay pine forest. It differs from the Amankarağay massif in its lower absolute elevations, predominantly ranging from 205 to 210 meters. The forest areas within the Kazanbasy massif are characterized by their sparse distribution and significant deforestation. Around the edges of the Kazanbasy pine massif, especially near settlements, there are areas of blown sand that are devoid of vegetation due to anthropogenic impacts. Within the Kazanbasy massif, among the stabilized ancient dune sands, there are lakes, most of which are dry. In the northeastern part of the massif, fresh lakes are predominant, while in the southwestern part, the lakes are saline. Assessment of recreational disturbance (Figure 1) in forested areas based on ArcGIS 10.8 software consists of the following steps:

- selection of recreational disturbance indicators;
- determination of actual values of the selected indicators;
- development of the evaluation scale of the selected indicators for the studied territory;
- calculation of the integral indicator of recreational disturbance and determination of the stages of recreational digression;
- analyzing the manifestation of recreational disturbance in different forest areas (Figure 2).

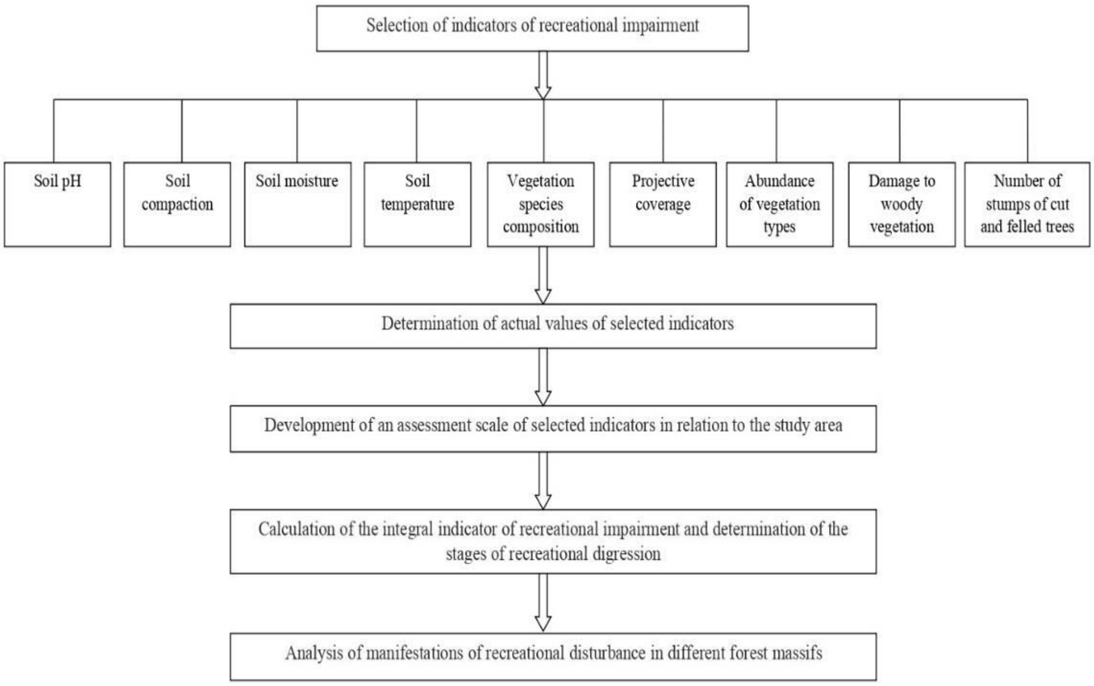


Figure 2. Block diagram "Assessment of recreational disturbance of forested areas" (Source: Authors)

To assess recreational disturbance, the following parameters were recorded at each forested area:

1. Soil pH (SDT-60 soil pH meter);
2. Soil compaction (TYD-2 soil hardness type determination, kg/cm$^2$);
3. Soil moisture (determination of soil moisture with portable soil tensiometer TEN-120, Bar);
4. Soil temperature (determination of soil temperature index with digital temperature meter TRS-II);
5. Vegetation species composition. Share of area (%) occupied by secondary vegetation groups with predominance of trampling-resistant, mainly ruderal herbaceous species (dandelion (Taraxacum officinale Wigg. s. l.), plantain (Plantago major L.), creeping clover (Trifolium repens L.), common glade (Agrostis capillaris L.), annual bluegrass (Poa annua L.), fragrant lepidotheca (Lepidotheca suaveolens (Pursh) Nutt.), slender grass (Juncus tenuis Willd.);
6. Projective coverage (in %);
7. Vegetation species abundance (1 per m$^2$);
8. Damage to woody vegetation (% of damaged trees out of their total number);
9. Number of stumps of cut and felled trees (pcs./ha);

The source data for mapping recreational disturbance indicators in the study region come from field data collected in 2023-2024. During the cartographic process, various interpolation methods were used to represent the indicators of recreational disturbance (Pintilii, 2022). One of the primary interpolation methods applied was the "Spline" option in the Spatial Analyst module of ArcGIS 10.8. The advantage of this interpolation method is that it calculates point values based on a mathematical function that adjusts to the surface conditions, resulting in a smooth surface that passes through all measurement points. The Geostatistical Analyst module was used to interpolate values by examining the relationships between all reference (control) points and to create a continuous surface for the distribution of the selected indicators. This module allows for the construction of an interpolation model and the assessment of the quality of the work performed. It provides final statistical results from the point of interpolation method selection, which helps in evaluating and analyzing the expected quality of the model obtained during the work. The integral assessment of recreational disturbance is conducted using standard tools in ArcGIS 10.8 (Figure 3). Weighted coefficients

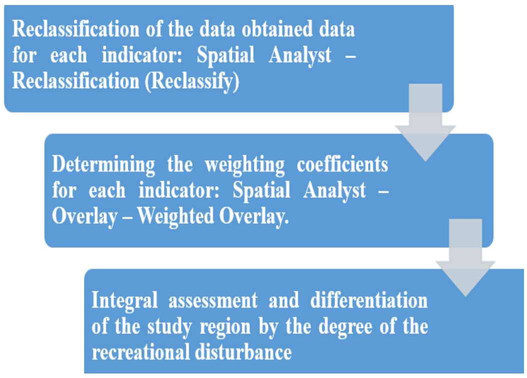


Figure 3. Algorithm of integral assessment of recreational disturbance of forest areas using ArcGIS 10.8 software

are established through an expert method based on the differentiation of indicators according to their impact on the overall indicator. The value characterizing these indicators became the basis for differentiation of the territory by the degree of recreational disturbance. The obtained values of the integral indicator of recreational disturbance were ranked by 4 stages:

I - low-disturbed state: trampling is not observed even in the form of a weakly expressed trail network; recreational impact is reduced to cutting of trees, the diameter of which (meaning the diameter at the level of cutting or felling) rarely exceeds 10-15 cm, and the appearance of sporadic campfires; secondary vegetation is practically absent.

II - disturbed condition: there is a clearly defined trail network with an area not exceeding 10%; single campfires occur; ruderal plant species are present on trails and old campfires.

III - highly disturbed condition: stand is poorly closed, groups of trees are limited by paths, roads and glades; trampled contour area up to 50%; increased density of campfires (up to 100 pieces/ha); greater proportion of damaged trees (up to 50%); secondary groups of plants occupy a noticeable area.

IV - degradation of vegetation cover: trampling of the original vegetation ground cover up to 100 %; the area of secondary plant groupings often exceeds 50 %; undergrowth is almost completely absent; undergrowth is preserved in a small number of clumps; the number of damaged trees reaches 100 %, tree roots are often exposed; abundance of fire pits, with more than 100 pieces/ha (Haris et al., 2020).

**RESULTS AND DISCUSSION**

As a result of this work, a cartographic representation of the integral assessment of recreational disturbance was created (Figure 4) and the following pattern was revealed. Excessive recreational pressures on forest systems lead to degradation and destruction of forest litter and plant ground cover, undergrowth and undergrowth.

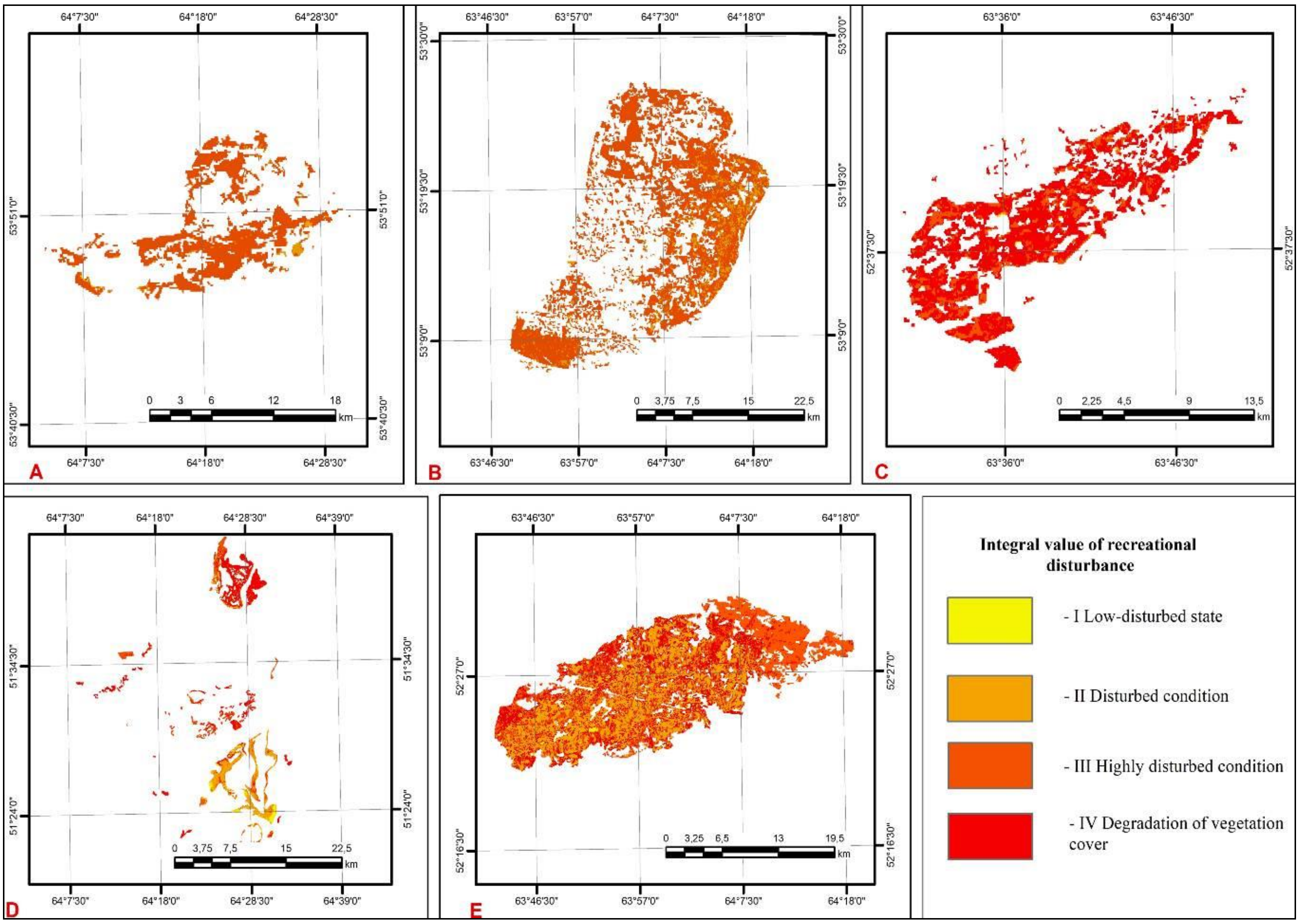


Figure 4. Integral value of recreational disturbance of Forest Massifs of Kostanay Region: A) Borovskoye Forest, B) Arakaragai Forest Massif, C) Kazanbasy Forest Massif, D) Naurzum Coppice Forest, E) Amankaragay Forest Massifs

Forest plants respond differently to trampling. Soil disturbance and changes in light conditions in recreational forests often result in the ruderalization of cenoses and the introduction of weedy meadow species under the canopy. The existing parcellar structure of forest biogeocenoses is destroyed and a "network" structure with an alternation of disturbed and undisturbed forest areas is formed. The most extensive damage to soil cover and vegetation in the forest is observed on and along trails. In recreational forest plantations a polygonal road-trail network is gradually formed, consisting of trails 0.3-3.5 m wide. Forest litter is partially or completely absent on them, in some cases there are disturbances of soil composition and loss of the upper mineral horizon.

The study was conducted in 2023-2024 on the forest massifs of the research region (Figure 5).



Figure 5. Field measurement work, 2023: a) SDT-60 soil pH meter b) Soil hardness tester TYD-2; c) digital temperature meter TRS-II

Within the key area, five selection points were identified, for each of which recreational disturbance was calculated. Based on the research objectives and considering the characteristics of the study area, indicators were established for each forest massif, and calculations were performed. All the aforementioned indicators were taken into account, and the resulting data were recorded. Thus, a set of recreational load indicators was obtained for each key site (Table 1).

Table 1. Recreational pressure indicators for key sites (Source: Authors)

| № selection points | soil pH | Soil compaction, kg/cm2 | Soil moisture, Bar | Soil temperature | Species composition of vegetation | Projective coverage% | Vegetation species abundance, 1 per $m^2$ | Damage to woody vegetation, % | Number of stumps of cut and felled trees, pcs./ha |
|---|---|---|---|---|---|---|---|---|---|
| **«Amankaragai» forest massif** | | | | | | | | | |
| 1 | 3.8 | 9 | 0.5 | 20 | 25 | 83 | 51 | 1 | 6 |
| 2 | 4.1 | 11 | 0.4 | 16 | 8 | 85 | 55 | - | - |
| 3 | 4.5 | 8 | 0.6 | 18 | 5 | 89 | 58 | 2 | 9 |
| 4 | 3.9 | 19 | 0.9 | 14 | 17 | 84 | 59 | - | 7 |
| 5 | 4.2 | 8 | 0.5 | 19 | 4 | 83 | 54 | 1 | 10 |
| **«Borovskoye» forest massif** | | | | | | | | | |
| 1 | 5.1 | 9 | 0.5 | 12 | 32 | 80 | 57 | 3 | 8 |
| 2 | 4.8 | 11 | 0.6 | 15 | 10 | 79 | 49 | 5 | - |
| 3 | 3.5 | 13 | 0.7 | 18 | 8 | 85 | 58 | - | 3 |
| 4 | 3.9 | 15 | 0.4 | 15 | 25 | 89 | 59 | - | 5 |
| 5 | 4.1 | 7 | 0.4 | 12 | 5 | 82 | 54 | - | - |
| **«Arakaragai» («Sosnovy Bor «) forest massif** | | | | | | | | | |
| 1 | 5.5 | 17 | 0.5 | 19 | 30 | 75 | 48 | 15 | 2 |
| 2 | 5.8 | 21 | 0.9 | 21 | 25 | 89 | 35 | 8 | - |
| 3 | 4.9 | 19 | 0.7 | 15 | 35 | 80 | 47 | 7 | 8 |
| 4 | 6 | 10 | 0.5 | 18 | 38 | 77 | 34 | 10 | 3 |
| 5 | 3.9 | 15 | 0.5 | 15 | 31 | 81 | 36 | 17 | 7 |
| **«Kazanbasy» forest massif** | | | | | | | | | |
| 1 | 5.1 | 9 | 0.4 | 20 | 28 | 90 | 50 | - | 5 |
| 2 | 5.2 | 11 | 0.5 | 19 | 29 | 95 | 58 | 7 | - |
| 3 | 4.8 | 9 | 0.5 | 17 | 22 | 92 | 55 | - | 1 |
| 4 | 3.2 | 10 | 0.7 | 18 | 30 | 98 | 49 | 3 | - |
| 5 | 3.1 | 8 | 0.3 | 15 | 32 | 93 | 60 | 2 | 7 |
| **«Naurzum Colony Forest forest massif** | | | | | | | | | |
| 1 | 4.7 | 7 | 0.2 | 16 | 27 | 91 | 61 | - | 1 |
| 2 | 4.6 | 8 | 0.5 | 19 | 25 | 89 | 60 | 5 | - |
| 3 | 4.9 | 6 | 0.3 | 14 | 32 | 92 | 55 | - | 8 |
| 4 | 3.8 | 9 | 0.3 | 11 | 38 | 93 | 58 | - | - |
| 5 | 3.6 | 9 | 0.7 | 16 | 25 | 94 | 59 | 1 | 10 |

The pine and birch forests we surveyed are located in a high-visitor area and are characterized by stages II, III, and IV of degradation. The survey of the Arakaragai forest massif's pine stands revealed that the visitation of sample plots significantly exceeds the norm, and the forest massif has a very dense network of trails. The stages of recreational degradation in the pine forests range from III to IV, where due to trampling, the live ground cover is almost completely absent. The natural mosaic of the live ground cover is heavily transformed due to recreational loads (Bozena et al., 2021).

As the distance from the recreation centers increases, the degree of disturbance decreases, with communities being less disturbed at distances of 400-500 meters from the recreation centers. Areas of severe damage are the trail networks. On the trails, plants mainly from the grass family are found (annual bluegrass Poa annua L., narrow-leaved bluegrass Poa angustifolia L.), as well as some other species (broad-leaved plantain Plantago major L., birdweed Polygonum aviculare L.). At a distance of 1.5 meters from the trails, the number of species in the herbaceous layer increases, and typical forest species appear. Increased light on the trails and adjacent areas leads to the vigorous development of non-forest species whose seeds are present in the forest soils. In recreational areas, continuous trampling of the herbaceous layer and the absence of a litter layer create favorable conditions for the germination of meadow grasses present in the soil (Simkin et al., 2020).

In permanent picnic areas, and especially on children's and sports grounds and trails, there is a significant change in the morphological properties of soil, not only in the surface but also in the underlying horizons of the profile. As an example, it is possible to compare morphological characteristics of profiles laid in an oak plantation on a trail about 2.5 m wide and on an undisturbed area 3.2 m from the trail. The horizontal structure of the live ground cover consists of alternating areas with varying degrees of disturbance and undisturbed sections. The vegetation cover is characterized by various herbaceous groupings with a significant proportion of weed species. Recent studies have shown that the total area of trails and trampled areas in pine forests is directly related to the visitation levels of these forests (Köse, 2022).

In the Amankaragay and Borovskoye forests, stages III and IV of recreational degradation have been identified. Additionally, these forest massifs are used as dumping grounds for domestic and construction waste.

The territory of "Borovsky" and "Amankaragai" is characterized by a relatively dense network of trails (projective coverage from 79% to 89%), light-loving species predominate in the herbaceous cover, meadow grasses begin to appear, litter thickness decreases, forest regeneration still continues, satisfactory in extratropical areas. On the trail in its middle part, the litter is completely absent. Falling leaves are largely removed from the soil surface due to the passage of recreants and wind action, and partially pressed into the upper soil horizon.

Soil morphological changes, mainly observed in the upper part of the profile, indicate signs of degradation gleying under the action of periodically changing redox conditions in the soil, minerals are gradually destroyed and products are transported outside the profile with in-soil runoff. In addition, the increase in surface runoff along the buried and over-compacted trail bed leads to mechanical destruction of the upper soil horizon, removal of soil material and development of erosion phenomena. In case of excessive moisture entering the soil surface, trails turn into temporary channels of surface runoff, as evidenced by the formation of mini-rolls of twigs, bark fragments, leaves, and other plant remains on trails after precipitation, which we have repeatedly diagnosed. Thus, it is the trails united in a polygonal transit network structure that, under high recreational loads, can become centers of soil degradation in the forest.

It was found that on all trial plots soil failure on trails, paths and platforms leads to an increase in the volume weight of the upper horizons to the values limiting for plant root systems. Earlier model experiments, in the course of which new bypass trails were organized on trial areas, showed high dynamics of soil compaction on them. The forest areas "Kazanbasy", "Naurzum colony forest" are not disturbed recreationally. As a result of the survey of these forest areas it was found that the attendance rate of the sample plots is comparatively lower, the forest area has not a very dense network of paths (Figure 6). Stages I and II of recreational digression were identified in Kazanbasy and Naurzumsky forests. The projective cover varies from 89% to 98%, the abundance of vegetation species, 1 per $m^2$ reaches up to 61 specimens.

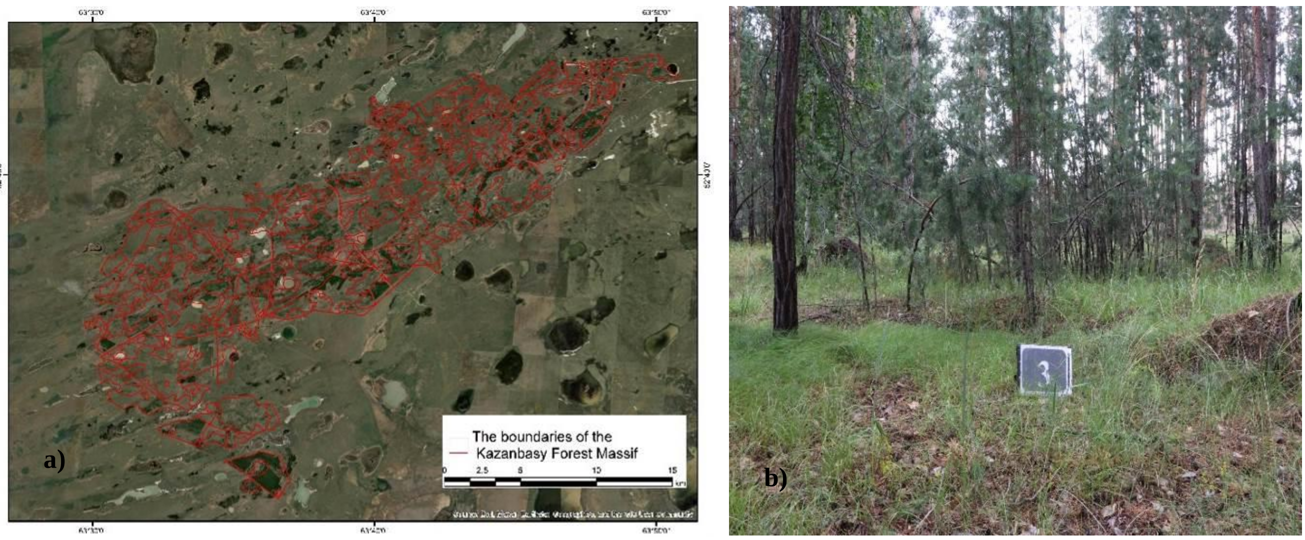


Figure 6. a) Kazanbasy Forest Massif (Source: Created by authors in ArcGIS.10.8 program using "National Geographic World Map") b) The key site № 3 Kazanbasy Forest Massif (Source: research conducted by authors in "Kazanbasy", 2024).

## CONCLUSION

Based on the above, it can be stated that forest landscapes of Kostanay region are under the influence of recreational activities, which every year is growing and leads to the transformation of the natural environment. Pine and birch plantations for a long time are subjected not only to recreational loads, but also to strong anthropogenic influence. With increasing recreational loads, the species composition of both pine and birch forests changes, which definitely affects both the productivity of the herbaceous-shrub layer as a whole and the productivity of individual species of herbaceous plants. Under the influence of recreational impact not only the species composition of the living ground cover, but also the projective cover and productivity of the lower tiers of vegetation change. In pine forests under significant recreational loads, mosses degrade first of all in the composition of the ground cover, therefore they can be used as indicators of the state of vegetation cover of recreationally and technogenically disturbed areas. With a continuous increase in the demand for "near" recreation and, accordingly, recreational flows within forest areas, it is necessary to conduct continuous monitoring of the state of landscapes of recreational areas, primarily forest landscapes. Further strengthening of the conjugate impact of these pressures without a set of environmental protection measures in plantations can lead to weakening of their environment-forming and protective functions and their degradation.

The recreational disturbance assessment scale for forest areas allowed us to assess the state of the natural environment in places with no recreational load and in places with intensive recreational load. Based on the assessment using this scale, it was revealed that the studied communities in places of mass recreation are strongly modified. This occurs under the influence of recreational loads. The results of the research showed that recreational pressure leads to an increase in the area of trails and glades, a decrease in stand closure, and consequently to a change in microclimate, an increase in solar radiation intensity and temperature amplitude, a decrease in air humidity, and a deterioration in the water-physical properties of soils. As a result, there is a gradual replacement of diverse indigenous communities by homotypic derivatives. The grass cover under the forest canopy acquires the features of meadowization.

At a certain stage there is an increase in the number of species due to the introduction of meadow and weedy species uncharacteristic of the original forest growing conditions. Then communities simplify in terms of the number of species and specimens, in other words, biodiversity decreases. The following conclusion can be made on the basis of the conducted research: the ground cover, which is one of the main components of biogeocenosis, serves as an indicator of the state of environmental conditions. Thus, the impact of recreational factors strongly changes the trends of natural dynamics of forest communities of Kostanay region.

To effectively manage recreational pressure on forested areas, it is recommended to comprehensively employ administrative, economic, and informational regulatory instruments. The management strategy should include the following key directions: reducing recreational pressure on the area, particularly during the summer season, and enforcing compliance with environmental protection laws by recreationists. Within the framework of reducing recreational pressure on the area, the following measures are recommended:

- develop a network of ecological trails, actively incorporating them into tourist routes, and encourage guests at resorts to visit these eco-trails.
- differentiate parking fees based on favorable weather conditions: increase the cost of parking on hot, sunny days.
- disperse tourist flows by promoting recreational use of areas adjacent to the forest.
- concentrate and limit recreational pressure on specially equipped sites along ecological trails.
- equip a designated beach area.
- construct a network of paved pedestrian pathways.

To ensure compliance with environmental protection laws by visitors, it is essential to first communicate the specific characteristics of the area they are visiting:

Install informational boards in visible locations outlining the requirements dictated by the environmental protection status of the area.

Erect prohibitory road signs.

Place visible directional markers.

Impose administrative penalties for non-compliance with environmental regulations.

The increasing impact of recreation on fundamental soil processes and regimes ultimately leads to a weakening and death of forest vegetation, making it one of the most detrimental anthropogenic factors for natural areas. The results obtained allow for a new assessment of the intensity and scale of recreational impact on the soil cover of forested areas.

1. Selected indicators of recreational disturbance—pH, soil compaction, moisture and temperature, species composition of vegetation, projective cover, species abundance, damage to woody vegetation, and the number of stumps from cut and felled trees—have been determined through field observations at specific points.

2. Within the study areas, stages of recreational degradation have been identified and used to assess the degree of recreational disturbance in various forested areas.

3. For each forest area studied in the Kostanay region, an integrated indicator of recreational disturbance has been calculated, and the stages of recreational degradation have been identified. The Arakaragai pine plantations, with their particularly dense network of trails, experience especially high levels of pressure.

4. As a result of the research, recommendations for the restoration of damaged areas have been developed for each stage of recreational degradation in forest landscapes.

**Author Contributions:** Conceptualization, O.Z.; methodology, O.Z. and Z.A.; software, M.Z.; validation, Z.A.; formal analysis, M.Z.; investigation, O.Z.; data curation, S.K.; writing - original draft preparation, S.K.; writing - review and editing, M.Z. and Z.A.; visualization, A.A.; supervision, A.A.; project administration, O.Z. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** This study was conducted within the framework of grant funding for young scientists on scientific and (or) scientific and technical projects for 2022-2024 by the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN №AP13067925).

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 12.07.2024 Revised: 16.10.2024 Accepted: 21.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1911-1917
DOI 10.30892/gtg.574spl05-1358

# TV SERIES SHOOTING LOCATION IN THE SPOTLIGHT OF TOURISTS THROUGH THE CASE OF GIRONA, SPAIN

**Andrea SZŐLLŐS-TÓTH**
The University of Debrecen, Faculty of Economics and Business, Institute of World Economy and International Relations, Debrecen, Hungary, e-mail: szollostothandrea@gmail.com

**Zoltán BUJDOSÓ***
Hungarian University of Agriculture and Life Sciences, Institute of Rural Development and Sustainable Economy, Department of Sustainable Tourism, Gyöngyös, Hungary, e-mail: bujdoso.zoltan@uni-mate.hu

**Tünde CSAPÓNÉ RISKÓ**
The University of Debrecen, Faculty of Economics and Business, Institute of World Economy and International Relations, Debrecen, Hungary, e-mail: risko.tunde@econ.unideb.hu

**Citation:** Szőllős-Tóth, A., Bujdosó, Z., & Csapóné Riskó, T. (2024). TV SERIES SHOOTING LOCATION IN THE SPOTLIGHT OF TOURISTS THROUGH THE CASE OF GIRONA, SPAIN. *Geojournal of Tourism and Geosites*, 57(4spl), 1911–1917. https://doi.org/10.30892/gtg.574spl05-1358

**Abstract:** Spain hosts the largest number of filming locations for Game of Thrones, with Girona being a prominent site. This paper explores the series' influence on tourism in Girona, highlighting the seasonal variations in tourism patterns across Catalonia. The recognizable filming sites have spurred the development of film tourism, adding a new dimension to Girona's tourism offerings. Following the series' publication, the local population began to express opposition, leading to a decline in tourism in 2018 due to the combined effects of resistance to mass tourism and strategic reorganization.

**Keywords:** film tourism, movie tourism, series shooting location, film location, Girona, Spain

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## INTRODUCTION

The term 'movie-induced tourism' is typically defined as a form of tourism that is driven by the success of a film that was either made or set in a specific location. The advent of more contemporary formats led to the coinage of the term 'film-induced tourism', which encompassed not only television but also video and DVD. Nevertheless, these fundamental definitions do not fully illustrate the comprehensive nature and complexity of film-induced tourism (Beeton, 2005). In order to gain a more comprehensive understanding of the phenomenon, the work of numerous authors has been synthesised in Table 1.

Table 1. The definition of film tourism (Source: Author's own construction based on the mentioned sources)

| Source | Definition |
|---|---|
| Zimmermann (2003:76) | "The term film tourism covers all forms of travelling to places that generally enable connections to the world, or reality, of films and allow access to the world of film." |
| Hudson and Ritchie (2006:387) | "Sometimes called movie-induced or film-induced tourism, film tourism is defined here as tourist visits to a destination or attraction as a result of the destination's being featured on television, video, or the cinema screen." |
| Cardoso et al. (2017:23) | "The "film-induced tourism" concept serves for the study of tourism visits made to a destination or attraction resulting from its featuring in cinema films, television series or promotional videos." |
| Macionis (2004:87) | "This newly defined tourism niche refers to a post-modern experience of a place that has been depicted in some form of media representation. That is, an experience that is highly personalised and unique to each individual based on their own interpretation and consumption of media images." |

In conclusion, it can be stated that film tourism, sometimes referred to as movie-induced or film-induced tourism, refers to locations featured in films, television series, videos or cinema screens as tourist destinations or attractions that provide the traveller an opportunity to connect with the world of film. In another of her works, Beeton (2006) notes that from the last third of the 20th century, films have been identified as a significant motivating factor in tourists' travel motivations. It is undisputed that, even before the 20th century, the arts played a role in the selection of a destination and the encouragement of travel. During the period of the Grand Tours (17th-19th centuries), British aristocratic youths in particular undertook a European tour of three to four years duration prior to the completion of their studies.

The objective of these journeys was to gain cultural understanding, artistic appreciation and historical insight through direct experience, while simultaneously establishing networks of contacts. The motivation for these journeys was primarily derived from the cities and landscapes that had been depicted in novels, poems and plays. These included destinations such

* Corresponding author

as France, Italy and the Rhine (Michalkóş, 2007, Irimiás, 2015). This is also consistent with the link between fiction, dreams and tourism effects mentioned by Busby and Klug (2001), which has been known for a long time.

Additionally, there are a number of noteworthy studies that examine the impact of films and television series on the portrayal of a destination, both positively and negatively. These studies investigate how this portrayal affects the motivation of potential tourists to visit. The findings of (Azevedo et al., 2023) indicated that elevated levels of media violence have a marked effect on the perceived safety and image of a destination.

Should the violence be incongruous with the viewer's hitherto positive image of the destination, this was found to result in a reduction in perceived safety and a diminution in travel motivation. One of the most significant expectations of visitors is the assurance of security (Purwoko et al., 2023). Furthermore, it can be substantiated that the perception of safety exerts a significant influence on the formation of destination images and the motivation to travel. In the context of the global pandemic, tourists have become aware of the potential health risks associated with travel and are more likely to visit destinations that can demonstrate visible and rigorous security measures. Prior to the advent of the pandemic, tourists were predominantly concerned with general security issues, including crime, health risks and political instability.

However, in the wake of the outbreak, tourists require robust health and safety measures to perceive a destination as safe and attractive (Hashemi et al., 2023). The study by Hudson and Ritchie (2006), based on principal component factor analysis to examines the impact of film tourism on destination marketing and identifies key marketing activities, that can attract film tourists, including proactive efforts, media promotion, post-production marketing and peripheral marketing opportunities. The majority of research conducted within the field of film tourism concentrates on the marketing and promotional activities of the locations in question (Tanskanen, 2012; Bolan and Williams, 2008), or alternatively, on destination management strategies (Croy, 2010). This study, however, focuses on a particular film tourism location, which is presented by the authors using a case study methodology.

Furthermore, this research concentrates on the development of tourism indicators that can anticipate the advent of the over-tourism phenomenon. In this way, the present research illuminates the case from the perspective of over-tourism. Subsequently, following the advent of the COVID-19 pandemic, the tourism industry has experienced a resurgence, giving rise to congestion-related challenges in certain municipalities (Šenková et al., 2022). The study thus makes a contribution to the existing literature on the sustainability of tourism in Europe (Bednárová et al., 2018). In addition to offering insights into the tourism industry in the location where a given series was filmed, this study also contributes to the existing academic literature on small and medium-sized city destinations (SMSCs), which has been relatively neglected thus far (Rua, 2020; Wagner and Growe, 2021). The authors (Hidalgo Giralt et al., 2023) of one of the few studies on SMSCs have demonstrated that over-tourism is not only a problem in large Spanish cities (e.g. Madrid, Barcelona, Palma de Mallorca) but also presents itself in smaller towns. The study demonstrated that a number of medium and small towns in Spain exhibit elevated levels of tourism activity, indicating that the tourism industry exerts a considerable influence on these municipalities, frequently to a degree that is comparable to or even greater than that observed in larger urban centres. The findings challenge the assumption that smaller cities are subject to less tourism pressure than larger ones.

**Research questions**

To help to define the scope of the research, some research questions have been summarized:

1) What specific elements of Girona’s portrayal in films or series attract tourists to visit?
2) How has the character and identity of the location evolved with its growing reputation as a film tourism destination?
3) How has Girona’s tourism infrastructure adapted to accommodate the growing number of film tourists?
4) What measures have been implemented to manage the environmental footprint of film tourism in the settlement?
5) What strategies have local authorities and businesses employed to manage the influx of film tourists?
6) What lessons can other potential film tourism destinations learn from the examined location’s experience?

## MATERIALS AND METHODS

One of the most frequently employed methodologies in qualitative social research is the case study. This approach is distinct from data collection methods, techniques, and processes, as it is a research strategy. A case study entails a comprehensive investigation of the unit of analysis within its natural context. As it is an in-depth study, case study research can be carried out using any data collection method that is deemed appropriate for the researcher's purpose. It is typical for a case study to employ a range of data collection techniques, with the aim of conducting an informed and objective investigation of the phenomenon under examination. The unit of analysis in a case study is any entity that can be subjected to investigation, including, for example, an individual, a household, a community, an organization, or a location (Priya, 2021). The methodology employed in this study is the case study, which encompasses a Spanish location.

The authors endeavours to integrate the three principal types of case studies in order to elucidate the subject matter under investigation in descriptive, explanatory and exploratory modes. The descriptive case study, a widely utilised approach in sociology and anthropology, is designed to present a phenomenon in its original context. Among the characteristics of the explanatory case study is the search for causal factors to explain a given phenomenon. In this type of case study, the primary aim is to explain the 'why' and 'how' of certain circumstances, including why a certain sequence of events occurs or does not occur, and how the subject of the study has reached the present stage. The objective of exploratory case studies is to investigate a phenomenon with the intention of identifying new research questions that can be used extensively in subsequent research (Yin, 2014). In order to construct a comprehensive case study, a range of national and international databases were consulted, in addition to a review of the existing literature by other authors.

## RESULTS AND DISCUSSION

The film and series tourism location included in this study has been selected according to professional criteria. Specifically, the selected location is not a capital city nor a coastal location, but is situated in close proximity to the coastline. A comparative analysis of a European and an Asian area revealed that the most promising region for tourism development is the zone within 1 km of the coast. However, the 10 km coastal zone was identified as having the highest tourism potential on a generalised basis (Mikhaylova et al., 2023). The authors of this research attempt to investigate a tourist destination that is associated with the 3S model of tourism, which encompasses sun, sand, and sea, and are characterised by their appeal to mass tourism (Carvache-Franco et al., 2018). The 3S tourism sector represents the most industrialised segment of the tourism industry. It has been characterised by the dominance of mass production and rigid forms of organisational structure (Kropinova et al., 2023). Mass tourism destinations are confronted with a number of specific challenges, including overcrowding and an increase in criminal activity (Ofem et al., 2024).

A further aspect of the selection is that the research is focused on a location that has appeared in films or television series produced in the 21st century. This ensures that the research is timely and relevant to contemporary contexts.

### Girona's tourism

Girona is the capital of the Girona province, which is situated within the region of Catalonia. It is positioned approximately 100 kilometres from Barcelona, situated in the north-eastern region of Spain, in close proximity to the French border. Girona is a city with a rich historical and cultural heritage, as evidenced by its array of magnificent edifices and the architectural elements that adorn its streets and squares in the historic city centre. The historic centre of Girona is situated on an elevated position along the eastern bank of the Onyar river, while the more contemporary urban expansion of the city is located in the surrounding plains to the west (Espelt and Benito, 2005; Game of Thrones Spain, 2024). The findings of other researchers also indicate a significant correlation between the natural, historical and cultural environment and satisfaction with tourist destinations (Chau, 2023). Although the number of beds in the city's tourist accommodation facilities fluctuated during the study period (2010-2021), the total number of nights spent in the municipality initially increased until 2017, before declining during the pandemic caused by the Coronavirus (COVID-19) (Figure 1.).

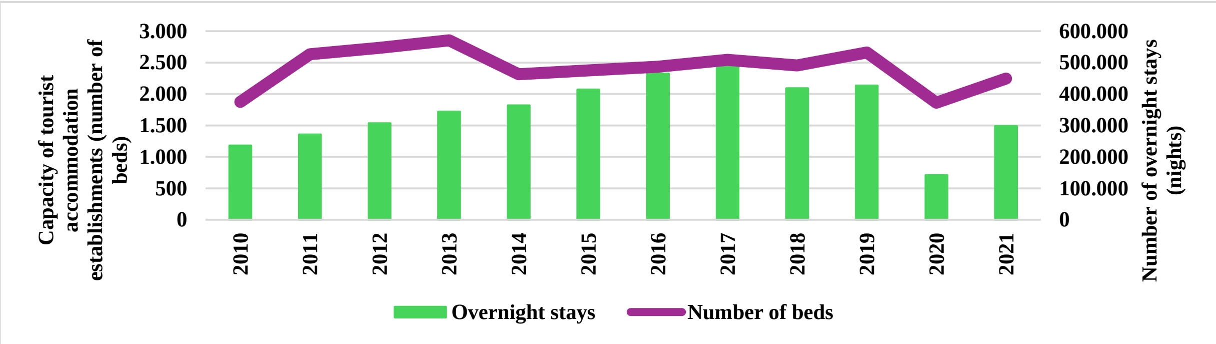


Figure 1. Capacity of tourist accommodation establishments (number of beds) and the number of overnight stays (nights) in Girona city (2010-2021) (Source: Authors' own construction based on INE Spain, 2024)

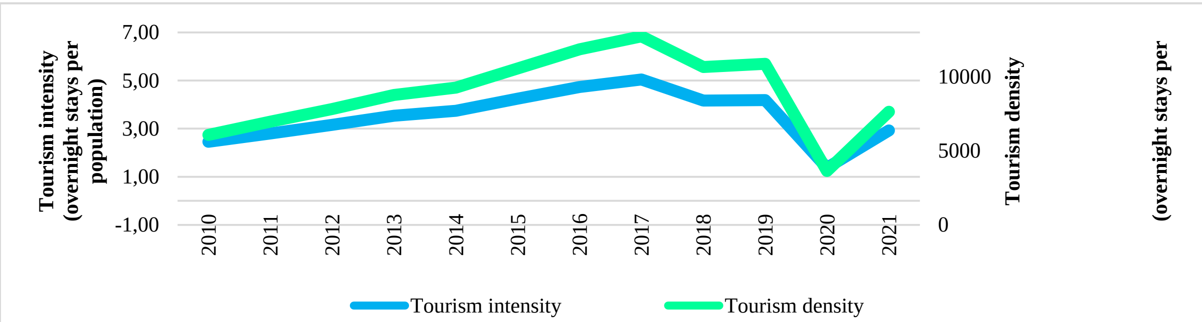


Figure 2. Tourism intensity and tourism density of Girona City (2010-2021) (Source: Authors' own construction based on the INE Spain, 2024)

The latest research methods in the field of tourism place a significant emphasis on the well-being of the local population. Consequently, it may be of value to examine the intensity and density of tourism in order to gain a deeper understanding of its impact on the local community. The concept of tourism intensity enables the estimation of the theoretical multiplication of the population during periods of tourist flow through the comparison of the number of tourist beds with the resident population of a given territory (Gauche, 2017). The concept of tourism density is used to assess the level of tourist pressure on a given region and the impact this has on the local community. This is achieved by calculating the ratio between the number of overnight stays in tourist accommodation establishments and the total area of the region, expressed in square kilometres (INE Portugal, 2024). The intensity and density of tourism demonstrated a marked increase until 2017, after which a precipitous decline was observed as a consequence of the pandemic (Figure 2).

Following years of growth, the decrease in tourism in Girona in 2018 can be assigned to a variety of factors, including local resistance to mass tourism and strategic reorganization of tourism management. In the latter half of 2017, the initial cautionary statements regarding tourism in Girona emerged, concentrating on Airbnb rentals and concerns about the potential deterioration of the historic ambience of the region's traditional urban core (Vidal Rua, 2020; Carreras and Pastells, 2017; Pastells, 2017). Residents of Girona mounted a notable counter-movement in 2018, protesting against the growing influx of tourists. A considerable number of locals perceived that the tourism boom was exerting a detrimental impact on their quality of life, resulting in elevated living costs and the displacement of local residents. This discontent resulted in the formation of the "Plataforma pel decreixement turístic Girona", a platform that advocates for the limitation of tourism and the introduction of regulations to address the issue of illegal tourist accommodations and more effectively manage the growth of tourist numbers (Catalan News, 2024). Prior to 2018, there were effectively no anti-tourist demonstrations or protests in Girona. In 2018, Girona was promoted on several online platforms (Responsible Travel, 2018; Huxham, 2018) as a responsible travel destination, as it was perceived as a viable alternative to Barcelona, which had already become susceptible to the adverse effects of overtourism. It is also notable that the Catalan regions display a considerable degree of heterogeneity in their seasonal patterns. Despite its inland location, Girona benefits from a coastal proximity that attracts tourists engaged in coastal tourism, with the highest demand occurring in July and August. In contrast, the demand for accommodation in Barcelona is distributed throughout the year (Plan Estratégico, 2020).

The Gini index, also known as the Gini coefficient, is typically employed as a metric for income inequality. However, it is also frequently utilized by tourism professionals to assess seasonal fluctuations in tourism. The Gini coefficient quantifies the extent of inequality between the values of a frequency distribution (Marton et al., 2017), rendering it an appropriate tool for evaluating seasonality in tourism. As the data on hotel occupancy was available from the National Institute of Statistics for a longer period, it was possible to analyse a much longer interval, covering almost 25 years. Given that Girona is situated within Catalonia, which is comprised of four provinces (Barcelona, Girona, Lleida and Tarragona), an analysis of the entire autonomous community of Catalonia has been conducted, encompassing all four provinces. The travel restrictions introduced in 2020 and 2021 due to the global pandemic of coronavirus disease (Covid-19) have resulted in a highly concentrated influx of tourists in Catalonia. However, apart from this period, it is evident that Tarragona is the most susceptible to seasonal fluctuations. It boasts the longest coastline of the four provinces and, as a result, plays an active role in the 3S tourism. Next in line is Girona, which is also engaged in coastal tourism. Although the province of Barcelona also has a significant length of coastline, the second most populous city in Spain is less affected by seasonality due to the existence of alternative attractions and the performance of other leading roles (Figure 3).

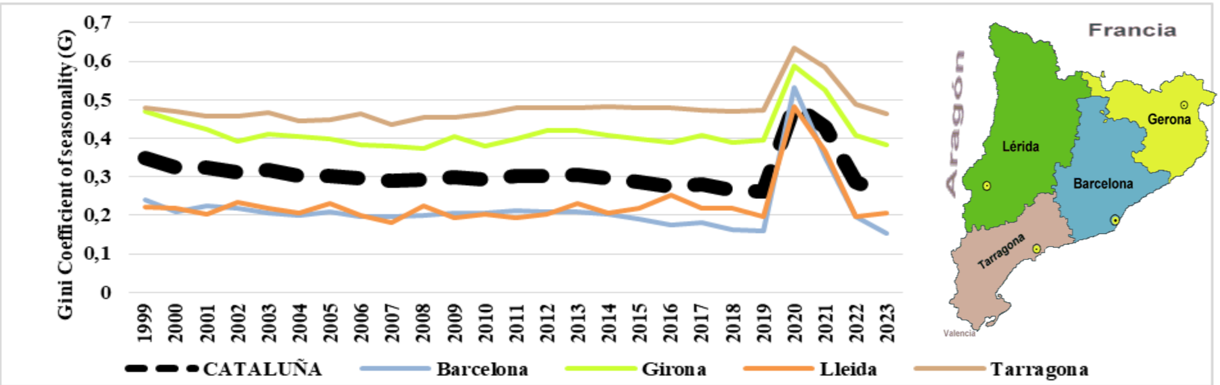


Figure 3. Gini Coefficient of seasonality calculated on overnight stays by provinces of Cataluña (1999-2023)
(Source: Authors' own construction based on the INE Spain (2024) presented alongside an illustration of a map from EcuRed, 2011)

**'The Game of Thrones influence'**

In August 2017, following the release of the seventh season, ABC, the longest-running national newspaper in Spain, published an overview of the total number of filming locations used in Game of Thrones by country. The data revealed that Spain is the country with the highest number of filming locations, with 39 different places being utilised for the show. Croatia is the next country with 30 locations, followed by the United Kingdom with 25 filming sites. Additionally, Malta (11), Iceland (3) and Morocco (2) were also used for filming the series (Gail, 2017).

The series has been the recipient of numerous accolades and has achieved considerable commercial success, exerting a significant influence across a multitude of domains. It is important to acknowledge that the majority of research in this field has focused on Dubrovnik, followed by Northern Ireland and then Malta. A study was conducted by Tkalec and colleagues (2017) on the number of tourist arrivals in Dubrovnik, which revealed a robust and positive effect associated with the filming of the TV series. The authors highlight that the global popularity of the series has contributed to Dubrovnik becoming a world-renowned tourist destination, with the international tourist appeal of the Croatian city increasing significantly as a result. The long-term increase in visitor numbers and economic output has been discernible, and the attention and visibility generated by the series have resulted in the creation of a lasting tourist attraction for the sites in question (Contu and Pau, 2022). The case of Dubrovnik serves to illustrate Šegota's (2018) thesis that a successful series can engender a new heritage of tourism value, with attendant economic, cultural and community benefits. Waysdorf and Reijnders (2017) conducted in-depth interviews with Game of Thrones fans in Dubrovnik and Northern Ireland. Their findings revealed that tourists engage in imaginative processes to connect real-life locations with scenes from the series. In a recent study (Gómez-Morales et al., 2023) identified three primary motivations among fans visiting the filming locations of the popular television series Game of Thrones. These include a need to identify with the characters, to explore the relationship between fiction and history, and to feel part of a collective identity.

The city of Girona was used extensively in the sixth season of the popular TV series Game of Thrones (2011-2019). The sixth season of the fantasy drama television series Game of Thrones, created by David Benioff and D. B. Weiss and distributed by Home Box Office (HBO), commenced on 24 April 2016 and concluded on 26 June. The historic and medieval areas of the old town of Girona are notable for their aesthetic appeal and well-preserved state. The medieval churches, labyrinthine cobbled streets and ancient fortresses with fortified walls and towers, collectively contribute to the settlement's suitability for the creation of the season with 10 episodes. The city served as a stand-in for several locations within the fictional world of Westeros. Notable scenes include the streets of n Braavos and King’s Landing, and the interior of the monastery was used as the Citadel in Oldtown. In season six, viewers of the Game of Thrones series were able to observe the medieval old town of Girona, which served as the primary setting for the city of Braavos (Gonzalez, 2024).

Following the series' popularity, tourists began to visit the locations where the scenes were filmed. The locations are more readily identifiable with the assistance of a local guide, which has led to the advent of film tours, or in this case, series tours. One of the largest websites offering programmes for tourists has compiled a series of tours of Girona in the summer of 2024, which take visitors to the locations depicted in the Game of Thrones series. A summary of these is presented in Table 2.

Table 2. Game of Thrones related tours in Girona from the website of GetYourGuide (Source: Authors’ own construction based on GetYourGuide)

| Name of the tour | Duration (hour) | Price (€) | Activity provider | Rate | Available languages | From: Girona (G) / Barcelona (B) | Private (P) / group (G) |
|---|---|---|---|---|---|---|---|
| Girona: Game of Thrones Small Group Tour | 2.5 | 35 | Girona Experience | 4.9 | English, Spanish | G | G |
| Girona: Game of Thrones Walking Tour | 2 | 28 | Girona Explorers | 5 | English | G | G |
| From Barcelona: Girona, Game of Thrones Tour | 6.5-9 | 49 | Julia Travel Gray Line Spain | 4.3 | English, Spanish | B | G |
| Girona: Private History Tour | 3 | 190 | Girona Experience | 4.9 | English, Spanish | G | P |
| Barcelona: Girona Game of Thrones Private Tour with Pickup | 5 | 230 | In Out Barcelona Tours | 5 | English, Spanish | B | P |

The website's collection of programmes includes five trips that introduce participants to the locations of the series. Several of these are available for departure from Barcelona, which makes them accessible to those staying in the capital and largest city of the autonomous community of Catalonia, the second-most populous municipality of Spain. It is also possible to take a private guided tour, which is offered at a significantly higher price than the group options.

The city's cultural heritage has been enhanced by its status as a filming location for major films and television series, including the widely acclaimed Game of Thrones. However, the fame acquired has also been accompanied by an increase in the number of visits, which has necessitated the development of infrastructure. In addition to improvements in transport infrastructure, there was a demand for more accommodation, restaurants and guided film tours. The economic recovery has allowed further investment in the conservation and promotion of Girona's historic sites and cultural heritage.

The rise in tourist numbers, attributable to the city's growing popularity, has also had a deleterious effect on the urban environment in a number of ways. In the course of primary research, Fernandez and colleagues (Fernandez et al., 2022) discovered that, due to the city's popularity among tourists, the housing situation had become unsustainable, which had resulted in the emergence of various resident movements. Congestion is a persistent year-round issue, causing significant mobility challenges in the historical city centre, where streets are narrow. Survey results of Vidal Rua (2020) indicate a divided public opinion regarding the presence of tourists in Girona.

While some view tourists as beneficial contributors to the city's cultural landscape and a means of safeguarding its cultural and historical heritage, others express concerns about the impact of tourism on local communities and the environment. Conversely, a significant proportion of the local population is concerned about the impact of tourism on property prices and the behaviour of some tourists, with overcrowding representing a further concern.

## CONCLUSION

Although film tourism can contribute to the phenomenon of overtourism and congestion in specific locations, it can also be an effective instrument for combating overtourism. One strategy for alleviating tourist overcrowding is to promote lesser known, less visited destinations in the public consciousness. The presence of visitors to unpopular destinations may serve to disperse crowds at destinations experiencing overtourism. It is the intention of the authors of this study to contribute to the ongoing efforts to combat the phenomenon of overtourism by raising awareness of the issue.

This article seeks to elucidate the considerable potential of film tourism as a marketing tool for destinations. By establishing strategic alliances with the film industry and exploiting film-related promotional activities, destinations can attract a considerable number of tourists, which can lead to economic benefits and increased visibility. However, it is of paramount importance to balance these efforts with sustainable practices to preserve the cultural and environmental integrity of the sites. Furthermore, this study aims to increase awareness of the potential of film tourism to influence tourists' travel motivations and destination choices. Girona's well-preserved medieval architecture, the River Onyar, lined with brightly coloured houses and spectacular bridges, and the rich cultural heritage of the Jewish Quarter combine to make the settlement an attractive location for both film production and tourism. In light of the fact that the outbreak of COVID-19 occurred shortly after the release of the scenes filmed in Girona, it seems probable that the city's popularity will continue to grow significantly in the near future. The long-term impact of "Game of Thrones" tourism on Girona, particularly in the context of the reversal of the changes wrought by the pandemic and the subsequent restoration of tourism, will be determined by future research. A potential avenue for future research would be to examine the impact of tourism generated by Game of Thrones on Girona's capacity to attract other film and television productions as filming locations.

Furthermore, in the context of sustainable tourism, the authors deem it pertinent to conduct periodic assessments of the perceptions of local residents regarding their own city and cultural heritage, as well as the reception of tourists. Such monitoring could facilitate the prompt identification of any adverse impacts associated with tourism, enabling municipal authorities to devise and implement effective solutions, drawing upon the experiences of other municipalities facing comparable challenges. The integration of the findings presented in this study with the principles of sustainable tourism offers a valuable framework for decision-makers. Further research is required in order to gain a deeper understanding of the relationship between film tourism and overtourism. A potentially valuable area for future research would be an examination of the growth of tourism and other indicators of tourism at all locations where Game of Thrones has been filmed.

**Author Contributions:** Conceptualization, A.Sz.T., Z.B. and T.Cs.R.; methodology, A.Sz.T.; software, A.Sz.T., Z.B. and T.Cs.R.; validation, A.Sz.T., Z.B. and T.Cs.R.; formal analysis, A.Sz.T., Z.B. and T.Cs.R.; investigation, A.Sz.T., Z.B. and T.Cs.R.; data curation, A.Sz.T..; writing - original draft preparation, A.Sz.T.; writing - review and editing, Z.B. and T.Cs.R.; visualization, A.Sz.T.; supervision, Z.B. and T.Cs.R.; project administration, Z.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** Supported by the ÚNKP-23-3-II. New National Excellence Program of the Ministry for Culture and Innovation from the source of the National Research, Development and Innovation Fund. In order to enhance the readability and language of this work, the authors employed the DeepL Write tool (deepl.com). Following this, the authors conducted a comprehensive review and editing of the article.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 02.08.2024 Revised: 09.10.2024 Accepted: 22.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1918-1929
DOI 10.30892/gtg.574spl06-1359

# THE ECONOMIC AND TOURISM DIMENSION OF THE LEATHER AND FOOTWEAR SECTOR IN THE FRAMEWORK OF THE SUSTAINABLE RURAL DEVELOPMENT STRATEGY, DJELFA AS A MODEL

**Saad CHINOUNE***

Houari Boumediene Sciences and Technology University - USTHB, Department of Geography and Territorial Planning, Cities, Regions and Territorial Governance Laboratory, Faculty of Earth Sciences, Geography and Spatial, Algiers, Algeria, e-mail: saad_118@yahoo.fr

**Soufiane HATTAB**

Houari Boumediene Sciences and Technology University - USTHB, Department of Geography and Territorial Planning, Cities, Regions and Territorial Governance Laboratory, Faculty of Earth Sciences, Geography and Spatial, Algiers, Algeria, e-mail: sofianehattab@yahoo.com

**Abdelaziz CHIKHAOUI**

University Ziane Achour of Djelfa, Faculty of Economic, Commercial and Management Sciences, Quantitative Methods Research Laboratory in Economic and Business Sciences and their Applications for Sustainable Development, Djelfa, Algeria, e-mail: chikhaouia@gmail.com

**Citation:** Chinoune, S., Hattab, S., & Chikhaoui, A. (2024). THE ECONOMIC AND TOURISM DIMENSION OF THE LEATHER AND FOOTWEAR SECTOR IN THE FRAMEWORK OF THE SUSTAINABLE RURAL DEVELOPMENT STRATEGY, DJELFA AS A MODEL. *Geojournal of Tourism and Geosites*, 57(4spl), 1918–1929. https://doi.org/10.30892/gtg.574spl06-1359

**Abstract:** The leather sector is one of the most profitable agricultural industries globally and has multiple social, economic and tourism dimensions, as it is linked to the transmission of leather industry traditions through generations in a variety of ways and multiple uses. This paper aims to trace the development of the leather and footwear sector and the transformations that this sector went through during the period from 1974 to 2021. We rely on studying quantitative analysis using various statistical programs such as PCA, SPSS, Excel and EViews and analyzing and deducing their numbers and curves. The results concluded that during the first 25 years of the period studied, which coincided with the adoption of the socialist economy, the leather and footwear sector accounted for 52.1% of the total economic sectors. In the next 23 years of the study period, after Algeria's transition to a market economy, this percentage rose to 57.9%. These findings reflect the pivotal role played by the leather and footwear sector in the Algerian economy since the beginning of the study, and highlight how the transition to a market economy contributes to the growth of this sector, reflecting its ability to adapt to economic changes and take advantage of the opportunities offered by economic openness.

**Keywords:** leather and footwear, handicrafts and tourism, sustainable rural development, Algerian economy, Djelfa province

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## INTRODUCTION

The leather sector in Algeria relies heavily on animal husbandry, mainly sheep, goats, cows, camels, and horses, and the total heads of all species during the period 2000-2009 was about 24.5 million heads, and this number increased to 33.6 million head during the period 2010-2017, with an increase rate of 37%, sheep represent 78% of the total livestock with 26.4 million heads, (MARD). Algeria also has significant natural pastures, especially in the steppe areas between the Saharan Atlas and Talli mountain ranges (Le et al., 2024; Belarbi and Bouder, 2023; Hammouda et al., 2014; Bousbia et al., 2024; Nedjraoui, 2001; Martínez-Valderrama et al., 2018), and most of the population in these areas are famous for raising livestock, and the state has given in this area programs, plans, projects, and strategies in the field of sustainable rural development (Wijijayanti, 2023; Yahia et al., 2021; Sahli, 2010; Laoubi and Yamao, 2012), which prompted The Ministry of Rural Development to identify and formulate priorities at the level of rural, mountainous and even Sahara Desert (Sutrisno et al., 2024; Mwinyihija, 2015; Rafiuddin and Satyanarayana, 2014; Pham et al., 2022).

These programs aim to develop infrastructure and break isolation while making the most of development projects by diversifying sources of national income and providing alternatives to the rentier economy. Algeria is the largest country in Africa and the Arab world in terms of area, amounting to about 2.38 million square kilometers (Rabhi et al., 2023; Nedjraoui, 2001). This has earned it a significant environmental, climatic, and natural diversity that was reflected in the diversity of natural and cultural resources, as customs and traditions vary from one region to another, which made the inhabitants of these areas innovate in traditional industries (Ghediri et al., 2022) each according to his daily needs and according to the availability of raw materials common to nature and climatic conditions, These industries have evolved through the ages and are no longer just to fulfill the needs of their owners, but have become identity cards for them and their regions. Among the most important of these industries, we have the leather industry, as the latter has been linked to the history of several Algerian regions through the ages, and the local population used leather to manufacture various clothes and equipment (Chelbi and Abdessamd, 2022). This industry has evolved to contribute to Algeria's economic income.

* Corresponding author

The leather industry is a vital economic sector that plays an essential role in strengthening the Algerian national economy (Wulandari et al., 2024; Kumar, 1997; Gupta et al., 2019; Su et al., 2023; Pringle et al., 2016). The industry's history dates back centuries and has been associated with traditions and crafts that reflect local culture and heritage (Li et al., 2019). In recent years, the leather industry has witnessed significant technological and innovation developments, which have increased productivity and improved product quality. The leather industry in Algeria contributes in many ways to supporting the national economy. It provides job opportunities for many citizens (Kaba, 2022) in collecting raw leather and processing and manufacturing processes. It is also an essential source of income for many families, both in rural and urban areas. In addition, this industry contributes to the increase of Algerian exports by exporting semi-finished and manufactured leather products to world markets, thus strengthening the national balance of payments. The leather industry in Djelfa is one of the most prominent traditional sectors that reflect a rich history and cultural heritage.

The area features various leather products, such as traditional saddles, shoes, handbags, and trouser belts, which are masterpieces that highlight manual skills passed down through generations. These industries contribute to the local economy and add a vital tourist dimension, attracting visitors wishing to discover Algeria's authentic heritage. Tourists can enjoy a unique experience by learning about the stages of manufacturing these products and participating in exhibitions and craft markets, which enhances Djelfa's position as a distinguished cultural tourism destination (MTA, 2023).

From the above, we will focus in this study on two main dimensions (national and local) using and tracking the course of this sector by answering two fundamental questions: First: How effective is the performance of the leather and footwear sector in the Algerian economy for the period (1974-2021)? Second: What is the extent of the contribution of livestock to the development and prosperity of the leather industry in the province of Djelfa?

## MATERIALS AND METHODS

To reach reliable scientific results and to answer our problem, we used the experimental approach that relies on the case study, and the focus was on studying and analyzing the available data on the leather and footwear sector through the use of some descriptive statistical measures and quantitative methods, represented in the analysis of the essential components (P.C.A), the method of differentiation and the analysis of hierarchical factors. To ensure the efficiency and accuracy of our data analysis, we used a range of automated data processing software, including SPSS, Excel, and EViews. The variables of production and exploitation accounts depended on 19 sectors representing the Algerian economy between 1974 and 2021. Based on this, the values of eight variables were calculated for forty-eight years (Table 1).

Table 1. Evolution of total production and utilization in the leather and footwear sector in Algeria for the period 1794-2021 (In Millions Algerian dinar) (Source: retrospective of economic accounts from 1963 to 2021, ONS, Algiers, November 2023)

| years | GNRP | GNIC | NGVA | GCNFA | GNI | GTNP | GNEC | GNSNE |
|---|---|---|---|---|---|---|---|---|
| 1974 | 696.3 | 448.3 | 248.0 | 32.4 | 215.6 | 41.1 | 135.1 | 39.4 |
| 1975 | 727.3 | 458.0 | 269.3 | 33.4 | 235.9 | 39.4 | 142.3 | 54.2 |
| 1976 | 790.1 | 475.5 | 314.6 | 32.6 | 282.0 | 51.7 | 187.5 | 42.8 |
| 1977 | 834.0 | 477.4 | 356.6 | 33.6 | 323.0 | 80.6 | 193.2 | 49.2 |
| 1978 | 981.0 | 551.2 | 429.8 | 39.8 | 390.0 | 33.1 | 245.0 | 111.9 |
| 1979 | 989.3 | 557.5 | 431.8 | 30.1 | 401.7 | 49.5 | 249.0 | 103.2 |
| 1980 | 1232.8 | 629.6 | 603.2 | 54.1 | 549.1 | 70.6 | 382.8 | 95.7 |
| 1981 | 1337.0 | 684.7 | 652.3 | 51.2 | 601.1 | 74.9 | 398.1 | 128.1 |
| 1982 | 1530.4 | 780.7 | 749.7 | 56.6 | 693.1 | 81.7 | 465.5 | 145.9 |
| 1983 | 1702.4 | 944.6 | 757.8 | 46.3 | 711.5 | 89.5 | 469.4 | 152.6 |
| 1984 | 1922.3 | 1051.0 | 871.3 | 68.5 | 802.8 | 64.0 | 502.1 | 236.7 |
| 1985 | 2127.3 | 1151.9 | 975.4 | 80.7 | 894.7 | 158.6 | 560.5 | 175.6 |
| 1986 | 2285.2 | 1195.5 | 1089.7 | 80.6 | 1009.1 | 160.4 | 624.4 | 224.3 |
| 1987 | 2409.1 | 1298.5 | 1110.6 | 90.4 | 1020.2 | 146.7 | 630.4 | 243.1 |
| 1988 | 2524.8 | 1452.1 | 1072.7 | 120.0 | 952.7 | 331.0 | 631.5 | -9.8 |
| 1989 | 3029.1 | 1715.2 | 1313.9 | 106.3 | 1207.6 | 131.6 | 781.3 | 294.7 |
| 1990 | 3992.8 | 2233.0 | 1759.8 | 120.8 | 1639.0 | 201.9 | 925.1 | 512.0 |
| 1991 | 4963.0 | 2974.9 | 1988.1 | 208.2 | 1780.0 | 215.5 | 985.8 | 578.7 |
| 1992 | 4981.5 | 3024.6 | 1956.9 | 215.6 | 1741.3 | 138.6 | 1223.1 | 379.6 |
| 1993 | 4971.1 | 2986.4 | 1984.7 | 408.5 | 1576.2 | 157.3 | 1250.6 | 168.3 |
| 1994 | 5975.8 | 3492.8 | 2483.0 | 400.9 | 2082.1 | 188.0 | 1548.3 | 345.8 |
| 1995 | 5675.7 | 3551.3 | 2124.4 | 462.1 | 1662.3 | 185.5 | 1608.8 | -132.1 |
| 1996 | 5369.5 | 3304.8 | 2064.6 | 471.4 | 1593.3 | 197.0 | 1563.6 | -167.3 |
| 1997 | 2510.5 | 1387.7 | 1122.9 | 68.7 | 1054.1 | 58.1 | 336.4 | 659.6 |
| 1998 | 6641.2 | 4065.8 | 2575.4 | 488.8 | 2086.6 | 178.9 | 1858.9 | 48.8 |
| 1999 | 5613.9 | 3432.0 | 2181.9 | 333.7 | 1848.2 | 147.3 | 1276.8 | 424.1 |
| 2000 | 6039.5 | 3640.2 | 2399.3 | 342.4 | 2056.9 | 154.6 | 1266.3 | 635.9 |
| 2001 | 5936.1 | 3662.8 | 2273.2 | 220.6 | 2052.6 | 180.9 | 1362.8 | 508.9 |
| 2002 | 6916.8 | 4313.9 | 2602.8 | 195.1 | 2407.6 | 185.1 | 1047.6 | 1175.0 |
| 2003 | 6555.8 | 4078.1 | 2477.7 | 191.9 | 2285.8 | 178.1 | 998.5 | 1109.2 |
| 2004 | 6950.6 | 4262.0 | 2688.6 | 203.7 | 2485.0 | 192.6 | 1092.9 | 1199.5 |
| 2005 | 6837.5 | 4116.6 | 2720.9 | 192.7 | 2528.2 | 184.6 | 1147.8 | 1195.9 |
| 2006 | 6327.0 | 3758.6 | 2568.4 | 181.4 | 2387.0 | 167.6 | 1044.4 | 1175.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2007 | 5870.3 | 3484.9 | 2385.4 | 160.8 | 2224.5 | 148.3 | 903.9 | 1172.4 |
| 2008 | 6162.3 | 3635.3 | 2527.0 | 168.2 | 2358.8 | 144.3 | 967.3 | 1247.1 |
| 2009 | 6236.3 | 3686.9 | 2549.5 | 159.3 | 2390.1 | 149.0 | 958.1 | 1283.0 |
| 2010 | 5375.7 | 3724.7 | 2593.3 | 164.0 | 2429.3 | 155.0 | 984.0 | 1290.4 |
| 2011 | 6295.8 | 3692.2 | 2603.5 | 150.7 | 2452.8 | 150.8 | 1013.7 | 1288.2 |
| 2012 | 6466.7 | 3801.3 | 2665.4 | 158.1 | 2507.3 | 157.3 | 967.4 | 1382.6 |
| 2013 | 6432.9 | 3782.4 | 2650.5 | 156.4 | 2494.0 | 153.6 | 973.3 | 1367.1 |
| 2014 | 6779.4 | 3900.5 | 2879.0 | 220.9 | 2657.9 | 169.6 | 926.6 | 1561.9 |
| 2015 | 6659.8 | 3696.1 | 2963.6 | 241.3 | 2722.3 | 180.2 | 949.7 | 1592.5 |
| 2016 | 6665.0 | 3829.2 | 2835.8 | 215.6 | 2620.2 | 170.0 | 968.3 | 1481.9 |
| 2017 | 6654.9 | 3802.6 | 2852.3 | 205.1 | 2647.2 | 168.2 | 955.2 | 1523.7 |
| 2018 | 7184.7 | 4104.6 | 3080.1 | 249.5 | 2830.6 | 186.6 | 1038.7 | 1605.3 |
| 2019 | 7637.5 | 4353.9 | 3283.6 | 270.4 | 3013.2 | 199.4 | 1119.4 | 1694.3 |
| 2020 | 7273.7 | 4106.4 | 3167.3 | 210.3 | 2957.1 | 181.2 | 1008.8 | 1767.0 |
| 2021 | 8402.5 | 4712.3 | 3690.2 | 224.0 | 3466.2 | 207.0 | 1141.5 | 2117.6 |

Table 2. Statistical measures of study variables (Source: Authors, 2024)

| N=48 | Min | Max | Means | Standard deviation | CV % |
|---|---|---|---|---|---|
| **GNRP** | 0.03 | 1.00 | 0.3114 | 0.29311 | 94.12 |
| **GNIC** | 0.05 | 1.78 | 0.4895 | 0.44761 | 91.44 |
| **NGVA** | 0.02 | 0.57 | 0.2099 | 0.20140 | 95.95 |
| **GCNFA** | 0.01 | 0.88 | 0.2113 | 0.20579 | 97.39 |
| **GNI** | 0.02 | 0.55 | 0.2108 | 0.20524 | 97.36 |
| **GTNP** | 0.01 | 0.90 | 0.2066 | 0.25624 | 124.02 |
| **GNEC** | 0.04 | 1.14 | 0.4456 | 0.36992 | 83.01 |
| **GNSNE** | -0.01 | 0.30 | 0.0875 | 0.09305 | 106.34 |

Table 3. Correlation matrix (Source: Authors, 2024)

| N = 48 | GNRP | GNIC | NGVA | CFFS | GNI | GTNP | GNEC | GNSNE |
|---|---|---|---|---|---|---|---|---|
| GNRP | 1 | 0.993 | 0.990 | 0.914 | 0.983 | 0.909 | 0.977 | 0.850 |
| GNIC | 0.993 | 1 | 0.968 | 0.937 | 0.956 | 0.901 | 0.965 | 0.813 |
| NGVA | 0.990 | 0.968 | 1 | 0.867 | 0.998 | 0.897 | 0.977 | 0.883 |
| GCNFA | 0.914 | 0.937 | 0.867 | 1 | 0.839 | 0.810 | 0.913 | 0.640 |
| GNI | 0.983 | 0.956 | 0.998 | 0.839 | 1 | 0.892 | 0.968 | 0.896 |
| GTNP | 0.909 | 0.901 | 0.897 | 0.810 | 0.892 | 1 | 0.856 | 0.652 |
| GNEC | 0.977 | 0.965 | 0.977 | 0.913 | 0.968 | 0.856 | 1 | 0.818 |
| GNSNE | 0.850 | 0.813 | 0.883 | 0.640 | 0.896 | 0.652 | 0.818 | 1 |

This will help us analyze the descriptive statistical values in Table 2 and the correlation coefficient values in Table 3. We relied on the accompanying graphs to develop the values of these variables. The National Bureau of Statistics data was relied upon as the official source for all Algerian data, and the proportions of the leather and footwear sector were calculated by calculating them from the total sectors of the Algerian economy. The work was done according to the steps as shown in the flowchart bellow (Figure 1). The leather industry in Algeria is one of the most vital contributors to the Algerian economy, especially as it is linked to sustainable rural development, whether raising livestock, revitalizing vast natural pastures, or growing fodder crops, due to its contribution to GDP, jobs, trade and preserving an ancient heritage for past and future generations. These customs and traditions of the leather industry continue, as their importance often exceeds the economic value, and they positively affect other sectors and contribute to the diversification of the country's economy.

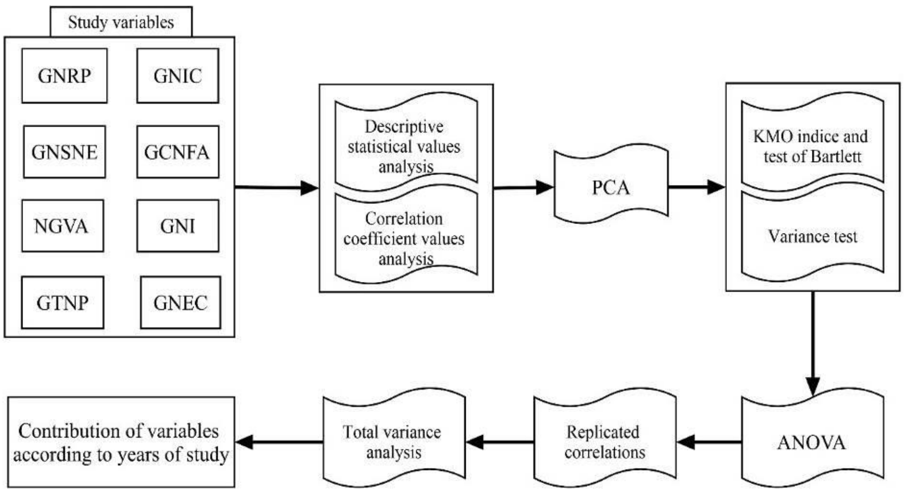


Figure 1. Flowchart showing analysis steps (Source: Authors, 2024)

In this context, we will address the contribution of the leather and footwear sector to the national economy through eight (8) variables shown in Table 4. We will also mention the total livestock of the province of Djelfa in Table 5.

Table 4. Study variables (Source: Authors, 2024)

| | |
|---|---|
| GNRP | Gross National Raw Production |
| GNIC | Gross National Intermediate Consumption |
| NGVA | National Gross Value Added |
| GCNFA | National Gross Fixed Assets Depreciation |
| GNI | National Gross Domestic Income |
| GTNP | Gross national production-related taxes |
| GNEC | Gross national labor compensation |
| GNSNE | Gross national net exploitation surplus |

Table 5. Total livestock of the province of Djelfa (Source: MARD + Regional Slaughterhouse of Hassi Bahbah Municipality, Djelfa province, 2021)

| | Sheep | Cows | Goat | Camels | Red meat (quintals) | Leather production (quintals) |
|---|---|---|---|---|---|---|
| Djelfa State | 3 353 800 | 22 100 | 378 200 | 774 | 477 670 | 91935 |

**The role of livestock in leather production in light of sustainable rural development in the province of Djelfa as a model**

The province of Djelfa, the first nationally in terms of livestock breeding and steppe natural pastures, occupies a strategic location between northern and southern Algeria, about 300 km from the capital Algiers. This makes it a basic transition zone that combines the characteristics of steppes and mountains. It relies heavily on pastoral and agricultural activity and is vital to the region's economy and the local community (Figure 2).

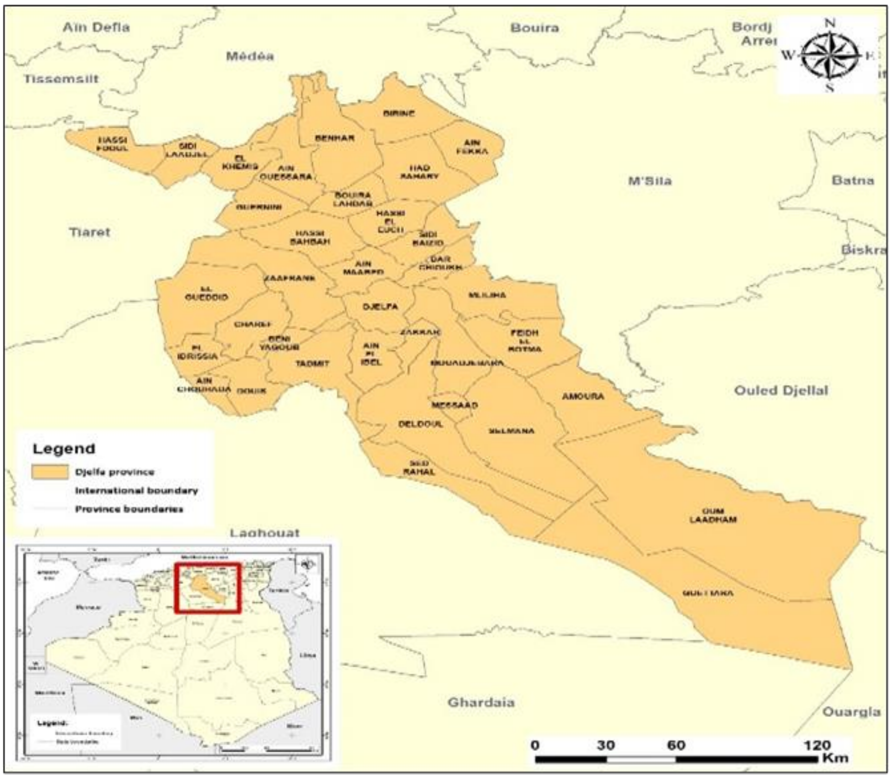


Figure 2. Administrative location of Djelfa province (Source: Authors, 2024)


Figure 3. Regional slaughterhouse of the municipality of Hassi Bahbah, Djelfa province a-d (Source: Authors, 2024)

In 2014 the province of Djelfa benefited from a regional slaughterhouse, and the regional slaughterhouse complex located in the municipality of Hassi Bahbah (50 km north of the municipality of Djelfa) is an important development gain that the sector relies on to provide red meat by ensuring productivity and controlling its market at the national level (Figure 3). This third compound of its kind at the national level effectively contributes to the revival of a new dynamism in the livestock market, as its capacity is estimated at the daily average slaughter of 2000 sheep and 80 head of cows (regional slaughterhouse of Hassi Bahbah, 2021), this project seeks to give a strong economic and social impetus in light of the qualifications that the state abounds in various fields related to the agricultural sector, not to mention the creation of jobs and support for the national economy, to make the state a pole par excellence in this field. The Algerian government recognizes the importance of Djelfa as a significant livestock breeding area, and the state has launched several programs to improve rangeland management and protect it from degradation by strengthening infrastructure and implementing pasture rehabilitation projects (MARD, 2020), figures 4 and 5 show the area's dominant vegetation and livestock. It also provides financial support through soft loans and feed subsidies to encourage breeders to adopt sustainable practices. The government has launched projects to plant native plants and improve water management to enhance the regenerative capacity of rangelands. Workshops and awareness campaigns are organized for breeders to preserve natural rangelands and avoid overgrazing. (Rahouadja et al., 2024; Harkat et al., 2023; Yahia et al., 2020; Siad et al., 2022; Bencherif et al., 2021).


Figure 4. Vegetation cover of natural pastures (steppes) in the Djelfa province
(a: Artemisia herba-alba, b: Natural grasslands in the steppe, c: Stipa tenacissima) (Source: Authors, 2024)


Figure 5. Herds of sheep and goats in the Djelfa province a-c (Source: Authors, 2023)


Figure 6. Horse saddles are traditionally made of leather, wood a-h (Source: Authors, 2024)

The Djelfa region is among the leading areas in the leather industries with various leather products, such as shoes, bags, belts, and horse saddles, and usually uses natural materials such as animal skin and is characterized by a manual manufacturing process that depends on the experience and craftsmanship of the manufacturer, and includes several stages of skin preparation, formation, coloring, drying, and finishing. It is characterized by using only natural materials, from animal leather to stitches and handmade tools. It depends on unique designs that reflect the culture and heritage features to which artisans specialized in this field belong. The preservation of the traditional leather industry is of great importance because this industry is part of the cultural and historical heritage of peoples, reflects the cultural identity of the communities that practice it, and contributes significantly to the development of the local economy and the provision of job opportunities for the local population. The quality of leather is divided according to its uses into:

**Light skins:** They are manufactured from the skins of sheep, goats, and young calves and are used in the industries of leather clothing, leather shoes, and leather goods for decoration.

**Heavy skins:** They are manufactured from large cows and are used in bags, saddles, and slippers.
As for the statistics on craftsmen and workshops, we will show them in Table 6.

Table 6. Statistics on traditional workshops for leather industries in the province of Djelfa (Source: Authors, 2024)

| | Number of workshops for the manufacture of traditional shoes, bags and other supplies | Number of workshops for the manufacture of horse saddles | Number of craftsmen |
|---|---|---|---|
| Djelfa province | 310 | 62 | 865 |

Handicrafts and crafts are considered one of the components of national identity, and preserving them means preserving belonging, standing in the face of intellectual alienation and cultural invasion, educating young people with a sense of pride in their historical heritage, and linking the rope of communication between generations grandparents and children (Figures 6, 7 and 8). The diversity and richness of Algeria, with its different climates, topography, and even the origins of its peoples, made the nature of its people and their ways of living vary from one place to another. Crafts and traditional industries are the first and only means of expressing the culture and authenticity of society, as they are a source of livelihood for many members of society and express the various aspects of life through works of art such as drawings, shapes, and decorations that we draw and see in the products of traditional crafts and industries derived from the environment and its civilized and historical character. Djelfa is like other areas that abound in many crafts and industries that express their originality and culture, so it is often a source of livelihood for many people who still retain their characteristics, industrial methods, and artistic decorations today. This is evident through leather and even textile crafts and their distinction in forms and materials, industries that rely entirely on livestock and focus on producing consumer goods. It is widespread in most areas of the province of Djelfa.


Figure 7. The popular traditional shoe (al-Taabi) Memssaad district a-d (Source: Authors, 2024)


Figure 8. Traditional leather products, shoes, belts, bags etc. Djelfa province a-l (Source: Authors, 2024)

## RESULTS AND DISCUSSION

We statistically analyzed the contribution of the leather and footwear sector using the eight study variables below. These variables will be statistically analyzed according to the mechanisms mentioned above, and the relationship of these variables with each other will be studied.

### 1. Statistical analysis of the contribution of the leather and footwear sector:

### 1.1. Contribution to the Gross National Raw Production (GNRP)

It is clear from the values of this variable that the contribution of this sector achieved at the national level during the study period was limited between the lowest value (0.03%), recorded in (2019), and the highest value (1%), recorded in (1974), with an average of (0.311%), and a standard deviation of (0.293%). Hence, the amount of the average difference coefficient is (94.21%), which indicates the fluctuation of the values of this variable. The variable (GNRP) is strongly correlated with the following variables: the variable gross national intermediate consumption (GNIC) is correlated by (99.3%), the variable is gross national value added (NGVA) by (99.0%), the variable is gross national wage compensation (GNEC) by (97.7%), the variable is gross national domestic income (GNI) by (98.3%), the variable is gross taxes associated with national production (GTNP) by (90.9%), and the variable is gross national fixed asset depreciation (GCNFA), by (91.4%). The variable is the total net surplus of national exploitation (GNSNE), by (85%), and these correlations are all significant at a significant level (0.01).

### 1.2. Contribution to the Gross National Intermediate Consumption (GNIC)

It is clear from the values of this variable that the contribution of this sector to the total intermediate consumption achieved at the national level during the study period was limited between the lowest value (0.048%), recorded in (2018), and the highest value (1.78%), recorded in (1974), with an average of (0.48%), with a standard deviation of (0.44%). Therefore, the amount of the coefficient of variation is (91.16%), which indicates the fluctuation of the values of this constantly decreasing variable. The variable (GNIC) is highly correlated with the following variables: the variable is gross national value added (NGVA) (96.8%), the variable is gross national wage compensation (GNEC) (96.5%), the variable is gross national income (GNI) (95.6%), the variable is gross national fixed asset depreciation (GCNFA) (93.7%), the variable is gross taxes associated with national production (GTNP) (90.1%), and the variable is gross net surplus exploitation (GNSNE), (81.3%), all of which are significant. At a significant level (0.01).

### 1.3. Contribution to the National Gross Value Added (NGVA)

It is clear from the values of this variable that the contribution of this sector to the total crude production (NGVA), achieved at the national level during the study period, was limited between the lowest value (0.02%) recorded in (2018) and the highest value (0.57%) recorded in (1975), with an average of (0.209%), and a standard deviation of (0.201%), including that the magnitude of the coefficient of variation is (96.17%), which indicates the fluctuation of the values of this continuously decreasing variable. The variable (NGVA) is highly correlated with the following variables: the variable gross national income (GNI), (99.8%), the variable gross national wage compensation (GNEC), (97.7%), the variable total taxes associated with national production (GTNP), (89.7%), the variable gross net surplus of national exploitation (GNSNE), (88.3%), and the variable gross national fixed asset depreciation (GCNFA), (86.7%), and these correlations are all significant at a significant level (0.01).

### 1.4. Contribution to the National Gross Fixed Assets Depreciation (GCNFA)

It is clear from the values of this variable that the contribution of this sector to the total fixed assets (GCNFA), achieved at the national level during the study period, was limited between the lowest value (0.01%), recorded in (2021), and the highest value (0.88%), recorded in (1974), with an average of (0.211%), and a standard deviation of (0.205%), hence the magnitude of the coefficient of variation is (97.15%), which indicates the fluctuation of the values of this variable with a decreasing trend. The variable (GCNFA) is highly correlated with the following variables: the variable gross compensation of national wage earners (GNEC) (91.3%), the variable total taxes associated with national production (GTNP) (81%), the variable gross national income (GNI), (83.9%), and the variable total net surplus of national exploitation (GNSNE), (64%), all of which are significant at a significant level (0.01).

### 1.5. Contribution to the National Gross Domestic Income (GNI)

The values of this variable show that the contribution of this sector to the National Gross Income (GNI), achieved at the national level during the study period, was limited between the lowest value (0.02%), recorded in (2018) and the highest value (0.55%), recorded in (1975), with an average of (0.210%), and a standard deviation of (0.205%), hence the magnitude of the coefficient of variation is (97.16%), which indicates the fluctuation of the values of this variable with a decreasing trend. The variable (GNI) is significantly related to the following variables: the variable gross compensation of national employees (GNEC) (96.8%), the variable total net surplus of national exploitation (GNSNE) (89.6%), and the variable total taxes associated with national production (GTNP) (89.2%). These correlations are all significant at a significant level (0.01).

### 1.6. Contribution to the Gross national production-related taxes (GTNP)

The values of this variable show that the contribution of this sector to the total production-related taxes (GTNP), achieved at the national level during the study period, was limited between the lowest value (0.01%), recorded in (2013) and the highest value (090%), recorded in (1977), with an average of (0.206%), and a standard deviation of (0.256%), and therefore the magnitude of the coefficient of variation is (121.90%), which indicates the fluctuation of the values of this variable with a trend. Decreasing despite some outliers. The GTNP variable is correlated with the remaining two variables differently: with the variable is the total compensation of national employees (GNEC) (85.6%), and the variable is the total net surplus of national exploitation (GNSNE) (65.2%), all of which are significant at a significant level (0.01).

### 1.7. Contribution to the Gross national labor compensation (GNEC)

It is clear from the values of this variable that the contribution of this sector to the total compensation of national employees (GNEC), achieved at the national level during the study period, was limited between the lowest value (0.04%), recorded in (2020), and the highest value (1.14%), recorded in (1974), with an average of (0.445%), and a standard deviation of (0.369%), and therefore the magnitude of the coefficient of variation is (82.92%), which indicates homogeneity in the values of this variable with a trend. Reducing. The GNEC variable is significantly correlated with the GNSNE variable (81.8%), which is significant at a significant level (0.01).

### 1.8. Contribution to the Gross national net exploitation surplus (GNSNE)

It is clear from the values of this variable that the contribution of this sector to the total net surplus of national exploitation (GNSNE), achieved at the national level during the study period, was limited between the lowest value (-0.01%), recorded in (1996), and the highest value (0.30%), recorded in (1978), with an average of (0.875%), and a standard deviation of (0.930%), and therefore the magnitude of the coefficient of variation is (106.28%), This indicates a very violent fluctuation in the values of these variables compared to others, with their trend decreasing .The curves shown in Figure 9 illustrate this.

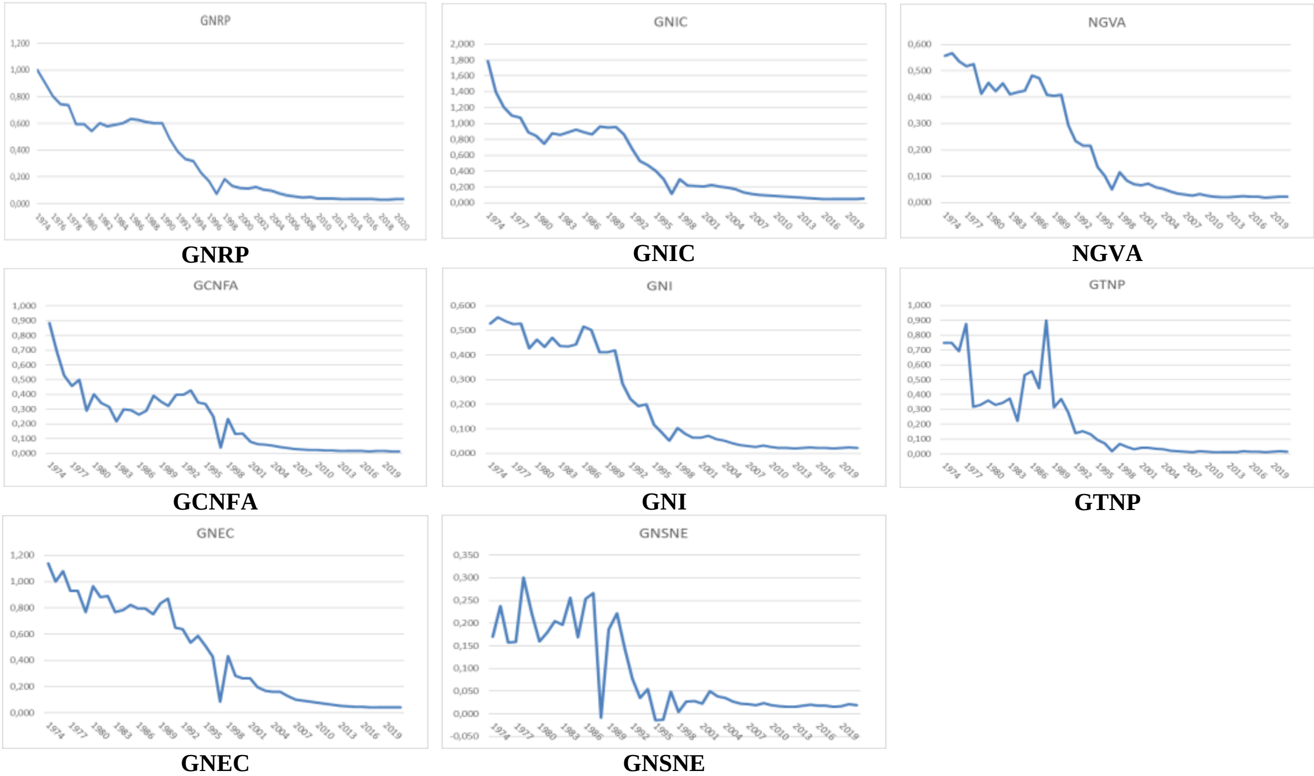


Figure 9. Evolution of the contribution of the leather and footwear sector of the leather and footwear sector in different variables (Source: Authors, 2024)

## 2. Testing the verification of factor analysis hypotheses into basic components

This method has a set of hypotheses. The factor analysis of essential components depends on the matrix of correlations between the study variables shown in Table (3), which prepares for calculating the common variances and eigenvalues and the correlation of the variables with the factors explaining the phenomenon under study and analysis.

A. The first hypothesis of (P.C.A) that the absolute value of the determinant of the correlation coefficients matrix is different from zero, is fulfilled in Table (7), where: (Determining = 2.495E-014), which indicates the validity of the data and results of the analysis.

B. The second hypothesis is fulfilled in Tables (7), (8), and (9), ( $KMO = 0.789 \succ 0.5$ ), which indicates the adequacy of the sample under study, and the result of the Bartlett test is significant, ) $Sig. = 0.000 \prec \alpha = 0.05$ (

Moreover, this is an indication that the correlation matrix is different from the unity matrix, meaning that there are common variations between the study variables that constitute the set of hidden factors, which is what we seek to reveal (Arsham et al., 2011; Tobias, et al., 1969). The Kaiser-Meyer-Olkin (KMO) and Bartlett's tests are statistical measures used to assess the suitability of data for factor analysis.

Table 7. Indices KMO and test de Bartlett; Determinant = 2.495E-014 (Source: Authors, 2024)

| Precision measurement of Kaiser-Meyer-Olkin sampling. | | 0.789 |
|---|---|---|
| Bartlett sphericity test | Chi-square approximated | 1362.496 |
| | ddl | 28 |
| | Signification de Bartlett | 0.000 |

Table 8. Homogeneity of variance test (Source: Authors, 2024)

| Variable | | | |
|---|---|---|---|
| Levene Statistics | df1 | df2 | Signification |
| 31.696 | 7 | 376 | 0.000 |

Table 9. ANOVA (Source: Authors, 2024)

| | | Sum. Squares | df | Average squares | F | Mr. |
|---|---|---|---|---|---|---|
| Inter-group | Combined | 6.174 | 7 | 0.882 | 11.335 | 0.0000 |
| | Linear Term | 0.923 | 1 | 0.923 | 11.859 | 0.0010 |
| | Deviation | 5.251 | 6 | 0.875 | 11.248 | 0.0000 |
| Intra-group | | 29.256 | 376 | 0.078 | | |
| Total | | 35.430 | 383 | | | |

C. The third hypothesis in Table (9), the adequacy of the sample for each of the variables of the study, is fulfilled if we follow the numbers marked with the letter (a) in the main diagonal of the matrix of visual coefficients, we find that the variables have a visual correlation coefficient of not less than (0.70), that is (100%), which indicates that this percentage of variables meets the hypothesis of the adequacy of the sample for each variable (Judd et al**.**, 2017).

Extraction Method: Principal Component Analysis has. Reproduction quality

Table 10. Replicated correlations (**a**) Reproduction quality (Source: Authors, 2024)

| | GNRP | GNIC | NGVA | GCNFA | GNI | GTNP | GNEC | GNSNE |
|---|---|---|---|---|---|---|---|---|
| GNRP | **0.998**[a] | 0.987 | 0.993 | 0.908 | 0.987 | 0.907 | 0.98 | 0.857 |
| GNIC | 0.987 | **0.976**[a] | 0.982 | 0.898 | 0.976 | 0.897 | 0.969 | 0.848 |
| NGVA | 0.993 | 0.982 | **0.989**[a] | 0.903 | 0.982 | 0.903 | 0.975 | 0.853 |
| GCNFA | 0.908 | 0.898 | 0.903 | **0.825**[a] | 0.897 | 0.825 | 0.891 | 0.779 |
| GNI | 0.987 | 0.976 | 0.982 | 0.897 | **0.976**[a] | 0.897 | 0.969 | 0.847 |
| GTNP | 0.907 | 0.897 | 0.903 | 0.825 | 0.897 | **0.824**[a] | 0.89 | 0.779 |
| GNEC | 0.98 | 0.969 | 0.975 | 0.891 | 0.969 | 0.89 | **0.962**[a] | 0.841 |
| GNSNE | 0.857 | 0.848 | 0.853 | 0.779 | 0.847 | 0.779 | 0.841 | **0.736**[a] |

**2.1 Quality of representation of variables**

The goal of using (P.C.A) is to find a minimum number of variables representing all the proposed primary variables, and the question arises: How well is the representation of these variables? Table (10) shows the quality of the representation of variables based on multiple correlation coefficients and the number of common variations between variables. The study variables are of high-quality representation through the second column (Extraction).

Table 11. Total variance explained (Source: Authors, 2024)

| Component | Initial eigenvalues | Extraction Sums of squares of selected factors | | | | |
|---|---|---|---|---|---|---|
| | Total | % Variance | Cumulative % | Total | % Variance | Cumulative % |
| GNRP | 7.286 | 91.074 | 91.074 | **7.286** | 91.074 | 91.074 |
| GNIC | 0.431 | 5.390 | 96.464 | | | |
| NGVA | 0.210 | 2.623 | 99.087 | | | |
| GCNFA | 0.055 | 0.690 | 99.777 | | | |
| GNI | 0.014 | 0.172 | 99.949 | | | |
| GTNP | 0.004 | 0.047 | 99.996 | | | |
| GNEC | 0.000 | 0.004 | 99.999 | | | |
| GNSNE | 4.231E-005 | 0.001 | 100.000 | | | |

Extraction method: Principal component analysis. In Table (11), we focus on the column resulting from the use of the factor analysis method of essential components, which refers to the eigenvalues after rotating the axes. The latter aims to convert the primary correlation matrix into a parabolic correlation matrix characterized by a great deal of clarity by maximizing significant correlations and scaling minor correlations

- The factor axis (91.074%) is interpreted as a total dispersion corresponding to the highest eigenvalue of λ=**7.286**.

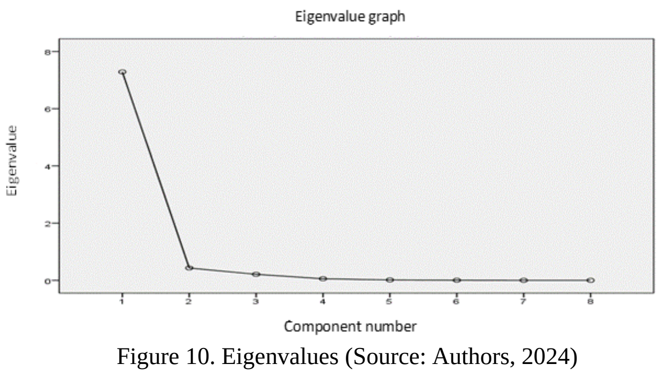


Figure 10. Eigenvalues (Source: Authors, 2024)

Figure 10 shows the eigenvalues that can be taken and those that can be excluded according to the (Cattell, R. B. 1966) method, where the figure shows the eigenvalue with a steep slope, we find that there is an eigenvalue corresponding to the extracted factor, after which the rest of the values tend to regression horizontally, and are thus excluded from the model. Thanks to the rotation process of the primary axes, as well as the trend adopted in assigning the lowest acceptable value of correlation (in this study, it was set at 0.50), we obtained the matrix of factors after rotation shown in Table (10), the matrix of this Table is evident in the possibility of observing the variables associated with each of the extracted factors, which facilitates the process of interpreting them and revealing the meanings they contain. We have relied on naming the extracted factors on the methods of description and causality, as the variables of the study are economic indicators (production and exploitation accounts) that allow description and also allows determining the cause based on their economic explanations; the interpretation depends on:

- the nature of the variables that were associated with the factor.
- Familiarity with the conditions relevant to the phenomenon under study.
- Relying on the prevailing theories and trends in the field to which the phenomenon belongs.

### 2.1 Naming of extracted factors

Based on the matrix of factors after rotating axes, Table 11 can be included to provide a preliminary description of the factors explaining the importance and weight of the leather and footwear sector in the Algerian economy.

### 2.2 Description of the pivotal factor

It includes all the variables of the study, which can be described as elements of the production chain. It is considered the expense of the production process's inputs and outputs. Therefore, the leather and footwear sector's importance in the Algerian economy is shown through its contribution to production processes. The graph above reflects the high quality of representation, as the points of variables move away from the center of the circle drawn inside the square and close to their surroundings.

### 2.3 Classification of years of study

Here, we try to determine the group of similar years by looking at the variables of the study; for this purpose and based on the results obtained in the previous paragraph, we examine the shape of the trend of distribution of the years of study in Figure 11, and this is by resorting to the method of hierarchical cluster analysis, we conclude from the shape of the tree drawing that the years of study can be divided into two groups.

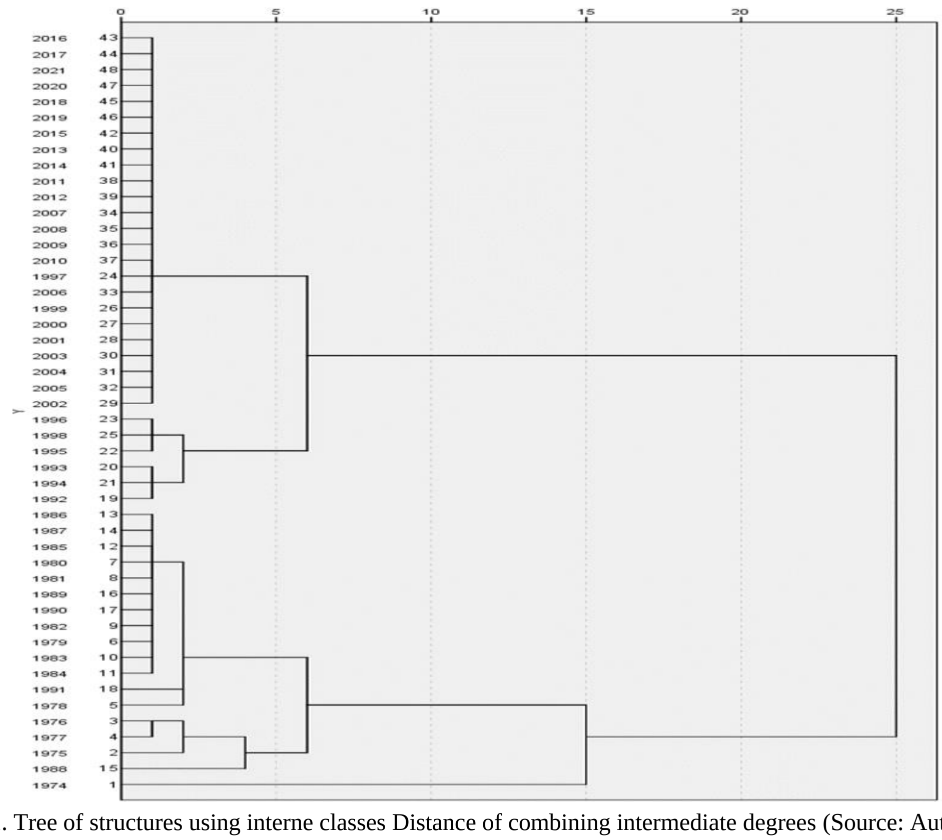


Figure 11. Tree of structures using interne classes Distance of combining intermediate degrees (Source: Authors, 2024)

The first group includes the annual period (1974 to 1998), i.e. (25), a year representing (52.1%), of the years of study; this behavior reflects the circumstances of a stage that the Algerian economy went through, which was characterized by the adoption of a socialist management policy, so this had an impact on the activity of the leather and footwear sector, so we find the behavior of this group differs from the behavior of the second group (1999 to 2021), which includes the rest of the years, represented in (23), years (57.9%), this behavior reflects the circumstances that had an impact on the activity of the leather and footwear sector, in addition to other sectors interacting with it. Such a result for the leather and footwear sector must be explained in collaboration with the rest of the economic sectors and the nature of the different policies adopted by the state during the study period, in addition to the political, economic, and other conditions. The statistical analysis of the study variables shows the following: The coefficients of variation showed the heterogeneity of the values of all variables, and the values of the correlation coefficients were strong between the study variables and statistically significant at a significant level (0.01), by tracking the contribution of each variable, we noticed a continuous increase during the study period, through the results of the factor analysis, we concluded that there is a single pivotal factor represented in the inputs and outputs of the production process, we found in the classification of study years that they can be arranged in two groups, the first (25), the second (23) years. This classification reflects the management policy of the sector at every stage.

## CONCLUSION AND RECOMMENDATIONS

The leather industry plays a vital role in the Algerian national economy, contributing to the country's GDP and providing employment opportunities for many people, especially in agriculture, livestock, and manufacturing. The leather industry also supports other related industries, such as fashion, footwear, and luxury goods, promoting economic growth and diversification. Moreover, it boosts export activities, contributing to the country's foreign exchange earnings. Leather products in Algeria are highly valued in international markets and have the potential to strengthen the country's trade balance. It also plays a crucial role in preserving the national cultural and tourist heritage, as many traditional crafts and techniques are used to produce leather goods. This adds value to national identity and promotes tourism and cultural exchange, benefiting the economy. From the above, we came up with these recommendations:

Algeria's leather sector's current state is different from its enormous potential in terms of livestock and natural pastures. This sector can be much better with a little effort and wise management.

The renewed efforts of the Ministry of Agriculture and Rural Development, through the programs of the new sustainable rural development strategy based on supporting farmers, loyalists, and breeders, which urge respect for the specificity of the regions, are a clear indicator for the development of this sector and moving it forward by reviving natural pastures with plans to eliminate desertification of all kinds, encouraging and supporting the local population to develop and diversify their agriculture, and urging them to grow fodder crops to develop their livestock and invest in them in modern and scientific ways. This is in line with increasing their profitability and thus developing all the products related to their agricultural activity, including the leather sector subject of our study.

On the tourism side, from the perspective of leather handicrafts, we notice the decline of workshops and artisans at the national level due to their lack of financial feasibility for their craft. On the other hand, its effectiveness in domestic and foreign tourism has a strategic tourism dimension for the Algerian economy and, therefore, must be financially supported, morally encouraged, and educational workshops organized and held. There must also be clear policies to support local artisans and motivate young people to engage in industry by providing financial incentives and concessional loan facilities. This would preserve Algeria's rich cultural heritage and strengthen its national identity through the revival and development of traditional crafts, ultimately leading to this vital sector's sustainable and inclusive development. The increasing demand for processed and semi-finished leather and the opening of global and local markets is an excellent opportunity to encourage investors and motivate them to enter the leather and footwear sector by providing technical support and administrative facilities, which enhances investor confidence and attracts them to it. Benefiting from this sector and providing an appropriate regulatory environment, tax incentives, and short- and long-term loans can contribute significantly to stimulating investments and developing local industries to create new jobs and strengthen the Algerian economy.

**Author Contributions:** Conceptualization, S.C. and S.H.; methodology, S.C. and S.H..; software, A.C.; validation, S.C. and S.H. and A.C.; formal analysis, A.C. and S.C.; investigation, S.C.; data curation, S.C.; writing - original draft preparation, S.C.; writing - review and editing, S.C. and S.H.; visualization, S.H.; supervision, S.H.; project administration, S.C. and S.H. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 19.08.2024 Revised: 28.10.2024 Accepted: 25.11.2024 Available online: 31.12.2024

Year XVII, vol. 57, no. 4spl, 2024, p.1930-1940
DOI 10.30892/gtg.574spl07-1360

# INTEGRATING TPB, VAB AND GENERATION THEORY IN STUDYING THE GREEN TOURISM BEHAVIOR OF GENERATION Z: A STUDY IN VIETNAM

**Thai Viet NGUYEN**
Thuongmai University, Faculty of Hospitality – Tourism, Hanoi, Vietnam, e-mail: thainv@tmu.edu.vn

**Trang Quynh Thi BUI***
Thuongmai University, Faculty of Hospitality – Tourism, Hanoi, Vietnam, e-mail: trang.btq@tmu.edu.vn

**Linh Phuong BUI**
Thuongmai University, Faculty of Marketing, Hanoi, Vietnam, e-mail: linhbp@tmu.edu.vn

**Citation:** Nguyen, T.V., Bui, T.T.Q., & Bui, L.P. (2024). INTEGRATING TPB, VAB AND GENERATION THEORY IN STUDYING THE GREEN TOURISM BEHAVIOR OF GENERATION Z: A STUDY IN VIETNAM. *Geojournal of Tourism and Geosites*, 57(4spl), 1930–1940. https://doi.org/10.30892/gtg.574spl07-1360

**Abstract:** The objective of this study is to identify and analyze factors that influence Generation Z's green travel behavior. Through a literature review and analysis of secondary data, the study approached Theory of planned behavior (TPB) and theory of values, attitudes and behavior (VAB), generational theory. On that basis, the research has identified two groups of factors that influence the intention to choose green tourism and the influence of the intention to choose green tourism on the green travel behavior of Generation Z (Gen Z) including (1) Factors that directly affect the intention to choose green tourism: Attitudes toward , subjective norm towards and perceived control; (2) a group of factors that directly affect the attitudes toward the intention to choose green tourism and indirectly affect the intention to choose green tourism include: Environmental concern, action for the environment, Ego perception. A survey based on a sample of 270 domestic and international tourists of Gen Z participating in green tourism experiences at famous tourist destinations in Vietnam. Collected data were cleaned and SmartPLS software was used to evaluate the fit, reliability and SEM structural model to test the relationship of the research model. The research results confirm that all direct relationships between variables are statistically significant and all research hypotheses are accepted at the confidence level from 80.6% to 93.5%. These findings provide empirical evidence of the influential relationships and are the basis for proposing some implications for destination management organizations, tourism businesses and other stakeholders to more effectively promote green tourism consumption behaviors of tourists in general and Generation Z in particular.

**Keywords:** Behavioral intention, Green Tourism, generation Z, TPB, VAB

* * * * * *

## INTRODUCTION

The current state of climate change and environmental degradation significantly influences people's intentions and objectives for travel (Zhou et al., 2019). This has resulted in a growing interest in eco-friendly tourism (Wang, 2015), prompting a shift in the trend of tourism development and selection to align with environmental preservation goals and provide health and well-being benefits for travelers (Gossling et al., 2012). Green tourism has emerged and evolved to cater to tourists' desire for sustainable and eco-conscious experiences. Presently, travelers increasingly opt for destinations where natural environments are conserved and the tourist landscape remains unpolluted. According to Chia-Jung and Pei-Chun. (2014), they posit that travelers are prepared to pay a premium for eco-friendly travel places of interest, lodging options, and services. As a consequence of this, green tourism has been developing effortlessly in many nations across the world. It has outstanding attributes particularly when it comes to protecting biodiversity, safeguarding local cultures, and boosting health.

In today's landscape, research regarding travel trends across different generational groups seems to be a significant concern and holds a crucial role for managers and tourism providers seeking to align policies with market demands. Generation Z embodies youthful, contemporary individuals striving to be global citizens, heavily influenced by media, technology, and up-to-date information. Previous studies on Gen Z's travel behavior reveal their inclination towards seeking adventure, enjoyment, and a break from daily routines (Haddouche and Salomone, 2018).

They are also recognized for their environmental awareness, with some showing sensitivity towards biodiversity (Sakdiyakorn et al., 2021) and a preference for nature-centric solutions at tourist destinations (Giachino et al., 2021). There's growing evidence that sustainability concerns are increasing among young people, including their interest in eco-friendly tourism (Cini and Passafaro, 2019). However, conflicting values and uncertainties regarding environmental issues have also been observed among young travelers (Litvin and Chiam, 2014). Thus, research into the values and attitudes of young tourists towards green travel has yielded contrasting findings.

In the past twenty years, numerous studies have indicated a predominant focus on older adults among green consumers (Roberts, 1996). Notwithstanding, the increasing levels of education among young people, there is a growing awareness of

* Corresponding author

environmental issues within this demographic. Therefore, they have become more popular in global studies examining consumers' environmentally conscious purchasing behavior, especially in Asian countries (Lee, 2008; Chen and Chai, 2010). Growing in popularity as a strategy to decrease carbon emissions, mitigate environmental deterioration, and lessen adverse effects on the environment and tourism-related activities is the concept of green tourism, also known as sustainable tourism. Therefore, visitors are urged to start taking the environment into account when choosing their destinations because they are significant participants in the tourism sector. On top of that, prior research indicates that visitors' attitudes, intentions, and behaviors when visiting a destination are influenced by their values, views, or beliefs (Aji et al., 2021; Shan et al., 2020).

When researching factors affecting green tourism intention (Shin et al., 2022; Ulker-Demirel and Ciftci, 2020), conducted an overview of empirical articles on green tourism and pointed out that the theory of planned behavior (TPB) has become a widely used framework for investigating behavior in tourism research over the past two decades. The TPB theoretical model has identified influencing factors including attitudes, subjective norms, green beliefs, and environmental knowledge. Similarly, theory of values, attitudes and behavior (VAB) is used by researchers in predicting tourism consumer behavior related to sustainability in terms of values, attitudes, and sustainable behaviors (Leiserowitz et al., 2006) and willingness to pay more for green products (Shin et al., 2017) and environmentally friendly products (Kim et al., 2020).

However, when studies apply separate approaches to each theory such as TPB or VAB, there are still certain limitations. If the TPB model reveals some limitations when it does not take into account variables such as threat, mood or past experience that affect behavioral intention and motivation, the VAB model also does not cover all factors that affect environmental attitudes, which are personal factors such as: Personality, lifestyle, habits.

Vietnam is a country with rich and diverse natural, cultural and historical tourism resources, creating ideal conditions for green tourism development. With a target in mind toward 2050, Vietnam's National Strategy on Green Growth incorporates green consumption as one of its most significant tenets for the years 2021–2030. This strategy identifies the tourist industry as one that needs funding and focus on environmentally friendly and sustainable development. However, the environment and infrastructure in Vietnam are under pressure from factors such as climate change, rising sea levels and overcrowding at major tourist destinations. Currently, there are many cases of widespread littering, especially plastic waste, including plastic bags, and the awareness of some tourists and local communities about green tourism is still limited.

Therefore, the goal of this study is to find ways to reduce the limitations of previous studies by expanding the research framework on green tourism choice behavior through integrating VAB into TPB and placing it in the context of green travel. Generational theory to identify factors affecting Gen Z's choice intention and green travel choice behavior.

## LITERATURE REVIEW

### 1. Theory of Planned Behavior

Theory of Planned Behavior (TPB) is a theory in the field of psychology and behavioral science that studies how people plan and control their behavior. The TPB is also a popular social psychological model in the hospitality, tourism, and leisure management literature due to its feasibility, testability, and methodological appropriateness. TPB theory was developed from the Theory of Reasoned Action (TRA) of (Ajzen and Fishbein, 1975). According to TRA, the intention to perform a behavior is influenced by two factors: attitude toward the behavior and subjective norms. With this view, TRA believes that behavioral intentions can be performed or not performed completely under the control of reason. This limits the application of TRA theory to the study of certain behaviors. Due to that TPB was created in order to overcome these TRA restrictions. According to TPB, the intents of individuals are what drive people and have a significant impact on how they behave. It pinpoints three primary variables that influence behavioral intentions: one's attitude toward the behavior, the subjective norms that surround it, and one's perception of behavioral control. Regardless of intention, external influences can potentially directly influence or hinder behavior. In addition, this is dependent upon how much behavior is actually under personal control and how well perceived behavioral control represents actual behavioral control.

According to Ajzen (1991), attitudes toward behavior reflects how someone assesses whether a particular behavior is favorable or unfavorable. This evaluation includes beliefs about the behavior and judgments about its outcomes. Subjective norms encompass social pressures that influence whether a behavior is performed or not. These norms are shaped by both beliefs about what others think (normative beliefs) and the motivation to conform to those beliefs. Perceived behavioral control is also critical in TPB, representing individuals' perceptions of how easy or difficult it is to engage in the behavior of interest.

The advantageous characteristics of the Theory of Planned Behavior (TPB) in examining the factors influencing human intentions and behaviors have led to its growing appreciation and widespread application in sustainability studies. (Mancha and Yoder, 2015) used this model to confirm customers' green behavioral intentions. It still has drawbacks, though, in that it ignores other factors like fear, threats, emotions, or prior experiences that can influence intents and behavioral motivations.

### 2. Value, Attitude, and Behavior Theory

The Value Attitude Behavior (VAB) theory, developed by (Homer and Kahle, 1988), comprises three main factors: (1) Values, (2) attitudes, and (3) behaviors. The first factor within this framework is values, which are foundational beliefs influencing individuals' actions, thoughts, and emotions (Rokeach, 1972). Values serve as fundamental standards guiding consumer decision-making processes (Bjoerk, 1998). According to (Kang et al., 2015), the value represents a desirable criterion shaping individual decisions and behaviors. Notable dimensions of value identified in the research include: Environmental concern (HK, 2012), environmental action (HK, 2012; Bertrand and William, 2011), self-image (Bertrand and William, 2011), and attitudes toward environmentally friendly products (Cheah and Phau, 2011). The second component in the VAB model is attitude, as described by Ajzen (1991), which pertains to the extent to which an individual holds a positive or negative appraisal or assessment of a particular behavior. The significance of the value-attitude process in influencing intention or behavior is notably underscored in environmental conduct (Lee, 2011). This encompasses factors like attitudes toward green advertising, attitudes toward environmental concerns, and attitudes toward the socio-ecological benefits outlined in the conceptual framework of this study. Ultimately, the behavioral aspect within the model pertains to consumers' environmentally conscious actions.

In this study, the VAB model was chosen because it emphasizes that values are central to shaping an individual's attitudes towards specific behaviors (Homer and Kahle, 1988). Kim and Choi (2005) underscored that the VAB model is useful for understanding predictive factors of environmentally conscious behavior and their interrelationships concerning environmental concern and green purchasing behavior within a societal context. Moreover, the VAB model is widely used to study consumer behavior across various fields worldwide, particularly within environmental psychology contexts (Lee, 2011; Cheung and To, 2019). Recently, Kim (2024) explored VAB theory in an expanded context with perceptions of AI and social and personal norms to examine the potential link between sustainability and space tourism.

### 3. Generation theory and characteristics of generation Z

The origin of generation came from Karl (1952), who defined a generation as a social class or cultural position that might have an effect on an individual's awareness. According to Karl (1952), noteworthy historical events have an especially profound effect on generations. However, Karl (1952) was unaware of each generation's cyclical character. As a consequence, generation theory is credited with being developed and popularized by Strauss and Howe (1991), who determined a generation as a group of people who were born within a roughly 20-year window (covering a stage of life) and who had comparable upbringings and formative experiences. Individuals within each group are distinguished from previous generations by the common values, attitudes, and beliefs that are shaped by these shared experiences and events (Brosdahl and Carpenter, 2011). Up to this point, human generational cycles have been ascertained by a variety of techniques thus far. According to Ozkan and Solmaz (2015), Gen Z encompasses those born from 2000 to 2010, or from 1996 to 2010 (De Cooman and Dries, 2012), and from 2005 to 2018 (Federal State Statistic Service, 2018). However, for the purposes of this study, Gen Z is defined as individuals born between 1996 and 2010 (De Cooman and Dries, 2012).

In recent years, Gen Z has been considered the main responsible person in society for changes in their travel behavior, which can lead to significant changes in the travel market (Skinner et al., 2018). Carneiro and Eusébio (2015) identify this as one of the important markets because behavioral trends have begun to be shaped by these citizens.

According to previous research, Gen Z travelers demonstrate a preference for seeking adventure, enjoyment, and breaking away from their daily routines (Haddouche and Salomone, 2018). They are drawn to experiential travel, prioritize safety and commitment to local tourism (Monaco, 2018). Gen Z is also recognized for their environmental awareness; they are proactive, innovative, and actively engage in responsible travel practices (Monaco, 2018). They are noted as a group sensitive to biodiversity and climate change concerns (Robinson and Schänzel, 2019), showing a keen interest in natural-based solutions at travel destinations (Giachino et al., 2021). In addition, Mandić's (2024) study also emphasized the emotional, behavioral, cognitive, and sense of unity in Generation Z's choice of green tourism products in the connection between connection with nature and environmentally friendly travel behavior.

## GREEN TOURISM AND FACTORS AFFECTING GREEN TOURISM BEHAVIOR OF GEN Z

### 1. Green tourism

As prescribed by the International Association of Ecotourism (TIES), green tourism is characterized as conscientious travel to natural environments, with an emphasis on preserving the ecosystem, supporting local communities, and incorporating educational components. As outlined by Dodds and Joppe (2001), green tourism is conceptualized across four terms: (1) Environmental responsibility, involving the protection, conservation, and enhancement of natural environments to ensure the sustained viability of ecosystems; (2) Fostering local economic resilience, entailing support for local economies, enterprises, and communities to promote economic development and sustainability over the long term; (3) Biodiversity conservation, encompassing the appreciation and preservation of various cultures and their diverse expressions, aimed at safeguarding and celebrating indigenous cultural values; (4) Enhancing tourist experiences through active engagement with natural attractions, interaction with local residents, and gaining insight into local customs and traditions. In other words, green tourism is a multifaceted term that denotes environmental friendliness. On one side, it targets environmentally friendly tourists, while on the other, it involves preparing eco-friendly services for tourists. Businesses in the tourism industry may utilize the principles of green tourism to promote an environment that is more favorable (Budiasa et al., 2019).

### 2. Factors influencing generation Z's intention to choose green tourism

Currently, researchers have mentioned numerous factors affecting the intention in choosing green tourism (Bixia and Zhenmian, 2013; Boztepe, 2012; Chen et al., 2018). However, in order to select the appropriate influencing factors for the scope of the study, the article will be based on the following two bases:

*Firstly*, the research will integrate 2 theories including TPB theory (Ajzen, 1991) and VAB theory (Homer and Kahle, 1988) to identify the factors affecting the intention in choosing green tourism. The Theory of Planned Behavior (TPB) by Ajzen (1991) elucidates the direct influence on the intention to select green tourism through three key factors: Attitudes toward the intention to choose green tourism, subjective norm towards the intention in choosing green tourism and behavior control the intention in choosing green tourism. Conversely, theory of Values, Attitudes, and Behaviors by Homer and Kahle (1988) delineates the indirect relationship between the value variable and the intention in choosing green tourism, mediated by attitudes toward this intention. Consequently, by integrating TPB and VAB theories, the study will investigate two interrelated connections: (1) the direct impact of attitudes, subjective norms, and perceived behavioral control over the intention to select green tourism; (2) the direct impact of the value factor (encompassing concerns for the environment, environmental actions, self-image, and attitudes toward green products) on attitudes toward the intention in choosing green tourism, and its indirect influence on this intention.

*Secondly*, the factors identified that directly and indirectly affect the intention in choosing green tourism include: attitudes, subjective norms and behavior control and concern for the environment, environmental actions, Ego perceptionand will be placed in the context of the generation theory (Strauss and Howe, 1991) to show the characteristics of Gen Z. Thus, based on two bases for selecting groups of influencing factors, the study has delineated two categories of factors as follows: (1) Direct influencers on the intention in choosing green tourism encompass attitudes toward green tourism, subjective norms regarding this choice, and behavior control over this intention; (2) Factors directly impacting attitudes toward the intention in choosing green tourism, and influencing this intention indirectly, include Environmental concern, environmental action and self-image.

## 3. Establish research models and hypotheses regarding the factors influencing the green tourism behavior of generation Z

### 3.1. Factors that directly impact the intention in choosing green tourism

Attitudes to behavior are defined as the individual's positive or negative feelings about performing a particular behavior (Ajzen, 1991). According to the TPB model, attitudes toward actions have a strong and positive influence on the intention to act. This relationship is verified by many studies on green buying behavior (Chan, 2008; Bamberg, 2003).

**Hypothesis H1:** Attitudes toward the intention in choosing green tourism has a positive influence on the intention in choosing green tourism.

Ajzen (1991) contends that the subjective norm regarding behavior represents the social influence exerted by individuals such as friends, family, and colleagues on an individual's engagement in a specific behavior. According to Kar et al. (2024) networks has a strong impact on tourists' attitudes and motivations. In TPB, this subjective norm holds significant and positive sway over the intention to act (Ajzen, 1991). Studies examining subjective norms for green consumer choice behavior, notably those conducted by (Ha and Janda, 2012; Saleem and Gopinath, 2013), reveal consistent findings. They demonstrate that subjective norms positively and significantly impact the selection of green products.

**Hypothesis H2:** Subjective norms for the intention in choosing green tourism have a positive influence on the intention in choosing green tourism

Ajzen (1991) argues that perceived behavior control reflects the performance of specific behaviors that are easy or difficult. Behavioural control perceptions have a direct impact on behavioural intention and as such will have a direct impact on real behaviour (Ajzen, 1991). The perception of controlling green consumer choice behavior has been studied by many authors. Typically in these authors are Kumar (2021), Saleem and Gopinath (2013). These works indicate that perceived behavioural control over green consumer choice behavioural intention directly and positively impacts green consumer choice behavioural intention (Saleem and Gopinath, 2013).

**Hypothesis H3**: Behavioral control over the intention to choose green tourism has a positive influence on the intention in choosing green tourism

### 3.2. Factors that directly impact attitudes toward the intention of selecting green tourism and impact the intention of choosing green tourism indirectly

Concern for the environment represents a sentiment characterized by anxiety, passion, concern for environmental outcomes (Yeung, 2004; Antonides and Van Raaij, 1998; Maloney et al., 1975). This concern does not directly influence the intention to engage in green consumption behavior but rather affects it indirectly through attitudes toward green consumption intentions (Arslan et al., 2012) contend that environmental awareness influences decisions regarding green consumption by shaping attitudes toward green products and purchasing, with resulting effects being favorable.

**Hypothesis H4:** Concern for the environment has a positive effect on attitudes toward green tourism choices

According to Bamberg (2003), environmental action encompasses ecological, conservation, and eco-friendly actions. The capacity to take appropriate action to protect ecosystems, repair the environment, and reduce environmental pollution is known as environmental action. It also involves being able to identify and explain the extent of environmental contamination. Ajzen (1991) proposes that attitudes toward particular activities have an indirect effect on specific behaviors rather than a direct one. The impact of environmental concern, as a general attitudes toward the environment, on particular behaviors since attitudes toward certain behaviors for the environment should be considered an indirect way to comprehend the environment (Bamberg, 2003). This is reinforced by Arslan et al. (2012); Bertrand and William (2011) argue that environmental action is the intermediate variable between attitude and behavior.

**Hypothesis H5:** Environmental Action has a Positive Effect on Attitudes Toward Green Tourism Intentions

The ego represents the entirety of an individual's beliefs, thoughts, and emotions about themselves when compared to others within a specific social setting (Onkvisit and Shaw, 1987). According to ego theory, consumer goods and services reflect the consumer's ego image, as these items are utilized to bolster and enhance one's self-image (Grubb and Grathwohl, 1967). The broader social ego's influence can also be understood as social influence. Consequently, many studies have incorporated ego image into the TPB attitude model (Cook et al., 2002), demonstrating that the social ego image is a significant predictor of behavior attitudes (Conner and Armitage, 1998). Research by Sparks and Shepherd (1992) and

Sparks and Guthrie (1998) illustrates how the social ego image impacts attitudes toward green purchasing intentions. For Gen Z, the consumption of goods and services serves as a reflection of their social ego image, as this demographic is particularly attuned to the social connotations of consumption due to their strong emphasis on personal image (Churchill and Moschis, 1979). Lee (2008); Urien and Kilbourne (2011) study successfully validates the positive and substantial influence of ego (social) interest on consumers' attitudes toward green purchasing intentions.

**Hypothesis H6:** The ego's perception positively affects attitudes toward intentions in choosing green tourism

### 3.3. Impact intention of choosing green tourism on Green tourism behavior

According to Ajzen (1991) Theory of Planned Behavior, an individual's behavior is contingent upon their purpose. The initial component of this theory is behavioral intention, which serves as the motivating factor influencing behavior (Ajzen, 1991). The stronger the intention to engage in a specific behavior, the greater the likelihood of actually performing that behavior. A favorable association has also been seen between customers' intentions and their actual behavior in many research utilizing the TPB in the context of consumer behavior (Peña-García et al., 2020; Li et al., 2021; Rausch and Kopplin, 2021). These studies demonstrate that purchasing intention can be a significant predictor of an individual's behavior by looking at purchase intentions or the use of consumer goods or services in a study by Ibnou-Laaroussi et al. (2020), based on 395 tourists visiting tourist destinations, was also demonstrated that tourists' intentions to support sustainable green tourism were positively correlated with their behavior.

**Hypothesis H7:** Intentions in choosing green tourism has a Positive Effect on Green tourism behavior

From the analysis and development of hypotheses, the research model of the factors affecting the intention to choose green tourism of the Gen Z is proposed as follows (Figure 1)

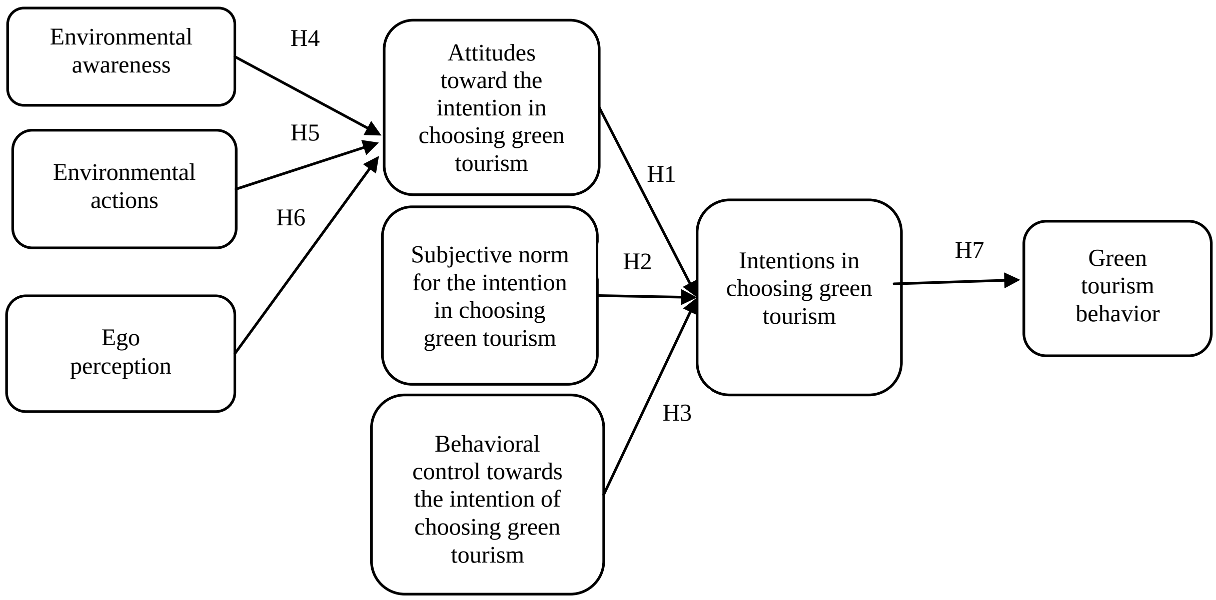


Figure 1. Model of factors affecting the Green tourism behavior of the Gen Z (Source: Author's proposal)

## METHOD RESEARCH

### a. Research context

Vietnam is among the nations with the most potential for creating green tourism models. Its advantages include being situated in the perfect tropical monsoon climate belt, having a varied topography that includes hills, plateaus, and long coastlines, having a rich cultural-historical heritage with unique features, having a variety of abundant ecosystems, and serving as a gathering place for numerous ancient forests that are currently listed for conservation. According to statistics from travel apps, Generation Z travelers have searched for Asian destinations online more frequently than before the pandemic, up more than 50%, and Vietnam is one of the most popular vacation destinations for Generation Z. They note that Vietnam, and Southeast Asia in general, fulfill all of Gen Z's desires and needs when it comes to travel.

In the current trend, as tourists' concern for environmentally friendly consumption behavior continues to rise, the development of green tourism products has been emphasized by some destinations, travel companies, and hotels. However, within the scope of this study, the focus will be limited to typical green tourism destinations in the three geographical regions of Vietnam, specifically: Hanoi, Danang and Phu Quoc to conduct the investigation and survey. These selections are based on the characteristics of tourism resources, green tourism products, and annual tourist arrivals.

### b. Questionnaire

In order to simplify the process of gathering and analyzing data, a questionnaire of thirty-one scales was established, borrowed, and improved upon from credible earlier studies. The majority of the scales utilized in the surv ey were taken from research conducted elsewhere. The research team sought the advice of 15 specialists and researchers in the domains of social sciences and tourism to guarantee appro. Furthermore, a preliminary survey comprising seventy samples was carried out to improve the questionnaire's phrasing and guarantee comprehensibility. After receiving feedback from experts and responders, a few questions were changed, and the final version of the questionnaire had three sections: an introduction outlining its aim, the questions' content, and demographic data. A Likert scale was employed with 5 levels (level 1: completely disagree, level 5: completely agree).

### c. Date collection

The study participants consisted of international and domestic gen Z tourists with intentions to choose green tourism at various tourist destinations in Vietnam. A purposive non-random sampling method was utilized, and data collection took place over a period of 5 months from November 2023 to March 2024. A total of 315 surveys were distributed through both direct and indirect methods via the Google Forms application. The total number of valid questionnaires received from the two survey methods was 270, achieving a rate of 85.71% in which, 52.6% of the ratio is male and 47.4% is female. The largest percentage of respondents, 46.3%, are in the age range of 26 to 28 years old. They are followed in age order by 23 to 25 years old, 33.7%, and the remaining 20% are in the age range of 18 to 22 years old. The collected data were processed using Smart PLS software version 4.0.9.2.

## RESEARCH RESULT

### 1. Model measurement evaluation

Firstly, the authors estimated convergence through factor loadings of each factor and coefficients of Cronbach's Alpha (CA), composite reliability (CR), and average variance extracted (AVE) of each variable.

According to Hair et al. (2019), for reflective measurement models, it is necessary to consider evaluation based on standards of internal consistency reliability, convergence validity, and discriminant validity. The evaluation results of the measurement model are presented in the following (Table 1).

Table 1. The estimation results of the reflective measurement model (Source: Results from the SmartPLS analysis by the authors)

| Contruct | Indicator | Outer loading | Cronbachs alpha | Composite Reliability | Average Variance Extracted | R-square | VIF |
|---|---|---|---|---|---|---|---|
| Attitudes toward the intention in green tourism | ATT1 | 0.897 | 0.828 | | | | 3.524 |
| | ATT2 | 0.905 | | 0.928 | | | 3.662 |
| | ATT3 | 0.917 | | | 0.823 | 81,1% | 4.268 |
| | ATT4 | 0.909 | | | | | 4.121 |
| Behavioral control towards the intention of green tourism | BCT1 | 0.841 | | | | | 2.366 |
| | BCT2 | 0.909 | | | | | 3.768 |
| | BCT3 | 0.874 | 0.834 | | | | 2.864 |
| | BCT4 | 0.906 | | | | | 3.901 |
| | BCT5 | 0.917 | | 0.935 | 0.792 | | 4.197 |
| Environmental actions | EAC1 | 0.861 | | | | | 2.251 |
| | EAC2 | 0.917 | 0.817 | | | | 3.548 |
| | EAC3 | 0.897 | | 0.920 | 0.801 | | 3.568 |
| | EAC4 | 0.904 | | | | | 3.557 |
| Environmental awareness | EAW1 | 0.890 | | | | | 3.171 |
| | EAW2 | 0.908 | 0.811 | 0.911 | | | 3.537 |
| | EAW3 | 0.879 | | | 0.789 | | 2.674 |
| | EAW4 | 0.877 | | | | | 2.575 |
| Ego perception | EPE1 | 0.889 | | | | | 1.971 |
| | EPE2 | 0.900 | 0.734 | 0.806 | 0.657 | | 2.129 |
| | EPE3 | 0.609 | | | | | 1.208 |
| Green tourism behavior | GTB1 | 0.900 | 0.812 | | | | 2.664 |
| | GTB2 | 0.938 | | 0.914 | 0.849 | 65,9% | 3.657 |
| | GTB3 | 0.925 | | | | | 3.274 |
| Intentions in choosing green tourism | INT1 | 0.873 | 0.895 | | | | 2.683 |
| | INT2 | 0.902 | | | | | 3.189 |
| | INT3 | 0.840 | | 0.896 | 0.762 | 87% | 2.079 |
| | INT4 | 0.875 | | | | | 2.461 |
| Subjective norm for the intention in green tourism | SUB1 | 0.885 | 0.909 | | | | 3.530 |
| | SUB2 | 0.889 | | | | | 3.608 |
| | SUB3 | 0.891 | | 0.911 | 0.785 | | 2.911 |
| | SUB4 | 0.878 | | | | | 2.776 |

#### 1.1. Evaluate internal consistency reliability

The following data analysis results reflect the internal consistency reliability. The reliability indices through Cronbach's Alpha coefficient, composite reliability coefficient of latent concepts all fall within the recommended threshold by Hair et al. (2019), ranging from a minimum of 0.734 to a maximum of 0.909. Thus, the measurement model of this study achieves internal consistency reliability as both the alpha coefficient and composite reliability meet the requirements (above 0.7).

### 1.2. Evaluation of the convergent validity of the scale

To evaluate the level of convergence of latent structures, the authors selected the average variance extracted (AVE) index. Each variable is considered to have good convergence when the variation of the latent structure explains at least 50% of the variance of the observed variable or has an extracted variance coefficient greater than 0.5. The AVE results of each variable shown in (table 1) indicate that the convergence value (represented by the AVE value of latent concepts) is good. Indeed, this value ranges from 0.657 to 0.849, all greater than 0.5 and meeting the convergence value conditions. Thus, the measures in the model with the main sample achieve the necessary convergence accuracy.

### 1.3. Evaluation of the discriminant of the scale

The discriminant value indicates the uniqueness or differentiation of a structure when compared to other structures in the model. According to Ringle et al. (2015), the Heterotrait Monotrait Ratio method is recommended for determining the discriminant validity of latent variables. According to Garson (2016), the discriminant value between two related latent structures is proven when the HTMT coefficient is < 1. The table below shows that the HTMT coefficient of each structure is all lower than 1 (with the highest value reaching only 0.973 < 1). Therefore, the criterion for discriminant value has been established for HTMT (Table 2). In summary, from the above results, the authors conclude that the measures used in the research model have achieved excellent internal consistency reliability, convergent validity, and discriminant validity. Therefore, all 8 measures of these latent structures are used for analysis in the structural equation model.

Table 2. Discriminant Validity Assessment using HTMT Criterion Source: Results from the SmartPLS analysis by the authors

| | ATT | BCT | EAC | EAW | EPE | GTB | INT | SUB |
|---|---|---|---|---|---|---|---|---|
| **ATT** | | | | | | | | |
| **BCT** | 0.903 | | | | | | | |
| **EAC** | 0.904 | 0.862 | | | | | | |
| **EAW** | 0.885 | 0.903 | 0.805 | | | | | |
| **EPE** | 0.902 | 0.824 | 0.844 | 0.780 | | | | |
| **GTB** | 0.864 | 0.797 | 0.824 | 0.750 | 0.994 | | | |
| **INT** | 0.973 | 0.944 | 0.928 | 0.896 | 0.931 | 0.897 | | |
| **SUB** | 0.946 | 0.868 | 0.889 | 0.823 | 0.906 | 0.953 | 0.984 | |

### 2. Evaluation of SEM Structural Model

The results of testing the relationships between latent structures are shown in Figure 2. The structural model was bootstrapped with a sample size of N = 5,000 to specifically estimate the relationships between latent variables. Path coefficient values for endogenous latent variables were used to analyze the model at a significance level of 1%. The PLS-SEM model testing results for all bootstrap samples provide mean values and standard errors for each path coefficient. T-test statistics and P-values indicate the statistical significance of relationships in the research model (Figure 2).

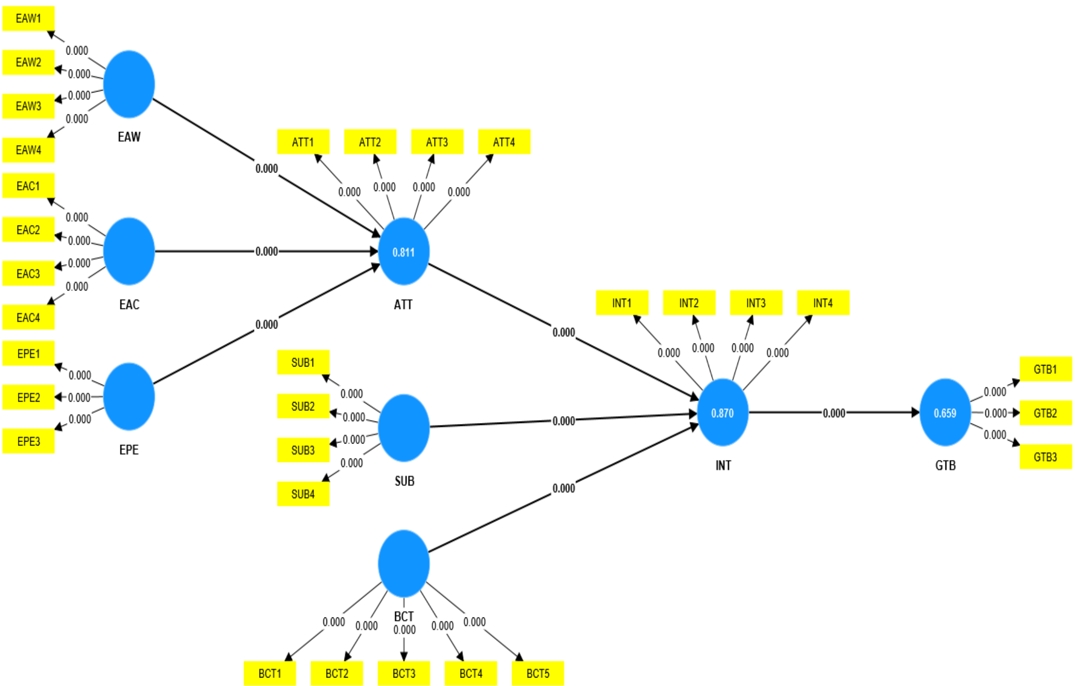


Figure 2. Estimated Results of SEM Structural Model (Source: Results from the SmartPLS analysis by the authors)

The Table 3 of results indicates that all direct relationships between variables are statistically significant, and all research hypotheses are accepted at a 95% confidence level (the P-value of the relationships is less than 0.05). This shows that all main effects in the model are confirmed to be statistically significant. In addition to the $R^2$ coefficients for evaluating the internal structure, the change in $R^2$ value when an exogenous variable is excluded, expressed through Cohen's effect size measure (called $f^2$), is also used to assess the importance of the excluded variable on the endogenous variable. If the value is $0.15 > f^2 \geq 0.02$, it indicates that the exogenous variable has a small effect on the endogenous variable; $0.35 > f^2 \geq 0.15$ indicates a moderate effect, and if $f^2 \geq 0.35$, it indicates a large effect of the exogenous variable on the endogenous variable (Cohen, 2013). If $f^2 < 0.02$, it is considered to have no impact.

Testing for multicollinearity:

The issue of multicollinearity in the model needs to be checked using the variance inflation factor (VIF). According to Hair et al. (2019), in SEM structural models, multicollinearity issues can be serious when the VIF value is higher than 5, and it can occur when the VIF value is between 3 and 5, ideally the value of this coefficient should be less than 3.

Table 4 provides the results of multicollinearity testing – the outer model. The results show that the variance inflation factor (VIF) indicates no violation of the assumption of multicollinearity, as all coefficients are within an acceptable range of VIF values lower than 5. Therefore, the structural model does not suffer from multicollinearity.

Table 3. Estimated Results of SEM Structural Model (Source: Results from the SmartPLS analysis by the authors)

| | **Original sample (O)** | **Sample mean (M)** | **P values** | **Theory conclusion** | **F- square** | **Impact level** |
|---|---|---|---|---|---|---|
| ATT -> INT | 0.282 | 0.286 | 0.000 | Qualified | 0.113 | Small impact |
| BCT -> INT | 0.304 | 0.316 | 0.000 | Qualified | 0.192 | Average impact |
| EAC -> ATT | 0.407 | 0.410 | 0.000 | Qualified | 0.311 | Average impact |
| EAW -> ATT | 0.358 | 0.357 | 0.000 | Qualified | 0.280 | Average impact |
| EPE -> ATT | 0.232 | 0.229 | 0.000 | Qualified | 0.125 | Small impact |
| INT -> GTB | 0.812 | 0.811 | 0.000 | Qualified | 1.930 | Big impact |
| SUB -> INT | 0.401 | 0.384 | 0.000 | Qualified | 0.278 | Average impact |

Table 4. Results of Multicollinearity Testing - Inner Model (Source: Results from the SmartPLS analysis by the authors)

| | **ATT** | **GTB** | **INT** |
|---|---|---|---|
| **ATT** | | | 4.397 |
| **BCT** | | | 3.681 |
| **EAC** | 2.807 | | |
| **EAW** | 2.415 | | |
| **EPE** | 2.271 | | |
| **INT** | | 1.000 | |
| **SUB** | | | 4.434 |

## DISCUSSION AND IMPLICATIONS

This study aimed to understand the influence of various factors on the green tourism consumption behavior of Gen Z travelers at tourist destinations in Vietnam. On top of that, the study discovered direct and indirect relationships influencing Gen Z's intention and behavior towards green tourism by integrating the TPB, VAB theories, and generation theory. By applying SmartPLS software to analyze the data, the research results confirm that all direct relationships between variables are statistically significant, and all research hypotheses are accepted at confidence levels from 80.6% to 93.5%. These findings provide experimental evidence of the relationships between the factors ATT, SUB, BCT, and INT with GTB. This demonstrates that the study has achieved significance both theoretically and practically.

### 1. Theoretical implications

Based on an overview of research on green tourism behavior, it shows that studies often use TPB theory to identify influencing factors including attitudes, subjective norms, and behavioral control. However, the limitations of only applying the TPB model are identified as not taking into account variables such as psychological characteristics of age or actions, past experiences that affect intention and motivation to act. Therefore, within the scope of this study, the authors sought to reduce the limitations of previous studies by using the VAB research framework to identify additional factors of interest in environment; environmental action and self-image. In Vietnam, previous studies also mainly focused on a TPB theory to study the intention to choose green tourism and green consumption behavior. All of this research is informed by an environmentally friendly or socially responsible perspective of tourists in general. However, each group of tourists of different generations will have different needs, behaviors and self-image expressions. Therefore, another new point in this study is to emphasize the ego image of gen Z tourists in forming green tourism choice and behavior.

Thus, with the integrated research of three theories: TPB, VAB and Generation theory, the study has identified two relationships that directly and indirectly affect the intention to choose and green tourism behavior. The research results show that (Table 3): First, with the direct influence relationship between ATT, BCT and SUB on INT and GTB, the influence of SUB on INT is the strongest, followed by the influence of BCT on INT and weaker is the influence of ATT on INT. Second, in the direct influence relationship of EAC, EAW and EPE on ATT and indirectly on INT, EAC has the strongest influence on ATT, followed by the influence of EAW on ATT, and the weakest is the influence of EPE on ATT. This is consistent with the findings of other researchers (Peña-García et al., 2020; Li et al., 2021; Rausch and Kopplin, 2021).

### 2. Managerial implications

Based on the results of empirical research on the factors affecting green travel behavior of Generation Z in Vietnam, the study proposes some specific implications as follows:

On the part of managers and policy makers: (1) it is necessary to focus solutions on individual social responsibility towards the environment; (2) Strengthen coordination and cooperation between the government and the community to increase efficiency in promoting social responsibility; (3) develop and promulgate specific documents regulating or guiding how to implement green tourism products oriented towards sustainable tourism destination development; (4) learn from models of domestic and international green tourism destinations and draw lessons in exploiting and developing green tourism.

On the part of tourism businesses: (1) continuously raise awareness and attitudes of Gen Z tourists about green travel options. It is important to emphasize the importance of green consumption for environmental sustainability and human health, aiming to change social attitudes and behaviors towards environmental protection; (2) supporting and educating about environmental protection responsibility in tourism is also very important, especially in Vietnam as a developing country, young people's awareness needs to be educated from an early age to form a positive awareness, saving and protecting tourism resources; (3) Gen Z tourists are increasingly interested in consuming green tourism products and they are influenced by many factors when forming their choice intentions, including forums and communities. Therefore, tourism businesses can create positive influences through social media, influencing members of society such as family, friends, colleagues, and people who are important to young consumers. (4) Young people's intention to choose green tourism products has differences in demographic characteristics.

Therefore, tourism businesses can design action programs suitable for this group. Finally, there needs to be coordination and cooperation between tourism management agencies, tourism businesses and other stakeholders in raising awareness and responsibility for green consumption behavior among tourists.

## LIMITATIONS AND NEW RESEARCH DIRECTIONS

This study is one of the first to investigate the influence of various factors on the green tourism consumption behavior of gen Z. The relationship between influencing factors and the intention to choose green tourism with the green tourism consumption behavior of gen Z is based on the integration of three theories: planned behavior theory, value-attitude-behavior theory, and basic human values theory. The study proposes a research model based on the common understanding of previous studies. Despite the significant findings, the study still has some limitations. Firstly, the study was conducted using a purposive non-random sampling method, which may introduce subjectivity to the results, reducing objectivity and generalizability. Moreover, the scope of the study was limited to three typical tourism destinations in the three regions of Vietnam, so the experimental results only allow for some short-term conclusions and implications. Secondly, the study did not examine the differences between international and domestic tourists in their intention to choose and green tourism consumption behavior. Therefore, this could be a new research direction in the future.

**Author Contributions:** Conceptualization, B.T.Q.T and N.V.T; methodology, B.T.Q.T and N.V.T; software, N.V.T and B.P.L; validation, B.T.Q.T; formal analysis, B.T.Q.T and N.V.T; investigation, N.V.T, B.P.L and B.T.Q.T.; data curation, B.T.Q.T and N.V.T.; writing - original draft preparation, B.T.Q.T and N.V.T.; writing - review and editing, B.T.Q.T; visualization, B.T.Q.T and B.P.L.; supervision, B.T.Q.T and B.P.L; project administration, B.T.Q.T and N.V.T. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research is funded by Thuongmai University, Hanoi, Vietnam.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 20.08.2024 Revised: 12.10.2024 Accepted: 25.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1941-1951
DOI 10.30892/gtg.574spl08-1361

# MEASUREMENT OF ENVIRONMENTAL INDICATORS OF THE QUALITY OF LIFE IN A REGION WITH EXTREME CLIMATIC CONDITIONS. EVIDENCE FROM AROUND THE ARAL SEA

**Izimbet TURDIMAMBETOV**
Karakalpak State University, Economic and Social Geography Department, Nukus, Uzbekistan, e-mail: izimbet76@karsu

**František MURGAŠ**
Technical University of Liberec, Department of Geography, Liberec, Czech Republic, e-mail: fmtren@gmail.com

**Fedorko VICTOR**
Secondary school No. 233, Tashkent, Uzbekistan, e-mail: viktor-f-89@mail.ru

**Medetbay OTEULIEV***
Karakalpak State University, Economic and Social Geography Department, Nukus, Uzbekistan, e-mail: medetbay.oteuliev@gmail.com

**Amet MADREIMOV**
Karakalpakstan Medical Institute, Nukus, Uzbekistan, e-mail: madreimovamet@mail.ru

**Gulnaz SHAMURATOVA**
Karakalpak State University, Ecology and Soil Science Department, Nukus, Uzbekistan, e-mail: sh_gulnaz@karsu.uz

**Sarvarbek ATABAYEV**
National University of Uzbekistan, Department of Cartography, Tashkent, Uzbekistan, e-mail: atabayev_s@nuu.uz

**Ahmed REYMOV**
Karakalpak State University, Chemical Technology Department, Nukus, Uzbekistan, e-mail: r.axmed@exat.uz

**Citation:** Turdimambetov, I., Murgaš, F., Victor, F., Oteuliev, M., Madreimov, A., Shamuratova, G., Atabayev, S., & Reymov, A. (2024). MEASUREMENT OF ENVIRONMENTAL INDICATORS OF THE QUALITY OF LIFE IN A REGION WITH EXTREME CLIMATIC CONDITIONS. EVIDENCE FROM AROUND THE ARAL SEA. *Geojournal of Tourism and Geosites*, 57(4spl), 1941–1951. https://doi.org/10.30892/gtg.574spl08-1361

**Abstract:** One of the urgent problems of humanity is global warming. The paper focuses on the Karakalpakstan Republic adjacent to the Aral Sea. Its drying up caused by human activity has significantly contributed to the emergence of extreme climatic conditions that are also manifested in neighbouring countries. The region characterized by extreme continentality and the effects of cold, heat and drought can be described as a laboratory of future environmental development with a significant impact on the quality of life of its inhabitants. The article evaluates the spatial differentiation of environmental indicators of residents' quality of life in the Karakalpakstan Republic districts as part of Uzbekistan. Considering the extreme climatic conditions not only in this part of Uzbekistan, adjacent to the Aral Sea, but also in neighbouring countries and the urgency of solving the problem of climate change eroding the environmental quality of life, it is proposed to create. When evaluating the quality of life, 10 indicators were selected, which were measured by district. The indicators of the districts were compared with the average indicators of Karakalpakstan. The districts were then ranked and divided into high, medium and low levels. Takhiatash and Turtkul districts are rated as less affected by environmental factors and have a higher quality of life than other districts.

**Keywords:** quality of life, environmental quality of life, climate, Aral Sea, Karakalpakstan, Uzbekistan

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## INTRODUCTION

In recent years, the study of quality of life has been expanding into new areas, including the study of people's quality of life after natural disasters (Cui and Han, 2018; Shigemoto and Kawachi, 2020; Ritchie and Rosado, 2024). These disasters are generally short-lived and in the case of earthquakes cause the death of thousands of people. In contrast to them, in our paper, we are focused on slow and long-term environmental degradation and its impact on quality of life. Quality of life is a concept by which people evaluate satisfaction with their life. It has two dimensions, subjective and objective. In the subjective dimension, also referred to as psychological, people subjectively evaluate their lives, resulting in subjective data.

In the objective dimension, also referred to as geographical, there are two measurement options. In the first, scientists identify available statistical indicators and use them to create a quality of life index for a given spatial unit. Statistical indicators are objective data. An example of such a measurement is Murgaš and Klobučník (2016), who created the

* Corresponding author

"Golden Standard of the Quality of Life" with 10 indicators, including one environmental indicator, which was the emission balance. Quality of life was measured at the level of municipalities, districts and regions of the Czech Republic. The second option is to measure satisfaction with place quality indicators using anonymous questionnaires. Data is obtained using social networks or personally, that is, by the face-to-face method. The subjective quality of life is usually measured on the Cantril scale of 0-10 (Glatzer and Gulyas 2014). Currently, the concept of quality of life is gaining attention in developing countries (Izakovičová, 2005; Madrigal et al., 2008; Zaid and Popoola, 2010; Singh and Kaur, 2014; Silva et al., 2017; Izakovičová et al., 2018; Purba et al., 2018, Duboz et al., 2021). Scientists paid attention to the quality of life also in the Soviet Union (Herlemann and Murphy, 1987) and its successor countries (Srapyan et al., 2006; Karkashadze et al., 2017; Berkalov et al., 2018; Taspenova et al., 2019; Shchekotin et al., 2021).

## THEORETICAL BACKGROUND

The term "quality of life" expresses a multidisciplinary concept with many interrelated variables. It has two dimensions, a subjective one, usually referred to as well-being, and an objective one, usually referred to as quality of place. At a lower hierarchical level, the dimensions are divided into environmental, economic, social, medical and other domains. The quality of life is determined taking into account the relationship between psychological well-being, health, social relations, the standard of living of a person, social and spiritual development and the level of the environment. There is no consensus on whether wealth or prosperity belongs to the quality of life. The mentioned domains, both tangible and intangible, co-create a feeling of satisfaction with life. We can say that quality of life is a good life lived in a good place. Veenhoven (2013) considers the quality of life to be closely related to the phenomenon of the "good life". Quality of life is one of the important categories of social sciences, including socioeconomic geography. Geographers prefer the term "geography of the quality of life" from the point of view of this science, the definition of the term "quality of life" includes not only the subjective idea of "personal well-being", but also the objective environmental quality of life. Geographer Merkushev (1996) provides the following definition of the term quality of life - it is "an integral term that comprehensively describes the level of well-being of the environment of human life and activity and the level of well-being, social and spiritual development". The geographical definition of quality of life should focus more on residential areas. Quality of life is assessed from the point of view of a comprehensive and systematic approach and is defined as a holistic concept, taking into account regional differences at individual taxonomic levels, as well as at global, regional and local levels. The article deals with the environmental domain of the quality of life in Karakalpakstan, which is part of the Republic of Uzbekistan. The reason for our interest is that the environmental conditions for living a good life are extremely difficult. For this reason, we propose the term "environmental quality of life". The term is used by the OECD (2014) and the World Happiness Report (Krekel and MacKerron, 2020).

In the past, several geographers have studied the influence of climate and other environmental components on the living conditions of people in this region. Lopatina and Nazarevsky (1972) conducted research on the assessment of the natural living conditions of the population, Popov (2005) on a comprehensive assessment of the comfort of the natural environment of the Aral Sea, Oksenich (1981) on the arid climate of Turkmenistan and its impact on humans and Misevich and Ryashenko (1988) on the geographical environment and living conditions of the people of Siberia. The aim of the article is a comprehensive investigation of the geographical differentiation of the environmental quality of life in the Republic of Karakalpakstan.

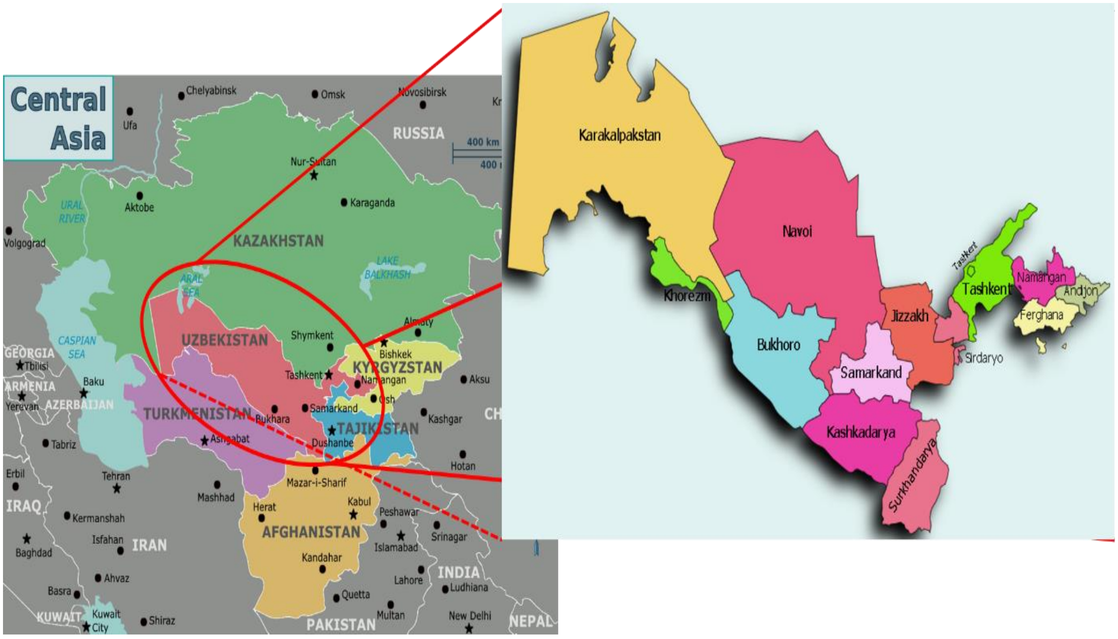


Figure 1. Location of Uzbekistan (Source: edited by the authors from Google)

## BRIEF GEOGRAPHIC CHARACTERISTICS OF UZBEKISTAN

Uzbekistan is located almost in the middle of Eurasia and Central Asia (Figure 1). The republic, with a population of 36 million, borders Kazakhstan to the north; Kyrgyzstan to the northeast; Tajikistan to the southeast; Afghanistan to the south and Turkmenistan to the southwest. Administratively, it consists of the Karakalpakstan Republic, 12 regions and the city of Tashkent. The most important feature of the natural, economic and political geographical location of Uzbekistan is that it is located far from the world's oceans, inside the Eurasian continent. Such a geographical location affects not only the formation of the country's climate but also its socio-economic and geopolitical development.

Changes in the state of the natural environment under the influence of humans, strong anthropogenic influence on living and non-living components cause local, regional and global environmental problems. In particular, such effects led to the "Aral Sea problem", which is the most dangerous point of the ecological crisis in the region. The Aral Sea has become almost a "dead" sea with a dry bottom covering an area of 4.2 million hectares, a source of dust and sand-salt aerosols. It releases 80 to 100 million tons of dust into the atmosphere annually. At the same time, soil degradation and desertification are increasing in the Amudarya and Syrdarya river deltas.

In the paper, we are focused on the administrative part of Uzbekistan, which is the Republic of Karakalpakstan. Its location as the gateway to Uzbekistan from European countries creates favorable conditions for its development. The surface structure of Karakalpakstan is not complicated: the highest point is the ridge of Sultan Uvays, which is located at an altitude of 473 m above sea level. The western part of the Republic of Karakalpakstan is occupied by the Ustyurt Plateau, the rest by the Turan Plain. The climate is extremely continental; The amount of annual precipitation is around 90-100 mm. Therefore, despite the large area of land in the Republic of Karakalpakstan (which is in the first place in Uzbekistan in this regard), the possibilities for the development of irrigated agriculture are considerably limited (Popov, 2005).

The northern regions of Karakalpakstan are directly connected to the Aral Sea. It is known that this "sea" has been continuously drying up for the last 58-60 years and a large area of the "Aralkum" desert has appeared in its dry part. Like other regions of Central Asia, Karakalpakstan is located in a closed basin, and its extremely continental climate has a strong influence on the formation and distribution of groundwater and surface water throughout the region.

In Table 1, we present a comparison of Uzbekistan with the top 5 countries in the world, Russia, and the neighboring republics of Turkmenistan, Tajikistan and Kyrgyzstan. Uzbekistan ranks 44$^{th}$ in CEO Happiness, 100$^{th}$ in Legatum and 53$^{rd}$ in the World Happiness Report (Table 1).

Table 1. Country ranking in the quality of life in selected measurements and Uzbekistan's position in them (Source: CEO World 2020, Legatum 2021, World Happiness Report 2019-2021) Note: CEO Happ.: CEO Happiness, WHR: World Happiness Report

| Rank | Country | | |
|---|---|---|---|
| | CEO Happ. | Legatum | WHR |
| 1. | Switzerland | Denmark | Finland |
| 2. | Finland | Norway | Denmark |
| 3. | Iceland | Sweden | Iceland |
| 4. | Netherland | Finland | Switzerland |
| 5. | Canada | Switzerland | Netherland |
| Uzbekistan | 44. | 100. | 53. |
| Rusko | 58. | 70. | 80. |
| Kazakhstan | 59. | 64. | 40. |
| Kyrgyzstan | 90. | 90. | 64. |
| Turkmenistan | 67. | 108. | 78. |
| Tajikistan | 78 | 110. | 83. |

## MATERIALS AND METHODS

Environmental conditions are important for the quality of life of population, which create one of the domains of quality of life - the environmental domain (Murgaš, 2015). This domain consists of measurable indicators that together with other indicators form the quality of place as an objective dimension of quality of life. The structure of the quality of life concept, its dimensions, domains and indicators are analyzed by Petrovič and Murgaš (2020). Environmental conditions not only directly, but also indirectly affect human health and well-being, which is why several authors pay attention to them (Streimikiene, 2015; Murgaš and Petrovič 2020; Grabowska et al., 2021). From numerous environmental indicators, we have identified 10 that we consider significant in terms of impact on the quality of life of Karakalpakstan:

1. Heat index (1990-2019)
2. Coldness index (1990-2019)
3. Drought Index (1990-2019)
4. Climate Tension Index (1990-2019)
5. The proportion of saline lands in total irrigated lands (2018-2020)
6. The average volume of water per 1 hectare of irrigated land (2018-2020)
7. Percentage of water samples from open water reservoirs that do not meet chemical standards (2018-2020)
8. Percentage of well water samples that do not meet hygienic requirements in terms of chemical indicators (2018-2020)
9. Percentage of tap water samples exceeding the maximum allowable concentration of chemicals and indicators (2018-2020)
10. Disadvantages of ecological geographical location

When evaluating the values of environmental quality of life indicators, calculations were made based on the data of the Hydrometeorological Service Center of the Republic of Uzbekistan, the Karakalpakstan Department of Sanitary and

Epidemiological Peace and Public Health and the Central Asian Irrigation Research Institute. According to the experts of the Hydrometeorological Department of the Republic of Karakalpakstan, the days with temperatures below -10$^o$ C are cold days, the days with temperatures above +40$^o$ C are hot days in Karakalpakstan. Therefore, we calculated the number of days in the 30-year period, i.e. 1990-2019, which fell below the average -10$^o$ C during the year. In the ArcGIS 10.6.1 program, the territory of Karakalpakstan was divided into three zones by interpolation, taking into account the number of values calculated at the meteorological stations in the districts and taking the meteorological stations as reference points.

Coldness zones: Zone 1: For a year - air temperature below 10$^o$ C was observed for less than 20 days;
Zone 2: For a year - air temperature below 10$^o$ C was observed for 20-30 days;
Zone 3: For a year - air temperatures below 10$^o$ C were observed for more than 30 days.

Heat zones: Zone 1: Air temperature above + 40$^o$ C was observed for less than 4 days during the year;
Zone 2: Air temperature above + 40$^o$ C was observed for 4-7 days during the year;
Zone 3: Air temperature above + 40$^o$ C was observed for more than 7 days during the year.

Drought zones: Zone 1: Relative humidity below 20% for one year was observed for less than 30 days;
Zone 2: Relative humidity below 20% for one year was observed for 30-60 days;
Zone 3: Relative humidity below 20% for one year was observed for more than 60 days.

Climate tension zone: Zone 1: The average long-term value of the annual amplitude of air temperature is below 60°C;
Zone 2: The average long-term value of the annual amplitude of air temperature is 60-65°C;
Zone 3: The average long-term value of the annual air temperature amplitude is above 65°C.

The residents of each district were divided into three zones according to cold, heat, drought, and amplitude. At the same time, at the level of settlements, the residents were calculated by zones. Then, in each district, the proportion of the residents corresponding to the first, second and third zones in the total residents of the district was obtained. Then the proportion of the residents living in the first zone was multiplied by one, the proportion of the residents living in the second zone was multiplied by two, the proportion of the residents living in the third zone was multiplied by three, and we added the numbers in the three zones formed to each other. The sum of these three numbers gave the coldness index. Taking into account the distribution of the entire residents of Karakalpakstan in three zones, the coldness index was calculated for the entire territory of Karakalpakstan and the relative coefficient of the coldness index of each district was determined by comparing it with that of Karakalpakstan. Conditionally, the relativity coefficient of Karakalpakstan is equal to one and the average cold days in other districts will be less than one if less than in Karakalpakstan, and more than one if more than in Karakalpakstan. However, this does not take into account the zoning of the territory, but the zoning of the residents. Because the assessment of the resident is going on. While a large area is located in the cold zone, where there are small residents, this is not a big problem for the residents. The index was based on which cold zone the lands of the area where the majority of the residents fell into. However, detailed calculations were made taking into account the zone in which each village was located. No settlement, city or village remained (Figure 2).

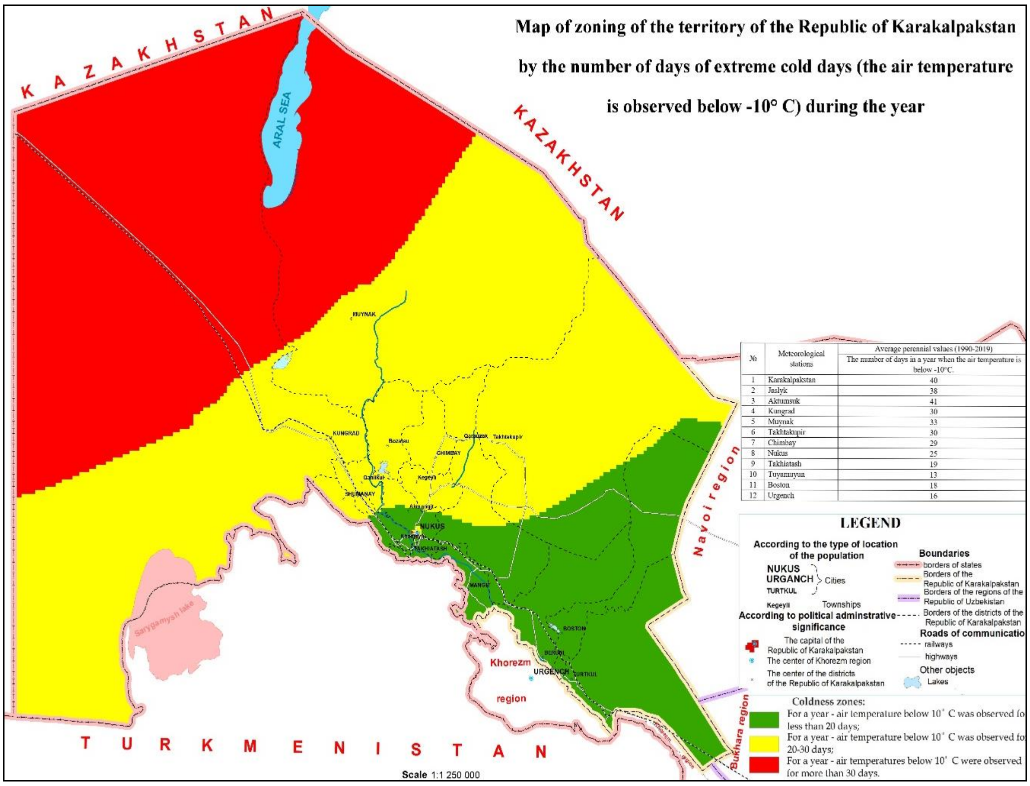


Figure 2. Map of zoning of the territory of the Republic of Karakalpakstan by the number of days of extreme cold days (the air temperature is observed below -10° C) during the year (Source: own research)

All residents of Amudarya, Beruni, Takhiatash, Turtkul, Khodjeyli and partly Ellikkala districts were included in the first zone or the zone where the air temperature was below -10 °C for less than 20 days. In this first zone there are 66% of the residents of Nukus district, 3% of the residents of Qarauzak district and 1% of the residents of Nukus city. 99% of Nukus residents, 97% of Qarauzak district residents, 92% of Kungrad district residents and 34% of Nukus district residents live in the second zone. Only 8% of the residents of the Kungrad district are located in the zone where the air temperature was below -10°C for more than 30 days a year. This means that about 11,000 residents of the Kungrad district live in colder days than in other areas. Of course, it is clear that the high risk of catching a cold due to the unfavorable climate of the residents will lead to more energy consumption for heating their homes, as a result of which the residents will also suffer financially.

When the Republic of Karakalpakstan was divided into heat zones, only 1% of the total residents of Kungrad district is located in this first zone in the zone where the air temperature was above + 40° C for less than 4 days a year. The residents of the remaining districts were mainly 19% in the second zone and 81% in the third zone (Figure 3).

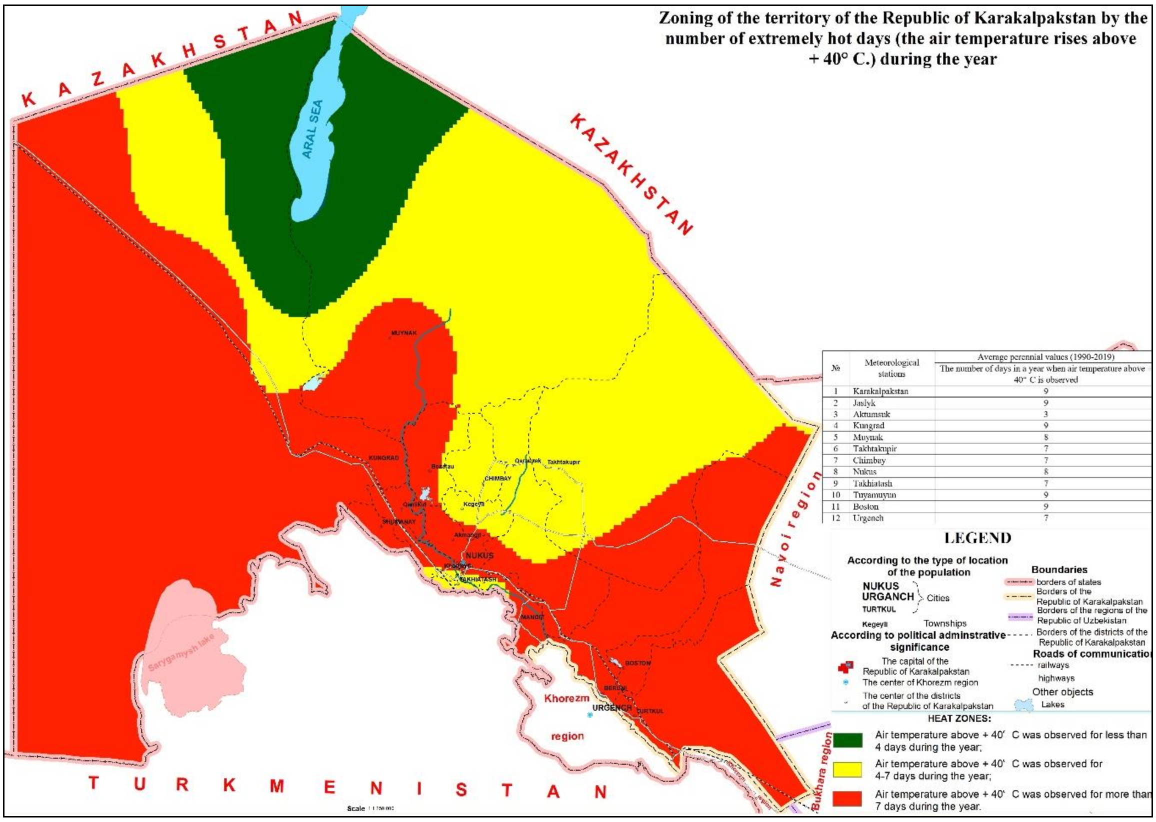


Figure 3. Zoning of the territory of the Republic of Karakalpakstan by the number of extremely hot days (the air temperature rises above + 40° C) during the year (Source: own research)

In the second part of this zone, all residents of Takhiatash, Takhtakupir and Chimbay districts are located. 98% of the residents of Qarauzak district, 79% of the residents of Kegeyli district, 19% of the residents of Bozatau district, 14% of the residents of Muynak district, 4% of the residents of Khodjeyli district and 2% of the residents of Amudarya district live in the zone where the temperature is above + 40° C for 4-7 days. 100% of the residents of Nukus city, Beruni, Nukus, Shumanay, Ellikkala, Turtkul and Qanlikul districts live in the zone where the air temperature was above +40° C for more than 7 days. 99% of the residents of Kungrad district, 98% of the residents of Amudarya district, 96% of the residents of Khodjeyli district, 86% of the residents of Muynak district, 81% of the residents of Bozatau district, 21% of the residents of Kegeyli district and 2% of the residents of Qarauzak district live in the third zone. 23% of the residents live in the first drought zone of the Republic of Karakalpakstan, i.e. in an area with relative humidity less than 20% per year for less than 30 days, 40% of the total residents live in the second zone with a relative humidity less than 20% per year for 30-60 days, and 37% of the residents live in the third zone with a relative humidity less than 20% per year for more than 60 days (Figure 4).

It was found that the residents of Muynak, Takhiatash and Takhtakupir districts live in the first zone. 93% of the residents of Kungrad district, 88% of the residents of Qarauzak district, 84% of the residents of Qanlikul district, 71% of the residents of Bozatau district, 69% of the residents of Shumanay district, 14% of the residents of Chimbay district, 7% of the residents of Turtkul district and 1% of the residents of Ellikkala district live in the first zones.

In the second zone, all residents of Amudarya, Kegeyli and Khodjeyli districts live in this zone. 93% of the residents of Turtkul district, 86% of the residents of Chimbay district, 34% of the residents of Nukus district, 29% of the residents of Bozatau district, 31% of the residents of Shumanay district, 16% of the residents of Qanlikul district, 12% of the residents of Qarauzak district, 6% of the residents of Beruni district and 1% of the residents of Nukus live in the second zone, where relative humidity is observed below 20% for 30-60 days.

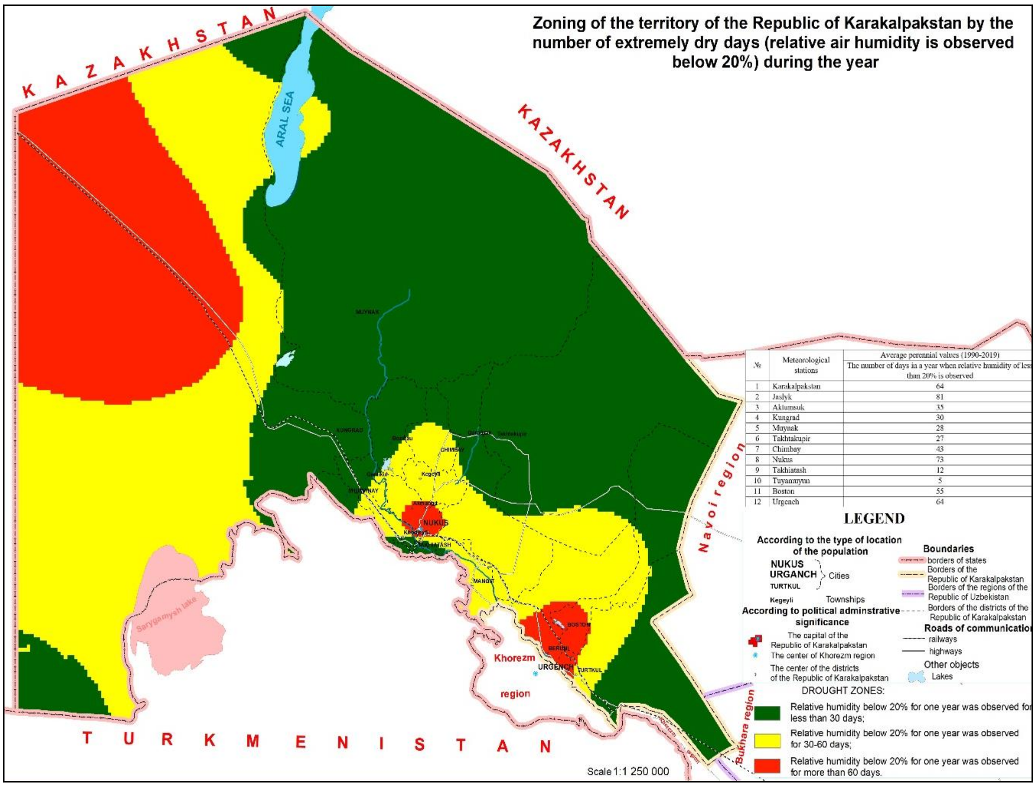


Figure 4. Zoning of the territory of the Republic of Karakalpakstan by the number of extremely dry days (relative air humidity is observed below 20%) during the year (Source: own research)

The third zone is inhabited by only 5 districts, of which 99% of the residents of Nukus city and Ellikkala district, 94% of the residents of Beruni district, 66% of the residents of Nukus district, 7% of the residents of Kungrad district. 49% of the population of the Republic of Karakalpakstan live in the first zone, where the average long-term value of the annual amplitude of air temperature in terms of climate tension is below 60° C, 50% of the population live in the second zone, where the average long-term value of the annual amplitude of air temperature is 60-65° C and in the last third zone i.e. 1% of the population in the zone where the average long-term value of the annual amplitude of air temperature is higher than 65° C.

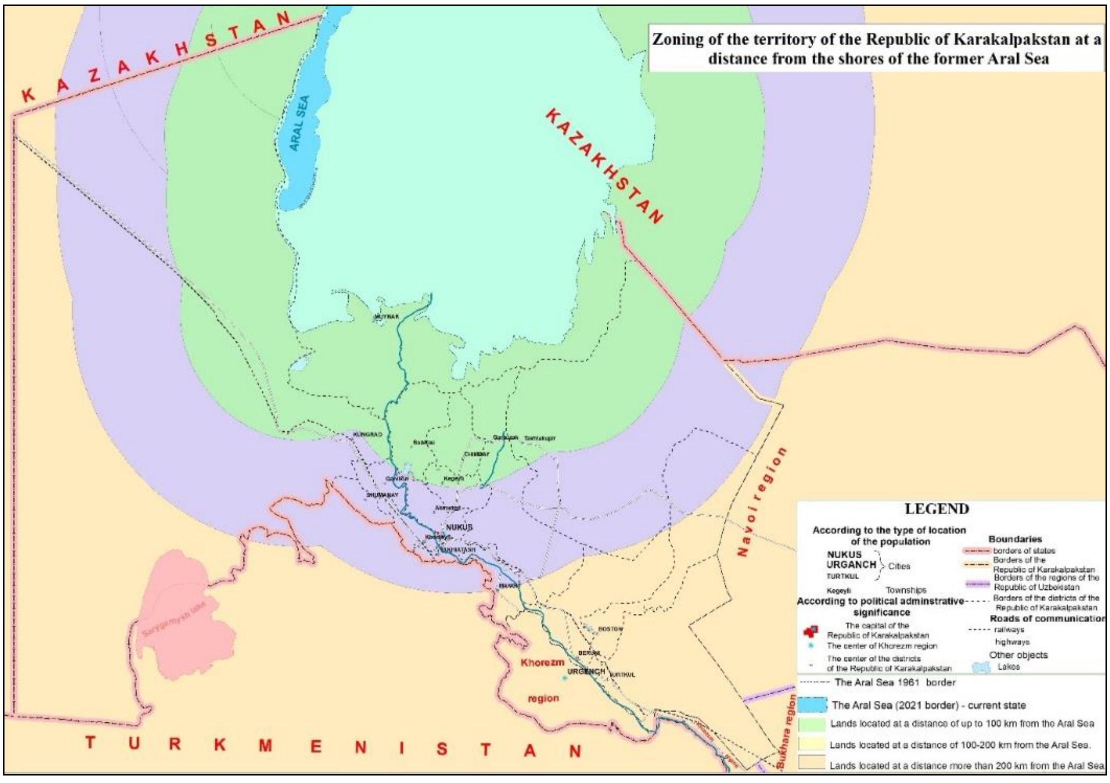


Figure 6. Zoning of the territory of the Republic of Karakalpakstan at a distance from the shores of the former Aral Sea (Source: own research)

Zone 1: Lands located at a distance more than 200 km from the Aral Sea. Zone 2: Lands located at a distance of 100-200 km from the Aral Sea. Zone 3: Lands located at a distance of up to 100 km from the Aral Sea. At the same time, the disadvantages of ecological geographical location are less in the first zone, moderate in the second zone, and the third zone is located within a radius of 100 km that suffers the most from the drying up of the Aral Sea. The residents of each district were calculated in three zonal sections. Based on the resident statistics, the residents of the districts were divided into three zones based on which of the three zones they were located in. Then the share of the total residents of the district was determined in fractional form, and the fractional shares were multiplied by the zone number. This mathematical sum formed the index of disadvantages of ecological-geographical location of the district (Table 4). Based on the distribution of the population of the Republic of Karakalpakstan in these three zones, the index of general ecological-geographical location disadvantages of the Republic of Karakalpakstan was calculated and the coefficient of relativity was determined by comparing the districts with the general index of the republic (Table 5). This index is negative, so no inverse coefficient was used for it. Only one index out of 10 is positive, the average volume of water per 1 hectare of irrigated land index is positive, and the remaining nine indices are negative. Therefore, in order for the general direction of the analysis to be the same, a reverse coefficient was used in a single indicator that was positive, and the sum of the 9 final indicators was the sum of the negative natural environmental characteristics of that district or Nukus city. The greater this sum, the more pronounced the negative aspects of the natural ecological situation, and the less this sum, the less the negative properties of the natural ecological situation are felt (Table 2).

Table 2. Stratification of districts of the Republic of Karakalpakstan on natural and ecological indicators of quality of life of the population (Source: own research)

| № | Administrative territorial units | Heat index (1990-2019) | | Coldness index (1990-2019) | | Drought index (1990-2019) | |
|---|---|---|---|---|---|---|---|
| | | Index | Relativity coefficient | Index | Relativity coefficient | Index | Relativity coefficient |
| 1 | Nukus city | 3.00 | 1.07 | 1.99 | 1.34 | 2.99 | 1.40 |
| | districts: | | | | | | |
| 2 | Amudarya | 2.98 | 1.06 | 1.00 | 0.68 | 2 | 0.94 |
| 3 | Beruni | 3.00 | 1.07 | 1.00 | 0.68 | 2.94 | 1.38 |
| 4 | Bozatau | 2.81 | 1.00 | 2.00 | 1.35 | 1.29 | 0.61 |
| 5 | Kegeyli | 2.21 | 0.79 | 2.00 | 1.35 | 2 | 0.94 |
| 6 | Muynak | 2.86 | 1.02 | 2.00 | 1.35 | 1 | 0.47 |
| 7 | Nukus | 3.00 | 1.07 | 1.34 | 0.91 | 2.66 | 1.25 |
| 8 | Takhiatash | 2.00 | 0.71 | 1.00 | 0.68 | 1 | 0.47 |
| 9 | Takhtakupir | 2.00 | 0.71 | 2.00 | 1.35 | 1 | 0.47 |
| 10 | Turtkul | 3.00 | 1.07 | 1.00 | 0.68 | 1.93 | 0.91 |
| 11 | Khodjeyli | 2.96 | 1.05 | 1.00 | 0.68 | 2 | 0.94 |
| 12 | Chimbay | 2.00 | 0.71 | 2.00 | 1.35 | 1.86 | 0.87 |
| 13 | Shumanay | 3.00 | 1.07 | 2.00 | 1.35 | 1.31 | 0.62 |
| 14 | Ellikkala | 3.00 | 1.07 | 1.00 | 0.68 | 2.99 | 1.40 |
| 15 | Qanlikul | 3.00 | 1.07 | 2.00 | 1.35 | 1.16 | 0.54 |
| 16 | Qarauzak | 2.02 | 0.72 | 1.97 | 1.33 | 1.12 | 0.53 |
| 17 | Kungrad | 2.98 | 1.06 | 2.08 | 1.41 | 1.15 | 0.54 |
| 18 | **Karakalpakstan Republic** | **2.81** | **1.00** | **1.48** | **1.00** | **2.13** | **1.00** |

Table 3. Stratification of districts of the Republic of Karakalpakstan on natural and ecological indicators of quality of life of the population (Source: own research)

| № | Administrative territorial units | Climate Tension Index (1990-2019) | | The proportion of saline lands in total irrigated lands (2018-2020) | | Percentage of water samples from open water reservoirs that do not meet chemical standards (2018-2020) | |
|---|---|---|---|---|---|---|---|
| | | Index | Relativity coefficient | Index | Relativity coefficient | Index | Relativity coefficient |
| 1 | Nukus city | 1.99 | 1.32 | 100 | 1.42 | 48.7 | 1.02 |
| | districts: | | | | | | |
| 2 | Amudarya | 1.02 | 0.68 | 68 | 0.96 | 64.5 | 1.35 |
| 3 | Beruni | 1.00 | 0.66 | 74 | 1.05 | 77.8 | 1.62 |
| 4 | Bozatau | 2.00 | 1.32 | 86 | 1.22 | 42.1 | 0.88 |
| 5 | Kegeyli | 1.99 | 1.32 | 63 | 0.89 | 37.8 | 0.79 |
| 6 | Muynak | 2.00 | 1.32 | 94 | 1.33 | 56.4 | 1.18 |
| 7 | Nukus | 2.00 | 1.32 | 62 | 0.88 | 46.9 | 0.98 |
| 8 | Takhiatash | 1.00 | 0.66 | 73 | 1.04 | 20.5 | 0.43 |
| 9 | Takhtakupir | 1.00 | 0.66 | 67 | 0.95 | 100 | 2.09 |
| 10 | Turtkul | 1.00 | 0.66 | 63 | 0.89 | 53.3 | 1.11 |
| 11 | Khodjeyli | 1.96 | 1.30 | 73 | 1.04 | 43.8 | 0.91 |
| 12 | Chimbay | 1.90 | 1.26 | 77 | 1.09 | 12 | 0.25 |
| 13 | Shumanay | 2.00 | 1.32 | 66 | 0.94 | 39.2 | 0.82 |
| 14 | Ellikkala | 1.00 | 0.66 | 69 | 0.98 | 93.5 | 1.95 |
| 15 | Qanlikul | 2.00 | 1.32 | 65 | 0.92 | 53.6 | 1.12 |
| 16 | Qarauzak | 1.10 | 0.73 | 68 | 0.96 | 42.4 | 0.89 |
| 17 | Kungrad | 2.08 | 1.38 | 65 | 0.92 | 38 | 0.79 |
| 18 | **Karakalpakstan Republic** | **1.51** | **1.00** | **70.5** | **1.00** | **47.9** | **1.00** |

Table 4. Stratification of districts of the Republic of Karakalpakstan on natural and ecological indicators of quality of life of the population (Source: own research)

| № | Administrative-territorial units | Percentage of well water samples that do not meet hygienic requirements in terms of chemical indicators (2018-2020) | | Percentage of tap water samples exceeding the maximum allowable concentration of chemicals and indicators (2018-2020) | | Disadvantages of ecological geographical location | |
|---|---|---|---|---|---|---|---|
| | | Index | Relativity coeffic. | Index | Relativity coeffic. | Index | Relativity coeffic. |
| 1 | Nukus city | 99.4 | 1.62 | 19.4 | 0.82 | 2.00 | 1.08 |
| *districts:* | | | | | | | |
| 2 | Amudarya | 54.1 | 0.88 | 26.4 | 1.11 | 1.84 | 0.99 |
| 3 | Beruni | 96.9 | 1.58 | 73.7 | 3.10 | 1.00 | 0.54 |
| 4 | Bozatau | 57.4 | 0.93 | 33.3 | 1.40 | 3.00 | 1.61 |
| 5 | Kegeyli | 46.2 | 0.75 | 13.7 | 0.58 | 2.41 | 1.30 |
| 6 | Muynak | 99 | 1.61 | 13.8 | 0.58 | 3.00 | 1.61 |
| 7 | Nukus | 100 | 1.63 | 32.6 | 1.37 | 2.00 | 1.08 |
| 8 | Takhiatash | 36.6 | 0.60 | 13.2 | 0.55 | 2.00 | 1.08 |
| 9 | Takhtakupir | 96.9 | 1.58 | 14.2 | 0.60 | 2.97 | 1.60 |
| 10 | Turtkul | 92.8 | 1.51 | 18.2 | 0.76 | 1.00 | 0.54 |
| 11 | Khodjeyli | 56.2 | 0.92 | 29 | 1.22 | 2.00 | 1.08 |
| 12 | Chimbay | 24.7 | 0.40 | 17.4 | 0.73 | 3.00 | 1.61 |
| 13 | Shumanay | 37.4 | 0.61 | 25.9 | 1.09 | 2.00 | 1.08 |
| 14 | Ellikkala | 61.8 | 1.01 | 15.4 | 0.65 | 1.01 | 0.54 |
| 15 | Qanlikul | 94.8 | 1.54 | 39.2 | 1.65 | 2.00 | 1.08 |
| 16 | Qarauzak | 90.6 | 1.48 | 15.4 | 0.65 | 2.86 | 1.54 |
| 17 | Kungrad | 44.2 | 0.72 | 12.5 | 0.53 | 2.31 | 1.24 |
| 18 | **Karakalpakstan Republic** | **61.4** | **1.00** | **23.8** | **1.00** | **1.86** | **1.00** |

Table 5. Stratification of districts of the Republic of Karakalpakstan on natural and ecological indicators of quality of life of the population (Source: own research)

| № | Administrative-territorial units | Average volume of water per 1 hectare of irrigated land (2018-2020) | | | Sum of indicator values (coefficients) | Ranking place | Level |
|---|---|---|---|---|---|---|---|
| | | Thousand $m^3$/ha | Relativity coefficient | Reverse coefficient | | | |
| 1 | Nukus city | 15.12 | 1.26 | 0.80 | 11.88 | 14 | Low |
| *districts:* | | | | | | | |
| 2 | Amudarya | 19.55 | 1.63 | 0.62 | 9.26 | 3 | Medium |
| 3 | Beruni | 19.45 | 1.62 | 0.62 | 12.29 | 15 | Low |
| 4 | Bozatau | 2.48 | 0.21 | 4.85 | 15.18 | 17 | Low |
| 5 | Kegeyli | 16.41 | 1.36 | 0.73 | 9.43 | 4 | Medium |
| 6 | Muynak | 2.93 | 0.24 | 4.11 | 14.58 | 16 | Low |
| 7 | Nukus | 12.89 | 1.07 | 0.93 | 11.41 | 12 | Low |
| 8 | Takhiatash | 13.84 | 1.15 | 0.87 | 7.08 | 1 | High |
| 9 | Takhtakupir | 9.67 | 0.80 | 1.24 | 11.25 | 11 | Low |
| 10 | Turtkul | 15.17 | 1.26 | 0.79 | 8.92 | 2 | High |
| 11 | Khodjeyli | 14.84 | 1.23 | 0.81 | 9.94 | 10 | Medium |
| 12 | Chimbay | 9.22 | 0.77 | 1.30 | 9.59 | 5 | Medium |
| 13 | Shumanay | 13.03 | 1.08 | 0.92 | 9.81 | 7 | Medium |
| 14 | Ellikkala | 14.41 | 1.20 | 0.83 | 9.77 | 6 | Medium |
| 15 | Qanlikul | 9.67 | 0.80 | 1.24 | 11.84 | 13 | Low |
| 16 | Qarauzak | 11.26 | 0.94 | 1.07 | 9.88 | 9 | Medium |
| 17 | Kungrad | 9.49 | 0.79 | 1.27 | 9.85 | 8 | Medium |
| 18 | **Karakalpakstan Republic** | **12.03** | **1.00** | **1.00** | **10.00** | | |

## RESULTS

After calculating all indicators and determining relativity coefficients based on all criteria, the sum of 10 relative coefficients was found in each district and township of Nukus and compared with the number 10 in Karakalpakstan (Table 5). After that, the sum of the relative coefficients on all indicators was determined, and then the ranking of the territories was determined. In the Republic of Karakalpak, the medium level of the environmental quality of life indicators are set at values of 9-11, as the state of territorial differences in the natural-ecological factors of the quality of life of the population is equal to 10 coefficients. Territories with a coefficient lower than 9 were classified as high-level and territories with a negative coefficient greater than 11 were classified as low-level (Figure 7).

Our measurement shows that the best environmental conditions in terms of quality of life are in Takhiatash (coefficient 7.08) and Turtkul (coefficient 8.92) districts. Amudarya (9.26 coefficient), Kegeyli (9.43 coefficient), Chimbay (9.59

coefficient), Ellikkala (9.77 coefficient), Shumanay (9.81 coefficient), Kungrad (9.85 coefficient), Qarauzak (9.88 coefficient), Khodjeyli (9.94 coefficient) districts are included in the medium level. On the contrary, as it follows from our measurement, the worst environmental conditions in terms of quality of life are in the districts of Takhtakupir (11.25 coefficient), Nukus (11.41 coefficient), Qanlikul (11.84 coefficient), Nukus city (11.88 coefficient), Beruni (12.29 coefficient), Muynak (14.58 coefficient) and Bozatau (15.18 coefficient) districts. If the quality of life in Karakalpakstan is to improve, it is necessary to pay primary attention to the improvement of environmental indicators of the quality of life.

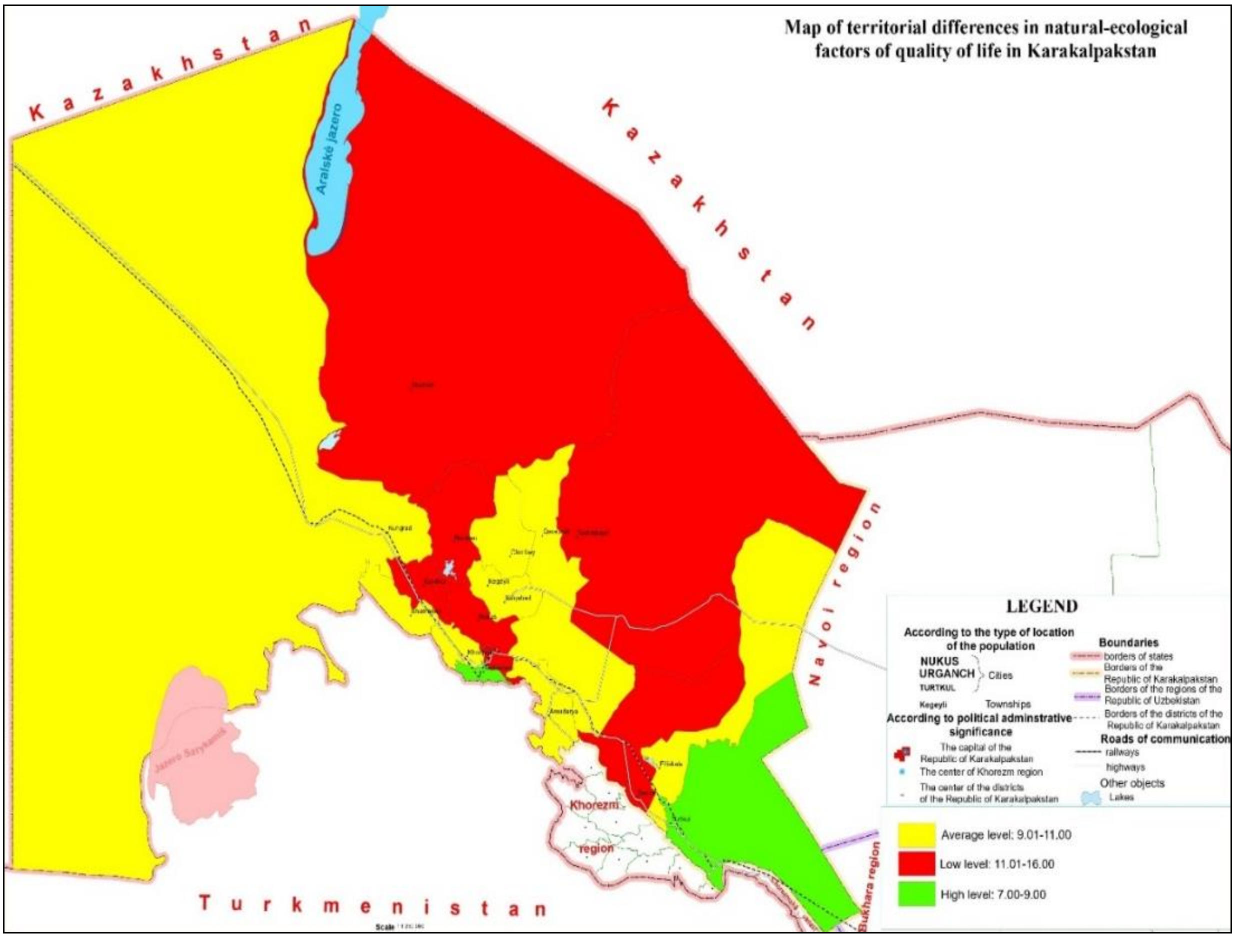

Figure 7. Map of territorial differences in natural-ecological factors of quality of life in Karakalpakstan (Source: own research)

## CONCLUSION

In the districts of the Republic of Karakalpakstan, territorial differences in natural-ecological factors were assessed on the basis of a total of 10 criteria. We evaluated the climatic indicators on the basis of 30-year measurements (Table 2 and Table 3), the ecological geographical disadvantage of the zone from the coast of the Aral Sea in 1961, and the other remaining indicators were evaluated on the basis of 3-year official statistics, and the territorial indicators were compared with the average indicator of the Karakalpak Republic. As a result of comparison, the natural and ecological conditions of Takhiatash and Turtkul districts are relatively high, Amudarya, Kegeyli, Chimbay, Ellikkala, Shumanay, Khodjeyli, Qarauzak and Kungrad districts are in line with the average level of the republic, and Nukus city, Nukus, Qanlikul, Beruni, Muynak, Bozatau districts, the situation is lower than the republic average. This means that the natural ecological situation is one of the most pressing problems in these districts, and in improving the environment, mitigating the ecological situation, it is necessary to pay special attention to these districts.

Karakalpakstan is considered to be one of the regions where the reduction of the volume of water from the Amudarya River and the processes of natural desertification under the influence of anthropogenic factors have reached their peak. Therefore, it is necessary to pay special attention to natural environmental factors when assessing the quality of life. Moreover, the territory is quite large, and there are certain differences between different administrative divisions. This is a pressing issue. In order to solve this problem, a comprehensive approach was used in our research to assess the natural ecological conditions of the districts of Karakalpakstan. The natural ecological conditions of the districts were considered as a climate-water-soil system. Various natural environmental factors affecting the quality of life have been taken into account.

Districts with a low quality of life are typical of the districts closest to the Aral Sea zone, and at the same time, due to some factors, Beruni district, which is far from the Aral Sea, even the city of Nukus fell into the low level. We can conclude from this that it is wrong to define the quality of life in Karakalpakstan by one tragedy of the Aral Sea or water. Our research showed that it was approached from a complex point of view. The further away from the Aral Sea does not mean the better the quality of life. The fact that the situation of Turtkul and Takhiatash is characterized by the fact that the quality of life is better than the medium level is also a problem. Out of 17 regions, only two districts are above the medium level. This means that, in general, the situation in the region is not good.

Favourable or unfavourable natural environmental conditions affect the migratory behaviour of people in many ways, and today the Republic of Karakalpakstan is one of the regions of Uzbekistan with a negative balance of migration. Of course, this is not only influenced by environmental conditions. Socio-economic factors are also important. However, the general environmental condition of the region determines that natural factors have a great influence on people's behaviour.

**Author Contributions:** Conceptualization, T.I., and M.F.; methodology, V.F., and O.M.; software, A.S.; formal analysis, M.A., and Sh.G.; investigation, M.F., and V.F., and O.M.; data curation, T.I., and R.A., and V.F., and O.M.; writing - original draft preparation, V.F., and O.M.; writing - review and editing, M.F. and O.M.; visualization, T.I., and V.F. and R.A. and M.A., and Sh.G.; supervision, T.I., and R.A. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 21.08.2024 Revised: 15.10.2024 Accepted: 26.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1952-1963
DOI 10.30892/gtg.574spl09-1362

# STUDY OF THE CURRENT STATE AND PROSPECTS FOR THE DEVELOPMENT OF TOURIST FLOW IN THE CITY OF ALMATY, KAZAKHSTAN

**Assan ZHELDIBAYEV**
Almaty Technological University, Faculty of Economics and Business, Department of Tourism and Service, Almaty, Kazakhstan, e-mail: zheldibaev.asan@mail.ru

**Yernur KULAZHANOV**
Almaty Technological University, Faculty of Economics and Business, Department of Tourism and Service, Almaty, Kazakhstan, e-mail: kulazhanov.y@gmail.com

**Aitolkyn MOLDAGALIYEVA**
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan, e-mail: moldagaliyeva.aitolkyn2016@gmail.com

**Nazym ABDILDAYEVA**
Almaty Technological University, Faculty of Economics and Business, Department of Tourism and Service, Almaty, Kazakhstan, e-mail: naz.milady@mail.ru

**Kairat ZHOYA***
Kazakh National Women's Teacher Training University, Institute of Natural Science, Department of Geography, Almaty, Kazakhstan, e-mail: kairat.altai82@gmail.com

**Kaster SARKITKAN**
Abai Kazakh National Pedagogical University, Faculty of Natural Sciences and Geography, Department of Geography and Ecology, Almaty, Kazakhstan, e-mail: kaster0102@mail.ru

**Armanay SAVANCHIYEVA**
Abai Kazakh National Pedagogical University, Faculty of Natural Sciences and Geography, Department of Geography and Ecology, Almaty, Kazakhstan, e-mail: armanay75@mail.ru

**Ardak ALDASHEVA**
Almaty Technological University, Faculty of Economics and Business, Department of Tourism and Service, Almaty, Kazakhstan, e-mail: aldashieva75@mail.ru

**Maulken ASKAROVA**
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan, e-mail: maulken@mail.ru

**Liudmila PAVLICHENKO**
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Almaty, Kazakhstan, e-mail: lmp.170946@yandex.ru

**Citation:** Zheldibayev, A., Kulazhanov, Y., Moldagaliyeva, A., Abdildayeva, N., Zhoya, K., Sarkitkan, K., Savanchiyeva, A., Aldasheva, A., Askarova, M., & Pavlichenko, L. (2024). STUDY OF THE CURRENT STATE AND PROSPECTS FOR THE DEVELOPMENT OF TOURIST FLOW IN THE CITY OF ALMATY, KAZAKHSTAN. *Geojournal of Tourism and Geosites*, 57(4spl), 1952–1963. https://doi.org/10.30892/gtg.574spl09-1362

**Abstract:** Tourist flow has a positive impact on the economy, culture, environment and communities of countries and regions, making it a valuable asset and contributing to the development of historical sites, cultural heritage and traditions, attracting visitors interested in learning about local customs. Tourist flow stimulates investment in infrastructure such as transport, accommodation and tourist facilities, and improves the quality of life of local residents and visiting tourists. Therefore, the purpose of this study was to examine the current state and prospects for the development of tourist flow in the city of Almaty. The study was based on the statistical data of Almaty city for the last 10 years (2014-2023) and answers to the questions of the questionnaire for entrepreneurs. Statistical data were received from the National Statistical Bureau of the Republic of Kazakhstan and analyses were carried out from 19.01.2024 to 25.02.2024. Also in the study, we conducted a survey aimed at identifying the main problems of entrepreneurs in increasing tourist flow and selected the responses of 211 entrepreneurs (respondents). According to the results of the study, the number of foreign tourists arriving in Kazakhstan in 2014 was 679.0 thousand tourists, and in 2023 this figure increased to 1084.8 thousand tourists. Compared to 2022, the number of foreign tourists increased by 16.9%. The number of foreign tourists arriving in Almaty in 2023 was 261571 and domestic tourists were 710586. Thanks to inbound tourists, the share of tourism in the gross domestic product (GDP) of Almaty reached 11.3%. To increase the tourist flow to Almaty, it is first of all important to make the infrastructure more convenient and attractive for tourists. Thus, to attract more tourists from different regions and countries, it is necessary to invest in marketing and advertising campaigns and offer tours for active holidays such as

* Corresponding author

cultural events, culinary festivals, hiking and skiing. This study identifying the current status and prospects of tourist flow in Almaty city aims to improve the quality of tourism services, income, employment, and tourist flow and contribute to the literature.

**Keywords:** tourist flow, tourist demand, tourist supply, prospects of tourism development, Almaty, Kazakhstan

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## INTRODUCTION

In a globalised world, the flow of tourism is not only a way for the population to enjoy sightseeing and historical sites, but also one of the most influential destinations involved in the competition and development process of a country. It is a ladder leading to the development of a nation and the emergence of many new enterprises (Kádár and Gede, 2021). Tourism as one of the most important sectors of the economy developed after Kazakhstan gained independence. And over the last ten years, the tourism industry has been rapidly developing. This is due to the fact that historical and cultural sights and unique architecture of Kazakhstan, attractive regions attract both domestic and foreign tourists (Tiberghien et al., 2018). Kazakhstan is currently integrating into the world community, i.e. neighbourhood with Russia, China, Kyrgyzstan and Uzbekistan will allow to develop cross-border tourism and implement joint mutually beneficial projects (Nezdoyminov, 2014). After all, Kazakhstan's geographical location, competitive advantages, uniqueness of tourist destinations, favourable tourist climate, hospitality, original culture, national cuisine, quality food products, support from the state allow Kazakhstan tourism to develop and arouse interest among potential visitors.

However, insufficient level of service, underdeveloped transport infrastructure, lack of qualified specialists, relatively high prices and the state of economic backwardness from developed countries restrain the development of tourism (Zhoya et al., 2024). It is also easy to see that COVID-19 has had a negative impact on the tourist flow to our country (Aktymbayeva et al., 2023). Kazakhstan lags behind other Central Asian countries in the tourism sector. Therefore, there is a need for promising projects and investments that will develop tourism in Kazakhstan and increase the inflow of tourists. In this regard, the President of our country Kassym-Jomart Tokayev in his address to the people said: ‘It is necessary to comprehensively develop the country's tourism potential. Breakthrough projects should be realised in the sphere of tourism. Unfortunately, there have been no significant successes in this important sphere so far, and we are lagging behind other states’ (Official website of the president of the Republic of Kazakhstan, 2023). On the way to solving these issues, the state concept ‘Development of the tourism industry of the Republic of Kazakhstan for 2023-2029’ was approved. The concept is based on the following: study of tourist flows in each region, identification of the main vulnerable places and their actualisation; development of tourist resources, formation of an effective system of promotion of the country's tourist potential in the domestic and international markets and creation of a favourable tourist climate (Concept for the development of the tourism industry of the Republic of Kazakhstan for 2023-2029, 2023).

Under the favourable geopolitical situation, Kazakhstan has all the prerequisites for the development of new tourist products, becoming a major player on the world tourist map, while possessing a unique natural diversity and preserving objects of historical heritage. Kazakhstan is a historical transport hub located along the Great Silk Road connecting the West and the East (Moldagaliyeva et al., 2024). Therefore, the main destinations of foreign tourists arriving in the country are historical places of Almaty, Taraz, Turkestan and Mangistau region (Issakov et al., 2023a). In addition, a large number of tourists come to East Kazakhstan region for the purpose of health improvement. It is necessary not only to come a lot in season, but also to increase the revenue part by creating programmes and unique forums for each season. The most convenient on the factor of location in the seasonal period is the city of Almaty (Yerdauletov et al., 2013). In this regard, taking into account the above issues, it is very important to scientifically study the tourist flows and important directions and prospects for the development of the city of Almaty. This is due to the fact that the development of new markets and segments, expanding the list of tourist services, improving the quality of tourist services and competitiveness, attracting domestic and foreign investors in the tourism business, increasing the level of income and employment of the population, ensuring the affordability of the tourist product for groups of residents and non-residents and properly developed marketing strategy give an impetus to the growth of tourist flow and contribute to its development, open the ways.

Therefore, the *purpose* of this study was to examine the current state and prospects of the development of tourist flow in the city of Almaty. As the tasks of the study were considered a review of the concept of tourist flow, the study of the state of development of tourist flow in Kazakhstan and promising directions for increasing tourist flow in the city of Almaty. This is because tourist flow is a statistical indicator describing the ratio of tourists to visitors in a certain area over a certain time, or a concept describing the movement of travellers between regions (Keum, 2010; Zieba, 2022). While the tourist flow index is an indicator that measures the number of visitors (arrivals/departures), managers are widely used for analytical purposes to assess the current state and performance of the tourism industry and to plan the development of this industry at the country, region or area level (Simonian et al., 2022). Quantitative and qualitative indicators of tourist flow undergo constant changes, contributing to the influence of a number of economic, political, social, geographical factors and natural conditions. That is, the tourist flow has a great impact on the economy, culture and social sphere of the passing countries (Peng et al., 2016). Therefore, in order to increase tourist flow in Kazakhstan, it is first of all necessary to organise comfortable air, rail and road transportation, develop a network of high category hotels at affordable prices, reduce prices for catering facilities and organise tourist excursions (Issakov et al., 2024). In particular, in the city of Almaty there is a high possibility to increase the flow of tourists due to the quality service of specially protected landscapes and objects of natural and cultural heritage and recreation parks.

Nevertheless, despite the fact that in recent years Kazakhstan has been interested as a new tourist destination in the European and Asian tourist markets, the number of foreign tourists visiting the country is not increasing. Thus, while in 2021 the number of foreign tourists arriving in the country after COVID-19 was only 329.8 thousand tourists, in 2022 the figure was 927.8 thousand, which is roughly the same as in 2019 (National Bureau of Statistics, 2022). The largest number of foreign visitors were tourists who came to see the nature of the Zailiyskiy Alatau and the city of Almaty. Consequently, as part of this study, we have analysed the statistical indicators of tourist visits to the city of Almaty, while considering the statistical indicators of tourist flow of Kazakhstan for the last 10 years (2014-2023).

As a result of the survey, the main problems and directions for further development of local entrepreneurs working in the tourism sector to increase tourist flow were identified. In particular, the importance of improving the city's transport infrastructure; attention to and improvement of the quality of services; co-operation with local travel agencies; formation of convenient and accessible routes for tourists; promotion of events and festivals reflecting the culture of the Kazakh people and establishment of partnerships at the international level were highlighted as priority areas for increasing tourist flow in Almaty. Thus, this study, by examining the current state and prospects of tourist flow in Almaty, aims to improve the quality of tourism services in Almaty, attract domestic and foreign investors in the tourism business, increase population income, employment, tourist flow and contribution to science.

**LITERATURE REVIEW**

The literature review shows that tourism flow-an essential basis for understanding the relevance of the barriers identified in the course of tourism supply and demand shaped through the supply and demand coming to the tourism centre within a country's territory. Tourist flow-determines the exact level of demand for what mission or facility people are interested with (Zeng and He, 2019). Specifically, to help researchers and experts in tourism industry activities to assess the impact of tourism flow on the region's infrastructure, forecast tourism trends, development situation and develop strategies to improve the tourism industry (Belgibayeva et al., 2020). *Tourism offer* - is a tangible good and service provided to the consumer in a tourism centre (Della Corte et al., 2015). These include: sightseeing tours of the country; organised cultural carnivals; scuba diving or liner cruises; active Extreme holidays: Mountaineering, wakeboarding, skydiving, kitesurfing, rafting, rock climbing and safaris; unique protected nature reserves; local culinary gastronomic tours and good high-end restaurants; shops that return to the city; health and medical clinical tourism; touring galleries and beach resorts dedicated to archived architectural interests (Nikitinsky, 2007; Issakov et al., 2023b).

In particular, water-based forms of tourism provide potential opportunities for regions and contribute to community economic growth, increased tourist trips, and local revenues (Rahmat et al., 2023). A *tourism demand* is the purchase or acquisition of a commodity that is economically secured by the consumer's money and attracts the consumer's attention (Sun et al., 2020). Tourist demand is formed under the influence of various objective and subjective aspects. Domestically, the following tasks are solved: pre-booking of air tickets, transfers, eco-hotels, search and booking of convenient modes of transport for the road; demand for well-known famous museums, natural monuments and other attractions, such as exhibitions; purchase of ready-made tour packages with a focus on city tours; shopping centres located in the recreation area increase demand for goods through shopping, which ultimately contributes to the development of trade and tourism industry in shops; participation in organised entertainment events (Ulucak et al., 2020; Alreahi et al., 2023).

The most important driver of tourist flow is the systematic operation of supply and demand (Zhang et al., 2021). In addition, due to the ratio of consumers and suppliers, the intensity of tourist flow will increase (Gidebo, 2021). The formation and increase in the number of tourist flow is influenced by a number of factors, which include: the economic intensity of the gross domestic product, the degree of income of the population, the process of inflation and deflation, the exchange rate, the required value of tourist services; political aspects-stability of the political climate, domestic and international relations, visa procedures and embassy exchange; technological factors-online booking in accordance with world standards, development of transport infrastructure, updating of logistics (Ivanova and Krastev, 2022).

Due to the specificity of tourist flow, world scientists have several theories. For example, according to the theory of seasonality, if more tourists come to the country in the summer months, the number of flows is less in the winter months. Therefore, holidays in winter time should attract tourists (Zvaigzne et al., 2022). Furthermore, the theory of cultural exchange, i.e. increasing interest in the cultural life of another population, helps to attract the attention of tourists to the country (Coulson et al., 2014). Certainly, the beginning of the journey starts with the first chosen place of rest, that is, having arrived in a certain centre, the tourist will switch his attention from there to other objects. It is worth noting that in most cases, tourists rush to countries with developed economies, good infrastructure and quality of service, and normal economies.

This has been stated in many scientific papers: Mertzanis and Papastathopoulos (2021), Aktymbayeva et al. (2020), and Kozbagarova et al. (2022). However, of particular note is Zhumabayev (2009) "Tourist flow in Kazakhstan: problems and prospects for development", Kenzhebekov et al. (2021) "Foresight of tourism in Kazakhstan: Experience economy", Niyazbayeva and Yessengeldina (2016) "Analysis of tourism cluster development: Kazakhstan experience", Koshim et al. (2023) "Sustainable development of ecotourism in 'Altynemel' National Park, Kazakhstan: Assessment through the perception of residents" and Iskakova et al. (2021) "The Natural and Recreational Potential of Kazakhstan for the Ecological Tourism Development" are very valuable studies on the changes in tourism flow and the tourism industry in Kazakhstan as a whole. Currently, tourism and tourist flows are diverse in countries around the world, including countries with well-developed tourism. Based on research and various ethical standards, tourist income and expenditure are categorised. Firstly, tourist flow is most directed to destination regions. An example of this is Türkiye, a country with a high tourist flow. Türkiye considers tourist flows as a source of economic development, job growth and exports (Karagöz et al., 2022). Meanwhile, the destination attraction (attractions and attractions) takes centre stage as a major factor in attracting tourist flow (Tekin, 2015). Tourist attractions are key elements of tourism development in destinations, therefore they are considered one of the most important factors supporting the development of local tourism. Attractions as an important focus of tourism activities influence tourists' travel decisions. Second, the spatial distribution of tourism enterprises - examines the overall structure and composition of tourism and the presence of clusters in strategic economic zones and resource advantages (Askeyev and Baizholova, 2021). The researchers found an imbalance in tourism development by examining disturbances in the distribution of tourist visits. That is, it was observed that the spatial distribution of tourists has a negative impact on the development of the flow (Ayapbekova and Demeuov, 2019).

Thus, in recent years, the state of international tourism development has expanded significantly around the world and contributed to the rapid growth of tourist flows. Nowadays, international tourism has become a means of communication between the tourist flows of countries in realising methods of transforming a previously closed society into an open and accessible one. Tourism flow, according to the content of the results of various studies, provides insights on how to increase tourist flow and tourism profits in tourist destinations around the world. Systematic reviews provide objective, replicable, systematic and comprehensive coverage of the determinants of tourism flow, and provide the formulation of the concept of tourism flow, the identification of relevant works and the interpretation of actual statistical findings and results.

## MATERIALS AND METHODS

Despite the fact that the city of Almaty is very rich in attractions, the transformation of attractions of this nature into tourist attractions has not yet been fully realised. The tourism sector as an important direction in the development of the economy, historical and cultural sights and wild nature of Almaty increase the tourism potential of the city (Issakov et al., 2023c). As already mentioned, the tourism potential of the country is very high. The city of Almaty and its districts are rich in recreational and tourist resources, especially the character of the Zailiyskiy Alatau, recreational and sanatorium resorts, the presence of green areas in the eastern zone of the city provide accelerated development of tourism. The city of Almaty is the largest educational, scientific, financial centre of Kazakhstan, the largest metropolis of Kazakhstan and one of the largest tourist centres of Kazakhstan (Abdirazakov et al., 2023). The city is attractive for tourists with its cultural and architectural centres, historical heritage, beautiful nature and infrastructure. Therefore, the development of tourist destination in Almaty will create new jobs in the city and contribute to economic growth, development of other public spheres and attraction of investment preferences. In addition, it contributes to the exchange of cultural experiences with other tourist countries, strengthening international relations and enhancing the international prestige of the city. The city is also known for its historical monuments, parks, entertainment complexes, museums and various cultural events (Koshim et al., 2023). The following can be named as prerequisites for increasing the tourist flow in the city of Almaty (Figure 1).

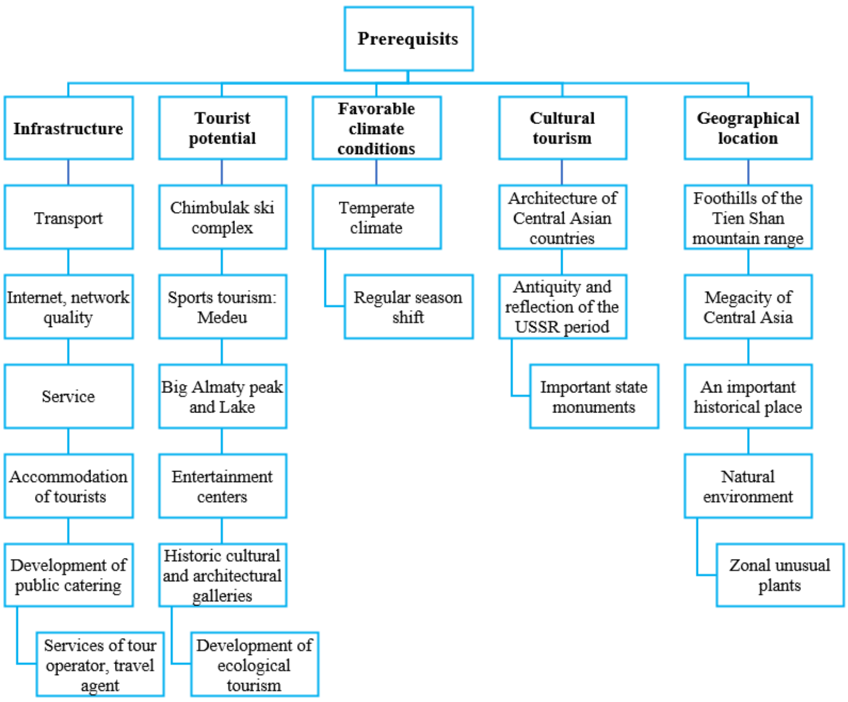


Figure 1. Prerequisites for increasing tourist flow in the city of Almaty (Source: Compiled by the authors)

Description of geographical prerequisites for the development of tourist flow in the city of Almaty: climatic conditions are favourable for the population, there is no strong heat or strong cold due to belonging to the temperate belt. That is, the presence of humid air masses throughout the year is better and more comfortable for the population in the summer period. This is most pronounced in the four seasons of the year, especially in spring and winter, when the city is particularly beautiful. In addition, the mountain is a centre of tourism with extreme, natural, recreational and resort services. These include the Koktobe ice rink, the Medeu and Shymbulak ski resorts, recognised as holiday destinations for foreign tourists (Aldybayev et al., 2021). Also in the city of Almaty, there are many places of recreation, simultaneously attracting domestic and foreign tourists, both free and paid, located both in the centre and in remote parts of the city. For example: Park of the First President, Park named after 28 Panfilov Guardsmen, Botanical Garden, Family Park, etc.

However, being the most popular tourist region in Asia, the city of Almaty cannot increase the flow of tourists. Despite its favourable location in Central Asia, neighbouring Kyrgyzstan and Uzbekistan lag behind in tourism competition. Since it is important to find out the reasons for this, in this study we have analysed the statistical indicators of tourist flow for the last 10 years (2014-2023). Statistical data are obtained from the National Statistical Bureau of the Republic of Kazakhstan, and the analytical work was carried out from 19.01.2024 to 25.02.2024 by the teaching staff (research group) of Almaty Technological University. Moreover, in the study, we conducted a survey to identify the main challenges faced by local entrepreneurs to increase tourist flow. The survey questions were compiled as a result of literature review and https://docs.google.com with the help of. The survey questions were compiled from the literature review and responses were obtained from docs.google.com. The survey questions (Q) were as follows:

Q 1. What is your gender?
Q 2. How old are you?
Q 3. Your education?
Q 4. What travel industry do you work in?
Q 5. How many years have you been a travel entrepreneur?
Q 6. Who are the main customers who come to your establishment?
Q 7. What percentage of tourists visiting your enterprise are foreign tourists?
Q 8. How many services (products) on average does one tourist (consumer) receive from your enterprise?
Q 9. What, in your opinion, are the most urgent problems for foreign and domestic tourists coming to Almaty?
Q 10. What is the main purpose of tourists visiting Almaty?
Q 11. What impact has the COVID-19 pandemic had on your company?
Q 12. From which region do the most tourists come to your business?
Q 13. Which destination do you think will have a high tourist flow in the future?

The survey was aimed at identifying the problems of entrepreneurs of Almaty city, working in the sphere of tourism, a total of 214 respondents took part in it. Responses to the questionnaire were received in the period from 01.03.2024 to 01.04.2024, and its selection in accordance with the requirements lasted a week.

The selection of the responses received as per the requirements of the research work resulted in 211 responses. 28.9 % of the respondents were males and 71.1 % were females. In the course of the research, the main problems of entrepreneurs were identified and relevant conclusions were drawn. Also priority directions for increasing tourist flow in Almaty city were proposed. The flowchart of this research in full is presented in Figure 2.

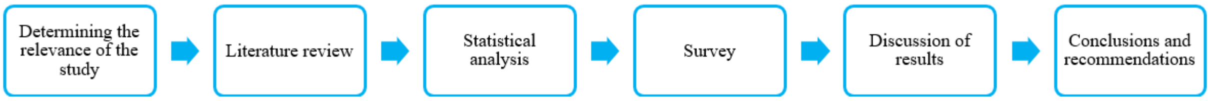


Figure 2. Research Flowchart (Source: Compiled by the authors)

## RESULTS AND DISCUSSION

### Analysis of statistical indicators of the tourist flow of Kazakhstan

As a result of the study, on the basis of statistical data, the indicators of tourist flow of Kazakhstan for the last 10 years were determined. Accurate data were obtained on the total number of tourists arriving in the country and from which countries. In particular, in 2014 the arrival of 679 thousand foreign tourists to our country was registered, and in 2023 this figure will increase to 1084.8 thousand tourists. For ten years, according to our observations, the number of flows described with the help of statistical expertise has changed by different (Table 1). Of these, 979.8 thousand tourists visited in 2019, and in 2020-2021 252.7 and 329.8. It follows that the impact of COVID-19 for Kazakhstan was negative.

Table 1. Dynamics of domestic and foreign tourist flow over the last 10 years (Source: Compiled by the authors based on the information of the National Statistical Bureau of the Republic of Kazakhstan, 2023)

| № | Approved year | Number of domestic tourists (mln) | Number of foreign tourists (ths.) |
|---|---|---|---|
| 1 | 2014 | 3.1 | 679.0 |
| 2 | 2015 | 3.1 | 692.2 |
| 3 | 2016 | 3.5 | 722.5 |
| 4 | 2017 | 4.4 | 891.9 |
| 5 | 2018 | 4.7 | 830.9 |
| 6 | 2019 | 5.3 | 979.8 |
| 7 | 2020 | 3.3 | 252.7 |
| 8 | 2021 | 5.1 | 329.8 |
| 9 | 2022 | 6.4 | 927.8 |
| 10 | 2023 | 9.7 | 1084.8 |

As shown in Table 1, the number of tourists visiting the country in 2022 was 927.8 and in 2023 this figure reached 1084.8 tourists. That is by 157 thousand tourists more than a year earlier, the growth was 16.9 % higher than in 2022. The countries with the highest number of tourists are Russia, Uzbekistan and Kyrgyzstan. The TOP 10 countries with arrivals in Kazakhstan by 6 months of 2023 include the following (Figure 3).

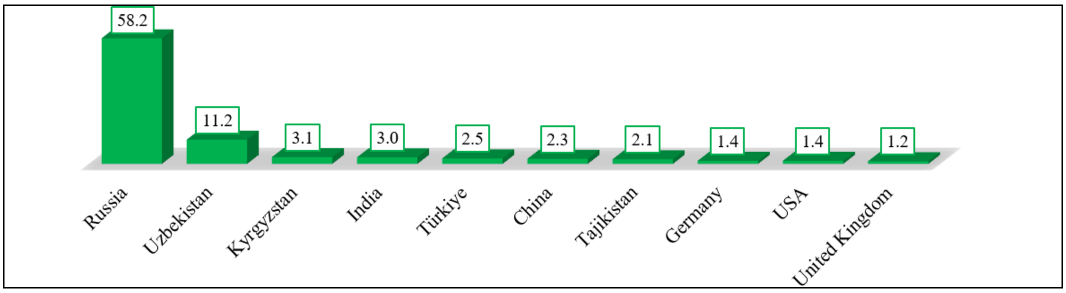


Figure 3. Number of tourists from TOP-10 countries, arrived in Kazakhstan for 6 months of 2023, thousand tourists
(Source: Compiled by the authors based on the information of the National Statistical Bureau of the Republic of Kazakhstan, 2023)

The number of tourists arriving in Kazakhstan is 3/2 from Commonwealth of Independent States (CIS) countries, including Russia, Uzbekistan, Kyrgyzstan, followed by an influx of tourists from India, Türkiye, China, USA and several European countries. It can be observed that the number of foreign tourists has relatively fluctuated over the last 5 years, especially in 2023 when it was found that among the neighbouring countries, tourists from Kyrgyzstan and Uzbekistan are the most active. The quantitative indicators of the percentage of the statistical analysis of Almaty city for 2013-2023 are presented in Table 2. Thus, the results of the statistical analysis show that the flow of tourists visiting Almaty has increased over the last 10 years and the percentage contribution to GDP has increased. The high level of arrivals to Almaty is mainly from neighbouring countries, including Russia and Uzbekistan.

Table 2. Quantitative indicators of the tourist flow of Almaty city for 2013-2023 (Source: Compiled by the authors based on the information of the National Statistical Bureau of the Republic of Kazakhstan, 2023)

| № | Quantitative indicators of tourist flow in Almaty city, (thousand tourists) | |
|---|---|---|
| | 2013 | 2023 |
| 1 | Tourists arriving in Almaty | |
| | 583455 | 972157 |
| 2 | Domestic tourists arriving in Almaty | |
| | 456628 | 710586 |
| 3 | Foreign tourists arriving in Almaty | |
| | 126827 | 261571 |
| 4 | Share of tourism in the GDP of the city of Almaty | |
| | 0.3 % | 11.3 % |

**Responses of tourism entrepreneurs to a questionnaire to identify the main issues for increasing tourist flows**

At the second stage of the study, the results of the survey of entrepreneurs working in the tourism sector of Almaty were analysed. From the respondents, the answers of 211 entrepreneurs were selected as the results of the study. Among them the share of males was 29% and females-71%. In terms of age, young entrepreneurs aged 16-24 years accounted for 2 %, those aged 25-34 years accounted for 29 %, 68 % of respondents represented the ranks of entrepreneurs over 35 years of age, and 1 % of respondents belonged to entrepreneurs aged 45-63 years. In addition, 43% of respondents were citizens with secondary education, 41% with incomplete higher education and 16% of respondents with higher education. Currently, the city of Almaty has tourism diversity due to its natural, cultural, historical and socio-economic specifics. In particular, it was found that the majority of entrepreneurs work in the sphere of cafes (23%), hotels (20%) and restaurant business (18%) (Figure 4).

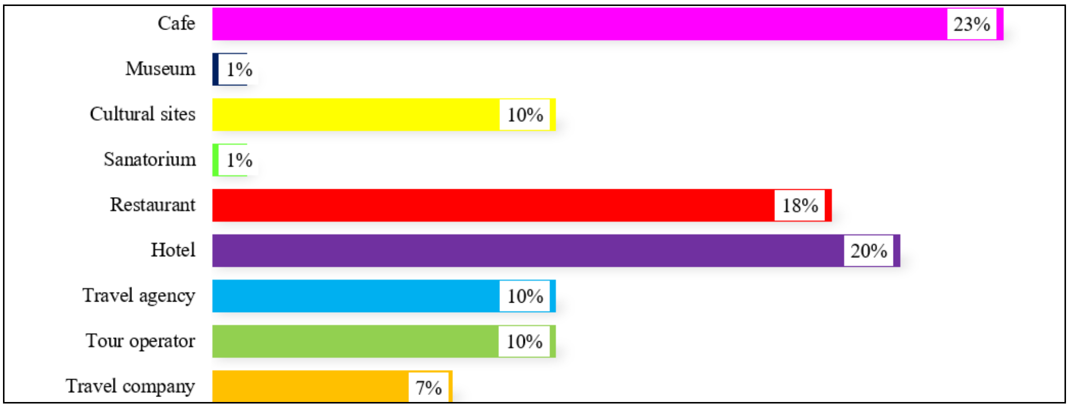


Figure 4. Main tourist destinations of respondents, %

It was also found that 57% of the respondents had been in the profession for 5 years since they started their profession, 30% of the respondents were 6-10 years and 10% of the respondents had been in the profession for 11-20 years since they started working as an entrepreneur. The remaining 3% of the respondents stated that they discovered and managed the profession 21-30 years ago. These results mean that despite the relatively small number of businesses operating for more than 20 years, a large number of new tourist destinations have opened in the last five years, which is one of the main reasons for the increasing competition. This competition has a direct impact on the development of tourist destinations, improving the quality of services and providing choice to tourists coming from abroad.

According to the answers of surveyed entrepreneurs, the main consumers are residents of the local city of Almaty (50%). Meanwhile, the flow of domestic (27%) and foreign (23%) tourists is at about the same level. Certainly, not all enterprises of Almaty city were able to analyse the answers of the main tourist destinations. Comparing with other cities of Kazakhstan, we can say that Almaty is the most visited place for domestic tourists. The purposes of visiting domestic and foreign tourists are different: for example, for business purposes, may be cognitive, cultural or educational. Nevertheless, the number of foreign tourists, who increase the inflow to the tourism industry and have a direct impact on the economy, was significantly lower than the number of local residents and domestic tourists. Specifically, unfortunately, the vast majority of enterprises (69 respondents) had only 10-20% of the total number of foreign tourists. While 38 (18%) enterprises participating in the survey responded that 30-40% of the total number of consumers are visited by foreign tourists (Figure 5). Thus, the main tourist flow in Almaty occurs at the expense of domestic tourists.

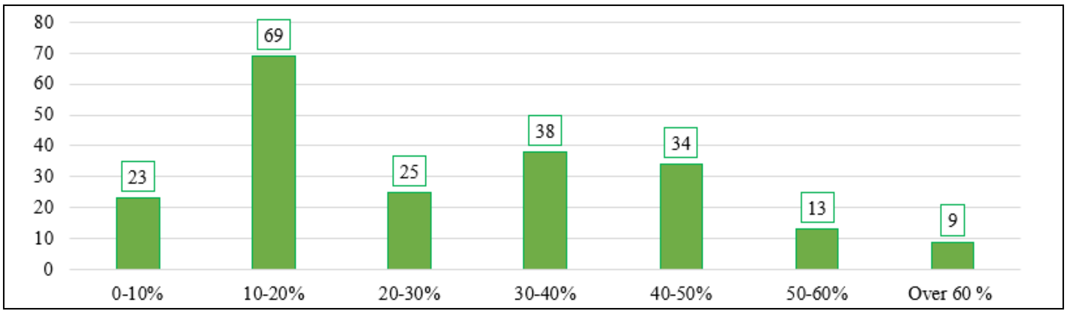


Figure 5. Respondent's answers to the question of what percentage of tourists visiting your enterprise are foreign tourists, N=211

As can be seen in Figure 5, the number of foreign tourists visiting respondents' businesses is not as high as the percentage. A total of 13 out of 211 respondents stated that 50-60% of the consumers would be foreign tourists, while 9 indicated that the percentage of foreign tourists visiting their enterprises is more than 60%. This indicates that these enterprises are popular with foreign tourists. The most important factor here may be not the price of the service, but the availability of exquisite dishes and services for tourists. At the same time, in the questionnaire we asked the question: ‘How much on average one tourist (consumer) receives services (products) from your enterprise?’. As a result, in terms of the cost of services, 29% of respondents stated that one consumer spends between $100-499, 22% stated that they receive services between $500-999 and 19%-50-99 (Figure 6). Obviously, the amount consumers pay also varies depending on the type of tourism industry.

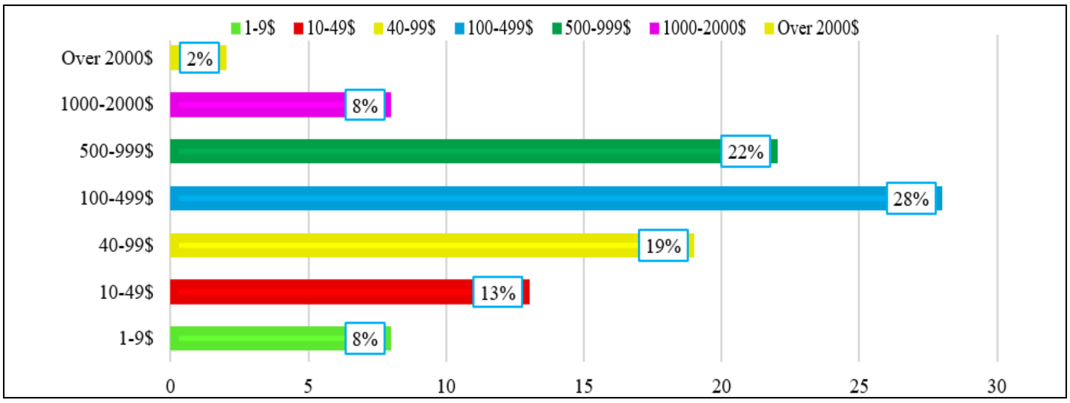


Figure 6. Cost of service received by one client on average, %

For foreign tourists travelling to Almaty, the main issues are the quality of service, the transport situation in the city and the remoteness of some tourist destinations from each other. In some cases involving international tourists, the language barrier was also seen as a major issue. The development of international tourism and the factors that increase or decrease transaction costs are directly influenced by the prevalence of common or informal language, the existing level of their (Sharma, 2018). Additionally, factors such as common borders, proximity of tourist areas, availability of convenient transport and landlockedness have a direct impact. Cultural and linguistic proximity plays a key role in international tourism (Seken et al., 2019). According to the data obtained during the survey, most tourists come to Almaty for business (31%), cultural and historical (27%) and cognitive purposes (22%). In addition, almost all young people who come to the city come to study at universities (8%). The last place is occupied by tourists coming for medical and health-improving (8%) and religious (4%) purposes. The COVID-19 pandemic, which started in 2019, has led to a significant reduction in tourist flow across Kazakhstan and the world (Tankibayeva et al., 2023). Therefore, the respondents were asked: 'How pandemic COVID-19 has affected your enterprise?' the question was asked. According to its data, 38% of respondents answered that foreign tourists became few, and 17% of respondents said that the number of domestic tourists decreased significantly. In contrast, some destinations (18%) saw an increase in the number of consumers and an increase in the number of domestic travellers. Since the pandemic, 13% of respondents reported increased government requirements and 9% reported increased prices for services. Only 5% of businesses experienced food shortages. The impact of the COVID-19 pandemic affected almost all sectors of the tourism industry in Kazakhstan (Figure 7).

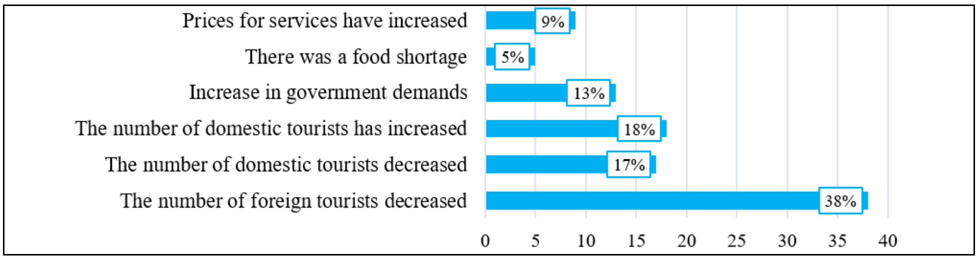


Figure 7. Impact of COVID-19 pandemic on tourist destinations, %

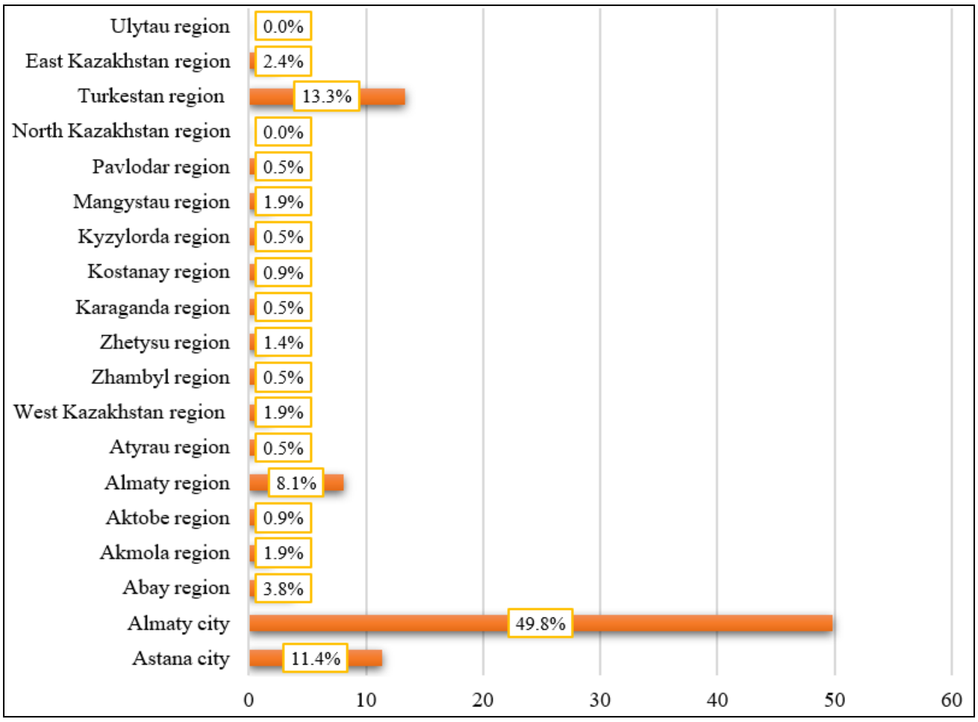


Figure 8. Main areas of consumers visiting respondents' enterprises, %

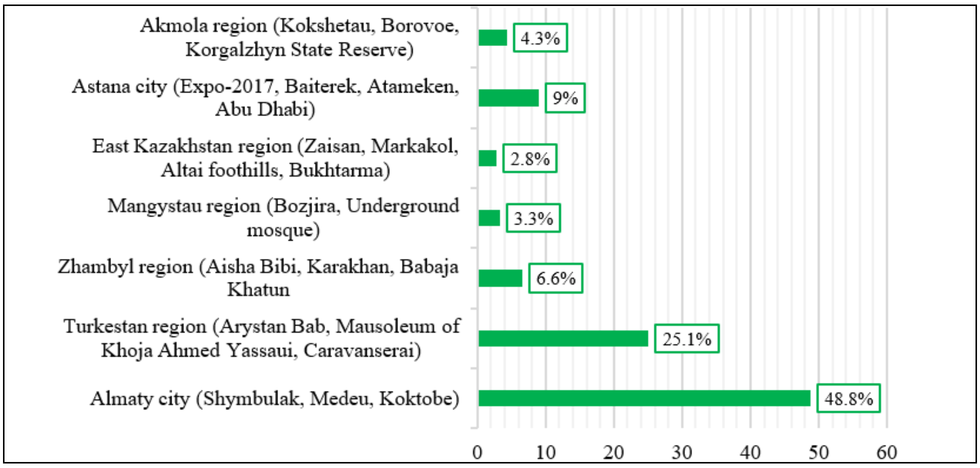


Figure 9. Regions in which, according to respondents, the increase in tourist flow will be observed in the near future, %

According to the results of analysis of entrepreneurs‘ answers to the survey, 49.8% of consumers visiting respondents' enterprises were residents of Almaty city, 13.3% - Turkestan region, 11.4% - Astana city and 8.1%-tourists from Almaty region. The following places were made up by tourists from West Kazakhstan region, Mangystau region and East Kazakhstan region (Figure 8). When asked which regions will see an increase in tourist flow in the future, 50% of respondents said that Shymbulak ski resort, Koktobe and Medeu skating rink in Almaty will be at the forefront. 25% of entrepreneurs believe that the tourist flow is currently growing rapidly Turkestan region (Figure 9).

One of the peculiarities of this region is a hotbed of tourism with historical orientation. This is due to the fact that the cultural heritage included in UNESCO: the mausoleum of Khoja Ahmed Yasawi, the mausoleum of Arystan Baba, the ancient cities of Otrar and Sauran, Akmeshit Cave and natural sites: Aksu-Zhabagaly, Karatau Reserve, Sairam-Ugam State National Park are unique places in the country, which are admired by tourists. In addition, the Keruen-saray complex, which is the visiting card of Turkestan City, is a centre of attraction for tourists, which has no analogues in Central Asia.

**Priority areas for increasing tourist flow in the city of Almaty**

Thus, as a result of analysing the results of statistical indicators of Almaty tourist flow over the last 10 years and questionnaires to identify the problems of entrepreneurs, several problems and priority areas requiring urgent solutions were identified. In order to positively address these problems, a number of the following activities should be carried out as soon as possible:

*1. Improvement of the city's transport infrastructure.* In order to improve the convenience of the airport and modernise public transport services in the city, to facilitate the movement of tourists around the city, it is necessary to pay attention to the condition of roads and increase the capacity of private transport. Through special investment in transport infrastructure by the government, the cost, accessibility and convenience of travelling tourists around the city can be improved (Khadaroo and Seetanah, 2007). Airfares to Kazakhstan are relatively overpriced compared to some tourist countries. Seasonal changes affect the high price (Myrzabekova et al., 2021). Firstly, the lack of competition between airlines in the country and fewer domestic airlines, which leads to a higher price. Secondly, the region in which our country is located also directly affects this price. One of the reasons for this is that the country is currently located quite far from the regions that receive the most tourist traffic and is landlocked. To solve this problem, it is necessary to increase competition between domestic airlines, increase their number if possible and establish effective partnerships with other airlines around the world.

*2. Improving the quality of services.* Improving the quality of services in tourist places in the city (hotels, rental houses), in eating places (cafes, restaurants) and in places of mass tourist visits. Providing tourists with the possibility of choice and thus increasing competition between tourist destinations. Continuous development and increasing the attractiveness of the city's cultural, historical and entertainment centres. Tourist places are becoming more and more popular, the contribution of social media in attracting tourists is high. Therefore, the beauty of a tourist destination directly affects how visitors create creative photos, videos and share them on social media. To properly demonstrate our hospitality to the staff working in this area, offer special training programmes that prepare friendly and experienced staff for tourists. Friendliness in social interaction with tourists directly affects the formation of the right attitude towards the country, nation.

*3. Co-operation with local travel companies.* It is known that the centre of mass visit of domestic tourists to the whole of Kazakhstan is the city of Almaty. Now the task is to create an effective partnership with local travel agencies and tour operators to increase the inflow of tourists to the city at the international level. It is necessary to create a database with information on the city, accurate information on tourist places, average prices in restaurants and shopping centres, efficient enough to be easily found on one website. Tracking the availability of data not only in English translation but also in other languages. Modern human ideology prioritises the convenience, ease and affordability of travelling (Cheyne et al., 2006). Therefore, based on demand, it is obvious that being able to make offers also increases the number of visitors. Creating special tour packages and providing detailed information is one of the measures to be considered along the way.

*4. Formation of a convenient and accessible marshmallow for tourists.* Despite the large number of significant cultural, historical and natural sights in Almaty and Almaty region, there are very few convenient routes connecting them (Batyrbekov et al., 2022). To solve this problem, in our opinion, the right solution is to create an integrated tourist package of tourist destinations. To develop inter-sectoral tourism Almaty needs to expand cooperation with nearby cities or natural tourist zones of Almaty region. Transport should be provided according to the developed itinerary.

*5. Promotion of events and festivals reflecting the culture of the Kazakh people.* Today, most tourists like to get acquainted with new, dissimilar cultures. For national holidays such as Nauryz meiramy, which are held annually in Almaty city, it is necessary to organise major festivals at the state level. To attract tourists interested in national culture, it is necessary to allocate public funds, encourage participation in local tourist events and often organise exhibitions in the national style reflecting the traditions of the Kazakh people. Accordingly, marketing strategies and promotional methods need to be developed to raise awareness among international tourists and reach the target audience (Rakhmetulina and Omurzakov, 2018).

*6. Establishing partnerships at the international level.* Obviously, one of the important steps will be to increase the inflow of tourists to Almaty internationally, as well as to establish partnerships with airlines and foreign travel agencies to increase efficiency. Currently, there is an exchange between CIS countries on the inflow of tourists to Kazakhstan (Mutalieva et al., 2020). In the context of globalisation, Kazakhstan is integrating into the world community. Neighbourhood with Russia, China, Kyrgyzstan and Uzbekistan, development of cross-border tourism and implementation of joint mutually beneficial projects. Kazakhstan's geographical location has a certain competitive priority.

In our conditions the uniqueness of tourist destinations, favourable climate, hospitable traditions, original culture, national cuisine, quality food products, support from the state are recognised as advantages and arouse the interest of potential visitors.

Recently, more and more foreign tourists have been coming to the beautiful city of Almaty, especially every year the number of holidaymakers admiring the nature of the Zailiyskiy Alatau is growing. Next, the Shchuchinsko-Borovsky resort district and the recreation area of Mangistau region were registered. In addition, Markakol, located in Eastern Kazakhstan, attracts attention with its amazingly beautiful nature, and Mangistau region surprises tourists with its picturesque gorges (Tokbergenova et al., 2023). In addition, the Turkestan region attracts tourists to several sacred-historical, ancient cities of Kazakhstan. Thus, tourism in Kazakhstan is developing more and more as it is one of the young industries. The cultural heritage of the Kazakh people, the richness of the natural landscape, unique territories are the most important features of a civilised society. Tourism has a great impact on social culture. Therefore, the development of the tourism industry leads to the formation of new jobs, an increase in the inflow of foreign currency into the state, the renewal of local transport infrastructure, including the development of communications and services. It also improves local, regional and international economic relations and contributes to the improvement of the environment. The development of the state's economy and the increase in inbound and outbound flow of tourists brings huge benefits in the phase of globalisation. Therefore, taking care of the future of tourism in Almaty, it is necessary to analyse and implement new programmes, new ideas and proposals. It is necessary to increase the tourist flow, remembering that growth in the non-resource market will help the country financially.

## CONCLUSIONS

In conclusion, it was revealed that the current state of tourist flow in Almaty has increased in terms of indicators over the last 10 years. In particular, in 2014 the number of foreign tourists who visited the country was 679.0 thousand people, and in 2023 this indicator will be 1084.8 thousand tourists. The growth compared to 2022 was 16.9 %. The maximum number of tourists who visited Kazakhstan for 9 months was 58.2 thousand tourists from Russia, 11.2 thousand tourists from Uzbekistan and 3.1 thousand tourists from Kyrgyzstan. At the same time, the number of foreign tourists arriving in Almaty in 2023 totalled 261.571, while the number of domestic tourists reached 710.586.

Thus, the share of tourism in Almaty's GDP reached 11.3 %. In the course of this study, based on the respondents' answers, several key issues that need to be addressed to increase tourist flow to Almaty were identified. The importance of making the infrastructure convenient and attractive to tourists was identified as the main ones to increase tourist flow to Almaty. In addition, the need to invest in marketing and advertising campaigns to attract more tourists from different regions and countries was identified. Unique opportunities for outdoor activities and historical excursions such as cultural events, culinary festivals, hiking and skiing were also assessed to attract tourists to Almaty.

Quantitative and qualitative indicators of the tourist flow in the city showed the effectiveness of the use of tourist attractiveness, tourist potential based on the influence of a number of natural, economic, political, social, geographical factors. Comprehensive improvement of programmes and investment departments to be implemented by the state for the development of tourism industry will allow to develop tourism not only in Almaty, but also in Kazakhstan. In this regard, it is possible to co-operate with travel agencies by providing package tours and promotional offers to encourage tourists to come to Almaty. High-end hospitality services should also be provided so that tourists are left with a good impression.

However, it should be noted that tourism in Almaty mainly depends on seasonal factors, so the number of tourists and consumers fluctuates from time to time. In addition, the development of tourism in Almaty may contribute to environmental degradation, such as pollution and habitat destruction, and jeopardise the natural beauty and attractiveness of the city. Most dangerously, the rapid growth of tourism in Almaty may negatively affect the preservation of the city's cultural heritage and lead to the disruption of traditional customs. Thus, this study is aimed at improving the quality of tourism services, attracting entrepreneurs to the tourism business, increasing the income of the local population, employment rate, tourist flow, studying the current state and prospects of tourist flow in Almaty. This study has identified the following main issues that need to be addressed in Almaty: improving the infrastructure of Almaty; improving the quality of tourism services; co-operating with local tourism companies; creating convenient and accessible routes for tourists; promoting events and festivals that reflect the culture of the Kazakh people and establishing partnerships at the international level. Also, this study tries to contribute to Kazakhstani science by proposing the current state of development of tourist flow in Almaty, ways to solve the main problems of entrepreneurs.

**Author Contributions:** Conceptualization, A.Z. and K.Z.; methodology, A.Z. and Y.K.; software, A.Z. and K.Z.; validation, A.Z. and Y.K. and A.M.; formal analysis, A.Z. and K.Z. and N.A.; investigation, A.Z. and Y.K. and A.S.; data curation, A.Z. and K.Z. and A.A. and M.A.; writing - original draft preparation, A.Z. and Y.K. and K.Z.; writing - review and editing, A.M. and N.A. and A.S. and K.S. and L.P.; visualization, A.A. and Y.K. and M.A. and K.S. and L.P.; supervision, A.Z. and Y.K. and K.Z.; project administration, A.Z. and K.Z. All authors have read and agreed to the published version of the manuscript.

**Funding:** We express our gratitude to the Rector of Almaty Technological University for financing our project "Development of Strategy for the Enhancement of Regional Tourism and Recreation Complex" (Order No. R-01/113)

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgments:** We would like to thank all respondents for participating in the study.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 14.08.2024 Revised: 19.10.2024 Accepted: 26.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1964-1973
DOI 10.30892/gtg.574spl10-1363

# THE IMPACT OF DECISION-SHAPING FACTORS AND THE MODERATING ROLE OF PERCEIVED RISK ON INTERNATIONAL TOURISTS' DESTINATION CHOICE: THE CASE OF THE MEKONG DELTA, VIETNAM

**Nguyen Anh LOI***
Hue University, School of Hospitality and Tourism, Hue City, Vietnam, e-mail: naloi.dl22@hueuni.edu.vn;
Vietnam Aviation Academy, Vietnam, e-mail: loina@vaa.edu.vn

**Quoc Nghi NGUYEN**
Can Tho University, School of Economics, Can Tho, Vietnam, e-mail: quocnghi@ctu.edu.vn

**Nguyen Thi Le HUONG**
University of Economics, Hue University, Hue City, Vietnam, e-mail: ntlhuong@hce.edu.vn

**Citation:** Loi, N. A., Nguyen, Q. N., & Huong, N. T. L. (2024). THE IMPACT OF DECISION-SHAPING FACTORS AND THE MODERATING ROLE OF PERCEIVED RISK ON INTERNATIONAL TOURIST'S DESTINATION CHOICE: THE CASE OF THE MEKONG DELTA, VIETNAM. *Geojournal of Tourism and Geosites*, 57(4spl), 1964–1973. https://doi.org/10.30892/gtg.574spl10-1363

**Abstract:** This study examines the factors influencing international tourist's destination choices in the Mekong Delta, Vietnam, using an integrated framework of four behavioral theories: Push-Pull Theory (PPT), Theory of Planned Behavior (TPB), Rational Choice Theory (RCT), and Behavioral Decision Theory (BDT). The research focuses on key factors such as tourist attitudes, travel motivation, personal values, country and destination image, and destination information. Additionally, the study investigates the moderating role of perceived risk, which affects the relationship between tourist's attitudes and their final destination choices. A quantitative research method was employed, collecting data from 650 international tourists who visited the Mekong Delta from December 2023 to July 2024. The survey data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4.0. The analysis revealed that positive attitudes, strong motivation, and favorable perceptions of the destination significantly influence tourists' decisions to choose the Mekong Delta. However, perceived risks related to security, infrastructure, and climate negatively moderate these decisions, reducing the likelihood of choosing the destination even among tourists with initially positive attitudes. These findings underscore the importance of understanding how perceived risks shape tourist behavior, particularly during different stages of the decision-making process. The study provides valuable insights for tourism managers and local businesses to develop strategies that enhance destination appeal, address tourists' concerns, and ultimately promote sustainable tourism in the Mekong Delta.

**Keywords:** perceived risk, destination choice, country image, destination image, Mekong Delta

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## INTRODUCTION

The destination choice decision (DCD) is a multi-stage process where tourists choose a destination based on their preferences, needs, and available information. It begins with destination awareness formed through sources like advertising and social media, which shape destination image and perception (Chaulagain et al., 2019; Choirisa et al., 2021). The DCD is influenced by both external factors (destination characteristics, attractiveness, distance, and perceived risks) and internal factors (motivation, personal values, attitudes, and knowledge) (Bayramov, 2022; Wu et al., 2023). Um and Crompton (1991) outline five stages in DCD: awareness, impression formation, belief-building, and final decision-making. Harrison-Hill (2000) divides the process into consideration, commitment, and decision stages. Recent studies highlight the growing influence of modern media and destination image in shaping tourist decisions (Choirisa et al., 2021). The Mekong Delta, located in the southwestern region of Vietnam, is known as the country's largest granary and aquaculture production area. Covering an area of approximately 40,548 km², it includes 13 provinces and Can Tho City (Figure 1). It offers vast tourism potential due to its river networks, floating markets, and cultural heritage. However, this potential is underutilized due to weak marketing strategies and insufficient understanding of international tourists' needs. Understanding the factors influencing international tourists' DCD in the Mekong Delta, including the moderating role of perceived risk, is crucial for enhancing tourism strategies. Despite its natural and cultural resources, the Mekong Delta lacks comprehensive research on DCD, particularly on how perceived risks such as safety, health, and financial concerns influence decision-making. This research aims to fill this gap by examining the factors that shape international tourists' decisions and testing the moderating effect of perceived risk.

The study will analyze how motivations, destination image, media, and risks impact the DCD process in the Mekong Delta. Recent research has explored motivations in international tourism, highlighting the role of personal and intrinsic

* Corresponding author

factors in shaping tourist behavior (Grobbelaar, 2019; Karl, 2018). In wildlife tourism, risk perceptions are critical, especially for specific tourist groups like Chinese female travelers (Cong et al., 2021). Similarly, social media significantly influences destination choices, particularly among Millennials (Tham et al., 2020; Werenowska and Rzepka, 2020). In post-pandemic Vietnam, media and destination image are crucial factors (Wu et al., 2023).

Existing research in Hoi An and Saudi Arabia shows that infrastructure, cultural preservation, and service quality are vital for attracting tourists (Le et al., 2023; Mohammad et al., 2024). However, research in the Mekong Delta remains limited, particularly regarding personal values and perceived risks in shaping international tourists' decisions. Addressing these gaps will enhance destination marketing strategies and tourism development.

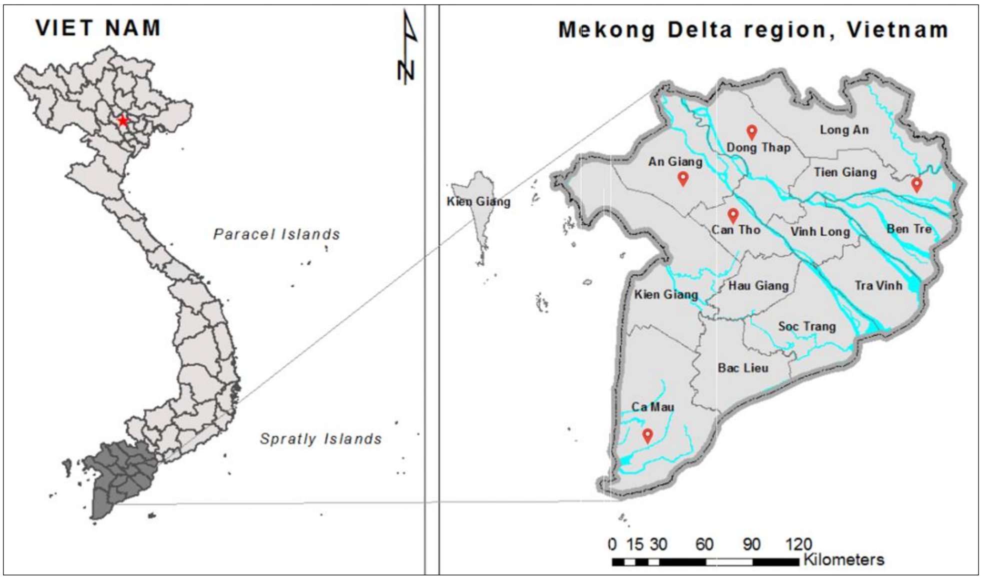


Figure 1. Map of the Mekong Delta region of Vietnam ( The location of the survey for the study: Tien Giang, Dong Thap, An Giang, Can Tho and Ca Mau in the Mekong Delta region, Vietnam)

## THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

This research integrates four key theories of tourism behavior to analyze Destination Choice Decision (DCD): Push-Pull Theory (PPT), Theory of Planned Behavior (TPB), Rational Choice Theory (RCT), and Behavioral Decision Theory (BDT). Push-Pull Theory explains how internal needs and external attractions drive tourist decisions (Lee, 1966; Dann, 1977). TPB focuses on attitudes, social norms, and perceived control in shaping intentions (Ajzen, 1991, 2020). RCT examines how tourists evaluate costs and benefits (Becker, 1976), while BDT highlights the role of emotions and biases (Tversky and Kahneman, 1981). Together, these theories offer a comprehensive framework for understanding how factors like motivation, values, risks, and destination information influence DCD.

*Tourist attitudes toward a destination* (ATT) consist of affective (emotions), cognitive (beliefs), and behavioral (actions) components. These attitudes shape tourists' decisions to visit, return, or recommend a destination based on how well it meets their needs (Crompton, 1979; Baloglu and McCleary, 1999). The Theory of Planned Behavior (TPB) explains how positive attitudes, influenced by emotions, experiences, and perceptions, lead to stronger intentions to visit (Ajzen, 1991). Research shows that positive attitudes significantly impact destination choices, with factors like personality, celebrity influence, and perceived risks playing a role (Ervina and Octaviany, 2022; Kara et al., 2024; Jiang et al., 2022). Hypothesis H1: Tourist attitudes positively influence international tourists' destination choice decisions.

*Travel motivation* (MOT) plays a vital role in shaping tourist destination choices. Push factors, like the need to escape or relax, and pull factors, such as a destination's appeal, combine to form personal travel motivation (Crompton, 1979; Dann, 1981). The Push-Pull Theory suggests that internal needs and destination attributes work together to drive tourists toward destinations that align with their desires. Studies consistently show that motivation, including factors like relaxation, family activities, and safety, significantly impacts destination choices (Fieger et al., 2019; Azeez, 2022; Soldatenko et al., 2023). Hypothesis H2: Travel motivation positively influences international tourists' destination choice decisions.

*Personal values* (PV) defined by Rokeach (1973) as enduring beliefs guiding decision-making, significantly influence tourist behavior. Rokeach's division of values into terminal (e.g., happiness) and instrumental (e.g., honesty) has been foundational, with Schwartz and Bilsky (1987) expanding the concept to ten core values like power and achievement. Crompton (1979) linked travel motivation to personal values, showing that those who value freedom and adventure often prefer novel destinations. According to the Theory of Planned Behavior (TPB), personal values shape attitudes and intentions, influencing destination choices. Behavioral Decision Theory (BDT) further explores how values guide decisions in complex situations. Push-Pull Theory (PPT) explains that personal values, as internal push factors, drive tourists toward specific destinations. Studies show personal values impact motivation, attitudes, and destination choices (Teng et al., 2023; Ye et al., 2020). **Drawing from these concepts, it is proposed that personal values positively influence international tourists' destination choices (H3a), travel motivation (H3b), and tourists' attitudes toward a destination (H3c).**

*Perceived risk* (PR) as defined by Slovic and colleagues, refers to an individual's subjective evaluation of potential dangers. In tourism, risks like physical, financial, or socio-psychological factors strongly influence destination choices. Studies show that risks such as terrorism, political instability, and natural disasters reduce tourists' likelihood of visiting certain places (Sönmez and Graefe, 1998; Fuchs and Reichel, 2006; Kozak et al., 2007). Perceived risks, particularly concerning safety and health, strongly impact destination choices for senior women, who prioritize security and comfort (Maiurro and Brandão, 2024). The COVID-19 pandemic heightened health concerns, further discouraging travel (Baraquil and Borbon, 2022). Increased risk perception diminishes tourists' motivations and positive attitudes, negatively influencing destination decisions (Han et al., 2020). Additionally, perceived risk moderates the relationship between positive attitudes, destination image, and revisit intentions (Wei et al., 2024). Building on this foundation, it is proposed that perceived risk negatively impacts international tourists' destination decisions (H4a), negatively moderates the relationship between travel motivation and international tourists' destination decisions (H4b), and negatively moderates the relationship between tourist attitudes toward a destination and international tourists' destination decisions (H4c).

*Country image* (CI) refers to the overall perception tourists hold about a country, including its culture, natural beauty, political stability, and social atmosphere. A positive CI attracts tourists and enhances the image of specific destinations within the country (Camprubí and Gassiot-Melian, 2023; Ferreira et al., 2022). According to Push-Pull Theory (PPT), a strong CI acts as a pull factor, encouraging tourists to choose the country by creating favorable impressions. The Theory of Planned Behavior (TPB) suggests that a positive CI fosters trust and positive attitudes, making decision-making easier (Aragonés-Jericó et al., 2022; Xia and Xu, 2023). Building on this framework, it is proposed that country image positively influences international tourists' destination choices (H5a) and positively influences destination image (H5b).

*Destination image* (DI) encompasses tourists' perceptions, impressions, and emotions about a location, involving both tangible elements like infrastructure and safety, and intangible factors such as culture and personal experiences (Crompton, 1979). A positive destination image is key to attracting tourists, shaping expectations, and influencing satisfaction, revisit intentions, and decision-making (Aksöz and Çay, 2022; Baloglu and McCleary, 1999; Echtner and Ritchie, 1991; Shatnawi et al., 2023; Suryawardani et al., 2024). According to the Push-Pull Theory (PPT), a strong destination image acts as a pull factor, motivating tourists to visit by appealing to their desires for relaxation, culture, and unique experiences (Moliner-Tena et al., 2023). Rational Choice Theory (RCT) and Behavioral Decision Theory (BDT) further explain how a positive image highlights benefits and reduces perceived risks, promoting favorable decisions (Homer et al., 2023; Ghaderi et al., 2024). The Theory of Planned Behavior (TPB) suggests that cognitive and emotional factors combine to shape tourists' attitudes, influencing loyalty and intention to return (Marković et al., 2022). Based on these theories, it is proposed that destination image positively influences international tourists' destination choices (H6a), travel motivation (H6b), and tourist attitudes toward a destination (H6c).

*Destination information* (IS) refers to the characteristics, services, and experiences that tourists use to evaluate a location. Originating from consumer behavior theory, it plays a key role in shaping tourist perceptions and decision-making (Fodness and Murray, 1997). According to Push-Pull Theory (PPT), detailed and positive information about a destination highlights its pull factors, increasing its appeal and influencing tourists' choices (Le and Bui, 2022; Raafat et al., 2023). This information shapes destination image by reinforcing positive cognitive and emotional aspects, creating a compelling perception in tourists' minds (Yang, 2023). According to the Theory of Planned Behavior (TPB), reliable and attractive information enhances positive attitudes toward the destination, increasing the likelihood of choosing it (Srivastava et al., 2022). Behavioral Decision Theory (BDT) suggests that detailed information fosters positive emotions, shaping motivations by addressing tourists' desires and needs for safety and enjoyment (Chen et al., 2022; Wang and Park, 2023). Therefore, destination information influences international tourists' destination choices (H7a), strengthens destination image (H7b), fosters positive tourist attitudes toward a destination (H7c), and enhances travel motivation (H7d).

The proposed research model integrates key theories (PPT, RCT, BDT, TPB) and consumer behavior models to analyze international tourists' destination choices. It explores how push and pull factors, personal values, and behavior influence decisions across stages like need recognition, evaluation of alternatives, and final decision-making. Motivations and positive destination images drive favorable attitudes (H6b, H7d, H6c, H7c), while personal values and perceived risks impact choices (H3a, H4a). Information from social media and reviews shapes emotions and decisions (H5a, H7a). Ultimately, strong motivations, low risks, and positive attitudes increase destination selection likelihood (H1, H2).

## RESEARCH METHODOLOGY

In tourism research, selecting an appropriate sample size is essential for data accuracy and reliability. Following Hair et al. (2019), this study chose 650 samples, exceeding the recommended minimum of five observations per variable, with a 10:1 ratio being ideal. With 37 observed variables, the required minimum was 370, and 585 valid responses were collected from international tourists visiting the Mekong Delta from December 2023 to July 2024. Data was collected via surveys with the assistance of Vietravel, TransViet Travel, and other companies, using a convenience sampling method across four subregions. The formal quantitative research employed a structured questionnaire measuring factors such as tourist attitudes, travel motivation, personal values, perceived risk, country and destination images, and destination information. SmartPLS 4.0 and PLS-SEM were used for data analysis, as PLS-SEM better handles non-normal data, complex models, and predictive research (Hair et al., 2019; Sarstedt et al., 2016; Henseler et al., 2015). The measurement scales were adapted from reputable sources: Jalilvand et al. (2012) and Girish et al. (2021) for tourist attitudes toward a destination; Correia and Pimpao (2008), Li and Cai (2011) and Pawaskar and Goel (2016) for travel motivation; Cosme Fernandes and Lages (2002); Fritzsche and Oz (2007), and Li et al. (2016) for personal values; Cong et al. (2021) and George (2010) for perceived risk; Chaulagain et al. (2019) for country image; Beerli and Martin (2004), Gallarza et al. (2002), Mihai et al., (2023) and Qu et al. (2011) for destination image; and Lam and Hsu (2004) and Mutinda and Mayaka (2012) for destination choice. These scales were developed through expert consultation, group discussions, and preliminary evaluation, ensuring reliability and validity for understanding international tourists' behaviors in the Mekong Delta.

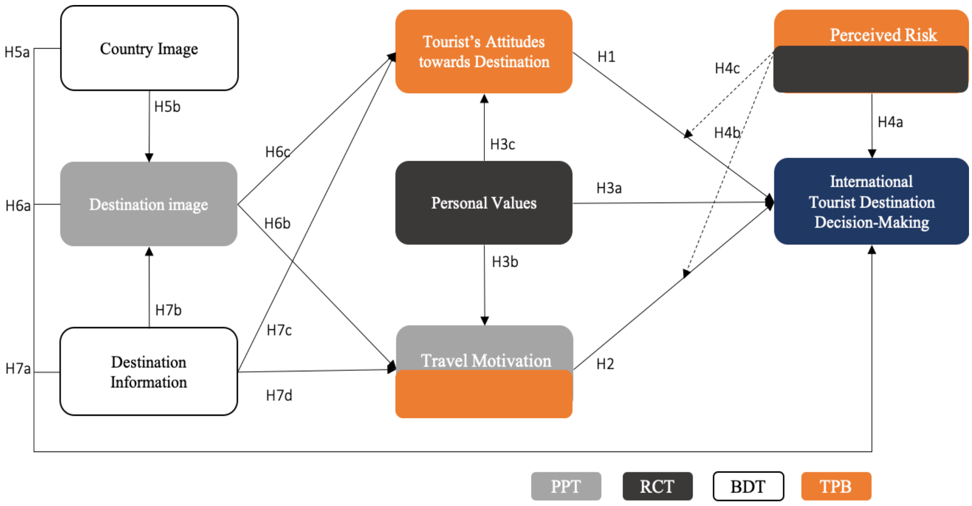

Figure 2. Conceptual framework

## RESEARCH RESULTS AND DISCUSSION

In Table 1, providing a clear overview of the demographic characteristics of international tourists visiting the Mekong Delta. Female tourists made up 53.7% and males 46.3%, reflecting a relatively balanced gender distribution. The majority of visitors were aged 16-30 (41.0%), followed by 31-45 (32.8%), 46-60 (16.1%), and over 60 (10.1%), highlighting the Mekong Delta's appeal across age groups, particularly among younger and middle-aged travelers. Most tourists had college or university education (62.6%) or higher (22.2%), ensuring reliable survey responses. Visitors predominantly came from Asia (44.1%), followed by Europe (23.9%), the Americas (17.4%), and Oceania (14.5%), with South Korea and China being the largest markets. Income-wise, 35.6% of tourists earned \$3000-\$4999, indicating a moderate to high spending capacity.

Table 1. Demographic characteristics of respondents

| Characteristics | Criteria | Frequency | Percent (%) |
|---|---|---|---|
| Gender | Male | 271 | 46.3 |
| | Female | 314 | 53.7 |
| Age | 16 - 30 | 240 | 41.0 |
| | 31 - 45 | 192 | 32.8 |
| | 46 - 60 | 94 | 16.1 |
| | Over 60 | 59 | 10.1 |
| Education level | Below High School High | 12 | 2.1 |
| | School/Vocational | 77 | 13.2 |
| | College/University | 366 | 62.6 |
| | Postgraduate or higher | 130 | 22.2 |
| Country | Asia | 258 | 44.1 |
| | Europe | 140 | 23.9 |
| | America | 102 | 17.4 |
| | Oceania | 85 | 14.5 |
| Monthly income | Below $1500 | 82 | 14.0 |
| | $1500 - $2999 | 150 | 25.6 |
| | $3000 - $4999 | 208 | 35.6 |
| | $5000 or more | 145 | 24.8 |

Outer loading is a key indicator in exploratory factor analysis (EFA) that measures the correlation between an observed variable and its corresponding latent factor. A higher outer loading (close to 1) indicates a stronger representation of the latent factor. In this study, the acceptable threshold for outer loading is > 0.7 (Hair et al., 2017). The first analysis showed that most observed variables met this threshold, except for DI6 (0.467), DI7 (0.525), IS5 (0.373), and PV3 (0.171), which were below the acceptable limit. These low values indicate weak correlations with their respective latent factors, potentially reducing the reliability and validity of the model. Consequently, DI6, DI7, IS5, and PV3 were removed to improve the model's reliability and validity.

After removing low outer loading variables DI6, DI7, IS5, and PV3, the measurement model improved significantly. The second analysis showed all remaining variables had outer loadings > 0.7, confirming strong correlations with latent factors and ensuring reliability and validity. ATT, CI, DCD, MOT, and RP had loadings > 0.8, while DI, IS, and PV also demonstrated strong alignment with their factors. This refinement enhanced the model's fit and theoretical strength. Cronbach's alpha (CA) values for all concepts exceeded 0.7 (Table 2), ensuring reliability. Composite reliability (CR) (> 0.7) values and AVE (> 0.5) scores were also above acceptable thresholds, confirming internal consistency and convergent validity (Hair et al., 2017). These results validate the measurement scales and support the model's conclusions.

Table 2. Measurement model evaluation results

| Code | Observed variables | Outer loadings | CA | CR | AVE |
|---|---|---|---|---|---|
| | *Tourist Attitude Towards Destination (ATT)* | | *0.802* | *0.805* | *0.716* |
| ATT1 | I feel that this destination is wonderful. | 0.849 | | | |
| ATT2 | I believe that visiting this destination is a valuable experience. | 0.834 | | | |
| ATT3 | I trust that visiting this destination brings positive impacts. | 0.856 | | | |
| | *Travel Motivation (MOT)* | | *0.876* | *0.892* | *0.734* |
| MOT1 | Exploring the destination. | 0.858 | | | |
| MOT2 | Observing and experiencing different cultures and lifestyles. | 0.917 | | | |
| MOT3 | Learning new things or enhancing knowledge. | 0.717 | | | |
| MOT4 | Relaxing and reducing stress. | 0.918 | | | |
| *Personal Values (PV)* | | | *0.900* | *0.901* | *0.833* |
| PV1 | I am free to make decisions according to my own will. | 0.899 | | | |
| PV2 | My opinions are always respected by others. | 0.911 | | | |
| PV4 | Visiting this destination helps me build and strengthen good relationships with others. | 0.929 | | | |
| *Perceived Risk (PR)* | | | *0.899* | *0.920* | *0.769* |
| RP1 | I am concerned whether the climate conditions at the destination will be suitable for my health. | 0.939 | | | |
| RP2 | I worry that the travel experience at this destination may not meet my expectations. | 0.851 | | | |
| RP3 | I am concerned that the infrastructure at the destination may not be fully developed. | 0.904 | | | |
| RP4 | I am worried about potential security risks to my personal safety at the destination. | 0.808 | | | |
| | *Country Image (CI)* | | *0.773* | *0.814* | *0.686* |
| CI1 | Personal security is ensured in Vietnam. | 0.892 | | | |
| CI2 | A safe country with a stable political environment. | 0.802 | | | |
| CI3 | Vietnam has a rich and unique cultural heritage. | 0.788 | | | |
| | *Destination Image (DI)* | | *0.924* | *0.925* | *0.624* |
| DI1 | Rich ecosystem and diverse landscapes. | 0.786 | | | |
| DI10 | Peaceful and poetic landscapes. | 0.719 | | | |
| DI11 | Floating markets, orchards, conical hats, and traditional scarves - cultural symbols associated with the Mekong Delta. | 0.729 | | | |
| DI2 | I can choose from a variety of accommodations, entertainment, and shopping services that meet my needs. | 0.741 | | | |
| DI3 | The Mekong Delta has a variety of rich art forms, such as "Đờn ca tài tử", "Cải lương", and "Hò", reflecting the local cultural identity. | 0.851 | | | |
| DI4 | Attractive and diverse local cuisine. | 0.818 | | | |
| DI5 | Warm and hospitable people. | 0.864 | | | |
| DI8 | Fresh air. | 0.789 | | | |
| DI9 | Mild and pleasant climate. | 0.802 | | | |
| *Destination Information (IS)* | | | *0.845* | *0.853* | *0.682* |
| IS1 | I often search for information on social media to learn about the destination. | 0.814 | | | |
| IS2 | I frequently gather information from online travel reviews by previous tourists before visiting a certain place. | 0.858 | | | |
| IS3 | I often consult family and friends to ensure my decision is wise. | 0.854 | | | |
| IS4 | I often collect information from travel service providers and promotional materials to compare prices and services of different travel companies. | 0.776 | | | |
| *International Tourist's Destination Choice Decision (DCD)* | | | *0.884* | *0.924* | *0.809* |
| DCD1 | I have decided to choose this destination for my upcoming trip. | 0.929 | | | |
| DCD2 | I have decided to make this destination the final stop of my upcoming trip. | 0.833 | | | |
| DCD3 | I completely trust my decision to choose this destination without needing any further information. | 0.933 | | | |

Table 3. Heterotrait-Monotrait ratio matrix for discriminant validity assessment

| | ATT | CI | DCD | DI | IS | MOT | PV | RP | RP x ATT | RP x MOT |
|---|---|---|---|---|---|---|---|---|---|---|
| ATT | | | | | | | | | | |
| CI | 0.042 | | | | | | | | | |
| DCD | 0.571 | 0.112 | | | | | | | | |
| DI | 0.462 | 0.194 | 0.431 | | | | | | | |
| IS | 0.667 | 0.076 | 0.565 | 0.365 | | | | | | |
| MOT | 0.609 | 0.045 | 0.520 | 0.445 | 0.586 | | | | | |
| PV | 0.427 | 0.027 | 0.353 | 0.178 | 0.388 | 0.424 | | | | |
| RP | 0.143 | 0.048 | 0.165 | 0.072 | 0.050 | 0.046 | 0.086 | | | |
| RP x ATT | 0.181 | 0.022 | 0.314 | 0.038 | 0.117 | 0.147 | 0.076 | 0.218 | | |
| RP x MOT | 0.162 | 0.033 | 0.289 | 0.043 | 0.125 | 0.113 | 0.048 | 0.223 | 0.598 | |

HTMT values were used to assess discriminant validity, with all values below the 0.900 threshold, confirming distinctiveness between constructs (Henseler et al., 2015). The HTMT values for ATT and other constructs, such as CI

(0.042), DCD (0.571), DI (0.462) (Table 3), were within acceptable limits. Additionally, all other construct pairs had HTMT values below 0.85, confirming clear differentiation.

The research model and hypotheses were tested using SmartPLS 4 with 5,000 bootstrap samples. The model showed a strong fit with an SRMR value of 0.048, below the 0.08 threshold (Hair et al., 2017; Henseler et al., 2015). The study also analyzed perceived risk (RP) as a moderator between tourist attitudes (ATT), motivation (MOT), and destination choice decisions (DCD), showing its impact on how these factors influence final decisions.

Table 4. The results of the assessment of the moderating role of perceived risk

| Hypothesis | Relationship | ß | P-value | Conclusion |
|---|---|---|---|---|
| H4c | RP*ATT→ DCD | -0.123 | 0.007 | Accepted |
| H4b | RP*DC → DCD | -0.084 | 0.060 | Rejected |

The analysis results (Table 4) show that perceived risk negatively moderates the relationship between tourist attitudes (ATT) and destination choice (DCD). The negative coefficient (-0.123) and P-value of 0.007 ($P < 0.05$) indicate that as perceived risk increases, the positive effect of attitude on destination choice weakens, meaning higher perceived risk reduces the likelihood of choosing a destination, even with a positive attitude.

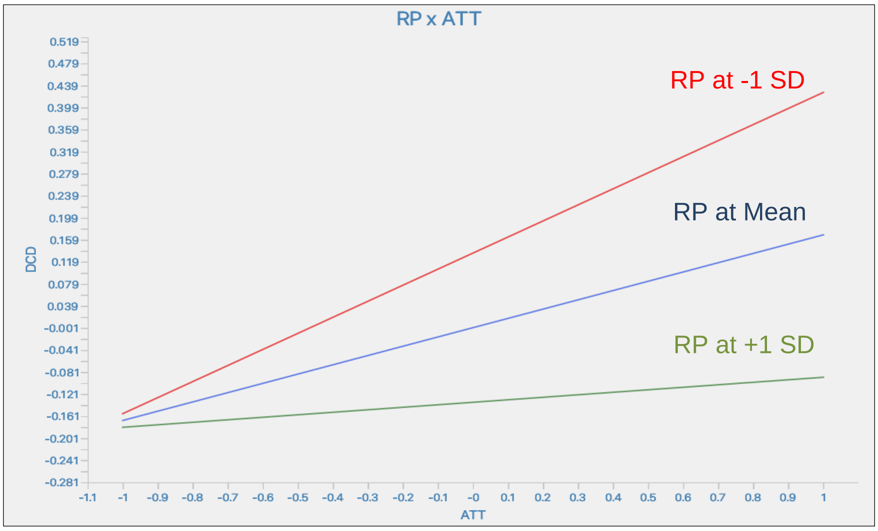


Figure 3. The negative moderating effect of perceived risk

Figure 3 shows the moderating effect of perceived risk (RP) on the relationship between tourist attitudes (ATT) and destination choice (DCD). The top line represents low risk (-1 SD), the middle line average risk (Mean), and the bottom line high risk (+1 SD). As risk increases, the impact of attitude on destination choice decreases significantly.

However, Table 5 shows that perceived risk does not significantly moderate the relationship between travel motivation (MOT) and destination choice, as indicated by a negative coefficient (-0.084) and a P-value of 0.060 ($P > 0.05$). Thus, hypothesis H4b is rejected. When mediators are considered, there is a notable increase in the overall impact of factors, indicating their key role in enhancing the influence of other variables.

Table 5. Evaluation results of relationships considering the role of mediators

| Hypothesis | Relationship | ß | | | P- value | Conclusion |
|---|---|---|---|---|---|---|
| | | *Direct* | *Indirect* | *Total* | | |
| H1 | ATT → DCD | 0.168 | - | 0.168 | 0.001 | Accepted |
| H2 | MOT → DCD | 0.141 | - | 0.141 | 0.001 | Accepted |
| H3a | PV → DCD | 0.097 | 0.06 | 0.157 | 0.000 | Accepted |
| H3b | PV → MOT | 0.208 | - | 0.208 | 0.000 | Accepted |
| H3c | PV → ATT | 0.183 | - | 0.183 | 0.000 | Accepted |
| H4a | RP → DCD | -0.136 | - | -0.136 | 0.000 | Accepted |
| H4b | RP x MOT → DCD | -0.084 | - | -0.084 | 0.060 | Rejected |
| H4c | RP x ATT → DCD | -0.123 | - | -0.123 | 0.007 | Accepted |
| H5a | CI → DCD | 0.089 | 0.043 | 0.132 | 0.000 | Accepted |
| H5b | CI → DI | 0.185 | - | 0.185 | 0.000 | Accepted |
| H6a | DI → DCD | 0.160 | 0.075 | 0.235 | 0.000 | Accepted |
| H6b | DI → MOT | 0.248 | - | 0.248 | 0.000 | Accepted |
| H6c | DI → ATT | 0.235 | - | 0.235 | 0.000 | Accepted |
| H7a | IS → DCD | 0.241 | 0.199 | 0.440 | 0.000 | Accepted |
| H7b | IS → DI | 0.336 | - | 0.336 | 0.000 | Accepted |
| H7c | IS → ATT | 0.414 | 0.079 | 0.493 | 0.000 | Accepted |
| H7d | IS → MOT | 0.358 | 0.083 | 0.441 | 0.000 | Accepted |

Table 5 shows the mediating effects on destination choice decisions (DCD). Personal values (PV) have a stronger total effect when mediators are included (direct: 0.097, indirect: 0.06, total: 0.157, p-value = 0.000). Similarly, country image (CI) increases in total influence on DCD (direct: 0.089, indirect: 0.043, total: 0.132, p-value = 0.000). Destination image (DI) and information source (IS) also show significant increases in total effects (DI: direct 0.160, indirect 0.075, total 0.235; IS: direct 0.241, indirect 0.199, total 0.440, p-value = 0.000). IS also boosts tourist attitude (ATT) and motivation (MOT) through mediators (ATT total: 0.493; MOT total: 0.441, p-value = 0.000). Mediators significantly enhance the impact of variables on DCD, ATT, and MOT, highlighting their importance in clarifying complex relationships. According to Cohen (1988), $R^2$ values indicate the explanatory power of independent variables. In Figure 4, ATT has an $R^2$ of 0.389, DCD 0.459, DI 0.141, and MOT 0.360, all suggesting moderate to strong explanatory power. $Q^2$ values further validate predictive power (Tenenhaus et al., 2005), with $Q^2$ for ATT (0.273), DI (0.086), and MOT (0.258) all confirming strong predictive capability.

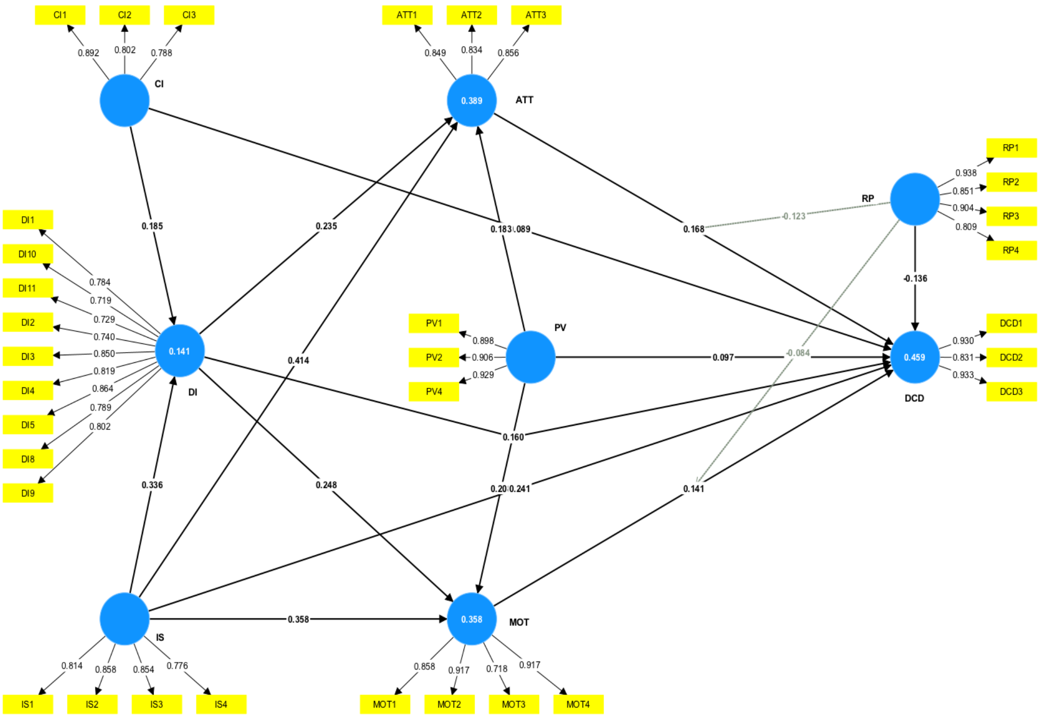


Figure 4. PLS-SEM analysis results of the research model

## DISCUSSION

### Theoretical Implications

This study confirms and expands upon existing theories related to international tourists' destination choices, particularly in the context of the Mekong Delta.

The research supports the foundational theories such as the Theory of Planned Behavior (TPB), Push-Pull Theory, and Behavioral Decision Theory (BDT), by validating the significance of key factors like tourist attitude (ATT), travel motivation (MOT), personal values (PV), perceived risk (RP), country image (CI), destination image (DI), and destination information (IS) on decision-making. The significant positive effect of tourist attitude (H1, β = 0.168, p = 0.001), consistent with Jiang et al. (2022), affirms the role of attitude in shaping destination choices. Similarly, the strong influence of travel motivation (H2, β = 0.230, p = 0.000) corroborates findings from Azeez (2022), further reinforcing the push-pull dynamics in tourism. The significant effects of personal values on destination choice (H3a, β = 0.155, p = 0.003), motivation (H3b, β = 0.342, p = 0.000), and attitude (H3c, β = 0.288, p = 0.000), as supported by studies like Chang et al. (2023) and Teng et al. (2023), emphasize the importance of intrinsic values in tourist behavior.

The moderating role of perceived risk (RP) is particularly noteworthy. While it negatively impacts the relationship between attitude and destination choice (H4a, β = -0.236, p = 0.001), it does not significantly moderate the link between motivation and destination choice (H4b, β = -0.084, p = 0.060). This highlights the complexity of risk perception in tourism decisions. The study also strengthens the theoretical understanding of how country image (H5a, β = 0.325, p < 0.001) and destination image (H6a, β = 0.160, p < 0.001) shape destination choices, as noted by Xia and Xu (2023) and Homer et al. (2023), respectively. Furthermore, destination information (H7a, β = 0.241, p < 0.001) plays a critical role, aligning with research from Wu et al. (2023). Overall, the study provides a deeper theoretical understanding of the factors influencing tourist behavior, particularly in emerging destinations like the Mekong Delta, and underscores the need for further exploration into the moderating effects of perceived risk on decision-making.

### Managerial Implications

To enhance the Mekong Delta's appeal to international tourists, managers should prioritize key areas such as infrastructure improvement, product diversification, cultural preservation, and risk management.

*(i) Infrastructure and Security:* Upgrading roads, waterways, and public transportation is essential for improving access to popular attractions like floating markets and garden tours. Implementing robust safety protocols and emergency systems will reduce perceived risks and boost tourist confidence; (*ii) Tourism Product Diversification:* Offering diverse tourism options, including wellness tourism, adventure activities, and cultural tours, will attract a broader range of tourists. Expanding experiences like riverboat safaris, cycling, and craft workshops can enrich visitor experiences and meet international demand; (iii) Enhancing Visitor Experience: Improving key attractions and incorporating immersive activities like fruit picking or craft-making will create memorable experiences, positively shaping tourist perceptions and increasing revisit intentions. *(iv) Cultural Preservation and Promotion:* Preserving local culture through festivals, art, and culinary experiences, such as cooking classes and food tours, will strengthen the region's identity and enhance its cultural appeal; *(v) Community Engagement and Feedback:* Interactive activities with local communities, such as farming or fishing, foster deeper connections, while regular tourist feedback helps refine tourism offerings to ensure satisfaction and loyalty; (*vi) Risk and Safety Management:* Clear communication of safety measures and infrastructure upgrades, particularly in flood-prone areas, is crucial for minimizing risks and enhancing the region's reputation as a safe destination; *(vii) Marketing Strategies:* A strong online presence, partnerships with international travel agencies, and up-to-date information on attractions are essential for positioning the Mekong Delta as a top international destination.

By addressing these areas, tourism managers can overcome perceived risks, improve the region's competitive advantage, and ensure sustainable growth while preserving the Mekong Delta's cultural heritage.

## CONCLUSION

This study confirms the effectiveness of an integrated model combining four tourism behavior theories (PPT, TPB, RCT, BDT) in explaining international tourist destination choices in the Mekong Delta. Key factors such as attitudes, motivation, personal values, national and destination image, and information significantly influence decisions. Perceived risk plays a moderating role, especially between attitudes and decision-making. The model highlights four critical stages: need recognition, evaluation, emotional influence, and final decision-making. For tourism managers, enhancing destination image, improving service quality, and aligning products with tourist values are crucial for attracting international visitors.

However, the study has limitations. Convenience sampling may not fully represent all tourist groups, and a few variables had lower outer loadings, potentially affecting reliability. Additionally, the focus on the Mekong Delta limits generalizability to other destinations. Future research should explore these findings in different contexts for broader validation.

**Author Contributions:** Conceptualization, A.L., Q.N. and L.H.; methodology, A.L. and Q.N.; software, A.L., Q.N. and L.H.; validation, A.L. and Q.N.; formal analysis, A.L., Q.N. and L.H.; investigation, A.L. and L.H.; data curation, A.L. and Q.N.; writing - original draft preparation, A.L., Q.N. and L.H.; writing - review and editing, A.L., Q.N. and L.H.; visualization, A.L. and Q.N.; supervision, A.L.; project administration, A.L.; All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 22.08.2024 Revised: 15.10.2024 Accepted: 27.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1974-1979
DOI 10.30892/gtg.574spl11-1364

# INNOVATIVE CHANGES IN HISTORICAL TOURISM OBJECTS IN THE CONTEXT OF THE NEED FOR THE IMPLEMENTATION OF DIGITAL TOOLS

**Ivana ŠAFFOVÁ***
The University of Prešov, Faculty of Management and Business, Department of Tourism and Hotel Management, Prešov, Slovakia, e-mail: ivana.saffova@smail.unipo.sk

**Daniela MATUŠÍKOVÁ**
The University of Prešov, Faculty of Management and Business, Department of Tourism and Hotel Management, Prešov, Slovakia, e-mail: daniela.matusikova@unipo.sk

**Tünde Dzurov VARGOVÁ**
The University of Prešov, Faculty of Management and Business, Department of Tourism and Hotel Management, Prešov, Slovakia, e-mail: tunde.dzurovvargova@unipo.sk

**Citation:** Šaffová, I., Matušíková, D., & Vargová, T.D. (2024). INNOVATIVE CHANGES IN HISTORICAL TOURISM OBJECTS IN THE CONTEXT OF THE NEED FOR THE IMPLEMENTATION OF DIGITAL TOOLS. *Geojournal of Tourism and Geosites*, 57(4spl), 1974–1979. https://doi.org/10.30892/gtg.574spl11-1364

**Abstract:** The digital revolution is also evident in the tourism industry. Its use is becoming more and more massive and does not bypass any of the services provided to its participants in tourism. Virtual reality is a powerful tool that can play a significant role in the tourism industry. In approximating the historical potential, it is an ideal helper for displaying what cannot be fully returned to under the influence of time. The paper discusses digital advancement in tourism at an example of analyzing the public's interest in applying virtual reality to services in historical objects (castles, manor houses, museums, etc.). As part of the study, questionnaire research was carried out on a research sample of visitors to historical objects in the Slovak Republic. Its results are described in more detail using several methods of advanced statistics such as Kruskal-Wallis test, Spearman's correlation coefficient, normality test and others. The results of the research show that virtual reality as a modern digital tool that is perceived as a highly beneficial element for innovating the services of historical objects. Through it, the product portfolio expands and the experience increases. This indicates the justification for its further expansion into historical tourism objects in the country.

**Keywords:** tourism market, virtual reality, digitization, digital innovation

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## INTRODUCTION

The tourism sector has undergone many changes in recent years, mainly caused by the coronavirus pandemic. This situation has led to a paradigm shift in processes and operations through the integration of advanced technologies such as artificial intelligence or virtual reality (Popșa, 2023). Digitization initiatives in this sector have also accelerated in line with technological developments, increased pressure on costs and productivity and higher customer expectations (Hollander, 2022). Innovation and digitization are som ein of the key challenges, together with monitoring of developments in demand, health and hygiene, sustainability or recommendations for the application of tourism policies. In the context of digitization and innovation, attention is drawn to the growing need for digital adoption and the application of contactless technologies as a prerequisite for safe and seamless travel (World Travel & Tourism Council – WTTC 2020). Tourism was one of the first sectors to digitize processes on a global scale. The digital tourism sector must innovate and create new business opportunities to ensure its continued competitiveness, growth and sustainable development (United Nations World Tourism Organization – UNWTO 2021). Digitization in tourism makes tourism more flexible, adapted to modern conditions and competitive in a dynamic digital world. It has proved to be a fundamental necessity for the aforementioned tourism, a sector which generally favours human interaction and personalised experience. The complex application of new technologies in the tourism sector brings with it a special operating mode, efficient implementation tools and high-quality value creation that has opened a new path for the development of a global economic format (Chaw et al., 2019).

Digitization is expected to continue to drive traveller experiences along its trajectory towards a smoother, more seamless and high-quality service. The use of different types of technology has led to a supply of tourism that is more attractive, more efficient, more inclusive and more economical, socially and environmentally sustainable than its predecessor. It has also facilitated innovation and the re-evaluation of processes to address issues such as seasonality and population density and to develop smarter destinations. Digitization has a positive impact on the environment and can have an even greater impact, while innovation in production, smart assets and resource efficiency contribute to a more sustainable industrial footprint (United Nations World Tourism Organization – UNWTO 2021). Various digital technologies are widely recognised as valuable sources of competitive advantage (Busulwa et al., 2022). The advent of the digital age and the increasing growth of

* Corresponding author

information and communication technologies, like all businesses and activities, have revolutionized the tourism sector (Hassani and Bastenegar, 2020). Technology allows an unprecedented new and interactive regime for the dissemination of information. One of the technological advances that are gaining momentum and popularity is, for example, virtual reality (Kusumah et al., 2022). Identified trends in tourism industry are found in effective planning and suitable management. As the almost-realistic, easy and detailed navigations created through the VR are readily available for tourists to help in their trip- and activity-planning processes, its potential is further widened (Tussyadiah et al., 2018). Virtual travel can be used in tourism in a variety of ways. Product policy must progress (Pethö et al., 2021) and thus the technology is developing rapidly and, together with the technology, the possibilities for exploiting it are expanding (Immervision, 2023).

## THEORETICAL BACKGROUND

### Virtual reality as a digital innovation in the travel market

Virtual reality offers a global approach to consumers and not only enables service providers to improve the development of the tourism sector and its competitive standards. It is precisely this digital trend to change the way we travel, to reduce the environmental burden on the tourism industry and to bring various benefits to it. Digital technologies, including virtual reality, can help developing economies to overcome conventional challenges. In the area of managing destinations and increasing their competitiveness. However, many development destinations have limited knowledge of how to take advantage of virtual reality and mitigate risks. Either they are limited by a lack of understanding or know-how and resources, these economies are unable to use digital tools to develop tourism (The World Bank, 2018).

The authors of Kusumah et al. (2022), for example, perceive virtual reality as a way of encouraging travellers to return to tourism and visit specific destinations. According to the authors Yung and Khoo-Lattimore (2019) can be a virtual reality characterized as a simulated experience that is either identical or diametrically different to the real world. Virtual reality is currently being used to improve the experience of travellers, to provide destinations, attractions and businesses with other marketing tools, to reshape the experience of consumers and to create a new tourism model. On the basis of the findings so far, the company has adapted to digital trends (including virtual reality) during the journey. In addition, related technologies and applications are developing rapidly. It is therefore necessary to gather, synthesize and present all new knowledge on this subject for researchers and practitioners (Calisto et al., 2024).

Kusumah et al. (2022) determine whether the image of the destination and the purpose of the re-visit are influenced by the experience of virtual reality. Their results showed that the image of the destination could convey the impact of the virtual reality experience on the purpose of the re-visit. The potential of virtual reality to improve the experience of travelling. It has grown by leaps and bounds, especially during a pandemic, because tourism enterprises of whatever nature, attractions and destinations were forced to adopt technology in ways they had never tried before. In general, virtual reality in tourism can be used to capture tourist destinations in a unique way (Dauk, 2022). Rauscher et al. (2021) state that when appropriately implemented, the given technology can not only be beneficial in reducing visitor concentrations at tourist hotspots or mitigating the negative impacts associated with frequent travel but could also be applied to locations where physical visitor engagement is not feasible due to their remoteness, high cost, or inaccessibility.

The ability to capture tourist destinations in such an unforgettable and absorbing way is also a powerful marketing tool. The finished content can then be viewed either on a virtual reality set placed, as a rule, on the head of a tourist or a normal computer or mobile device (Immervision, 2023). The research carried out under Australian conditions has also yielded many interesting conclusions, namely that virtual reality brings life to the goal and can force consumers to consider travelling to places they would not otherwise have considered. Consumers are most interested in content related to virtual reality and nature or wildlife, water and coastal offerings. The incentive to travel to the destinations listed in the virtual reality assets was generally high, with a strong potential to inspire and motivate the likelihood of a site visit.

Virtual reality technology is certain to advance, as will opportunities within the tourism sector. Regardless of the direction these advancements and developments take, various applications and trends have already been identified and are being utilized in the tourism industry (Pestek et al., 2021). Almost a fifth of consumers have used virtual reality to help them choose their holidays. Around 25 % of consumers said they plan to use it in the future to help them decide on a holiday destination (Tourism Australia, 2023). It argues that virtual travel plays an important role in the selection and planning process. This digital trend could make travel easier for potential consumers. It also provides a great opportunity to visit hard-to-reach places (Mehrbakhsh et al., 2018). For this reason, the aim of the study was to find out through research questions:

RQ1 - Does the public perceive digital tools at the example of virtual reality as an important part of service delivery innovation in historical tourism objects?

RQ2 - Does the implementation of digital tools, using the example of virtual reality, affect the decision-making of the respondents visiting the historical objects of tourism?

RQ3 - Which elements of the product section are the most popular for the use of virtual reality?

## MATERIALS AND METHODS

The aim of the contribution is to find out the public's attitude towards the use of digital tools at the example of the application of virtual reality in historical objects as an important part of tourism.

Several research methods were chosen to achieve the chosen goal in connection with the application of virtual reality in historical tourism objects. Questionnaire research was the main method used to obtain quantitative data. Its main attention was devoted to the use of digital innovations in historical objects at the concrete example of virtual reality. The main goal of the questionnaire research was to provide quantitative data at the example of the Slovak public, who visits historical objects and has knowledge of virtual reality and its possibilities. The design of the questionnaire was implemented in three levels. The first level monitored opinions on the perception of virtual reality in historical objects as an important part of service provision and thus reflected on research question no. 1. The second level aimed at finding out whether the implementation of virtual reality in historical objects can stimulate a higher interest in visiting such objects, and therefore fulfilled research question no. 3. The last level looked at specific examples of the application of virtual reality, where the public would appreciate it the most. 4 basic components were selected, which are most often associated with historical objects. From the point of view of the variables, the gender of the respondents was selected, on the basis of which the differences in perception were analysed. Mathematical and statistical methods were used to evaluate the results of the implemented questionnaire. Primary data processing was carried out in MS Excel.

For the purpose of evaluating the perception of virtual reality as a digital innovation in the historical objects within the tourism industry, the Shapiro-Wilk test was used to determine the distribution of respondents. For hypothesis testing, non-parametric tests were chosen, namely the Kruskal-Wallis test, Spearman's correlation coefficient. Questionnaire research was carried out in the months of June to August 2024 in a personal way of distribution and addressing respondents during a visit in historical objects. The questionnaire contained scaled questions in which the respondents could express their opinion, or their perception based on the stated statement. The scaled questions of the questionnaire were in the form of a 5-point Likert scale (wording of the 5-point scale: definitely agree; rather agree; neither agree nor disagree; rather disagree; definitely disagree), which is a suitable means for measuring the perception, opinions or attitude of the respondents. For the purposes of this contribution, partial results of the questionnaire survey were selected. Subsequently, a method of comparison was used, which compared the results of the survey from the point of view of the gender variable of the respondents. The object of the survey was the domestic public, which participates in tourism and the use of its services in domestic tourism as well as foreign passive ones.

The research sample as mentioned before consisted of the visitors of historical objects in the tourism field coming from the Slovak Republic. All the respondents were questioned during their visit to these objects located in the territory of the country. For the purpose of the study, 3 hypotheses were stated:

**H1:** There is an assumption, that there exists a difference in the public perception of the digital tools at the example of virtual reality as an important part of service delivery innovation in historical tourism objects.

**H2:** There is an assumption, that the implementation of digital tools, using the example of virtual reality, affect the decision-making of the respondents visiting the historical objects of tourism.

**H3:** There is an assumption, that is difference in the perception of concrete products of virtual reality used in historical objects.

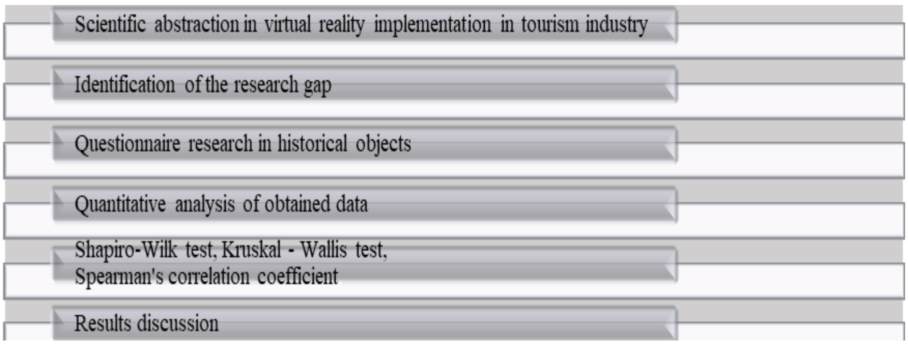


Figure 1. Methodology flowchart

## RESULTS AND DISCUSSION

### The results of the perception of virtual reality as an important innovation in historical objects in the tourism market

When characterizing the research sample (Table 1) in terms of the gender of the respondents, the dominant part was made up of female respondents (16.8 % more than males). In terms of age, the youngest respondent was 16 years old, the oldest respondent was 64 years old. The average age of respondents was 27 years old. In terms of place of residence, the "city" was dominated by women. In the case of rural settlements, the ratio was almost balanced for both genders. The descriptive statistic is provided in Table 1 below.

Table 1. Respondents distribution according to the gender and place of residence (Source: Own processing)

| Variable | Frequency | Cumulative Frequency | Relative frequency % | Cumulative relative frequency % |
|---|---|---|---|---|
| **Gender** | | | | |
| Men | 92 | 92 | 41.60% | 41.60% |
| Women | 129 | 221 | 58.40% | 100% |
| **Residence** | | | | |
| City | | | | |
| Men | 44 | 44 | 34.10% | 34.10% |
| Women | 85 | 129 | 65.90% | 100% |
| Countryside | | | | |
| Men | 48 | 48 | 52.18% | 52.18% |
| Women | 44 | 92 | 47.82% | 100% |

Table 2. Descriptive statistics and normality of the independent variable - respondents' gender (Source: Own processing)

| N | Gender |
|---|---|
| Median | 221 |
| Standard deviation | 1 |
| Shapiro-Wilk W | 0.496 |
| Shapiro-Wilk p | 0.629 |
| | < .001 |

Table 3. The use of virtual reality in historical tourism objects is an essential means of service innovation (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.76 |
| Median | 1 |
| Sum | 389 |
| Standard deviation | 1 |
| Minimum | 1 |
| Maximum | 4 |
| Shapiro-Wilk W | 0.739 |
| Shapiro-Wilk p | < 0.01 |

Table 4. The use of virtual reality in historical tourism objects increases their competitiveness (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.48 |
| Median | 1 |
| Sum | 327 |
| Standard deviation | 0.892 |
| Minimum | 1 |
| Maximum | 7 |
| Shapiro-Wilk W | 0.597 |
| Shapiro-Wilk p | < 0.01 |

Table 5. The use of virtual reality in historical tourism objects increases the motivation to visit these objects (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.84 |
| Median | 1 |
| Sum | 407 |
| Standard deviation | 1.05 |
| Minimum | 0 |
| Maximum | 4 |
| Shapiro-Wilk W | 0.773 |
| Shapiro-Wilk p | < 0.01 |

Table 6. The use of virtual reality in historical tourism objects is an important educational tool (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.62 |
| Median | 1 |
| Sum | 359 |
| Standard deviation | 0.99 |
| Minimum | 1 |
| Maximum | 5 |
| Shapiro-Wilk W | 0.667 |
| Shapiro-Wilk p | < 0.01 |

Table 7. The use of virtual reality in historical tourism objects is an essential means of service innovation (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.72 |
| Median | 1 |
| Sum | 380 |
| Standard deviation | 0.978 |
| Minimum | 1 |
| Maximum | 4 |
| Shapiro-Wilk W | 0.727 |
| Shapiro-Wilk p | < 0.01 |

Based on the Shapiro-Wilk test, we can conclude that the data do not have a normal distribution, the p values are lower than 0.05 (Table 2). The first part of the questionnaire was dedicated to the research question, whether the public perceive digital tools at the example of virtual reality as an important part of service delivery innovation in historical tourism objects. 5 concrete statements were proposed to the respondents, where they could express their opinion in the use of virtual reality. On the basis of descriptive statistics, the perception of virtual reality in historical objects can be evaluated as follows: AP values in individual items range from 0.597 to 0.773 (Table 3 - 7), therefore we can conclude that the values for the positivity of virtual reality are at the level of 1-2 (agree-rather agree), which we can consider it a positive finding in this area. According to the Shapiro-Wilk test, the data do not have a normal distribution, the p-value is lower than 0.05 in all items. We reject normality and choose non-parametric tests for testing, namely the Kruskal-Wallis test, Spearman's correlation coefficient, which are listed below. According to the results, the implementation of virtual reality in historical object is dominantly perceived the most as a tool to increase the competitiveness of historical objects. On the next position, as a significant positive benefit of the virtual reality can be its education asset. The lowest value was recorded in the case of the motivation tool for a future visit. Despite the fact that the value was the lowest, the resulting value was at the level of rather agree, that is, still within the limits of a positive perception of the tool. The second part of the study aimed to find out, if the implementation of digital tools, using the example of virtual reality can affect the decision-making of the respondents visiting the historical objects of tourism (Table 8 - 11). In this case too, the results were comparable to the first part. Respondents perceive virtual reality as a positive and beneficial tool that can positively influence their perception.

Table 8. The use of virtual reality in historical tourism objects affects my decision to visit a historical object (Source: Own processing)

| N | 221 |
|---|---|
| Average | 1.81 |
| Median | 1 |
| Sum | 401 |
| Standard deviation | 1.08 |
| Minimum | 1 |
| Maximum | 5 |
| Shapiro-Wilk W | 0.786 |
| Shapiro-Wilk p | < 0.01 |

Table 9. The use of virtual reality in historical tourism objects intensifies my experiences of visiting a historical object

| N | 221 |
|---|---|
| Average | 1.647 |
| Median | 1 |
| Sum | 363 |
| Standard deviation | 0.916 |
| Minimum | 1 |
| Maximum | 5 |
| Shapiro-Wilk W | 0.79 |
| Shapiro-Wilk p | < 0.01 |

Table 10. The use of virtual reality in historical tourism objects stimulates the rate of absorption of information about historical objects (Source: Own processing)

| | |
|---|---|
| N | 221 |
| Average | 1.77 |
| Median | 1 |
| Sum | 391 |
| Standard deviation | 0.916 |
| Minimum | 1 |
| Maximum | 5 |
| Shapiro-Wilk W | 0.705 |
| Shapiro-Wilk p | < 0.01 |

Table 11. The use of virtual reality in historical tourism objects increases my satisfaction with the services provided (Source: Own processing)

| | |
|---|---|
| N | 221 |
| Average | 1.98 |
| Median | 2 |
| Sum | 437 |
| Standard deviation | 1.11 |
| Minimum | 1 |
| Maximum | 5 |
| Shapiro-Wilk W | 0.779 |
| Shapiro-Wilk p | < 0.01 |

The results show that the most significant impact virtual reality leaves in the case of stimulating the rate of absorption of information about historical objects and as an intensifier of the experiences of visitors in historical objects.

The last part of the questionnaire was focused on finding out, which elements of the product section are is the most popular for the use of virtual reality. There were 4 supporting categories, namely: significant personalities and their portrayal through the medium of virtual reality. The second element was significant events and the possibility of entering their plot within virtual reality. The third element was objects and buildings that would also support augmented reality and would display individual objects virtually in their original version. The last element was tools, implements and utensils that could be tried out through virtual reality. As can be seen in Table 12, the most popular products, where virtual reality is expected to be attractive the most are the historical objects and buildings. The second most popular was the potential meeting with famous historical personalities. Participation in historical events was the third one and on the last place, as the less attractive was the possibility of the use of historical tools.

Table 12. Attractivity of virtual reality in historical tourism objects in concrete products portfolio (Source: Own processing)

| **Categories** | **Frequency** | **Cumulative frequency** | **Relative frequency** | **Cumulative relative frequency** |
|---|---|---|---|---|
| Famous historical personalities | 67 | 67 | 30.32% | 30.32% |
| Significant historical events | 45 | 112 | 20.36% | 50.68% |
| Historical objects and buildings | 89 | 201 | 40.27% | 90.95% |
| Tools, implements and utensils | 20 | 221 | 9.05% | 100% |

Hypotheses evaluation

There is an assumption, that there exists a difference in the public perception of the digital tools at the example of virtual reality as an important part of service delivery innovation in historical tourism objects according to the gender of respondents. There was and an expectation that men will perceive technology more positively than women, which was confirmed.

**H2:** There is an assumption, that the implementation of digital tools, using the example of virtual reality, affect the decision-making of the respondents visiting the historical objects of tourism.

Based on the results of the Kruskal-Wallis test, it can be concluded that in all cases statistically significant differences between gender and the perception of virtual reality and its contribution to historical objects in tourism were confirmed. The p-values were lower than 0.05 and thus H2 can be confirmed.

**H3:** There is an assumption, that is difference in the perception of concrete products of virtual reality used in historical objects. The hypothesis was not confirmed only in the first case of famous historical personalities.

Table 13. Verification of the Hypothesis 1 (Source: Own processing)

| | $\chi^2$ | df | p |
|---|---|---|---|
| Q1- mean of innovation | 15.4 | 1 | < 0.01 |
| Q2- competitiveness enhancer | 4.97 | 1 | 0.026 |
| Q3- motivation factor | 18.38 | 1 | < 0.01 |
| Q4- educational factor | 10.39 | 1 | 0.001 |
| Q5- service progression tool | 11.41 | 1 | < 0.01 |

Table 14. Verification of the Hypothesis 2 (Source: Own processing)

| | $\chi^2$ | df | p |
|---|---|---|---|
| Q1- mean of innovation | 6.64 | 1 | < 0.01 |
| Q2- competitiveness enhancer | 10.93 | 1 | <0.01 |
| Q3- motivation factor | 7.91 | 1 | 0.005 |
| Q4- service progression tool | 15.69 | 1 | < 0.01 |

Table 15. Verification of the Hypothesis 3 (Source: Own processing)

| | $\chi^2$ | df | p |
|---|---|---|---|
| Q1- Famous historical personalities | 3.18423 | 1 | 0.074 |
| Q2- Significant historical events | 0.32558 | 1 | 0.568 |
| Q3- Historical objects and buildings | 0.04281 | 1 | 0.836 |
| Q4- Tools, implements and utensils | 0.51161 | 1 | 0.474 |

**CONCLUSION**

In conclusion, it can be assessed that today's modern digital age makes significant use of the implementation of digital technologies in tourism services, which can bring many advantages. One of the digital innovations in the industry is virtual reality, which gained importance with the advent of the pandemic period.

By using virtual reality, visitors to historical buildings can experience key elements and interesting things from history. As stated by author Richardson (2024) that historical objects use virtual reality to enhance visitor experiences by providing immersive, interactive exhibits. The situation within Slovak republic by providing digital services in historical sights, is in progress. He also mentions, that virtual reality allows for exploration of historical sites, distant cultures, and intricate details of artefacts that might be inaccessible in physical form. It also engages diverse audiences and can bring history and art to life in innovative ways. This opinion was confirmed also by Slovak visitors of such sights.

**Author Contributions:** Conceptualization, D.M and I.Š.; methodology, D.M. and I.Š.; software, T.D.V. and D.M.; validation, I.Š. and D.M.; formal analysis, T.D.V. and I.Š.; investigation, I.Š., D.M. and T.D.V.; data curation, D.M. and T.D.V; writing - original draft preparation, I. Š, T.D.V. and D.M.; writing - review and editing, T.D.V, D.M. and. I.Š. visualization, D.M.; supervision, I.Š and D.M.; I.Š. project administration I.Š. All authors have read and agreed to the published version of the manuscript.

**Funding:** GaPU 16/2024.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The paper is a part of the output of the projects: GaPU 16/2024. Digitálne napredovanie historických objektov cestovnom ruchu a potreba implementácie digitálnych nástrojov do ich chodu (Digital advancement of historical tourism objects and the need to implement digital tools in their operation), Grant agency of University of Prešov in Prešov.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 26.08.2024 Revised: 20.10.2024 Accepted: 28.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1980-1990
DOI 10.30892/gtg.574spl12-1365

# THE IMPLEMENTATION OF THE MAPPALILI CEREMONY AS CULTURAL TOURISM IN SUPPORTING THE MAROS-PANGKEP GLOBAL GEOPARK, INDONESIA

**Badrizal Al HAZAR***
State University of Malang, Faculty of Social Sciences, Department of Geography, Malang, Indonesia, e-mail: badrizalalhazar@gmail.com

**SUMARMI**
State University of Malang, Faculty of Social Sciences, Department of Geography, Malang, Indonesia, e-mail: sumarmi.fis@um.ac.id

**I Komang ASTINA**
State University of Malang, Faculty of Social Sciences, Department of Geography, Malang, Indonesia, e-mail: komang.astina.fis@um.ac.id

**Citation:** Hazar, B.A., Sumarmi, & Astina, I.K. (2024). THE IMPLEMENTATION OF THE MAPPALILI CEREMONY AS CULTURAL TOURISM IN SUPPORTING THE MAROS-PANGKEP GLOBAL GEOPARK INDONESIA. *Geojournal of Tourism and Geosites*, 57(4spl), 1980–1990. https://doi.org/10.30892/gtg.574spl12-1365

**Abstract:** The Mappalili Ceremony is a traditional ritual practiced by the Bugis and Makassar Tribes, known for its unique attributes and deeply rooted among the locals of Pangkep Regency. The qualities and geographical conditions of the Pangkep Regency area have a significant impact on the way that humans or the community engage with nature, leading to the majority of the community in Pangkep Regency engaging as farmers. The Mappalili Ceremony serves as a valuable tool to enhance agricultural productivity. However, the Mappalili Ceremony experiences various levels of transformation across different time periods. The objectives of this study are to: (1) identify the existence in the past; (2) identify the existence during an epidemic; and (3) identify the existence in the present; (4) existence of sustainable environment and sustainable tourism. This study employs a qualitative research methodology utilizing an ethnographic approach. The collection of data is conducted with in-depth interviews, documentation, and Tudang Sipulung (discussion). Data analysis utilizes the Miles and Huberman model, which involves conducting data collection to support the findings of comprehensive interviews and documentation. This is followed by data reduction to draw general conclusions from the in-depth interviews, data presentation to organize the interview results, processing and verification, and ultimately producing final results aligned with the research objectives. The study showed several differences in the current execution of the Mappalili Ceremony. So that it gives uniqueness and makes it an attraction for tourists to visit Pangkep Regency. These include variations in the duration of the ceremony, a decrease in the number of activities or events each day, and the realization that certain tools and materials, previously considered sacred and unobtainable, can actually be possessed. The Mappalili Ceremony continues to be practiced in the community based on the influence of Karaeng Pinati or Puang Matoa.

**Keywords:** Mappalili Ceremony, existence, cultural tourism, Geopark Maros-Pangkep

* * * * * *

## INTRODUCTION

Indonesia shows a significant range of diversity, encompassing several ethnic groups, languages, races, and customs (Bandung, 2020; Astina et al., 2021). There are approximately 1,331 tribes and 652 regional languages. Cultural differences are inherent to a culture and are closely associated with customs that pass on between generations (Sisweda et al., 2020).

Traditions are established by the enduring loyalty to community customs, which continue to be followed in the present day (Rasnah and Nurlela, 2023), particularly those based on local wisdom. South Sulawesi is a province in Indonesia where the Bugis and Makassar tribes have a major population. The Maros-Pangkep karst area, which rises like a tower (karst tower), is one of the most complete in Indonesia and is found in South Sulawesi Province, which also offers spectacular exocarp and endocarp phenomena (Nuhung, 2016). These tribes possess unique characteristics in terms of unity in society, regional history, cultural customs, religious practices, and belief systems (Syarifuddin et al., 2022). The existence of cultural diversity in different areas gives rise to significant opportunities for the development of local knowledge and traditions (Fuad et al., 2020) encompassing language and literary systems, technology, livelihoods, social organizations, knowledge, religion, and arts (Syamsuddin and Purnama, 2021; Savanchiyeva et al., 2023). Traditional ceremonies are closely connected to religious rituals or ceremonies (Al Hazar et al., 2024; Atmadja, 2022). The *Mappalili* Ceremony tradition is still performed by the Bugis and Makassar tribes. This tradition is a traditional practice that is popular among the locals of Pangkep Regency.

The existence of the *Mappalili* Ceremony in Geoparks and Geotourism has an impact on public perception, offering selling power (Kumar et al., 2021). The *Mappalili* Ceremony is a sacred activity that has been established in the Pangkep community's tradition, especially for those who are farmers (Al Hazar et al., 2024). The preservation of the *Mappalili* Ceremony culture holds significant importance in relation to economic, environmental, and social factors (Habib et al., 2023). The beliefs held by the Pangkep community are well-founded and rational. However, it relies on the positive impacts resulting from the rise in production from agriculture. Hence, it is essential to ensure the sustainability of the *Mappalili*

* Corresponding author

Ceremony by preserving its historical legacy. The *Mappalili* Ceremony is an agricultural practice rooted in traditional wisdom, designed to enhance the well-being of the community by ensuring plentiful crops and showering blessings in the community. The results of increased agricultural production in Pangkep Regency are shown in Table 1.

Table 1. The data of rice production in 2019–2022 (Source: Department of Agriculture, Pangkep Regency, 2023)

| **Year** | **Harvest Area(ha)** | **Rice** | | **Description** |
|---|---|---|---|---|
| | | **Productivity(kw/ha)** | **Production(Ton GKG)** | |
| 2019 | 28.106 | 58,97 | 165.741 | Rice Field =Planting (SP) :23.724 ha =Harvest (SP) :28.106 ha |
| 2020 | 27.897 | 64,00 | 187.602 | Rice Field =Planting (SP) :30.919 ha =Harvest (SP) :27.879 ha |
| 2021 | 29.174 | 67,87 | 198.010 | Rice Field =Planting(SP) :32.404 ha =Harvest (SP) :29.174 ha |
| 2022 | 27.847 | 68,01 | 189.387 | Rice Field =Planting (SP) :29.153 ha =Harvest (SP) :27.847 ha |

The development of the current period has gradually transformed as society's mindset has become more progressive unpredictability (Herman et al., 2024). The preservation of local wisdom is increasingly under risk. The younger generation in Indonesia is losing faith in traditional wisdom as a result of the influence of Westerness ideas. Undeniably, modern globalization has significant consequences for human existence, as individuals willingly embrace the general impact of globalization facilitated by increasingly accessible technology and knowledge (Danugroho, 2020). The Indonesian culture is currently facing significant external pressure, resulting in a gradual transformation of its values on a daily basis. The phenomenon of globalization is responsible for the expansion of world space and the elimination of social borders, resulting in a limitless global atmosphere. Meanwhile, the nation's independence is assessed based on its capacity to uphold its principles and cultural heritage. Hence, the incorporation of local wisdom values is crucial in shaping the national culture, serving as a mechanism to identify and reject external values that do not align with the fundamental character of the nation's culture.

Understanding these characteristics is crucial for assessing the sustainability of the *Mappalili* Ceremony during its historical development. The changes are highly significant and have the potential to endanger the continued existence of the *Mappalili* Ceremony. According to (Adhani, 2020), the *Mappalili* Ceremony in Labakkang and Segeri sub-districts has seen a decrease in duration as previously the ceremony lasted for 7 days and 7 nights, but now it lasts for 2 days and 2 nights in Labakkang sub-district and 3 days and 3 nights in Segeri sub-district. *Mappalili*, also referred to as participation in the rice fields, has become an annual traditional activity for the community and performed during the planting season or the onset of the rainy season, serving as a source of faith for the community, particularly the farmers (Cathrin, 2017). It is essential to completely examine and analyze the *Mappalili* Ceremony's existence and its potential for sustainability. The *Mappalili* culture has been in existence in Indonesia since before the arrival of Islam, and it has been practiced by predecessors (Syaidah, 2022). Pangkep Regency's involvement in the Maros-Pangkep Geopark area is due to its rich history and the *Mappalili* Ceremony, which demonstrates many processes. One of the attractive features of the Maros-Pangkep Geopark is shown in Figure 1.

(a). Towering karst rocks (b). Maros-Pangkep Karst Rice Fields

Figure 1. Maros-Pangkep Geopark Areas (Source: Research, Rammang-Rammang January 4, 2024)

Geoparks are geological structures that have outstanding scientific value, rarity, and beauty while portraying geological history and events through various activities. In recent years, there has been a major increase in the interest to explore areas famous for their remarkable natural beauty (Papadopoulou et al., 2022). The primary concept of establishing Geoparks is to combine conservation with sustainable development and active participation of local communities in the region's economic development. As a form of sustainable tourism, Geoparks not only stimulate the local economy, but also preserve geological heritage and cultural values (Lanara et al., 2023). Maros-Pangkep Geopark also faces challenges from a lack of qualified guides, insufficient coordination with regional, national, and international tourism stakeholders, a lack of socialization of the concept of geotourism, a lack of promotion, and a lack of printed resources (brochures, booklets, and maps) (Invanni and Zhiddiq, 2022). UNESCO has consistently demonstrated its commitment in fostering and preserving all types of beauty visible on the Earth (UNESCO, 2023). The cultural aspect of UNESCO is given significant emphasis in the vision and objective of UNESCO Body and Mind Wellness. The objective is to conserve and preserve various types of geological heritage in order to achieve sustainability benefits by establishing Earth Parks or Geoparks.

The sustainability of the *Mappalili* Ceremony in the Maros-Pangkep Geopark refers to the practice of protecting and preserving all aspects of its cultural heritage (Farsani et al., 2012). Ensuring the sustainability of the *Mappalili* Ceremony within the Maros-Pangkep Geopark is critically important. According to interviews with the Maros-Pangkep Geopark Management Agency, the development of the Maros-Pangkep Geopark began in October 2015, initiated by young individuals who recognized the potential of their region. The achievements of all stakeholders including government authorities, local communities, and the established Maros-Pangkep Geopark team culminated in the designation of the Maros-Pangkep Geopark as a national geopark on November 20, 2017. The attraction of the *Mappalili* Ceremony which is a relic of ancient times is shown in Figure 2. In 2018, the Maros-Pangkep Geopark continued to broaden its scope in order to achieve recognition not only at the national level but also internationally. Consequently, in July 2020, the Maros-Pangkep Geopark submitted a nomination to UNESCO, and in May 2023, it was officially designated as part of UNESCO. The international recognition of the Maros-Pangkep Geopark has been in effect for 1 year and 5 months. The Mappalili Ceremony is now classified as part of the Maros-Pangkep Geopark under the category of Intangible Site. Therefore, the concept of sustainability is incorporated to ensure the preservation and continued of the *Mappalili* culture, while also promoting economic growth and improved environmental conditions in the local community (Cottrell et al., 2007; Jiang et al., 2023).

(a). Series of *Mappalili* Ceremony Activities (b). Preparation for the *Mappalili* Ceremony

Figure 2. The Attraction of the *Mappalili* Ceremony (Source: Research, Balla Kalompoang and Arajang November 19-27, 2023)

Therefore, in order to perceive and comprehend this, it is important to be aware of the existence of historical development to ensure that the issues at hand can be addressed through appropriate policies (Davidescu et al., 2024). The objective of this study is to investigate the continued existence of the *Mappalili* Ceremony from its historical origins to the present day. The documentation of the interview with the Maros-Pangkep Geopark Management Agency in Figure 3.

Figure 3. Interview with Maros-Pangkep Geopark Management Agency (Source: Research, City of Makassar January 15, 2024)

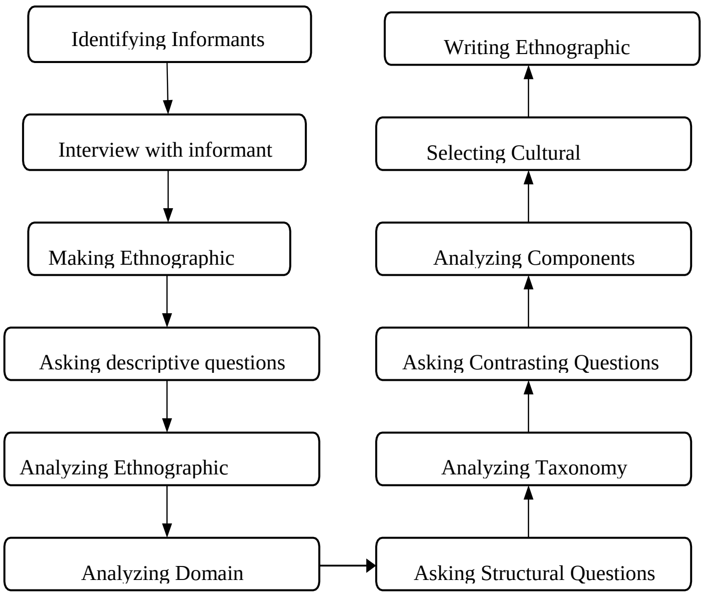


Figure 4. Stages of ethnography (Source: Spradley 2007)

**METHODS**

This study employs a qualitative research methodology, specifically utilizing an ethnographic technique. Qualitative research aims to comprehensively explain many phenomena, including as behavior, perception, motivation, and actions, experienced by study subjects and achieved by utilizing descriptive words and language inside a specific context, under natural settings (Mayasari, 2021). The ethnographic approach is used to describe, examine, and interpret the culture of a group over a period of time and aims to comprehend the attitudes, beliefs, concepts, behaviors, and languages that are specific to the group by directly involving in the environment and participating in their activities (Bakry, 2017). The stages of the ethnographic approach by Spradley are shown in Figure 4. The investigation is conducted in Bontomatene Village, Segeri District, Arajang House, and Balla Kalompoang Traditional House, Labakkang District, Pangkep Regency, also known as Pangkajene and the Islands. Researchers will collect data on the title, process, objectives, and implicit local wisdom education from stakeholders involved in these locations. The *Mappalili* Ceremonies are exclusively performed in the Ma'rang district. However, there are variations in their implementation, as indicated by the location map provided as follows Figure 5.

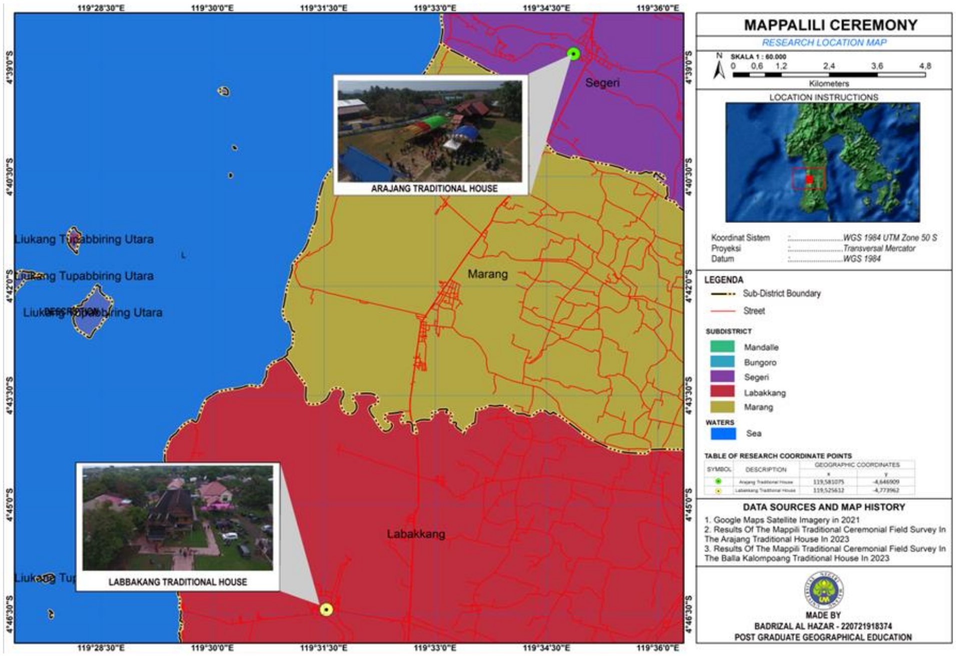

Figure 5. Research Location Map (Source: Researcher, 2024)

The data analysis used in presenting the final results follows the Miles and Huberman approach, which consists of four steps: Data collection is conducted to complete the results of in-depth interviews and documentation. Data reduction is the process of generalizing the findings from in-depth interviews. Data presentation is conducted to classify interview results, process, verify, and provide final outcomes in accordance with the objectives. The use of data analysis based on Miles and Huberman ensures that the data collected is accurate, aligns with the information provided by the sources, and is accountable, considering that the research pertains to culture and national identity. The stages of data analysis by Miles and Huberman are shown in Figure 6. The techniques used for data collection strategies include: 1). observation was carried out to identify the problems that happened in the field as well as the current conditions; 2). interviews were conducted with several individuals including the Head of Bontomatene Village, Head of Segeri District, Education and Culture Office, Traditional leaders of Segeri District, Puang Matoa Bissu Nani (Bissu Eka) who is the assistant to Bissu, Elders of Bontomatene Village, Karaeng Pinati, Head of Labakkang Village, Head of Labakkang District, Head of Labakkang Karaengan, Regent of Pangkep, Tourism and Sports Office, Maros-Pangkep Geopark Information Center, and members of the Balla Kalompoang traditional group; 3). documentation was performed to access archives or previous information in order to include references in the investigation; 4). Tudang Sipulung was organized to express their concerns in seeking solutions to the challenges encountered by the community. The community has the ability to express their aspirations and offer constructive feedback to the authorities or institutions. In addition, data validation must be conducted to guarantee the accuracy of the data. Tudang Sipulung in Bugis-Makassar tradition from South Sulawesi, refers to the practice of "sitting together" or discussion (Nuh, 2016).

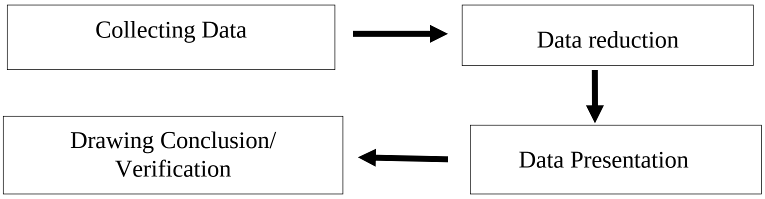

Figure 6. Data analysis stages ( Source: Miles and Huberman, 1994)

## RESULTS AND DISCUSSION

### Local wisdom of the *Mappalili* Ceremony in the Bugis and Makassar Tribes

The *Mappalili* Ceremony has unique characteristics and is deeply rooted in the Segeri and Labakkang communities (Pemkab-Pangkep, 2023). The characteristics and geographical conditions of the Pangkep Regency area have a significant impact on human interaction with nature, including their activities and livelihoods. As a result, the majority of the Pangkep Regency residents is engaged in farming (BPS, 2021). In addition, the *Mappalili* Ceremony's uniqueness contributes to the economic sector as it serves as a cultural tourism attraction in the South Sulawesi Province (Al Hazar et al., 2024). The phenomenon of uncontrollable globalization is defined by the increasing interdependence of knowledge and goods exchange, which plays a crucial role in shaping the evolution of the *Mappalili* Ceremony (Quasinowski and Liu, 2020; Zouine et al., 2024). Observing this, the *Mappalili* Ceremony has been established to gather historical, epidemic, and current information. The role of existence in facing situations is crucial in the development of times. Based on interview results, the local wisdom of the *Mappalili* Ceremony has gained international recognition as part of the Maros-Pangkep Geopark. Therefore, ensuring the sustainability and development of its implementation is of utmost importance. In addition to this, the local community can see an increase in income by acknowledging the presence of the *Mappalili* Ceremony. This is evident in the GunungSewu Geopark Area, where various sectors of the Gross Regional Domestic Product (GRDP) have consistently generated revenue over the years. The Gross Regional Domestic Product (GRDP) in Gunung Kidul Regency, Wonogiri Regency, and Pacitan Regency has shown significant increases ranging from 15% to 20% (Bappenas, 2023; Hironimus et al., 2019). This highlights the importance of recognizing and preserving local traditions in the context of sustainable tourism, in line with the *Mappalili* Ceremony which plays a role in improving the welfare of local communities. The integration of cultural traditions in geopark development can strengthen local economies and promote ecological awareness globally (Xu and Wu, 2022).

**The existence of the *Mappalili* Ceremony in the past times**

The *Mappalili* Ceremony is a cultural tradition and heritage that is unique to the residents of Pangkep Regency, specifically in Labakkang District and Segeri District. The Mappalili Ceremony is a historic agricultural tradition that dates back to about 1667, making it around 357 years old. This information serves as a comprehensive framework for achieving success in the agriculture sector of Pangkep Regency. It encompasses the regulation of all necessary equipment and resources required for achieving this accomplishment. The success of the *Mappalili* Ceremony can be attributed to its dedication to environmental principles, such as the use of cows to aerate the soil and lemongrass leaves as a natural method of snail pest control. In addition, recent studies by (Wowor et al., 2022) and (Kusumaningtyas et al., 2020) have demonstrated that lemongrass leaves had the ability to effectively manage grasshopper and snail pests in rice fields.

In the past, under the rule of the Labakkang Kingdom and the Segeri Kingdom, the Mappalili Ceremony lasted for a duration of 40 days and 40 nights. In Arajang, the implementation involves a group of 40 Bissu, also known as Bissu Pattappuloe, and Ke KaraenganSegeri. Meanwhile, in Balla Kalompoang, Ke Karaengan Labakkang and Pinati serve as customary authorities. The implementation is estimated to have taken place between 1667 and 1960, which marked the transition from a monarchy to a republic system for Balla Kalompoang, Labakkang District. However, it is projected that the duration of Arajang in Segeri District will persist till 1996. Each year, the implementation experiences a decline or degeneration in the second stage, with the number of implementations being limited to 7 days and 7 nights. This is mostly due to a shift in financial sources, as funding no longer primarily comes from the kingdom but is now provided by the government as a whole. The reduction has significantly dropped from a duration of 40 days and 40 nights to a duration of 7 days and 7 nights, resulting in a loss of 33 days. The decline is believed to have started between 1960 and 1979, accompanied by a transitional stage.Historically, the *Mappalili* Ceremony was characterized by its lively atmosphere and served as the main gathering point. In addition, the *Mappalili* Ceremony provides an opportunity for people to get to know one another better and grow closer. Practically, the ceremony carried out as each kingdom and the royalty shared all the responsibilities. During that period, financial resources were acquired by the plentiful agricultural products from fertile areas, which were then transferred to different areas for trade through sea, river, or land routes. The strategic location of Pangkep Regency, which lies along crucial maritime trade routes, attracted the interest of colonizers who want to use this passage while paying trade taxes (Sapitri, 2022). Familiarity and connection can be closely formed through the practice of folk games, such as cockfighting. Therefore, the *Mappalili* Ceremony holds significance beyond being just a preparation to working in the rice fields at that period. Days are getting shorter, but it has no effect on the culture's value.

**The existence of the *Mappalili* Ceremony during the epidemic**

The global situation and conditions do not always go smoothly and effortlessly, as is the case with daily operations or previous situations. At times, a country or entire world has encountered catastrophic conditions and even complete isolation as a result of a deadly contagion like as the Covid-19 or coronavirus epidemic (Ivancsóné Horváth et al., 2023). COVID-19, also known as the corona virus disease, emerged as a worldwide pandemic in 2019, originating from China. It has significantly affected various sectors of the global economy, particularly agriculture. Estimates from several countries indicate that agriculture has experienced less negative impact compared to sectors like construction, industry, and tourism, so promoting agricultural development can serve as an effective way for minimizing the economic losses incurred by these other sectors (Pirasteh-Anosheh et al., 2021). Indonesia, like many other countries, has been seriously impacted by the epidemic. One of the sectors that has suffered a negative influence is tourism, which has had repercussions on the country's economy and society (Pesulima and Hetharie, 2020; Pham and Nugroho, 2022). Furthermore, a lot of people are reconstructing parts of their lives that were once seen as typical for the general population, but there are limitations, one of which is cultural (Hamdi, 2022). This act is performed to fulfill cultural commitments in a way that benefits not only certain groups but all individuals involved, while also mitigating the spreading of the virus.

The *Mappalili* Ceremony is a cultural practice that has been influenced by the Covid-19 epidemic or pandemic. However, the *Mappalili* Ceremony endures as a key component of the local community's sacred culture and is deemed obligatory. The

*Mappalili* Ceremony is only accessible to the community in the Balla Kalompoang and Arajang traditional residents to a very restricted level. The *Mappalili* Ceremony management is unable to give an annual budget of IDR 10,000,000 because to lack of funds. The manager claims that the funding is being allocated towards Covid-19 prevention efforts.

The implementation of the *Mappalili* Ceremony is limited due to various government regulations, including Government Regulation in Lieu of Law (Perpu) number: 1 of 2020, Law Number: 6 of 2018, and Government Regulation Number 21 of 2020. These regulations are aimed at handling the Covid-19 pandemic and ensuring financial stability and regional quarantine procedures. Additionally, they include restrictions on large-scale social activities to accelerate the handling of the virus. The issuing of Presidential Decree (Kepres) number 12 of 2020 has determined the non-natural disaster of the spread of Covid-19 as a national disaster. According to this, there are limitations for any individual who wants to attend the *Mappalili* Ceremony and a requirement for all individuals to adhere to the health routine as specified by these regulations. Individuals with significant responsibilities are granted direct access to see the *Mappalili* Ceremony from the Balla Kalompoang and Arajang. The community's interest and enthusiasm for experiencing the *Mappalili* Ceremony directly is substantial. They firmly believe in entrusting their prayers and beliefs to ensure that all the crops they cultivate remain protected from pests and illnesses, thus enhancing rice productivity. Over a period of about 2 years, the Covid-19 outbreak that occurred from 2019 to 2020 has instilled anxiety and fear in individuals due to a lot of contradictory information surrounding the pandemic (Kunarso and Sumaryanto, 2020). As a result, many people have been forced to isolate themselves indoors to mitigate the risk of contracting the virus. Certain individuals continue to adhere to certain aspects of the *Mappalili* Ceremony series while strictly adhering to health regulations. The schedule of the *Mappalili* Ceremony in the past 5 years, both before and after the epidemic, is presented in Table 2 and Table 3.

Table 2. Implementation of the *Mappalili* Ceremony in Labakkang District during the last 5 years (Source: Researcher, 2024)

| Year | Timeline |
|---|---|
| 2023 | 26-27 November |
| 2022 | 16-17 November |
| 2021 | 16-17 November |
| 2020 | 24-25 November |
| 2019 | 22-23 November |

Table 3. Implementation of the *Mappalili* Ceremony in Segeri District during the last 5 years (Source: Researcher, 2024)

| Year | Timeline |
|---|---|
| 2023 | 19-22 November |
| 2022 | 14-16 November |
| 2021 | 10-13 November |
| 2020 | 14- 16 November |
| 2019 | 4-6 November |

**The existence of the *Mappalili* Ceremony in the current times**

The evolution of the era experiences constant and often major shifts, requiring individuals to adjust and adapt resulting in the ability to compete without borders (Potjanajaruwit, 2023). This phenomenon is referred to as the era of globalization. Globalization serves as an entrance for engaging with the international community, however, its introduction brings about not just beneficial consequences but also challenges. Globalization alters the existing values of nationalism and culture in Indonesia. Globalization gives rise to many cultural issues, such as the decrease of regional or national cultures, the erosion of cultural principles, a declining sense of nationalism and patriotism, the breakdown of family and social cooperation, the loss of self-confidence, and the adoption of lifestyles that diverge from our customs. Hence, it is imperative for us to limit the level of globalization that should be embraced and that should be ignored.

The government plays a crucial role in developing policies that prioritize cultural issues above just economic ones, as this is essential for cultural growth (Sumarmi et al., 2024; Kifworo and Dube, 2024). Cultural preservation policies that focus not only on economic but also cultural aspects play an important role in maintaining the sustainability of local traditions (Lopes and Hiray, 2024). The *Mappalili* Ceremony has a deep meaning in maintaining local cultural identity in the midst of rapid global change (Kiarie, 2024). Hence, it is essential for the government to regain its role as a preserver and custodian of ancient arts without intruding upon the aesthetic process (Suneki, 2012).

The principles and customs of the *Mappalili* Ceremony continue to be practiced in the present day. The community's fundamental principles have become deeply rooted, resulting in careful execution of every process. Furthermore, the *Mappalili* Ceremony's original forms and items from ancient times persist and must be consistently preserved.

The *Mappalili* Ceremony, rooted in local wisdom and practiced by the Pangkep people, serves as a tool to enhance agricultural production. However, the *Mappalili* Ceremony receives various levels of transformation over various times. The differences are clearly evident through the findings of interview study and other studies examining the Mappalili Ceremony.

A significant difference in the current implementation of the *Mappalili* Ceremony is the significant decrease in the number of days. Over time, the duration of the ceremony has been shortened by nearly 37 years. The decline occurred in a gradual manner on three separate occasions, depending upon the position of the Republic of Indonesia. The duration of the trip is 4 days and 3 nights in Arajang, Segeri District, and 2 days and 1 night in Balla Kalompoang, Labakkang District (Fajriany, 2017). In addition, there are other factors that contribute to the change in status, including the financial implications of conducting the *Mappalili* Ceremony, which requires a budget of around Rp. 20,000,000.00. Another requirement is that in Segeri District in Arajang, Bissu, who serve as the participants in the *Mappalili* Ceremony, only resided in the area for a few generations due to the historical Islamic cleansing movement known as "Operation Toba" (repentance operation). The second difference lies in the decreasing frequency of daily activities or events. Currently, these activities are merely a gathering where participants engage in conversation and enjoy the served food till the event concludes. There are multiple procedures involving equipment and materials that were originally regarded as sacred, implying that they could not be had, yet in reality, they can still be acquired. An instance of this is when 4 bundles of rice are allocated, with 2 bundles being transported to the traditional rice fields for distribution, while the remaining 2 bundles are stored at home and cannot be accessed until next year. However, there are still a few individuals who ignore this restriction and steal the stored rice. The annual event continues to endure among the Pangkep community and tourists. The level of enthusiasm grows annually, particularly among the tourists themselves. The processions during the *Mappalili* Ceremony are unique and attractive, making them an attraction on their own. In order to ensure that people are well-informed about the activities, the local government plays a crucial role by creating brochures that are distributed to the public. This brochure was created and distributed during the *Mappalili* Ceremony, as seen in Figure 7. Meanwhile, Figure 8 shows the progress of implementing the *Mappalili* Ceremony in Segeri District as cultural tourism.


Figure 8. Implementation of the Mappalili Ceremony as Cultural Tourism
(Source of Research, Segeri November 19, 2023)

Figure 7. Brochure of *Mappalili* Arajang Segeri Ceremony
(Source: Pangkep District Education and Culture Office, 2023)

**The route of *Mappalili* Ceremony implementation**

The *Mappalili* Ceremony has continued throughout history, from long ago when it was practiced during times of disease, to the present day, where it continues to be performed with firm consistency in all its ceremonial forms. The residents of Pangkep Regency hold great respect for their customary land, considering it sacred and eternal, not to be disregarded or transferred to others. The implementation process at each location or point during the stopover consists of sequential stages or routes, each of which carries implicit meanings and is followed according to the relevant protocol. Figure 9 and Figure 10 illustrate the process for conducting the *Mappalili* Ceremony.

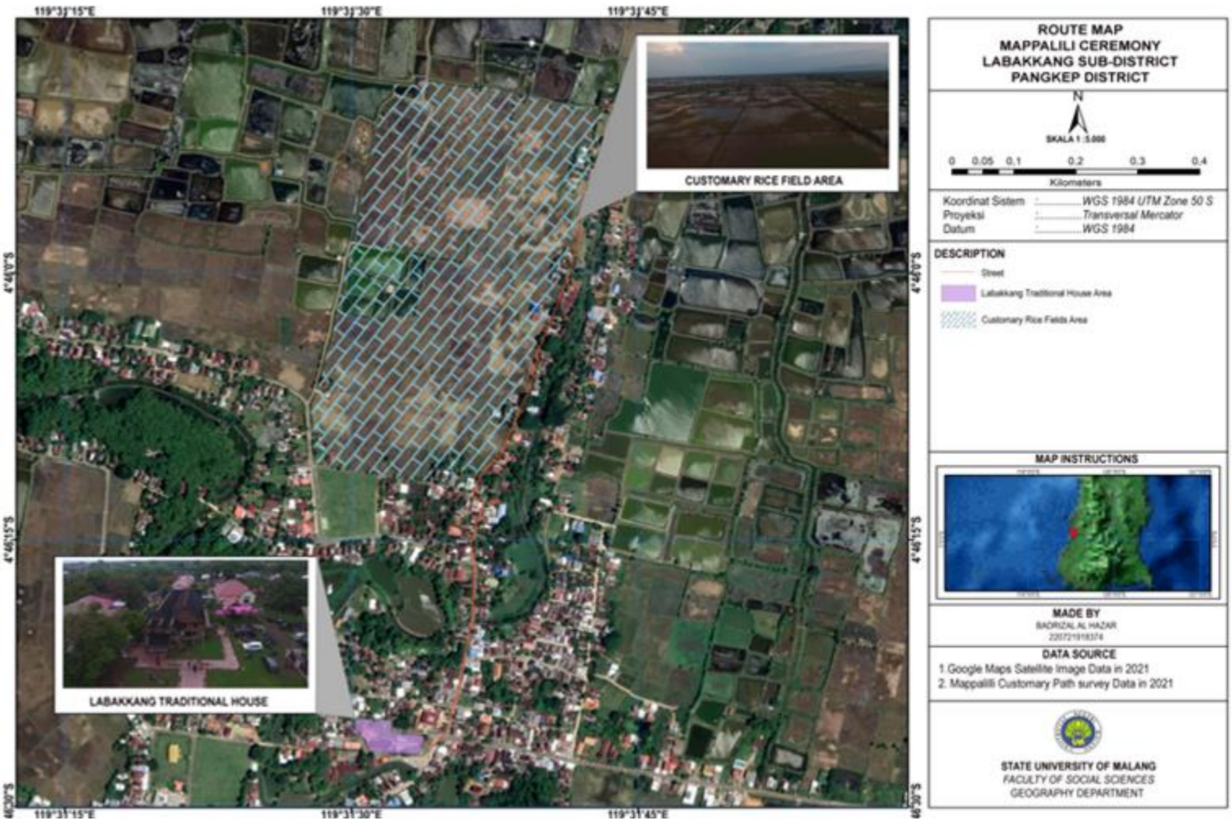


Figure 9. Map of the *Mappalili* Ceremony Route in Labakkang District (Source: Researcher, 2024)

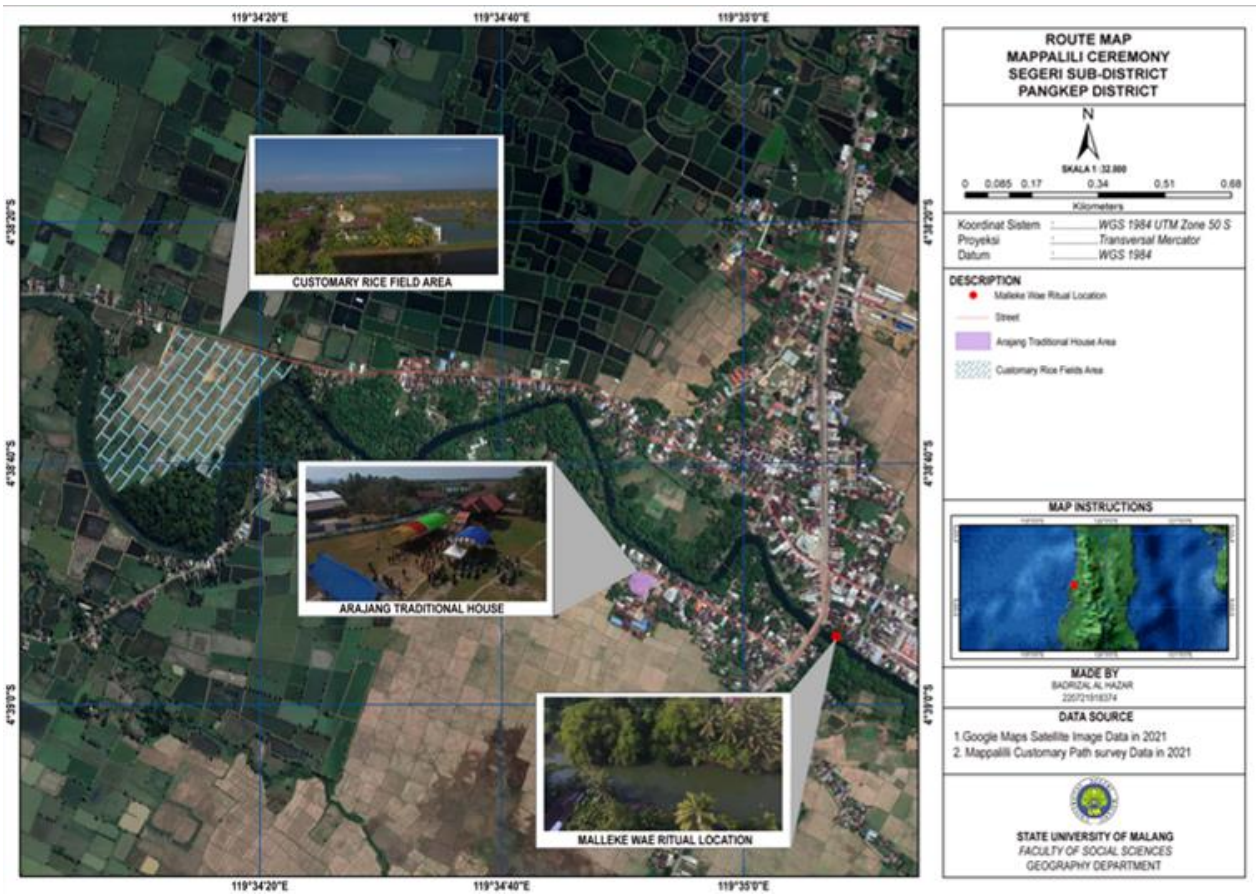

Figure 10. Map of the *Mappalili* Ceremony Route in Segeri District (Source: Researcher, 2024)

According to the interview findings, the Pangkep people, particularly in Labakkang and Segeri Districts, strongly believes that there is a spirit or a certain location associated with a particular figure at every location. At each location, an offering is purposefully placed or carried to ensure the protection of everything, particularly the rice plants, from disasters and improve the harvest. The offering also differs, for instance, in Labakkang District, a chicken is brought, whereas in Segeri District brought vegetables. The offering shown in the following Figure 11.


Figure 11. The offering for the ceremony (Source of Research, Arajang November 19, 2023)

Once every requirement has been successfully implemented, the next step is to return to the customary land. The final stage of the *Mappalili* Ceremony series is the utilization of customary land, which involves the use of Pajeko and buffalo in the traditional rice fields of both Labakkang District and Segeri District. The decrease in the population of Pajeko and buffalo by Karaeng Pinati and Puang Matoa indicates the start of rice cultivation in Labakkang District and Segeri District. In Labakkang District, the local community expresses thanks and makes an offer to the creator for the prosperity of their crops by throwing peo/soil at each other. Similarly, in Segeri District, they throw water on each other for the same purpose.

**Existence of Sustainable Environment and Sustainable Tourism**

Humans have a close relationship with the environment around them. When human activity decreases or stops, nature has the opportunity to restore itself. This phenomenon is often referred to as the recovery process, which means that the environment is slowly trying to regain its balance (Pimm et al., 2014). Likewise, Pangkep Regency has its own ethics and local wisdom rules in protecting its environment (Al Hazar et al., 2024).

The local wisdom is the Mappalili ceremony performed by the community in Labakkang and Segeri Sub-districts of Pangkep Regency, South Sulawesi Province. This ceremony is a traditional ceremony led by traditional leaders or Karaeng Pinati and Puang Matoa from Bissu, who act as guardians of natural balance, especially in terms of maintaining soil fertility for agricultural purposes. The *Mappalili* ceremony aims to regulate the planting and harvesting cycle, ensuring that the land and surrounding nature remain in good condition before the community starts the planting season. This ritual also functions as a means of sustainable natural resource management, because it adheres to ecological boundaries that are considered sacred and important to be preserved by indigenous peoples (Syarif et al., 2016; Berkes, 2017). The list of interview results on informants in maintaining the environment is shown in Table 4.

Table 4 Results of Interviews with Informants in Maintaining the Environment

| Initials | Position | Statement | Meaning |
|---|---|---|---|
| AZ | Labakkang Traditional Council | The *Mappalili* Ceremony is organized by the Pinati based on the considerations of several individuals. | The *Mappalili* Ceremony is entirely organized by the Pinati in the Labakkang District, based on the considerations of the Karaeng of Labakkang, the customary council, and the community. This is in line with the role of the Pinati as traditional authorities responsible for ensuring the continuity of the *Mappalili* Ceremony. |
| RS | Chairman of the Segeri Mappalili Committee | The *Mappalili* Ceremony takes place under the guidance of the Puang Matoa. | The *Mappalili* Ceremony can be conducted based on the guidance of the Puang Matoa, who has received instructions from the deities. The Puang Matoa plays a crucial role as an intermediary between the deities and the Bissu. |

The existence of the *Mappalili* Ceremony is not only an important part of cultural heritage, but also an effort by local communities to maintain natural balance and environmental sustainability. This ritual illustrates the strong connection between humans and nature, where humans are not only users of natural resources, but also have moral and spiritual responsibilities to preserve them (Syarif et al., 2016). An important role in maintaining the balance of nature is held by the traditional leaders or Karaeng Pinati and Puang Matoa of Bissu, as guardians of tradition as well as ecological balancers. Their presence in the *Mappalili* Ceremony reinforces the community's belief that the balance of nature must be maintained not only by physical action, but also through a deeply spiritual approach.

Local wisdom such as the *Mappalili* Ceremony has great potential to support the development of sustainable tourism, especially eco-tourism and edu-tourism. Tourists can learn about the traditional ways of the community in protecting nature and understand the importance of traditional ceremonies in maintaining ecological balance. Thus, these traditional rituals not only serve as guardians of environmental sustainability, but can also become economic assets through the development of tourism that respects and preserves nature and local culture. Environmental sustainability and tourism integrated with local wisdom values can be an example for other regions in facing global ecological challenges.

**CONCLUSION**

The pace of global development is accelerating, leading to ever more sophisticated and unavoidable transformations. These changes significantly affect the local wisdom of agricultural systems. The *Mappalili* Ceremony has experienced transformations over time, evident in the reduced number of days it is celebrated, the degradation of its execution processes, and the decreasing number of Bissu practitioners. Additionally, certain tools and materials traditionally used in the ceremony have become increasingly rare. Despite these changes, the essence and fundamental nature of the *Mappalili* Ceremony remain intact. It continues to be a key component of the beliefs of the Bugis and Makassar communities in Pangkep Regency, taking place annually before the planting season begins. The *Mappalili* Ceremony is not only an important event for the Pangkep community but also serves as an attraction for tourists. Community enthusiasm for the ceremony has consistently increased each year, particularly among visitors. This ongoing commitment to preserving and ensuring the continuity of the *Mappalili* Ceremony has contributed to a rise in rice productivity, influenced by factors such as Karaeng Pinati and Puang Matoa. This study focuses exclusively on the changes in the *Mappalili* Ceremony from the past to the present and the factors contributing to the sustainability of the environment and tourism associated with the *Mappalili* Ceremony. Based on direct experience, the researcher encountered several limitations: 1) limited ability to communicate in Bugis during interviews with the Bissu, as some Bissu do not have a strong command of the Indonesian language; 2) the need to identify older respondents as supportive informants, specifically targeting individuals aged 70 and above; and 3) the loss of many archives related to the Mappalili Ceremony, particularly those from the local government. Nevertheless, the limitations faced by the researcher did not adversely affect the overall quality of the information gathered.

**Author Contributions:** Conceptualization, B.H. and S.; methodology, B.H.; software, B.H.; validation, S. and I.A.; formal analysis, B.H. and I.A.; investigation, B.H. and I.A. and S.; data curation, S. and I.A. and B.H.; writing - original draft preparation, B.H.; writing - review and editing, S. and I.A.; visualization, B.H.; supervision, S. and I.A.; project administration, B.H. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The author would like to thank Karaeng Pinati and Puang Matoa as key informants in this research. I would also like to thank the Regional Government of Pangkajene and Islands Regency, Maros Geopark Management Agency who supported this research, and This research is supported by the Ministry of Education, Culture, Research and Technology through funding for doctoral research grants (2024).

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 27.08.2024 Revised: 24.10.2024 Accepted: 28.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1991-1998
DOI 10.30892/gtg.574spl13-1366

# BRIDGING EMPOWERMENT AND ENTREPRENEURSHIP: HOW NGOS FOSTER WOMEN'S SUCCESS IN EGYPT'S TOURISM INDUSTRY

**Kareem A. RASHWAN**
Al-Alson Institute for Tourism and Computer, Tourism Studies Department, Cairo, Egypt, e-mail: kareem.rashwan183@gmail.com

**Viju MATHEW**
The University of Technology and Applied Sciences-Salalah, College of Economics and Business Administration, Department of Economics and Business Administration, Salalah, Sultanate of Oman, e-mail: Viju@utas.edu.om

**Reem AKEF**
The American University, School of Humanities and Social Science, Political Science Department, Cairo, Egypt, e-mail: reemakef@aucegypt.edu

**Ahmed Mohamed ELBAZ***
University of Technology and Applied Sciences-Salalah, College of Economics and Business Administration, Department of Economics and Business Administration, Salalah, Sultanate of Oman; University of Sadat City, Faculty of Tourism and Hotels, Sadat City, Egypt, e-mail: ahmed.elbaz@utas.edu.om

**Citation:** Rashwan, K.A., Mathew, V., Akef, R., & Elbaz, A.M. (2024). BRIDGING EMPOWERMENT AND ENTREPRENEURSHIP: HOW NGOS FOSTER WOMEN'S SUCCESS IN EGYPT'S TOURISM INDUSTRY. *Geojournal of Tourism and Geosites*, 57(4spl), 1991–1998. https://doi.org/10.30892/gtg.574spl13-1366

**Abstract:** The study investigates the role of NGOs in empowering women by mediating women's entrepreneurship. The study adopted a quantitative approach with a total of 125 females involved in the United Nations Women (UNW) program in Egypt. The study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the proposed conceptual framework. The results show that NGO programs have a positive and significant impact on empowering women psychologically, socially, politically, and economically through the mediating role of entrepreneurship. The study suggests practical ways for policymakers and tourism scholars to assist women in their tourism entrepreneurship.

**Keywords:** NGOs, women’s entrepreneurship, women’s empowerment, tourism, Egypt

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## INTRODUCTION

Over the past century, women's empowerment has changed and progressed drastically. Every development has important benchmarks that enable environmentally friendly advancement (Abou-Shouk et al., 2021; Pandey and Kumar, 2019). Among the Sustainable Development Goals (SDGs) of the United Nations is one aiming for "gender equality and empowering women." Women's empowerment has several different meanings and is a complex and linked subject.

Li et al. (2024) argues that women's empowerment helps them to express their rights and make use of their knowledge and skills for financial advantage. Grounded in a strength-based idea, empowerment is a complex disciplinary reflection that embodies hope and inspiration (Dardis et al., 2018). Filep and Laing (2019) show that non-Western nations have a knowledge vacuum in gender-related research. Psychological, socio-cultural, economic, and political challenges subjugate women in the tourism sector, potentially hindering their performance in the field (Sobaih and Abu Elnasr, 2024). Moreover, women in the tourism sector face underpayment and workplace discrimination (Abou-Shouk et al., 2021). It is conspicuous that men monopolise the tourism sector, creating a sex-based preference (Liu et al., 2020). However, the world has realized the significance of entrepreneurship in the ecosystem, as it can lead to women's empowerment and alter the gender bias in the tourism sector (Gupta, 2021).

Multiple NGO projects support the empowerment of women entrepreneurs. In other words, these projects support women in starting their entrepreneurial ventures. Nevertheless, there is a scarcity of research papers examining the role of NGOs, their development tactics, and their goals in advancing female entrepreneurship and women's empowerment in Egypt. This article examines how NGOs might advance feminism by providing training programs that enhance female entrepreneurship in the travel sector, so empowering women psychologically, financially, and socially. This study addresses the identified knowledge gaps and enhances the field of tourism research.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 1. Non-Governmental Organizations (NGOs) Role

NGOs are organisations with authority, political agendas, and development goals. NGOs must balance these multiple agendas for their own survival and the survival of their providers (Elbaz and Abou-Shouk, 2016). NGOs have paid

* Corresponding author

attention to women's economic contribution through self-employment (Rinaldi and Salerno, 2020). When the UN hosted its fourth World conference on women in Beijing in 1995, NGOs gained global attention as a means of empowering women (Elbaz and Abou-Shouk, 2016). The United Nations Women (UNW) has initiated a women's empowerment program in various regions of Egypt. To expedite women's empowerment initiatives, UNW has employed innovations and collaboration (Pandey and Kumar, 2019). The Centre for Entrepreneurship and Innovation (CEI) at the American University in Cairo conducts a project in Cairo, Egypt, in collaboration with the National Council for Women (NCW), the Ministry of Trade and Industry (MOTI), and Global Affairs Canada (GAC). The Women Economic Empowerment Program—Entrepreneurship Support (WEE-ES) project seeks to bridge the gender disparity in Egyptian entrepreneurship. The "Women Economic Empowerment for Inclusive and Sustainable Growth" program, initiated in 2019, is set to continue until 2024 (UNIDO, 2022).

## 2. NGOs and Women Entrepreneurship

Women entrepreneurship studies have perceived wide progress over the last 30 years (Yadav and Unni, 2016). Through those studies, women have played a significant role in developing entrepreneurship and economic sectors (Nassani, 2018; Movono and Dahles, 2017). According to Hashim et al. (2024), the Middle East has a diverse entrepreneurial landscape for women. The limited job market and low start-up costs have motivated women to start their businesses. According to the OECD (2017), around 12% of adult women in the Middle East are entrepreneurs, compared with 31% of adult men. Moreover, the International Labour Organisation has stated that 36.1% of women are self-employed in Egypt. Numerous research has shown that women who engage in entrepreneurship aid reach psychological, economic, political, and social empowerment (Elshaer, 2021; Abou-Shouk et al., 2021). Likewise, additional research (Vujko et al., 2018; Yadav and Unni, 2016) have shown that encouraging entrepreneurship for women empowered them, increased their position, promoted their development in their families, and offered a better living quality. Tourism is one of the fast-growing industries that can offer women entrepreneurs opportunities. In this vein, entrepreneurs have contributed to the development of the tourism sector through their projects (handicrafts, mobile applications, and services, etc.). In addition, entrepreneurship is considered one of the main drivers of the tourism sector's development (Kallmuenzer et al., 2019). In this regard, governments and non-governmental organizations have implemented several programs and initiatives to support female entrepreneurs. Their mission is to enhance management and leadership skills so that these enterprises can run their projects properly. According to the regional report on women in tourism in the Middle East (2020), Egypt has developed a strategy to strengthen women's roles and empower their development contribution. For example, the Ministry of Tourism and Antiquities and NCW provide market outlets in airports and museums in different governorates to brand and sell their products and services. Moreover, the same report has indicated that women own 70% of small and medium-sized enterprises. Therefore, the current study examines women's empowerment through an entrepreneurial lens. The previously referenced activities of non-governmental organisations in Egypt will support this study. Consequently, we developed and evaluated the following theory:

**H1:** NGOs significantly affect women's entrepreneurship

## 3. Women's Entrepreneurship and Psychological Empowerment

Llorente-Alonso et al. (2024) define psychological empowerment theory as an individual's proactive approach in a motivation-oriented workplace. Employees need a proactive approach to increase psychological empowerment if they are to achieve better development in their work performance (Ghalavı and Nastıezaıe, 2020). Moreover Jena et al., 2019 argue that psychological empowerment plays a critical role in determining the effectiveness of an organization. It can also be described as a basic incentive reflecting self-regulation during a task or in the workplace (Seibert et al., 2011), which refers to the employee's participation and proficiency at work for major organizational results. The company or workplace shapes its employees such that they become transformational leaders to encourage creative activity (Rashwan and Ghaly, 2022). Therefore, the psychological empowerment of women will enable them to exercise autonomy in commercial activities, thereby promoting independence (Movono and Dahles, 2017). Not only can tourism-related projects empower female entrepreneurs economically, but also psychologically and socially, enhancing their skills and consciousness (Morgan and Winkler, 2020). Koc (2020) argues that females working in the tourism sector do have a higher stage of conscientiousness than their male peers, which allows them to perform better at self-discipline and be more careful. They can also adapt easily to different environments and tasks. Besides, female employees are better at reading people's emotions, being patient, relaxed, and easier to talk to. Females tend to smile, show empathy and helpfulness, and be more people-orientated than men, which increases positive word of mouth (Koc, 2020). Therefore, in order to psychologically empower women, we must enable them to recognize and confront the oppression they face (Movono and Dahles, 2017). Therefore, we propose the following hypothesis:

**H2:** Women's entrepreneurship significantly affects psychological empowerment.

## 4. Women's Entrepreneurship and Social Empowerment

Gender norms are crucial for empowering women. There are certain stereotypes profoundly embedded in society that cause gender inequality (Liu et al., 2020; Koc, 2020; Croce, 2020). Cultural and social constraints expect women to be the primary carers of their families. Hence, their commitment to work, especially in the tourism area, is considered low (Cordova-Buiza et al., 2024). It is believed that men control women's decisions and time regarding their outside home activity (Morgan and Winkler, 2020). Hentschel et al. (2019) contend that the emphasis on gender identity socially constructs these beliefs. Women are clearly under-represented in senior managerial roles within the tourism sector (Liu et al., 2020) and face exploitation, sexual harassment, and stereotyping (Koc, 2020; Croce, 2020). Conversely, we may empower women by assigning them decision-making positions, offering them opportunities, and affording them agency over their lives. All these modes of social emancipation are available to women (Perekrestova, 2022). In the tourist sector, female workers show higher social sensitivity in understanding relationships, nonverbal cues, and interactions, which results in a more sympathetic reaction in the communication process. This might, however, potentially provide more difficulties for their business paths (Hallak et al., 2015). Egypt moved towards closing the economic gender gap in 2019 when Egypt's previous Minister of Tourism, Rania El Mashat, signed a Letter of the Intent Sustainable Development Impact Summit 2019. Egypt was the first country in the Middle East and Africa to launch this public-private collaboration model (Othman and Khallaf, 2023). We have formulated the following hypothesis based on the aforementioned claims.

**H3:** Women’s entrepreneurship significantly affects social empowerment

### 5. Women’s Entrepreneurship and Political Empowerment

The field of gender and empowerment studies has grown greatly and now includes the political viewpoint of sustainable tourism (Tucker and Boonabaana, 2012). Women's political participation comes with several requirements that help them to participate at all governmental levels and inside the decision-making process (Raman et al., 2022). A division of the Ministry of Tourism and Antiquities dedicated to closing gender disparity in the field and increasing women's participation in top management has been established. Ghada Shalaby, the Vice Minister for Tourism in Egypt's Ministry of Tourism and Antiquities, explains that the purpose of this unit is to empower women, establish equitable opportunities within the ministry, and combat gender-based discrimination (Espanol, 2022). This unit therefore generates an environment that enables women to communicate their political needs and interests. Egypt ranks 78th out of 146 nations in terms of political empowerment according to the Global Gender Gap Report 2022 of the World Economic Forum. Underlining Egypt's efforts in the National Strategy for the Empowerment of Egyptians 2030, the "European Training Foundation" examined political strengthening and gender empowerment in 2021. In addition, the 2030 strategy aims to enhance the chances of employability for women, increase their “participation in the workforce, support their entrepreneurship, and achieve equal opportunities in terms of employment across all sectors” (Antczak et al., 2021). In other words, all of the above help women defy gendered power in society and increase women's chances of political and economic participation through entrepreneurship or equal representation in the field (Elshaer et al., 2021). Given this context, we propose the following hypothesis:

**H.4:** Women’s entrepreneurship significantly affects political empowerment

### 6. Women’s Entrepreneurship and Economic Empowerment

Empowering women presents financial difficulties as well. Still, this empowerment can help to reduce poverty and advance economic development (Alsawafi, 2016). Through their entrepreneurial activities, women greatly boost the national economy and help to lower gender inequalities (Raman et al., 2024) and thus contribute to national development. There are multiple factors that ensure women's economic empowerment: access to education and economic resources, no threats of violence, childcare, equitability, and political participation (Sutrisno et al., 2024). According to the World Economic Forum’s Travel & Tourism Competitiveness Report (2019), Egypt is in the top 25% of countries mentioned in the report. It ranked 65th among 136 other countries and 6th between the Middle East and North Africa (MENA) region. Egypt is to be considered the most improved country among the chosen ones. In the 2017 report, Egypt ranked 74th, indicating a 7% increase in economic growth since the last reported index. However, Egypt has achieved the highest score, ranking 4th worldwide in terms of digital demand for culture and entertainment. Egypt's low exchange rates and taxes can be considered economic leverage, attracting tourists due to its competitive prices. It has ranked third in price competitiveness worldwide. We have enhanced the tourism strategy, moving it from 60th to 5th place. Entrepreneurship is crucial for achieving socio-economic development and empowering women (Croce, 2020). We have formulated the following hypothesis based on the previously mentioned facts:

**H.5:** Women’s entrepreneurship significantly affects economic empowerment

Using women's entrepreneurship as a mediator, the study developed an integrative conceptual framework to explore how non-governmental organizations (NGOs) might empower women (Figure 1). There are five main opinions about how non-governmental organizations (NGRs) support women entrepreneurs and how these projects benefit women in underdeveloped countries, as Egypt.

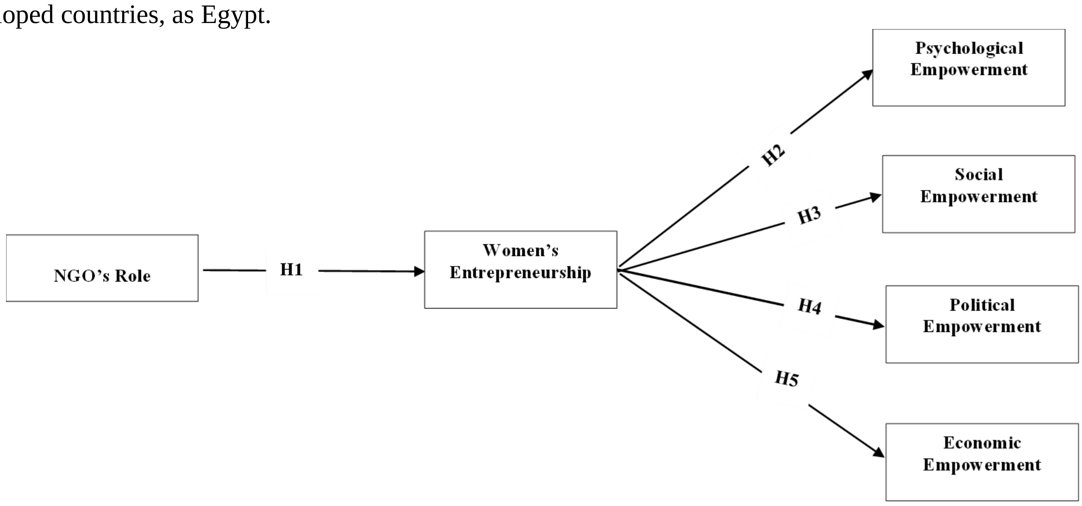


Figure 1. The Research Proposed Model

## MATERIALS AND METHODS

### 1. Participants and Procedures

This research utilised a quantitative methodology, utilising a questionnaire to collect information from women who had participated in the United Nations Programme and successfully finished their training to launch their projects in Egypt. The research was conducted in Egypt. The objective of this study is to assess the impact that non-governmental organisations (NGOs) have on the empowerment of women via the encouragement of entrepreneurial endeavours. More specifically, the focus of this investigation will be on a well-known program that offers aid to female entrepreneurs in Egypt. This led to the acquisition of information through the distribution of questionnaires to participants in the 'Women Economic Empowerment Program - Entrepreneurship Support (WEE-ES)' course.

We gathered the information in a single phase from September 2021 to December 2021. The preliminary testing of tWe conducted preliminary testing of the questionnaire with seven Additionally, they served on an expert panel and analyzed the questionnaire in order to improve its clarity and make it easier to understand. The current study introduced the surveys to the program manager for approval before reaching out to the course participants. Once we received authorization, we reached out to the attendees via the internet, as we discovered it was the most efficient method to engage with individuals spread across various governorates in Egypt. We distributed questionnaires to participants during our training sessions and gave them time to complete them. This research made use of methodologies that involved random sampling. We conducted an online survey to collect data and sent a link to the survey to female entrepreneurs. According to Sim et al. (2018), a sample size of ten percent would be sufficient to accurately reflect the population. We enrolled 540 people in the program and received 125 responses from female participants. Not only did the findings of the study surpass the 10% threshold, but they also accounted for roughly 25% of the total population.

### 2. Measures

We used established and validated indicators from earlier research. Our analysis of the function of NGOs was based on research by Elbaz and Abou-Shouk (2016). To assess women's entrepreneurship, we employed tools created by Abou-Shouk et al. (2021), and we took the women's empowerment statements from Elshaer et al. (2021). Several Likert scale indications on a five-point continuum were used to measure participant agreement levels from "strongly agree" to "strongly disagree" when we used split-half testing to give the questionnaire.

### 3. Data analysis

The current study used SPSS vs. 19 to conduct a descriptive analysis of the respondents. We tested the reliability of both the independent sample t-test and Cronbach's alpha values. We conducted confirmatory factor analysis (CFA), structural equation modeling (SEM), and hypothesis testing using PLS-SEM to scrutinize the structural properties of the conceptual model. We tested and met all requirements to run CFA and SEM, including dealing with missing data, outliers, and normality. We analysed the 18 items using their means, standard deviations, and factor loading, as presented in Table 2. All items have reached the acceptable level of 0.7, confirming their validity for analysis (Sahin, 2017). The mean scores are between 3.1 and 4.4, and the values of the standard deviation range from 1.011 to 680 (Table 1).

Table 1. The Demographics characteristics

| Variables | | Frequencies | Percentage |
|---|---|---|---|
| **Age (years)** | | | |
| | 18–25 | 14 | 11.2 |
| | 26–35 | 38 | 30.4 |
| | 36–45 | 44 | 35.2 |
| | 46–55 | 21 | 16.8 |
| | Older than 55 | 8 | 6.4 |
| **Education** | | | |
| | Bachelor's degree | 77 | 61.6 |
| | Diploma | 17 | 13.6 |
| | Master's degree | 23 | 18.4 |
| | PhD | 7 | 5.6 |
| | Other | 1 | .8 |
| **Marital Status** | | | |
| | Single | 45 | 36.0 |
| | Married | 61 | 48.8 |
| | Widowed | 4 | 3.2 |
| | Divorced | 15 | 12.0 |

## RESULTS AND DISCUSSION

### 1. The profile of the respondents

The findings showed that the study sample included diverse participants. More than one-third of the samples (35.2%) were between 36 and 45 years of age, and 30.4% were between 26 and 35 years of age. The majority (61.6%) of the respondents had a bachelor's degree, while 18.4% had a master's degree.

Regarding marital statuses, 48.8% were married and 36% were single (Table 2).

### 2. Measurement Model

We evaluated the study measurement model's validity and reliability using Smart PLS. As presented in Table 2 and

Figure 2, the model shows a satisfactory data fit. We examined the reliability and validity of all constructs using Composite Cronbach's alpha, factor loading, and average variance extracted (AVE) for convergent validity.

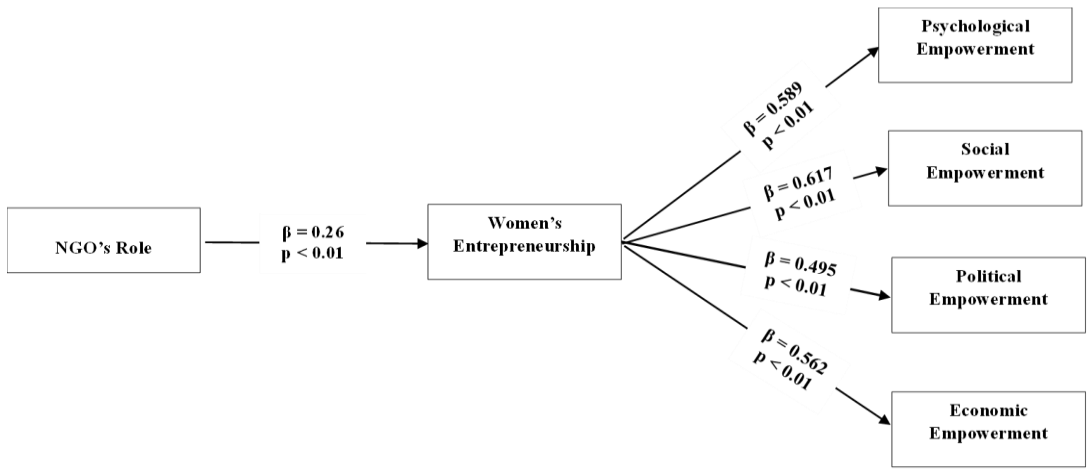


Figure 2. The Structural Model

We tested the square roots of AVE for discriminant validity; refer to Table 4. Table 2 shows that all the factors meet the minimum value of 0.7, which indicates excellent reliability (Mackenzie et al., 2011). Finally, Table 3 shows the discriminant validity and square root of AVE of all variables, above any other correlations involving that construct (Lowry and Gaskin, 2014).

Table 2. Confirmatory factor analysis

| Items | Factor loading | Mean | St. deviation | T-value |
|---|---|---|---|---|
| **NGO's Role** | | | | |
| The NGOs have funded my project/idea | 0.763 | 2.80 | 1.070 | 4.116 |
| The NGOs have provided me with the training/materials needed to keep my project/ idea ongoing | 0.884 | 3.36 | 1.081 | 6.643 |
| The NGOs keep following up on my project/ Idea progress | 0.870 | 3.06 | 1.045 | 5.777 |
| **Women's Entrepreneurship** | | | | |
| My community encourages women's entrepreneurship | 0.704 | 3.82 | .928 | 9.993 |
| Women entrepreneurs in my community support the empowerment of women | 0.896 | 4.26 | .720 | 35.221 |
| Women entrepreneurs in my community give other women an opportunity to access the market for local products/services | 0.884 | 4.32 | .643 | 43.737 |
| **Psychological Empowerment** | | | | |
| I am pleased to be a resident of a tourist destination country | 0.879 | 4.19 | .790 | 24.449 |
| I am proud to have a unique historical culture | 0.837 | 4.45 | .689 | 15.126 |
| I want to work more to keep the business sector progressive | 0.884 | 4.38 | .705 | 26.029 |
| **Social Empowerment** | | | | |
| Being an entrepreneur or having a business idea allows me to be thoroughly connected to my community | 0.867 | 4.08 | .809 | 19.763 |
| Being an entrepreneur or having a business idea fosters a sense of 'community spirit' within me | 0.925 | 4.19 | .704 | 72.452 |
| Being an entrepreneur or having a business idea increases the chances of community involvement | 0.911 | 4.25 | .680 | 41.223 |
| **Political Empowerment** | | | | |
| I have a voice in the business development field | 0.874 | 3.18 | 8.99 | 34.773 |
| I have access to the business decision-making process | 0.884 | 3.18 | 1.011 | 51.519 |
| I share my concerns regarding business development issues | 0.870 | 3.54 | .921 | 27.427 |
| **Economic Empowerment** | | | | |
| My project or idea provides job opportunities for women in Egypt | 0.831 | 3.97 | .861 | 14.821 |
| My project or idea secures a reasonable income for women in Egypt. | 0.867 | 3.92 | .809 | 16.116 |
| My project or idea allows me to be financially independent | 0.838 | 4.13 | .861 | 23.680 |

Table 3. Latent variable correlations

| | **Latent Variable correlation** | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | NGO's Role | **0.841** | | | | | |
| 2 | Women's Entrepreneurship | 0.260 | **0.833** | | | | |
| 3 | Psychological Empowerment | 0.099 | 0.589 | **0.867** | | | |
| 4 | Social Empowerment | 0.106 | 0.617 | 0.659 | **0.901** | | |
| 5 | Political Empowerment | 0.290 | 0.495 | 0.409 | 0.462 | **0.885** | |
| 6 | Economic Empowerment | 0.091 | 0.562 | 0.464 | 0.537 | 0.441 | **0.845** |

### 3. Structural model

Table 4 and Figure 2 provide evidence that all of the assumptions that were proposed are supported, since non-governmental organisations (NGOs) actively encourage and assist female entrepreneurs. In addition, women's entrepreneurship helps to promote and strengthen women's psychological, social, political, and economic empowerment when it comes to economic empowerment.

Table 4. Research hypothesis Results

| Hypotheses | Relationship | Std. Beta | Std. Error | T-value | P-value | Results |
|---|---|---|---|---|---|---|
| H1 | NGOs Role → Women Entrepreneurship | 0.260 | 0.084 | 3.112 | 0.002 | Supported |
| H2 | Women Entrepreneurship → Psychological Empowerment | 0.589 | 0.089 | 6.600 | 0.000 | Supported |
| H3 | Women Entrepreneurship → Social Empowerment | 0.617 | 0.079 | 7.711 | 0.000 | Supported |
| H4 | Women Entrepreneurship → Political Empowerment | 0.495 | 0.075 | 6.639 | 0.000 | Supported |
| H5 | Women Entrepreneurship → Economic Empowerment | 0.562 | 0.069 | 8.106 | 0.000 | Supported |

## DISCUSSION AND IMPLICATION

### 1. Discussion

This study aimed to comprehend the influence of non-governmental organizations (NGO) programs on the development of entrepreneurship and the empowerment of women across psychological, social, political, and financial dimensions. The study's findings indicated that these initiatives substantially enhanced the economic standing of women involved in entrepreneurial activities. The data shown also confirm the fundamental idea underlying the suggested structure: NGOs' great and instantaneous impact on the expansion of female entrepreneurship.

These findings complement other studies, notably the 2020 Rinaldi and Salerno research, which also validates the influence of NGO solutions on business development. This research establishes that, in line with the work of Irawan et al. (2024), Mulyadi et al. (2024), Elshaer (2021), and Abou-Shouk et al. (2021), female entrepreneurship modernizes women's progress. Furthermore, the study shows that increased female involvement in the creation and operation of enterprises promotes women's development in developing countries. Hence, empowering women in developing countries encompasses psychological, social, political, and financial domains.

For example, the NGO interventions evaluated provided women entrepreneurs with essential business resources, such as support and training, which facilitated the creation of profitable enterprises. Egypt exemplifies the practical application of NGO perspectives. The funding of women's companies has highlighted the importance of NGOs in promoting gender equality and women's employment in Egypt's tourism sector. Egypt's initiatives in entrepreneurship and gender equality will underscore these empowering principles; the correlation between NGO operations and significant advancements in this framework is evident, particularly in male-dominated industries.

### 2. Implications

The current study theoretically contributes to understanding how initiatives by non-governmental organizations (NGOs) aimed at enhancing entrepreneurship can facilitate women's empowerment, particularly within the travel industry of developing countries like Egypt. In this vein, we integrated several important dimensions of empowerment, encompassing psychological, social, political, and economic issues, into a cohesive framework. This emphasizes the contributions of the present collection of studies on gender equality and entrepreneurship. This shows that non-governmental organizations (NGRs) not only offer necessary tools for entrepreneurial activity but also operate as special facilitators, therefore empowering women in many spheres. Aiming to empower women in fields traditionally occupied by men, they provide creative ideas at the junction of non-governmental activities, feminism, and development theory.

Especially in relation to the Egyptian tourist sector, this study adds to the body of knowledge already in publication on NGOs and women's progress. Not a drawback often observed in other comparable studies by ignoring this feature, this research offers a fresh and unique view on the function of NGOs in company management for women entrepreneurs by using these elements and entailing them all into a theoretical framework. Emphasising the specifics of NGO’s projects, the paper underlines the significance of such kinds of projects for female entrepreneurs and their successes. These projects provide women with key tools and education, thus preparing them to venture and sustain their businesses. The results presented above clearly demonstrate that the government's funding of women's training schemes and funding is necessary for the enhancement of these opportunities. As highlighted by this research, the tourism industry reproduces traditional gender stereotypes despite the fact that women are more conscientious, emotionally intelligent, and effective in customer interactions. Furthermore, the cooperation between the public and private sectors has led to the establishment of a unit within the Ministry of Tourism and Antiquities of Egypt that focuses on gender-based discrimination, highlighting the need for policy shifts to address these issues. The country's participation in the COP 27 event demonstrates additional micro-level programs aimed at enhancing sustainability and gender equality for empowered women in the travel sector. Regarding the community of relations between the empowerment dimensions—psychological, social, political, and financial—this paper focuses on the role of non-governmental organizations in promoting female entrepreneurship. Sustaining engagement between the NGOs and the women entrepreneurs will ensure that such endeavors bring about social change and a general development agenda in the longer term.

### Limitations and further research

This study recognises its limitations and offers recommendations for further research. This research has examined the ways in which the UNW program helps female entrepreneurs. Consequently, more research should concentrate on alternative initiatives, especially those implemented by governments. Additionally, we may categorise socio-demographics according to variables such as education, age, marital status, and income. Furthermore, this study's focus on the Egyptian tourism industry is a major drawback that might limit the generalisability of its findings to other industries or geographical areas. Additionally, the study relies on participant data collected through questionnaires, a method that might add bias and compromise the findings' impartiality. The cross-sectional approach complicates the comprehension of the effects of NGO operations on the established long-term objectives of women's empowerment. Subsequent studies may investigate longitudinal methods to evaluate enduring levels of empowerment and entrepreneurship across time. Furthermore, the discourse might expand the analysis to include several sectors and cultural contexts, therefore substantiating the findings across varied situations.

## CONCLUSION

The study concentrated on enhancing women's empowerment and entrepreneurship, particularly within the Egyptian tourism sector. The findings revealed the extent to which NGO operations assist women and businesses; hence, they illustrate the proposed paradigm. The present analysis highlights, consistent with prior research, the direct impact of NGOs on enterprises. This also helped to clarify the special link between female-owned companies and the psychological, social, political, and financial emancipation of women. The report supports Egypt's commitment to gender equality by providing practical suggestions for the implementation of projects involving NGOs, therefore strengthening their influence. This study significantly enhances the current information base by examining the impact of NGOs in empowering women entrepreneurs and elevating their status within the tourist industry. The document emphasised the imperative for governmental financial support of women's training programs and stressed the importance of NGO activities in inspiring and aiding female entrepreneurs, with practical consequences.

**Author Contributions:** Conceptualization, K.A.R. and A M E.; methodology, R.A. and L. V.M.; software, K.A.R.; validation, A.M.E. and V.M. and B.A.; formal analysis, V.M. and K.A.R.; investigation, K.A.R. and A.M.E.; data curation, V.M. and R.A. and K.A.R.; writing - original draft preparation, K.A.R., and A.M.E.; writing - review and editing, A.M.E. and V.M. and R.A.; visualization, K.A.R.; supervision, A.M.E.; project administration, K.A.R. and A.M.E. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.  ALL CHANGES SHOULD BE MARKED IN RED

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** We would like to extend our sincere gratitude to the female participants who generously contributed their time and insights to our study. Their involvement was instrumental in advancing our research on women’s empowerment and entrepreneurship in Egypt’s tourism sector.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 30.08.2024 Revised: 19.10.2024 Accepted: 29.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.1999-2004
DOI 10.30892/gtg.574spl14-1367

# ASSESSING THE EFFICIENCY OF HOTELS IN UZBEKISTAN'S ANCIENT CITIES OF SAMARKAND AND BUKHARA USING DATA ENVELOPMENT ANALYSIS

**Bekzot JANZAKOV***
Silk Road International University of Tourism and Cultural Heritage, Department of Tourism, Samarkand, Uzbekistan,
e-mail: becajaja@gmail.com

**Dilmurod NASIMOV**
Silk Road International University of Tourism and Cultural Heritage, Department of Tourism, Samarkand, Uzbekistan,
e-mail: d.nasimov@univ-silkroad.uz

**Akmaljon ODILOV**
Silk Road International University of Tourism and Cultural Heritage, Department of Tourism, Samarkand, Uzbekistan,
e-mail: akmaljon.odilov@silkroad.uz

**Mohichehra KURBANBEKOVA**
Tashkent State University of Economics, Department of Scientific and Innovative Developments, Tashkent, Uzbekistan,
e-mail: m.kurbonbekova@tsue.uz

**Farkhodjon KHOLMAMATOV**
Tashkent State University of Economics, Department of Banking, Tashkent, Uzbekistan, e-mail: fkholmamatov@gmail.com

**Azizjon QODIROV**
Bukhara State University, Department of Accounting and Statistics, Bukhara, Uzbekistan, e-mail: a.a.qodirov@buxdu.uz

**Dilrabo MARDONOVA**
Silk Road International University of Tourism and Cultural Heritage, Department of Tourism, Samarkand, Uzbekistan,
e-mail: dilish.mardonov22@gmail.com

**Nurali ARABOV**
Samarkand State University, Department of Human Resources Management, Samarkand, Uzbekistan,
e-mail: nurali.arabovuz@gmail.com

**Samandar KURBONOV**
Tashkent State University of Economics, Department of Human Resource Management, Tashkent, Uzbekistan,
e-mail: s.kurbonov@gmail.com

**Citation:** Janzakov, B., Nasimov, D., Odilov, A., Kurbanbekova, M., Kholmamatov, F., Qodirov, A., Mardonova, D., Arabov, N., & Kurbonov, S. (2024). ASSESSING THE EFFICIENCY OF HOTELS IN UZBEKISTAN'S ANCIENT CITIES OF SAMARKAND AND BUKHARA USING DATA ENVELOPMENT ANALYSIS. *Geojournal of Tourism and Geosites*, 57(4spl), 1999–2004. https://doi.org/10.30892/gtg.574spl14-1367

**Abstract:** This article aims to analyze the efficiency of hotels in Samarkand and Bukhara cities from Uzbekistan. The study will shed light on efficiency issues of using the combination of labor and capital in 15 hotels in Bukhara and six hotels in Samarkand using data envelopment analysis. The results of the research show that out of 21 hotels, few of them showed maximum efficiency relative to benchmark indicators, while others struggled to allocate resources in a more efficient way. Overall, the study offers measures to improve the efficiency rate in each hotel based on an in-depth analysis of input and output variables, and therefore, it can be used by hotel managers as a guideline for the use of the DEA method in measuring efficiency.

**Keywords:** efficiency, tourism, data envelopment analysis, input, output, benchmark

* * * * * *

## INTRODUCTION

Measuring efficiency has always been an important issue for business growth. Managing resources in hotels in an optimal way so as to minimize cost and maximize profit is a fundamental problem that every manager has to solve. This study considers working out proposals for managers to calculate efficiency based on benchmark output and input variables of competing hotels. Economic efficiency refers to a condition where resources are allocated in a way that maximizes benefits for each individual or organization, ensuring optimal use while reducing waste and minimizing

* Corresponding author

inefficiencies (Investopedia.com, June 30, 2024). Macroeconomic policy significantly affects the overall efficiency of enterprises, in particular, tourism businesses (Kifworo and Dube, 2024). Tourism business plays an important role in the economies of tourism-oriented ancient cities of Uzbekistan, such as Samarkand and Bukhara (Safarov et al., 2022). Samarkand and Bukhara are famous for their historical buildings and landmark places located in Central Asia. The Registan Square, Gur Emir mausoleum, Bibikhanum mosque, and other places attract millions of tourists to Samarkand all over the world. Bukhara is also famous for its Middle Ages palaces, ancient bazaars, and other landmark places.

These two ancient cities attract most of the tourists from abroad. Roughly four million tourists visit these cities yearly (Statistical agency data, 2024). So, assessing the efficiency of hotels and other accommodation types in these cities reflects how the hospitality industry, in general, is doing. If the performance efficiency in the average hotels is high, it means that the tourism industry is doing well overall (Arabov et al., 2024).

Poldrugovac et al. (2016) pointed out various methods to measure efficiency of accommodation, such as occupancy rate, return on assets and others. According to Hadad et al. (2012) as tourism sector is growing, it has become crucial to assess efficiency and productivity within tourism infrastructure. Also, the environmental factors play significant role in improving efficiency within tourism infrastructure (Ilies et al., 2023). Perception of efficiency by stakeholders might be crucial in proactive decision-making process (Herman et al., 2024).

Efficiency typically describes the connection between output and input factors, relating to the operational performance of a business at the micro level or a nation at the macro level. A process that generates more output than input is considered more efficient (Safarov et al., 2023). When significantly more outputs are produced than inputs, optimal efficiency is achieved. However, achieving higher efficiency is impossible without adopting new technologies or implementing various changes (Soysal-Kurt, 2017). Efficiency can be evaluated using both parametric and nonparametric methods. Parametric methods involve a predefined production function, accounting for changes that may randomly affect production (such as factor analysis, regression analysis, etc.).

In contrast, nonparametric methods perform the analysis without a predefined production function, employing techniques like linear programming. In this paper, we analyze the efficiency of resource allocation in hotels in the biggest tourist cities of Uzbekistan, Samarkand, and Bukhara. The research aims to shed light on how hotels in ancient tourism-oriented cities are actually performing and, based on research results, work out appropriate suggestions. The findings will contribute to the state-of-the-art literature by applying the theoretical framework of both CSR and VCR versions of data envelopment analysis to real-world business cases.

## LITERATURE REVIEW

The Data Envelopment Analysis (DEA) is one of the linear programming-based methods, which can be used for both multiple input and multiple output variables. Essentially, the DEA method allows for the inclusion of various input and output parameters to evaluate the efficiency of decision-making units (DMUs).

The efficiency score is relative, as it is determined within a predefined group of decision-making units, and adding or removing a unit from this group can influence the results. Overall, the DEA method can be understood as an effort to maximize output parameters while minimizing input parameters (Rosić et al., 2015).

The DEA method is widely recognized as an effective tool for measuring performance efficiency. The method is widely used in many fields, including finance, heavy industry, logistics, and others (Emrouznejad and Yang, 2018). Previous reviews of DEA have been well-documented in academic literature. The work of Charnes et al. (1987) was fundamental in the dissemination of DEA analysis as a tool for measuring efficiency. According to Lampe and Hilgers (2015), Stochastic Frontier Analysis can be extensively used in economics, while DEA is preferred in operations research. Even though DEA has been applied in many fields, its utilization in tourism operations is very low (Altin et al., 2018).

A separate study presented a curated performance model based on bibliometric analysis of tourism research, addressing issues such as dynamic modeling, heterogeneity (Albu et al., 2021), and incorrect outputs in relation to tourism destination areas (Assaf and Tsionas, 2019). Efficiency in the hotel industry has become crucial recently (Schalk-Nador and Rašovská, 2024). Also, cultural resources turned out to be a significant factor affecting technical efficiency in tourism destinations of Spain (Herrero-Prieto and Gomez-Vega, 2017). The Data Envelopment Analysis was used in assessing destination performance (Yen et al., 2021), and explore global interaction of various destinations (Lozano and Gutiérrez, 2018). Beyond that it was applied to evaluate tourism competitiveness (Cracolici et al., 2008).

## MATERIALS AND METHODS

The research extensively uses linear programming based methods to analyze efficiency of 21 hotels located in Samarkand and Bukhara. The data is taken from statistical agency and tax departments of corresponding regions for the period of May 2024. Various methods can be used to evaluate the efficiency of hotel operations. Linear programming techniques are widely employed to optimize resource allocation in enterprises. Data Envelopment Analysis (DEA), developed by Farrell (1957), is a method based on the ratio of weighted sums of multiple inputs and outputs, and it is also extensively used in modern research. When it is necessary to analyze the performance of a tourism enterprise in relation to resource expenditure, applying DEA analysis is advisable. Data Envelopment Analysis is a linear programming method that looks for the tight “enveloping” of input and output variables. The DEA variation developed by Charnes et al. (1978) is used to evaluate when outcome variables achieve maximum values involving minimal resources. The DEA-CCR model does not necessitate predefined weights for the input and output variables. The optimization model parameters are created individually for each enterprise in data envelopment analysis. As 15 hotels from Bukhara were involved in our research, the model was executed 15 times. In general, the DEA model can be mathematically described as follows:

Given 1,2,…n enterprises, let $x_i$ represent the production resources of the $i$ -th enterprise, and $y_j$ represents the outcome factor of the $j$ th enterprise. Furthermore, let $u_i$ be the corresponding weights assigned to the production resources, and $v_j$ be the corresponding weights assigned to the outcome factors. The efficiency $\theta -$ can then be expressed as follows (Ray, 2004):

$$\theta = \frac{\sum_{k=1}^{m}\sum_{j=1}^{n} v_j^k * y_j^k}{\sum_{b=1}^{a}\sum_{i=1}^{n} u_i^b * x_i^n} \leq 1 \;\; v_i, u_j \geq 0; \;\; i = 1,2,\dots.I; j = 1,2,\dots.J; \;\; I,J \in N \tag{1}$$

That is, when there are $m$ output factors and $a$ input factors, the maximum value of efficiency $\theta -$ can be equal to 1. This indicates that the volume of output factors used can never exceed the resources expended. Thus, the concept of technical efficiency can be described as follows (Sharma, 2024):

$$TS_t = max \sum_{j=1}^{J} u_j y_j^t \text{ , } TS_t \text{ −technical efficiency, } TS_t \leq 1 \tag{2}$$

Technical efficiency $TS_t$ refers to the ability to convert resources into goods and services. It generally indicates how efficiently a hotel operates. A technical efficiency value of one means the hotel is more efficient compared to others, while a value below one indicates inefficiency. Therefore, enhancing efficiency can be viewed as a matter of assessing technical efficiency, which can be expressed as follows (Charnes et al., 1978):

$$TS_y = \frac{1}{\varphi} \text{ where } \varphi \text{ −coefficient of expansion, also following conditions should be met,} \tag{3}$$

$$\sum_{j=1}^{n} \lambda_j \, y_j \geq \varphi y_j \quad \text{where } y_j \text{ −the value of the corresponding output variable,} \tag{4}$$

$$\sum_{j=1}^{n} \lambda_j \, x_i \leq x_i \text{ where } x_i \text{ −the value of the corresponding input variable,} \tag{5}$$

$$\sum_{j=1}^{n} \lambda_j = 1, \; \lambda_j \geq 0 \; (j = 1,2,3 \dots n)\text{, where } \lambda_j \text{ −the weight values.} \tag{6}$$

For analyzing efficiency in hotels of Samarkand we used slightly different approach. In the work of Kirigia et al. (2002), cost efficiency is expressed as the product of allocative efficiency and technical efficiency.

$$XS = JS * TS \tag{7}$$

where $XS -$ cost efficiency, $JS -$distribution efficiency (assesses to how extent resources are distributed optimally to produce goods and deliver services).

Our research objective is to minimize the following objective function:

$$XS = min \sum_{i=1}^{n} w_i \, x_i \tag{8}$$

where $w -$ corresponding weights of resources (level of importance).

Moreover, let the inequality (1) be expressed in the following way (Charnes et al., 1978):

$$\sum_{j=1}^{n} \lambda_j \, y_j \geq y_j \tag{9}$$

We will solve this linear programming problem using the Simplex method and apply it to the economic indicators. The cost efficiency can be calculated as follows (Kirigia et al., 2002):

$$XS = \frac{P_{capital} * K + P_{labor} * L}{X} \tag{10}$$

where $XS -$cost efficiency, $P_{capital} -$price of the capital, $P_{labor} -$ labor price in the given hotel, $K -$capital units spent (the ratio of depreciation expenses to the number of tourists), $L -$ number of staff, $X -$the volume of real expenses (thousand Uzbek soums - UZS).

## RESULTS AND DISCUSSION

The analysis was implemented in MS EXCEL's Solver add-in and DEA frontier software. Throughout the research Simplex method was used in solving the distribution problem of resources within an enterprise. Table 1 reflects the economic indicators of the 15 hotels located in Bukhara. The input factors considered were the number of employees and the amount of capital utilized in providing services (Table 1). The hotels' revenues were taken as the output factor.

Table 1. Input and Output Variables in Hotels in Bukhara (Source: authors' calculations based on Tax reports and data from statistical agency of Bukhara region, https://www.buxstat.uz) *LLC- limited liability company, FE-family enterprise, PC-private company

| Hotels | Input 1 (Labor, number of staff) | Input 2 (Capital, thousand UZS per month) | Output (Income in thousand UZS per month) |
|---|---|---|---|
| "ZARGARON-LYUKS" LLC | 12 | 1361.01 | 1391396.0 |
| "FATIMA GOLD PLAZA" FE | 5 | 1444.84 | 1474005.0 |
| "NODIR DEVONBEGIM TRAVEL" LLC | 7 | 41.31 | 862879.0 |
| "AMMAR-AISHA TRAVEL"FE | 5 | 0 | 556067.0 |
| "KAVSAR BUKHARA" LLC | 7 | 236.04 | 315478.0 |
| "EMIR TRAEL" PC | 2 | 251.37 | 481590.0 |
| "QODIR MOMINA" LLC | 3 | 0 | 72184.0 |
| "RESSORT MEKKA" LLC | 4 | 641.52 | 349948.0 |
| "BIG LARGE" LLC | 21 | 3.89 | 4503967.0 |
| TEMUR PLAZA LLC | 2 | 62.58 | 173492.0 |
| "MANUCHEHR MUSINOVICH GULAMOV" FE | 3 | 595.82 | 112805.0 |
| "AN-NUR NISA" FE | 2 | 575.87 | 23191.0 |
| "VAVILON PLAZA" FE | 2 | 475.94 | 460492.0 |
| "ZARNIGOR-93" LLC | 2 | 65.51 | 9135375.0 |
| "DEVEL ECO GROUP" LLC | 99 | 876.76 | 12504748.0 |

During the study, the efficiency of each hotel was calculated using the DEA frontier software package in MS Excel, employing the Simplex method. In this analysis, we calculated the technical efficiency indicator $\theta$ based on Constant Return to Scale (CRS) and Variable Return to Scale (VRS) approaches. Constant returns to scale indicate that an increase in input leads to a proportionate rise in output, whereas variable returns to scale reflect a disproportionate change in output relative to the increase in input. The calculations are carried out separately in iterative cycles for each hotel (Table 2).

Table 2. CRS and VRS Technical Efficiency indicators of hotels in Bukhara (Source: Authors' work)
*LLC- limited liability company, FE-family enterprise, PC-private company

| Hotels | CRS technical efficiency | VRS technical efficiency | Scope efficiency | Change in scale efficiency |
|---|---|---|---|---|
| "ZARGARON-LYUKS" LLC | 0.025 | 0.17 | 0.15 | increasing |
| "FATIMA GOLD PLAZA" FE | 0.064 | 0.40 | 0.16 | increasing |
| "NODIR DEVONBEGIM TRAVEL" LLC | 0.126 | 0.39 | 0.321 | increasing |
| "AMMAR-AISHA TRAVEL"FE | 1.000 | 1.00 | 1.00 | constant |
| "KAVSAR BUKHARA" LLC | 0.009 | 0.28 | 0.03 | increasing |
| "EMIR TRAEL" PC | 0.053 | 1.00 | 0.05 | increasing |
| "QODIR MOMINA" FE | 0.216 | 1.00 | 0.216 | increasing |
| "RESSORT MEKKA" LLC | 0.019 | 0.50 | 0.038 | increasing |
| "BIG LARGE" LLC | 1.00 | 1.00 | 1.00 | constant |
| TEMUR PLAZA LLC | 0.02 | 1.00 | 0.02 | increasing |
| "MANUCHEHR MUSINOVICH GULAMOV" FE | 0.008 | 0.67 | 0.012 | increasing |
| "AN-NUR NISA" FE | 0.003 | 1.00 | 0.003 | increasing |
| "VAVILON PLAZA" FE | 0.05 | 1.00 | 0.05 | increasing |
| "ZARNIGOR-93" LLC | 1.00 | 1.00 | 1.00 | constant |
| "DEVEL ECO GROUP" LLC | 0.092 | 1.00 | 0.092 | decreasing |

In Table 2, the scale efficiency indicator is calculated as the ratio of CRS technical efficiency to VRS technical efficiency, representing the overall efficiency of the enterprise. According to the scale efficiency data, four hotels in Bukhara, "Ammar Aisha Travel" LLC, "Big Large" LLC, and "Zarnigor-93" LLC, have achieved maximum efficiency (with a scale efficiency indicator equal to 1). Based on this, it can be concluded that these companies are utilizing their production resources with high efficiency.

On the contrast, some companies such as "Zargaron Plyus" LLC are not doing well. However, if it reduced its service costs by 84-97.5% ($1 - 0.025 = 0.975$; $1 - 0.16 = 0.84$), it would achieve maximum efficiency. In general, it can be said that this enterprise's efficiency is increasing based on the current data (the scale efficiency is increasing, meaning that one unit of cost brings more than one unit of revenue).

It is also advisable for the "FATIMA GOLD PLAZA" hotel to reduce costs in the range of 60%-94%. Its scale efficiency is also increasing, indicating that the efficiency is improving in good condition. Overall, in the hotels "NODIR DEVONBEGIM TRAVEL" LLC, "KAVSAR BUKHARA" LLC, "EMIR TRAVEL" JV, "QODIR MOMINA" FE, "RESSORT MEKKA" LLC, "TEMUR PLAZA" FE, "MANUCHEHR MUSINOVICH GULAMOV" FE, "AN-NUR NISA" FE, and "VAVILON PLAZA" FE, it is possible to maximize efficiency by reducing production factors by more than 50%.

However, the decreasing scale efficiency in "DEVEL ECO GROUP" LLC indicates issues in the revenue turnover process related to resource expenditures, suggesting that significant changes are necessary within the company.

Then, we separately conducted a DEA analysis for hotels located in Samarkand (Table 3). In Table 4 the results of the data envelopment analysis are illustrated.

Table 3. Input and output variables in hotels located in Samarkand (Source: Authors' calculations based on Tax reports of the corresponding hotels) *LLC - limited liability company, FE - family enterprise, PC - private compan

| Hotels | Number of staff | Capital units | Labor cost (thousand UZS) | Capital price (thousand UZS) | Income (thousand UZS) |
|---|---|---|---|---|---|
| Hotel Asia Samarkand LLC | 9 | 202.75 | 381902.4 | 833229.5 | 5417435 |
| Registon Plaza LLC | 19 | 1023.29 | 68372.05 | 3956990 | 4517841 |
| Konstantin ITOL LLC | 17 | 252.34 | 80780.47 | 538808.5 | 4275699 |
| Alexander Hotel LLC | 13 | 20.85 | 441766.8 | 343870.1 | 5769130 |
| Hotel Sumaya FE | 12 | 0.31 | 40656.19 | 13391.57 | 523617.7 |
| Buyuk Humo LLC | 14 | 139.48 | 57038.06 | 69000 | 968876 |

Table 4. Hotel efficiency indicators in Samarkand (Source: Authors' work)
*LLC - limited liability company, FE - family enterprise, P C- private company

| Hotels | Cost efficiency | Technical efficiency | Distribution efficiency |
|---|---|---|---|
| Hotel Asia Samarkand LLC | 0.97 | 1 | 0.97 |
| Registon Plaza LLC | 0.12 | 0.47 | 0.27 |
| Konstantin ITOL LLC | 0.33 | 0.58 | 0.58 |
| Alexander Hotel LLC | 0.81 | 1 | 0.81 |
| Hotel Sumaya FE | 1 | 1 | 1 |
| Buyuk Humo LLC | 0.7 | 0.74 | 0.95 |

It is clear from Table 4 that the cost efficiency of Hotel Asia Samarkand is operating at 97% relative to other hotels that have similar resources. So, this hotel is able to maximize its efficiency, if it reduces inputs by 3%. The technical efficiency is measured at one, indicating that the hotel experiences no losses when converting its resources into revenue. Meanwhile, the allocative efficiency stands at 0.97, suggesting that the hotel is overspending by 3% in resource allocation, presenting an opportunity to reduce costs by this margin. The biggest in the pack, Registon Plaza's cost efficiency is very low, at 0.12. This value of cost efficiency means that the hotel is incurring 88% more costs than the best-performing hotel with equal resources. Likewise, the technical efficiency is quite low at just 47%, signifying a 53% loss in converting resources into revenue compared to the most efficient hotel. The allocative efficiency is even lower at 0.27, indicating that resource allocation needs to improve by 73%.

For Konstantin ITOL LLC, the cost efficiency is notably low at 0.33, suggesting that a more efficient hotel with the same resources could cut costs by 67%. Both the technical and allocative efficiency are measured at 0.58, indicating that the hotel could enhance its resource-to-revenue conversion and resource allocation by 42%.

At Aleksandr Hotel, the cost efficiency is 0.81, indicating that the hotel spends 19% more than the optimal level. However, the technical efficiency is perfect at 1, showing that the hotel efficiently converts resources into revenue. Additionally, allocative efficiency has room for improvement by 19%.

Hotel Sumaya FE demonstrates the top performance among the hotels we analyzed. Its cost efficiency, technical efficiency, and allocative efficiency are all at a value of one, indicating that the hotel is effectively using all its resources to maximize revenue. In "Buyuk Humo" LLC, the cost efficiency is 0.7, meaning that costs could be reduced by 30% compared to the optimal level. The technical efficiency is 0.74, indicating that 26% of the labor and capital are lost in the process of converting them into revenue compared to the most efficient hotel. The allocative efficiency is relatively high at 0.95 indicating that there is still a 5% opportunity to improve resource allocation.

The article examines the efficiency of 21 hotels in Samarkand and Bukhara, a sample that represents only about 10% of the total hotels in these cities. As such, the findings should be interpreted with caution. Additionally, because the data envelopment analysis (DEA) method is sensitive to input and output data, the results may vary across different months of the year, as these factors can fluctuate significantly over time. Further analysis of efficiency is crucial for comparing and assessing the dynamics of change in service delivery within the hotel industry.

## CONCLUSION

In conclusion, based on the analysis of the six hotels mentioned above in Samarkand, Hotel Sumaya has been identified as the most efficient hotel according to the results of the Data Envelopment Analysis (DEA). The key advantage of DEA compared to other methods is its ability to identify the top-performing enterprise within a group and measure the performance of others against it. While the efficiency indicators in Table 3 offer a general snapshot of enterprise performance over a certain period, they don't measure resource utilization. As a result, even though some hotels may show high profitability, their efficiency scores are relatively low due to the presence of excess unused resources compared to other businesses.

The analysis of the scale efficiency of hotels in Bukhara demonstrates that certain enterprises, such as "Ammar Aisha Travel" LLC, "Big Large" LLC, and "Zarnigor-93" LLC, were operating at maximum efficiency, effectively utilizing their production resources. However, other companies, like "Zargaron Plyus" LLC, show inefficiencies that can be addressed by reducing service costs by 84-97.5%, which would lead them to maximum efficiency. Similarly, the "FATIMA GOLD PLAZA" hotel can improve its efficiency by reducing costs in the range of 60%-94%. Furthermore, hotels such as "Nodir Devonbegim travel" LLC, "Resort Mekka" LLC, and others could maximize efficiency by reducing production costs by more than 50%. On the other hand, the decreasing efficiency of "DEVEL ECO GROUP" LLC points to issues in resource management that require significant operational changes. Overall, with appropriate cost adjustments, most of these enterprises can improve their scale efficiency and achieve optimal resource utilization.

The research generally proposes changes that could enhance the overall performance of specific hotels in Samarkand and Bukhara. However, it does not delve into the specifics of associated costs, such as logistics, time management, service quality, and other key factors. Furthermore, the data envelopment analysis (DEA) results vary depending on changes in input or output data. This study focused on May 2024, chosen as the observation period since it represents the peak of Uzbekistan's tourism season. Due to challenges in obtaining reliable financial data, only a limited number of hotels were analyzed. Therefore, the findings should be interpreted cautiously, considering the scope and period of observation. Nonetheless, this study contributes to the current body of literature by showing the effectiveness of DEA as a tool for measuring and evaluating efficiency within a highly competitive environment.

**Author Contributions:** Conceptualization, B.J. and D.N.; methodology, B.J. and A.O; software, B.J., and A.Q.; validation, B.J. and M.K. and F.K.; formal analysis, D.M., and N.A.; investigation, B.J., and D.N., and A.O.; data curation, B.J., and D.N., and S.K., and D.M.; writing - original draft preparation, B.J. and D.N.; writing - review and editing, D.M. and A.Q., and M.K. and F.K., and N.A.; visualization, B.J. and A.O., and S.K., and D.M., and S.K.; supervision, B.K. and D.N.; project administration, B.K., and A.O. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 31.08.2024 Revised: 15.10.2024 Accepted: 29.11.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2005-2019
DOI 10.30892/gtg.574spl15-1368

# INTERVENING ROLE OF TOURISTS' ENGAGEMENT IN USER-GENERATED CONTENT ON THEIR PRO-ENVIRONMENTAL BEHAVIOURS: A PERSPECTIVE OF VIRTUAL GOFFMAN'S THEORY

**Huayu TANG**
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia;
Huaihua University, School of Business, Hunan, China, e-mail: gs58067@student.upm.edu.my

**Choy Leong YEE***
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: yee@upm.edu.my

**Jo Ann HO**
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: ann_hj@upm.edu.my

**Yanning CHEN**
Universiti Putra Malaysia, School of Business and Economics, Selangor, Malaysia, e-mail: gs58063@student.upm.edu.my

**Citation:** Tang, H., Yee, C.L., Ho, J.A., & Chen, Y. (2024). INTERVENING ROLE OF TOURISTS' ENGAGEMENT IN USER-GENERATED CONTENT ON THEIR PRO-ENVIRONMENTAL BEHAVIOURS: A PERSPECTIVE OF VIRTUAL GOFFMAN'S THEORY. *Geojournal of Tourism and Geosites*, 57(4spl), 2005–2019. https://doi.org/10.30892/gtg.574spl15-1368

**Abstract:** Social media users on platforms like Weibo and XiaoHongshu influence how tourists present themselves online. However, their impact on actual tourist behaviours at destinations remains unclear. This study explores the influence of impression management motivation and online social comparison on tourists' engagement in pro-environmental user-generated content (UGC) on social media platforms in China. The research investigates how these factors impact tourists' pro-environmental behavioural intentions (TPBI) using Virtual Goffman's Theory and Social Comparison Theory as the framework. A survey of 716 social media users who had recent travel experiences in China was conducted to examine the psychological mechanisms driving tourists to participate in pro-environmental activities both online and offline. The structural equation model (SEM) results reveal that while impression management motivation did not directly influence pro-environmental UGC engagement, its impact became significant when moderated by the frequency of social media status updates. Online social comparison had a direct positive impact on pro-environmental travel UGC engagement, while social media stalking did not. Pro-environmental travel UGC engagement was found to be a strong predictor of pro-environmental behavioural intention. These findings offer valuable insights into how social media interactions foster eco-conscious behaviours, highlighting the role of impression management and online comparisons in shaping both online and offline pro-environmental actions. The study provides implications for promoting sustainable tourism practices through social media engagement strategies.

**Keywords:** user-generated content, UGC-induced TPBI, impression management motivation, online social comparison, social media stalking, social interaction

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## INTRODUCTION

Pro-environmental behaviour (PEB) involves actions aimed at benefiting the natural environment or reducing harm to it, thereby mitigating and preventing environmental threats (Lange and Dewitte, 2019; Wallace and Buil, 2023). Despite increased environmental consciousness, regulatory measures, media attention, and public perceptions, tourism remains "far from sustainable" (Buckley, 2012). Prior studies have primarily focused on investigating the influence of tourists' cognition, emotions, beliefs, norms, and situational factors on their environmental responsibility behaviour primarily from the perspective of tourists themselves (Qiu et al., 2018). However, these studies solely examine the impact of visitors' personal aspects on their environmental behaviour in a static manner. Tourists are not isolated from social influences, and their cognition, emotions, and environmental behaviour are influenced by the social interactions that surround them. Therefore, in this paper, social media is used as a social interaction channel to explore tourists' pro-environmental behaviour.

The existing studies on the correlation between media use and pro-environmental behaviours are intricate and subject to debate (Ho et al., 2015; Mikami et al., 1999; Whitmarsh, 2009). Further verification is required to assess the applicability of pertinent research findings. Research posits that the utilisation of persuasive communication can effectively induce tourists to voluntarily adopt pro-environmental behaviours (Han et al., 2018). Compared to traditional media, social networking sites (SNSs) facilitate interactions among users, shaping their environmental attitudes and actions in ways that extend beyond traditional offline interactions. This suggests that tourists change their behaviour not only by consuming content but also through interaction with other tourists and users. Therefore, it is essential to explore how social media platforms, as dynamic and interactive environments, influence tourists' pro-environmental behaviour.

* Corresponding author

This research extends Goffman's theory, which conceptualises social interaction as a performance, to the virtual domain, examining the influence of impression management motivation on shaping online-offline PEBs in contexts where the “theatre settings” have shifted. Impression management (or self-presentation) on social media is a form of virtual self-identification known to influence pro-social behaviours (Lavertu et al., 2020). While prior research connects virtual self-identity to offline behaviours, few address social media posts as virtue signalling for pro-social behaviours, with divergent views on their connection to offline actions (Han et al., 2018). This study aims to explore whether pro-environmental engagement on social media induces behavioural intentions, thus complementing existing literature.

Given SNS platforms offer a wealth of opportunities and a convenient means to engage in social comparison, this research examines online comparisons among social media users triggered by travel-related posts on SNSs, attributing this to self-presentation's positive disclosure for social validation (Machado et al., 2021). Individuals often compare the social notifications they receive on social media to their own self-image. However, while some scholars highlight online social comparison as a mechanism for negative effects within social networks (Kaur, 2021; Verduyn et al., 2020), this study resonates with Lavertu et al. (2020) in suggesting that the interpretation of outcomes hinges on individuals' goal-oriented behaviours. Consequently, the use of online comparisons to promote pro-environmental behaviour change and bring out the positive aspects of social media is a matter of concern. Additionally, the study investigates individuals' passive yet consistent review of social media content, termed “social media stalking” (Tandon et al., 2021), as a passive form of cyberstalking. However, this behaviour has not been tested in relation to pro-environmental UGC engagement.

To the best of our knowledge, while existing literature highlights social media plays a pivotal role in shaping tourists' behaviours and perceptions, there remains a notable gap regarding the underlying processes through which environmental commitment develops on social media (Alsaad et al., 2023; Han, 2021; Han and Cheng, 2020). Furthermore, while theories such as impression management and social comparison have proven effective in understanding pro-social behaviours (Frey and Meier, 2004; Halbesleben et al., 2010; Whitmarsh and O’Neill, 2010), their application within the context of tourism remains underexplored. Accordingly, this study aims to answer the following two research questions (RQs).

**RQ1:** What is the interrelationship between impression management motivation, online social comparison, social media stalking, frequency of posting social media status updates, pro-environmental travel UGC engagement, and tourists’ pro-environmental behavioural intention?

**RQ2:** Does the frequency of posting social media status updates have a moderating effect on the relationship between impression management motivation and pro-environmental travel UGC engagement?

Our conceptual model, which encompasses these research questions, is founded on two theories: the Virtual Goffman’s Theory (Goffman, 1959) and Social Comparison Theory (SCT; Festinger, 1954). We attempt to introduce the concept of UGC-induced TPBI to elucidate the psychological processes that drive tourists to participate in environmentally responsible activities online and offline. This study aims to investigate how impression management motivation and social media use influence tourists' engagement in pro-environmental behaviour, particularly through UGC in the context of China. The study seeks to fill a gap in understanding how tourists’ social media activity impacts real-world environmental actions. This study contests the notion that user engagement on social media often fails to translate into real-world behaviour change (Greijdanus et al., 2020; Jacqmarcq, 2021). Through this investigation, we aim to contribute to the ongoing discourse on sustainable tourism practices and offer practical insights for leveraging social media to promote environmental consciousness among travellers.

## THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT

### 1. Virtual Goffman’s theory

The concept of impression management or self-presentation, introduced by Goffman (1959), describes how individuals consciously or unconsciously take on roles in their daily lives to positively influence others' impressions of themselves. Goffman (1959) metaphorically likens it to a theatrical performance in social interactions, distinguishing between a public “front stage” and a private “backstage.” By effectively delivering lines, an individual can acquire positive social value, or “face.” Schlenker (1980) further developed this theory to describe activities individuals engage in to influence or control public perceptions of themselves, organisations, or groups. In their seminal two-component model, Leary and Kowalski (1990) proposed impression motivation—the extent to which individuals are driven to manage the way others perceive them. Extrinsically motivated pro-social behaviour, as explained by Lavertu et al. (2020), refers to a form of impression management where individuals engage in beneficial actions with the intention of being seen by a larger audience. Anonymous charitable donations are absolutely rare. In organisational settings, the positive impact of impression motives on organisational citizenship behaviour has been well-established in previous research (e.g., Bolino et al., 2006; Wulani et al., 2022). In the field of tourism, impression management theory is gaining traction. The results from studies of the impression of management in the tourism domain are summarised in Table 1.

The Internet's widespread use has extended Goffman's theory into the virtual domain, and the nature of self-presentation and interpersonal interaction continues to evolve. Goffman's theory has not been adequately tested in cyberspace and therefore may not be entirely applicable in online contexts (Hollenbaugh, 2021). Compared to face-to-face interactions, online interactions detach the self from the physical embodiment, allowing users to construct and express themselves through various online personas, using text and images to fulfil psychological needs for recognition and identity. Walther (2011) emphasises the collaborative nature of performances on social media, where both self-provided and other-provided information contribute to the overall presentation. In addition, the changing nature of city tourism today has led to increased overlaps between the tourism world and everyday life, and instant sharing technologies enable individuals to improvise performances on the virtual onstage. The tourism world in performance content is closely integrated with daily life. Moreover, in the context of Chinese culture, which emphasises collectivism, "face" plays a crucial role, having performative implications and modulating self-expression (Shi et al., 2010). Therefore, we consider the evolved Virtual Goffman's theory a suitable foundation for the theoretical framework of our study. While tests of Goffman's theory can fulfil the need for research on how individuals' concerns about their social image affect their engagement in pro-social activities on the internet, can such a theory adequately explain TPBI in the mediated online environment? Some scholars argue that Goffman's theory overlooks the significance of intrinsic psychological factors in symbolic social interactions (e.g., Hollenbaugh, 2021). Therefore, we believe Goffman's theory offers a limited perspective, and we supplement it with social comparison theory to consider a more comprehensive outlook. This can be attributed to the fact that people behave pro-socially, conditional on others, which is referred to as "conditional cooperation" (Keser and Van Winden, 2000).

Table 1. Impression management in the tourism context

| Author(s) and year | Focus of the study | Key findings |
|---|---|---|
| Tung (2019) | Impression management motives and prosocial behaviours (help a lost tourist) | Metastereotypes could influence prosocial behaviours through impression management motives. |
| Kim and Tussyadiah (2013) | Self-presentation and social support in tourism experience | Tourists' positive/honest self-presentation moderates the relationship between SNS use and received social support |
| Lyu (2016) | Travel selfies on social media and self-presentation | Appearance dissatisfaction is positively associated with strategic self-presentation. |
| Hajli et al. (2018) | Self-presentation and intention to visit | Self-presentation has a positive effect on tourists' intention to visit destinations |
| Machado et al. (2021) | Self-presentation and visit intention | Self-presentation has no effect on tourists' intention to visit destinations |
| Wang (2016) | Presenting oneself and behavioural intention to check-in | Presenting oneself significantly influences online customers' intention to check in on Facebook while visiting hospitality organisations |
| Kuhn (2020) | Self-presentation and conspicuous souvenirs | Tourists have a clear intention to present themselves when showing their souvenirs to others |

### 2.2 Social Comparison Theory

Social Comparison Theory (SCT) (Festinger, 1954) posits that individuals tend to assess their own thoughts and talents through the comparison of themselves with others who are part of their social surroundings. These comparisons occur throughout interactions with others and can be categorised as upward, downward, or lateral (Alicke, 2000; Wills, 1981; Wood, 1989; Yukl and Falbe, 1990). Previous research indicates that social media encourages upward comparisons, where audiences will reflect on others' positive images they are supposed to see to appraise their own, increasing the likelihood of upward comparisons (Lim and Yang, 2015; Gonzales and Hancock, 2011; Vogel et al., 2014).

Whether or not the effect of this upward comparison on individuals' feelings and behaviours toward themselves and others is uniformly positive or negative has been debated (McComb et al., 2023). In this research, we argue that upward comparisons can be inspiring if users believe they can attain that status. Furthermore, in pro-environmental UGC contexts, social comparisons activate individuals' self-knowledge aligned with the comparison target (e.g., in-group members), triggering an assimilation mechanism and thereby inducing pro-social behaviour. This is in line with the power of role models emphasised in Chinese collective culture. Dunning (2000) states that impression formation inherently involves some social comparison. The direction of social comparisons can, to some extent, be influenced by individuals' impression management processes and, in turn, influence their behaviour on social media (Machado et al., 2021). Most users tend to portray a more positive image on social media (e.g., by posting photoshopped selfies) (Mei et al., 2024; Swani and Labrecque, 2020), they are motivated to seek cues for socially desirable behaviours by observing others' behaviours (i.e., engaging in social comparisons) to guide their impression management activities (Verduyn et al., 2020). Based on Virtual Goffman's Theory, which posits that individuals are motivated to present a favourable self-image, we hypothesise that impression management motivation will be positively associated with online social comparison, as individuals seek to compare themselves to others to reinforce their perceived social value. Therefore, this discussion leads to the below hypothesis:

**H1:** Impression management motivation is positively associated with online social comparison.

### 2.3 Pro-environmental Travel UGC engagement

In the realm of tourism, the Internet serves as a pivotal information hub for travellers. Platforms such as TripAdvisor.com facilitate the gathering of travel-related information, enabling consumers to post reviews and opinions and participate in interactive forums. Social media platforms host a unique form of persuasive environmental discourse initiated by tourist users (Han et al., 2018), terms as pro-environmental travel UGC in this study. Acting as a form of virtual virtue signalling (Wallace and Buil, 2023), these platforms reflect the tangible and intangible value individuals attach to the environment. The COVID-19 pandemic may have altered the risks associated with online self-disclosure, especially in terms of information being shared more readily for the public good (Nabity-Grover et al., 2020). With the surge in UGC, modern travellers prefer collectively expressing their views on environmental behaviour through video clips, blogs, and peer ratings, sharing their experiences through social media. These digital environmental dialogues contribute to the formation and perpetuation of specific eco-citizenship and consumer culture. Engagement, defined as "user-initiated action" (Gluck, 2012), manifests as behavioural actions resulting from motivational drivers. Utz (2010) suggests that individuals form their initial impressions through digital intermediaries, where online information, especially for new acquaintances lacking offline interactions, plays a pivotal role. Hence, individuals engage in SNS activities with the purpose of creating, sustaining, and improving their public perception. Users are inclined to engage with content that may augment their desired identity and how they show themselves to their audience. Drawing from Mussweiler and Strack (2000), social comparison can enhance the accessibility of self-relevant information. Thus, a direct effect of social comparisons on social media engagement is proposed, suggesting that initiating information can directly influence an individual's behaviour. According to Festinger (1954), social comparison often exhibits a unidirectional upward drive, where superior performance is typically perceived as desirable in society. Consequently, drawing from Social Comparison Theory, which suggests that individuals are influenced by their perceptions of others' behaviours, we hypothesise that engaging in online social comparison will lead to increased participation in pro-environmental travel UGC, as individuals are motivated to align their actions with those they perceive positively. In line with Virtual Goffman's Theory, we hypothesise that tourists motivated by impression management will actively engage in pro-environmental travel UGC to enhance their social image and to match the perceived behaviours of their peers. Therefore, we propose the following hypothesis:

**H2:** Impression management motivation is positively associated with pro-environmental travel UGC engagement.

**H3:** Online social comparison is positively associated with pro-environmental travel UGC engagement.

### 2.4 Social media stalking

Individuals often feel compelled to avidly follow the social media profiles of others, essentially engaging in stalking (Fuchs and Trottier, 2015). Stiff (2019) defined stalking as the recreational check of social media profiles in order to gather personal information about the users. Dhir et al. (2021) further underscored the benign or passive nature of social media stalking. Tandon et al. (2021) defined social media stalking as the voyeuristic tendency of individuals to repeatedly monitor the social media profiles and shared content of others in order to gather information without any malicious intent. They stay active in online social circles regardless of time or location (Zhou, 2019).

Relationships among social comparison, social media stalking, and social network use can be found in the literature. Individuals prone to social comparison tendencies often passively utilise social media platforms to gather information (Rozgonjuk et al., 2020), thus engaging in stalking. This allows them to find information about peers who they perceive as similar, for the purpose of social comparison (Talwar et al., 2019). According to SCT, individuals evaluate themselves in relation to others, which can heighten the desire to conform to perceived social norms or standards. From the perspective of Virtual Goffman's Theory, social media serves as a stage where users present themselves to others. Social media users function both as content creators and consumers. Self-presentation on social media increases the information available about individuals within social networks, thereby heightening the utility of these platforms for tracking purposes (Mäntymäki and Islam, 2016). Moreover, during the stalking process, users experience social media affective involvement when they perceive posts and opinions of other users as friendly or hostile, or when they like or dislike others' comments. This involvement behaviour can be elucidated by the emotional attachment perspective of online user engagement with brands and can influence online consumer behaviour (Mollen and Wilson, 2010). Therefore, we propose the following hypotheses:

**H4:** Impression management motivation is positively associated with social media stalking.

**H5:** Online social comparison is positively associated with social media stalking.

**H6:** Social media stalking is positively associated with tourists' pro-environmental travel UGC engagement.

### 2.5 UGC-induced pro-environmental behavioural intention

The literature provides evidence for the impact of social media in promoting sustainable habits and lifestyles (Barszcz et al., 2023; Han et al., 2018; Nguyen et al., 2024). Research suggests that the efficacy of social media in fostering awareness and behavioural change hinges on users' active involvement with marketing efforts. This active engagement significantly guides subsequent behaviour. Sustainability-oriented communication on social media reinforces positive outcomes, such as attitudes and intentions towards PEBs, ultimately influencing the decision to take environmentally friendly actions. Moreover, impression management is suggested as one of the reasons why people engage in pro-social behaviour during social interaction (Kim and Kim, 2024).

In this study, "UGC-induced tourists' pro-environmental behavioural intention" (UGC-induced TPBI) is defined as PEBs that tourists actively engage in during travel because of (the cause), or for the sake of (the purpose), generating pro-environmental content for their positive image on social media. On one hand, it is evident that internet-using tourists are more inclined to leverage online platforms to present themselves compared to tourists in general. Audience feedback can exert a reciprocal force on performers, influencing their performance behaviour and even altering their backstage lives (Li and Xie, 2020). On the other hand, individuals engaging in these environmental behaviours are influenced by their self-played roles, in addition to their genuine environmental interests. If someone identifies with the prototype of a person who performs PEBs, they may engage in behaviours associated with that image (Mannetti et al., 2004). Thus, the extent of pro-environmental behaviour may be contingent upon its visibility to others. Therefore, we propose the following hypotheses:

**H7:** Pro-environmental travel UGC engagement is positively associated with tourists' pro-environmental behavioural intention.

**H8:** Impression management motivation is positively associated with tourists' pro-environmental behavioural intention.

### 2.6 Frequency of posting status updates

According to Boyd and Ellison (2007), status updates on social media homepages are the primary way for performers to showcase their performance. Users can generate material and engage in communication with others, ranging from casual to intense talks. The frequency of updates is crucial for bloggers to retain their audience (Papacharissi, 2013), as a poorly managed, stagnant platform only risks audience fragmentation or attrition. To meet audience expectations, bloggers strive to maintain a consistent pace of updates (Cardell and Douglas, 2015), often posting multiple entries focusing on specific destinations or itineraries, each connected by a common theme. Furthermore, the frequency of status updates on social media platforms can offer insights into users' psychological states (Tokunaga and Quick, 2018). Social media users who use it frequently and intensely have more access to carefully crafted representations of their idealised selves by others (Tandon et al., 2021). Users' psychological activities of self-presentation are directly related to their frequency and extent of participation in virtual communities. Hence, the above discussion leads to the following hypotheses:

**H9:** The frequency of posting social media status updates is associated with tourists' engagement in pro-environmental travel UGC.

**H10:** The frequency of posting social media status updates moderates the association of impression management motivation with tourists' engagement in pro-environmental travel UGC, such that the effect is stronger for individuals who update more frequently. Figure 1 illustrates the proposed relationships. Following that, we will outline our methodology for collecting and analysing data.

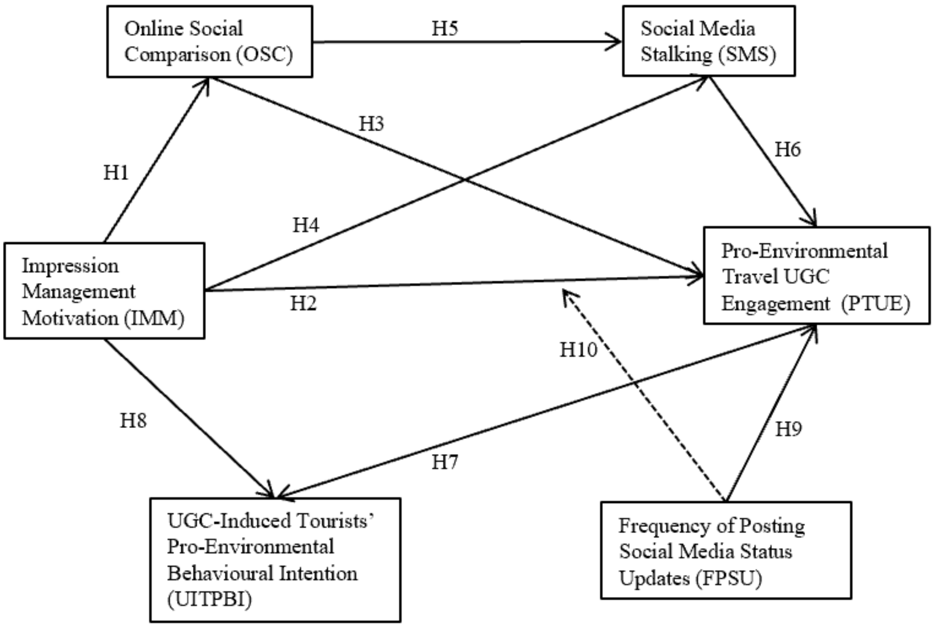


Figure 1. UGC-induced TPBI conceptual model

## METHODOLOGY

### 1. Data collection and sampling

The sampling strategy employed in this study was purposive non-probability sampling, targeting social media users who have engaged in leisure travel within the past 12 months. This approach is justified by the need to focus on individuals who are likely to share pro-environmental travel experiences, ensuring that the sample is relevant to the research questions. Two filtering questions maintained data quality. All measurement metrics were drawn from established literature in tourism and psychology (see Supplementary Table S1 Online). A comprehensive questionnaire assessed the conceptual framework, and variables were rated on a five-point Likert scale. The total population in this study comprises the users of the online travel agency (OTA) application. UserTracker reports approximately 100 million. Consequently, the necessary sample size is determined by Krejcie and Morgan's (1970) recommendation that when population size (N) exceeds 100,000 in the cross-reference database, the minimum required sample size (S) is 384. A pilot study with 53 Chinese tourists supported the hypotheses. The formal survey, conducted in October 2023 via Wenjuan.com, obtained 716 responses, with 584 suitable for analysis after screening. This meets the minimum requirements for employing SEM analysis (Hair et al., 2010). Initially in English, the questionnaire was later translated into Chinese for dissemination.

Data collection through online surveys involved strict ethical considerations regarding privacy and consent. Participants were informed about the study's purpose and provided electronic consent, ensuring voluntary participation and response anonymity. Personal data was anonymised and securely stored to prevent unauthorised access. The study complied with relevant data protection laws, addressing privacy concerns related to sensitive social media usage and travel behaviours, and ensuring adherence to ethical standards for human subject research.

### 2 Data analysis

A correlation matrix was computed to assess the relationships between the constructs (Table 2), with values ranging from -1 to 1. Higher absolute values indicate stronger correlations. For model estimation, the study employs a partial least squares (PLS) path modelling technique using the SmartPLS 4 software application. PLS was chosen over other alternative techniques due to its advantages: it does not require the assumption of normal distribution, has fewer requirements on measurement scales, and can handle samples that are smaller or much larger. Moreover, when the purpose is theory development and predictive accuracy is crucial, PLS is particularly suitable. This study aims to investigate the influence of social media usage on tourists' pro-environmental behavioural intentions. Therefore, when attempting to develop a theory, the PLS model is the preferred method (Hair et al., 2011).

In this study, all structures were reflective. To assess the measurement model, we initially tested factor loading to get acceptable item reliability. Then Cronbach's alpha and composite reliability (rho_a and rho_c) were used to evaluate the internal consistency reliability. The average variance extracted (AVE) for all items on each construct was used to assess convergent validity. To evaluate discriminant validity, the heterotrait-monotrait ratio (HTMT) was used (Hair et al., 2019). During structural model assessment, a series of five steps were undertaken. These processes covered the assessment of collinearity, path coefficients, the level of $R^2$, $f^2$ effect size, and predictive relevance $Q^2$ (Hair et al., 2017). For mediation analysis, bootstrapping was applied instead of the Sobel test for greater statistical power (Hair et al., 2017). To computer moderation results, a two-stage technique was employed (Becker et al., 2018).

Table 2. Correlation matrix of all variables

| | IMM | FPSU | OSC | SMS | PTUE | UITPBI |
|---|---|---|---|---|---|---|
| IMM | 1.000 | | | | | |
| FPSU | 0.273 | 1.000 | | | | |
| OSC | 0.491 | 0.198 | 1.000 | | | |
| SMS | 0.528 | 0.253 | 0.561 | 1.000 | | |
| PTUE | 0.360 | 0.289 | 0.513 | 0.388 | 1.000 | |
| UITPBI | 0.390 | 0.353 | 0.453 | 0.446 | 0.589 | 1.000 |

## RESULTS

### 1. Common method bias (CMB)

When gathering primary data through a self-administered survey, it is essential to assess common method bias (CMB) to confirm that no systematic bias affects the results (Podsakoff et al., 2003). We mitigated the concerns of CMB by utilising variance inflation factors (VIFs) derived from a full collinearity test; this approach is an efficacious means of evaluating CMB in an SEM (Kock, 2015). VIF values must be below 3.3 to provide adequate proof against CMB in the gathered data (Diamantopoulos and Siguaw, 2006). The VIFs indicated that CMB did not influence our conclusions (Table 3).

Table 3. Full collinearity test

| | OSC | UITPBI | IMM | SMS | PTUE | FPSU |
|---|---|---|---|---|---|---|
| OSC | | | | 1.324 | 1.589 | |
| UITPBI | | | | | | |
| IMM | 1.000 | 1.150 | | 1.324 | 1.555 | |
| SMS | | | | | 1.688 | |
| PTUE | | 1.150 | | | | |
| FPSU | | | | | 1.101 | |

Table 4. Profile of participants

| Demographic | Category | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 248 | 42.5% |
| | Female | 336 | 57.5% |
| Age | Below 18 | 30 | 5.1% |
| | 18~24 | 202 | 34.6% |
| | 25~34 | 174 | 29.8% |
| | 35~44 | 137 | 23.5% |
| | Above 44 | 41 | 7.0% |
| Educational level | Middle School and under | 59 | 10.1% |
| | High School or Vocational School | 84 | 14.4% |
| | College or University | 330 | 56.5% |
| | Master or PhD | 111 | 19.0% |
| Tourism frequency (time/year) | 1 | 139 | 23.8% |
| | 2~3 | 271 | 46.4% |
| | 4~10 | 90 | 15.4% |
| | Above 10 | 84 | 14.4% |
| Frequency of social media use for travel purpose (time/week) | 1 or 2 | 154 | 26.4% |
| | 3 or 4 | 168 | 28.8% |
| | 5 or 6 | 121 | 20.7% |
| | More than 6 | 141 | 24.1% |

### 2. Demographic Characteristics

Table 4 provides an overview of the respondents' demographics. Among the 584 respondents, 336 were female, and 248 were male. The majority (64.4%) of respondents were aged between 18 and 34, with 56.5% holding a college/university degree. Furthermore, 685 respondents (95.7%) reported travelling at least once a year. Additionally, 607 respondents were habitual social media users, with the vast majority (84.8%) using the internet for acquiring or sharing travel information several times a week. This sample represents the usual demographic traits of Chinese online community users, with the younger generation being the most proficient in technology in China (Figure 2).

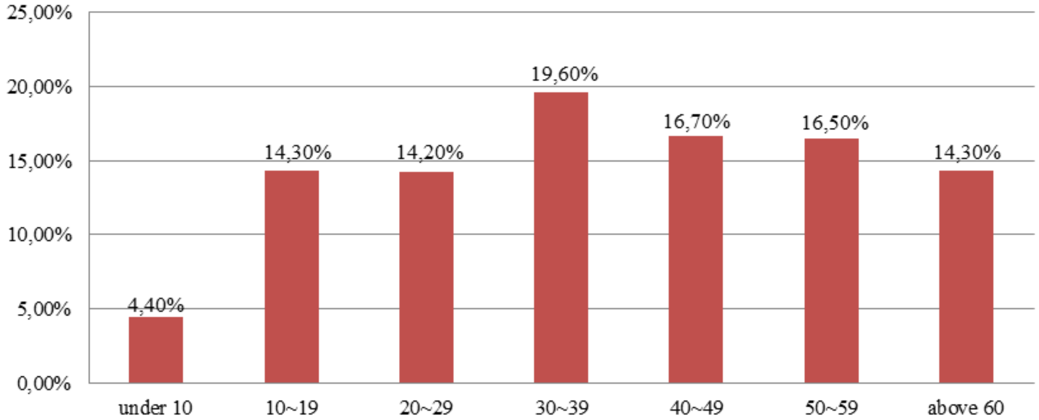


Figure 2. Age Distribution of Internet Users in China (Note: source from China Internet Network Information Centre (CNNIC): The 51st Statistical Report on China's Internet Development (in 2022)

### 3. Measurement model evaluation

The reflective constructs underwent an assessment to establish their reliability and validity in accurately representing the targeted measurements. Table 5 demonstrates that all constructs meet the reliability standards. The results indicate that the factor loadings of items ranged from 0.763 to 0.866, all of which surpass the minimum threshold value of 0.7. The average variance extracted (AVE) values for all constructs varied between 0.638 and 0.653, exceeding the threshold value of 0.5. Additionally, Cronbach's alpha values ranged from 0.867 to 0.908, while the Composite Reliability (rho_a and rho_c) values varied between 0.867 and 0.927 (Table 5 and Figure 3).

Table 5. Measurement model evaluation results

| Constructs | Validity and Reliability Results | | | | | HTMT Results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Loading | alpha | rho_a | rho_c | AVE | 1 | 2 | 3 | 4 | 5 |
| IMM | 0.779-0.838 | 0.887 | 0.889 | 0.914 | 0.639 | | | | | |
| OSC | 0.786-0.828 | 0.867 | 0.867 | 0.904 | 0.653 | 0.561 | | | | |
| PTUE | 0.771-0.866 | 0.908 | 0.910 | 0.927 | 0.646 | 0.399 | 0.567 | | | |
| SMS | 0.790-0.812 | 0.887 | 0.887 | 0.914 | 0.639 | 0.596 | 0.641 | 0.422 | | |
| UITPBI | 0.763-0.829 | 0.905 | 0.907 | 0.925 | 0.638 | 0.435 | 0.510 | 0.623 | 0.498 | |

These values met the minimum criteria of 0.7. Furthermore, the results revealed that all heterotrait-monotrait ratio of correlation (HTMT) values fell between the range of 0.399 and 0.641, which satisfied the $HTMT_{.85}$ criterion (Table 5 and Figure 4). This suggests that all constructs demonstrated acceptable levels of discriminant validity.

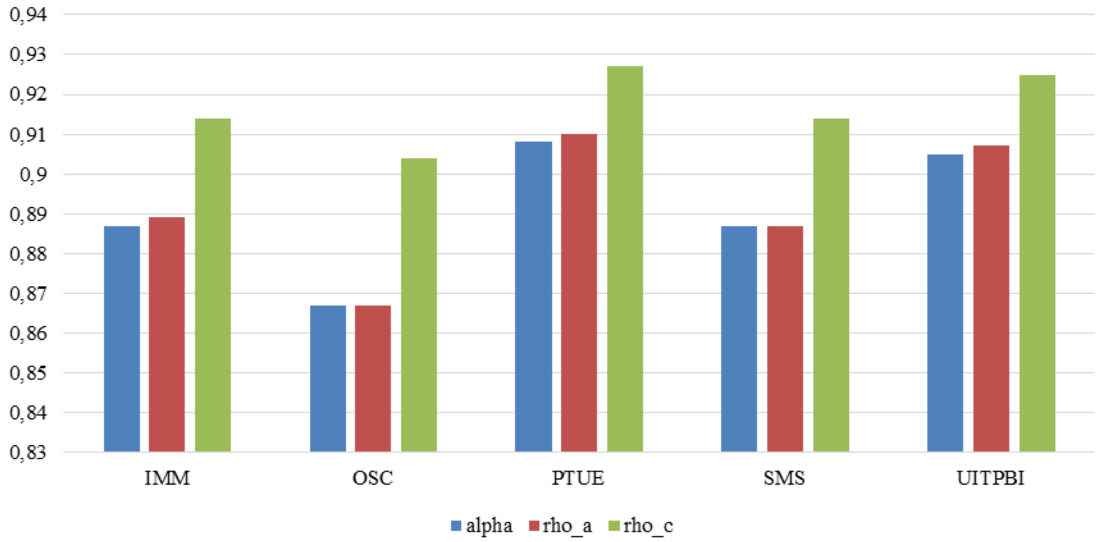


Figure 3. Results of Convergent validity

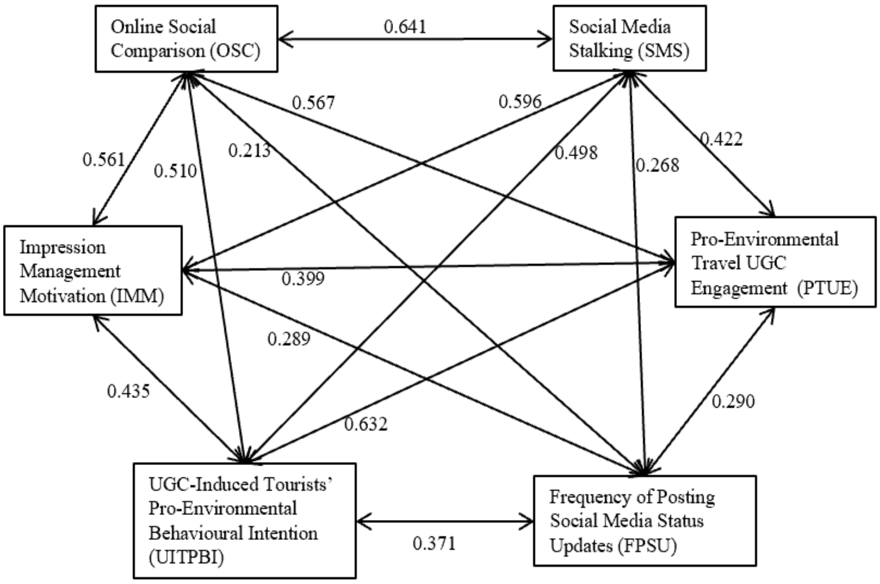


Figure 4. $HTMT_{.85}$ criterion

### 4. Structural model assessment

Bootstrapping, a non-parametric inferential technique, was utilised to estimate model parameters for evaluating the structural model. This method draws numerous subsamples from the original sample to derive robust estimates. The results of hypothesis testing are detailed in Table 6 and visually illustrated in Figure 5.

Then, we assessed the mediation effect of pro-environmental travel UGC engagement, online social comparison, and social media stalking. The analysis of indirect effects was conducted using bootstrapping (Table 7). Furthermore, the moderation results were computed using the two-stage approach. Table 6 presents the results of two distinct models: the model with direct effects only and the model with interaction terms. The direct effects model assesses the relationships between the main constructs without considering potential moderating factors, providing a baseline understanding of the interactions. In contrast, the model with interaction terms explores how the frequency of posting social media status updates moderates the relationship between impression management motivation and pro-environmental travel UGC engagement.

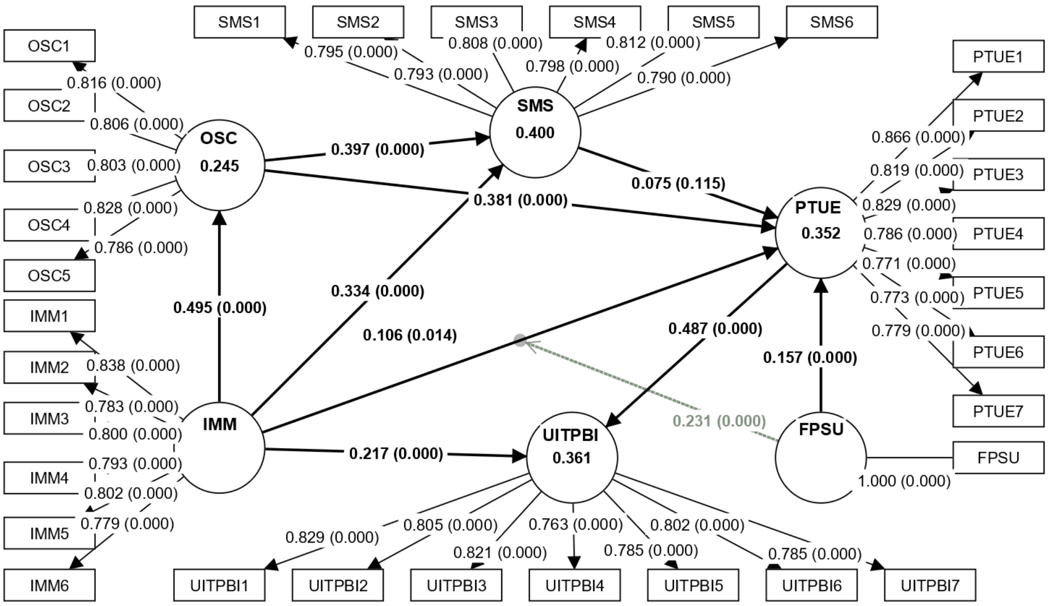


Figure 5. Model estimation (Note: The values on each construct represent the $R^2$ values; the numbers on the arrows indicate the path coefficients (P-values)

Our results revealed that in the model with direct effects only, seven direct relationships were supported: H1 (β = 0.495***), H3 (β = 0.389***), H4 (β = 0.334***), H5 (β = 0.397***), H7 (β = 0.487***), H8 (β = 0.217***), and H9 (β = 0.158***), but H2 (β = 0.086) and H6 (β = 0.074) were unsupported (Table 6). While in the model with interaction terms, H2 (β = 0.106) was supported (Figure 5 and Table 6). The $R^2$ of the extended model improved from 30.0% to 35.2%. The effect size assessment confirmed that the $R^2$ improvement compared to the direct effects model was statistically significant ($f^2$=0.081).

Additionally, we observed that the relationship between motivation and UGC engagement was stronger for individuals with a higher level of frequency of posting status updates. The details can be found in Table 6 and Figure 6.

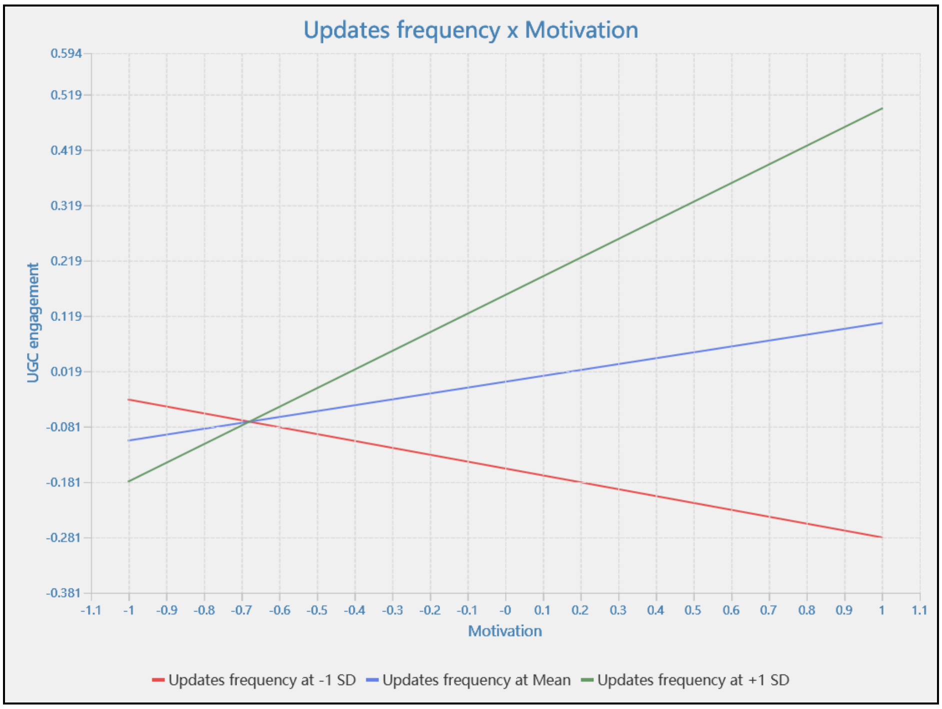


Figure 6. Simple slope analysis

Regarding the indirect relationship, results showed that UGC engagement mediated the relationship between comparison and intention, motivation and intention, and update frequency and intention. Comparison mediated the relationship between motivation and UGC engagement, as well as motivation and stalking. UGC engagement didn't mediate the stalking-intention relationship, and stalking didn't mediate the relationship between any two valuables (Table 7).

Table 6. Results of hypotheses testing (Note: ***p < 0.001; **p < 0.01; *p < 0.05; p > 0.05 = NS)

| Path | Model with direct effects only | Model with interaction terms |
|---|---|---|
| H1: IMM -> OSC | 0.495*** | 0.495*** |
| H2: IMM -> PTUE | 0.086 NS | 0.106* |
| H3: OSC -> PTUE | 0.389*** | 0.381*** |
| H4: IMM -> SMS | 0.334*** | 0.334*** |
| H5: OSC -> SMS | 0.397*** | 0.397*** |
| H6: SMS -> PTUE | 0.074 NS | 0.075 NS |
| H7: PTUE -> UITPBI | 0.487*** | 0.487*** |
| H8: IMM -> UITPBI | 0.217*** | 0.217*** |
| H9: FPSU -> PTUE | 0.158*** | 0.157*** |
| H10: FPSU x IMM -> PTUE | - | 0.231*** |
| $R^2$ for PTUE | 30.0% | 35.2% |

Table 7. Results of indirect effects (Note: ***p < 0.001; **p < 0.01; *p < 0.05; p > 0.05 = NS)

| Path | β | Standard Deviation | t value | P value |
|---|---|---|---|---|
| SMS -> PTUE -> UITPBI | 0.036 | 0.024 | 1.536 | 0.125 NS |
| OSC -> PTUE -> UITPBI | 0.186 | 0.024 | 7.649 | 0.000*** |
| IMM -> PTUE -> UITPBI | 0.052 | 0.021 | 2.474 | 0.013* |
| FPSU -> PTUE -> UITPBI | 0.076 | 0.020 | 3.860 | 0.000*** |
| IMM -> OSC -> PTUE | 0.188 | 0.024 | 7.882 | 0.000*** |
| IMM -> OSC -> SMS | 0.196 | 0.022 | 8.880 | 0.000*** |
| IMM -> SMS -> PTUE | 0.025 | 0.016 | 1.518 | 0.129 NS |
| OSC -> SMS -> PTUE | 0.030 | 0.019 | 1.537 | 0.124 NS |

**DISCUSSION**

Firstly, the results confirm that impression management motivation predicts online social comparison, and both impression management motivation and online social comparison predict social media stalking, as proposed through H1, H4, and H5. The support for H1, H4, and H5 implied that tourists' engagement in online social comparisons and social media stalking is underpinned by the broader motivation of impression management, as they seek to align their actions with socially desirable norms to enhance their online presence. Social media stalking is not merely passive but serves as a strategic behaviour, where individuals collect information to shape their own image or assess how they measure up against others. Similar to past research, individuals seek social cues for expected behaviour by observing others, and guiding their impression management activities (Jang et al., 2016; Pang and Quan, 2024; Verduyn et al., 2020).

In addition, the results support H3, confirming a significant positive association between online social comparison and tourists' engagement in pro-environmental UGC. This finding demonstrates public social validation online (through likes, shares, etc.) intensifies the impact of social comparison, which is less pronounced in the physical world. Unlike previous studies that have claimed a contrast effect, this study supports an assimilation effect. That is, while many previous scholars have argued that upward comparisons bring more negative effects (e.g., Fox and Moreland, 2015; Frampton and Fox, 2018), the study proves that social comparisons in the context of pro-environmental UGC can lead to a mechanism of assimilation of pro-environmental behaviours. This may be attributed to the accessibility of competencies for comparing targets (Mussweiler, 2003). Interestingly, this coincides with the emphasis on the power of role models in Chinese collectivist culture (Huang and Lu, 2017). The online environment thus amplifies these cultural tendencies, making social comparisons a powerful tool for fostering collective pro-environmental action.

However, H6 was not supported by results, indicating social media stalking does not significantly impact pro-environmental tourism UGC engagement. The inadvertent finding may be attributed to various factors. Firstly, the nature of stalking may lead to negative emotions or information overload, thereby reducing users' attention and participation in specific topics (Mäntymäki and Islam, 2016; Tandon et al., 2021). Secondly, the diverse purposes and content types of stalking across different research contexts may lead individuals to stalk others on social media for reasons unrelated to pro-environmental tourism participation. Lastly, the visibility of pro-environmental tourism content may be limited among social media stalkers, as such content may not be prominently featured or actively sought out.

Moreover, the results support H7 and H8, indicating that individuals motivated by impression management or already engaged in pro-environmental travel UGC are more likely to participate in UGC-induced pro-environmental behaviours. This aligns with Virtual Goffman's Theory, which posits that online interactions blur the lines between performers and audience, creating a dynamic where social validation drives engagement. The collaborative nature of social media platforms fosters real-time pro-environmental performances, encouraging individuals to align their offline behaviours with their online self-presentation. However, potential negative aspects must be considered. While social media can facilitate genuine pro-environmental actions, it may also lead to superficial engagement or “greenwashing” (Free et al., 2024), where users prioritise appearances over actual impact. Additionally, the pressure of social comparison can result in negative emotional outcomes, potentially discouraging meaningful action. Therefore, while the findings support the positive role of social media in encouraging eco-friendly behaviours, it is crucial to approach these dynamics critically and recognise the potential for superficiality and emotional fallout in the context of impression management.

The study results support H2, H9, and H10, indicating impression management motivation and frequency of posting social media status updates can predict pro-environmental travel UGC. Notably, when considering impression management motivation alone, pro-environmental travel UGC engagement may not be significantly predictable. However, moderation analysis reveals that individuals with a higher frequency of posting social media status updates are more likely to engage in pro-environmental travel UGC compared to those with lower update frequencies. For example, if there is a pro-environmental UGC campaign going on, they are more likely to see it and be motivated to participate. They may post pictures of themselves cleaning up rubbish at tourist attractions, which will make them look good to their followers and also help the tourism environment. On the other hand, individuals at the lower level of update frequencies may not see the campaign as often because they don’t post as frequently. And even if they do see it, they may not be as motivated to participate because they’re not as used to sharing things on social media. These results highlight the subtle relationship between impression management motivation and UGC engagement, suggesting that impression management requires the continuous execution of coherent and complementary behaviours to sustain. Additionally, these findings support the viewpoint of Archer-Brown et al. (2018) that social media intensity can predict online impression management strategies, indicating that tourists, as social media users, are more eager to gain or avoid losing online audiences. Our findings offer novel insights that contribute to the reinterpretation of Goffman's theory within the contemporary digital landscape:

- *New stage*: The open front stage of pro-environmental performers encompasses both a virtual onstage (when the camera is on) and a virtual backstage (when the camera is off, i.e., the Internet screen, distinct from a private backstage).
- *New performers and co-performers*: UGC participants assume dual roles as both “performers” and “audience,” with audience members also transiently taking on the role of performers. This underscores the unique dynamics of online interactions.
- *New performance content*: Collaborative efforts are integral to new performances, with various actions such as posting, sharing, commenting, and check-in contributing to the overall online performance, reflecting different levels of engagement on social media.
- *New performance structure*: Due to widespread individual live streaming in China's tourist destinations, performances exhibit a new characteristic of real-time engagement. Performers seamlessly transition between backstage and front stage, while navigating the challenge of avoiding exposure in others' camera frames.

Based on the newly identified theatrical elements, we argue that it's hard to find real outsiders. Individuals' activities on their own private backstage, especially virtual backstage, have the potential to inadvertently become part of others' on-camera frontstage performances. Thus, context collapse occurs not only when audiences intrude into an individual's backstage but also when individuals unknowingly enter the virtual onstage of others when they have already stepped out of their roles. This is akin to the contrast between the amazing photos celebrities themselves upload to social media and ugly snapshots of them for the public's cameras. Moreover, the role of social media as a virtual onstage has transformed the “team” of performance compared to face-to-face interactions, with both self-provided information (SPI) and other-provided information (OPI) contributing to the overall presentation. Instead of presenting alone, the performer collaborates with the audience (i.e., new co-performers) to achieve a collective presentation. Thus, the lie of "Instagram beauty" can be exposed through the lens of others or the "lines" of co-performers. Consequently, based on the synchronisation of the virtual onstage and the open front stage (contrast this with the lag of the virtual onstage in the past) and the collaborative nature of social media performances, we have reason to believe that a tourist striving to maintain a pro-environmental image in online self-presentation will similarly engage in pro-environmental behaviour offline.

Overall, these findings contribute to a deeper understanding of the interplay between UGC engagement and pro-environmental behaviour in the context of social media as an online interaction channel. The internet has expanded social networks and performance stages, transforming the audience in the past in-person contact into parts within a theatrical context nowadays. Today, Internet regulars must put in greater endeavours, both online and offline, to uphold their pro-environmental image and reputation among their social circles. It is necessary for users to execute tangible pro-environmental behaviours at tourist sites to obtain their real performance materials, as well as diligently update personal profiles with pro-environmental travel UGC to guarantee the prototype of a person who performs PEBs they've already identified with. Moreover, individuals draw motivation and refine their personas by observing peers' behaviours through online comparisons and stalking, striving for authenticity and resonance within their online communities.

## CONCLUSION

Given the rising concerns about the impact of social media engagement on pro-environmental behaviours, our study contributes significantly to the literature by exploring the interplay between impression management, social comparison, social media stalking, and user-generated content (UGC) in the tourism context. We addressed two key research questions through ten hypotheses, enhancing our understanding of how online social interactions such as impression management and social comparison shape tourists' engagement in pro-environmental behaviours online and offline. Our findings reveal a positive association between these factors and underscore the potential moderating effect of the frequency of posting social media status updates. These insights provide valuable implications for both theory and practice, informing strategies for encouraging sustainable behaviours among tourists in an increasingly digital landscape.

### 1. Theoretical implications

The present study makes several theoretical contributions to enhance the existing literature on pro-environmental behaviour within the context of social media usage. First, the integration of Virtual Goffman's Theory and SCT provides a novel theoretical framework for understanding the dynamics of impression management in online environments. We explore the pathways that better explain how social media engagement can be motivated and manifest itself through positive consequences, which is UGC-induced TPBI, challenging the notion that user engagement on social media often fails to translate into real-world behaviour change (Greijdanus et al., 2020; Jacqmarcq, 2021). Second, our findings advance the current knowledge about impression management's effect on pro-environmental behaviours, which has primarily been studied in the context of everyday life (Dong et al., 2023; Folwarczny et al., 2023) and in organisational settings (Grant and Mayer, 2009; Zhao and Yang, 2020). This study validates its applicability to both travel and online contexts, contributing to the interpretation of recent evidence regarding image-enhancement strategies observed among tourists in various online contexts such as LinkedIn (Chiang and Suen, 2015) and Facebook (Bareket-Bojmel et al., 2016).

Third, this research is beneficial to modernising Goffman's theory through online environmental technology testing. It reinterprets the theatrical features of traditional Goffman theory inside the new arena: it identifies new "stages," "performers and co-performers," and "performing content and structure." Within this novel theatrical setting, the virtual onstage no longer lags but can synchronise with the live performance. Social media platforms and tourism attractions function as accessible front stages, facilitating intricate performances that involve collaboration among UGC participants. By exploring the consistency between online and offline behaviours, this research sheds light on the vulnerability of individuals' true backstage in the digital age and highlights the importance of maintaining coherence between online and offline personas. Despite the protective nature of the Internet screen, individuals inhabit a world where cameras are always on, and thus their backstage may be invaded by the audience, so they cannot relax and step out of character. There are also challenges posed by the collaborative nature of the performance. Therefore, in navigating this multifaceted self-presentation, individuals endeavour to maintain coherence between their online and offline personas to avert context collapse, aligning with the fundamental tenets of impression management theory. Finally, this study contributes to the social comparison literature, extending social comparison research to the field of pro-environmental behaviour in tourism. Although researchers have assumed that social comparison is commonplace among organisational employees and significantly influences their workplace behaviour (Greenberg et al., 2007), there is a lack of academic literature on social comparison themes in tourism pro-environmental behaviour. Additionally, past studies on online comparisons of social media have mostly focused on its dark side. This study confirms that social comparison on social networks (focusing on opinions rather than abilities) is unrelated to negative emotional consequences. Therefore, this study extends existing work in this field.

### 2. Practical implications

From a managerial perspective, identifying similar opinion providers and promoting pro-environmental UGC can help improve the quality of pro-environmental information generated on tourism UGC platforms. Environmental dialogues conducted on social media create and maintain communities, enabling members to form emotional connections with each other, which are necessary for the emergence of shared cultural meanings and resources (Rokka and Moisander, 2009). In recent years, the significant communicative influence and mobilisation capability of social media in tourism decision-making has been confirmed (Machado et al., 2021; Taylor, 2020). As a valuable tool for promoting pro-environmental behaviours on social media platforms, UGC engagement enables these platforms to better manage user interactions and develop sustainable tourism marketing strategies (Gómez et al., 2019). In addition, the findings of this study provide insights for relevant government agencies and practitioners, aiding in understanding pro-environmental tourists' perceptions. In an era where technology profoundly impacts the sustainable tourism industry, these insights not only provide a basis for policy-making but also offer substantial insights into the industry's sustainable development. An effective strategy is to incentivise users who choose low-carbon accommodations with social media badges or insignias, creating attractive opportunities for them to showcase their sustainable choices. This not only enhances their online status but also encourages others to follow suit, thus triggering a chain reaction of ecological awareness practices within the tourism community. In fact, with the advent of mass tourism, short-distance, high-frequency travel has become a common phenomenon, and tourists' multi-act performances can continuously extend self-presentation. The continued visibility and increased attention that come with it make them willing to take on more responsibility for the tourism environment.

Moreover, this study indicates that promoting tourist participation in supporting pro-environmental tourism UGC is a commendable effort because it activates tourists' virtual environmental identities. As an acquired role, it enables tourists to see themselves as advocates of sustainable tourism. By encouraging individuals to actively participate and share their pro-environmental tourism experiences on social media platforms, their virtual identity can be used to promote pro-environmental behaviour in tourism. Community managers should provide users with rich self-presentation tools such as reputation, ranking, rating systems, signatures, personal URLs, avatars, etc. Online communities should fully utilise the characteristics of technological media to support the construction of netizens' identities and social interactions through identity presentation. This also helps activate the role of online social comparison in motivating participation and assimilating more individuals into the community. Finally, by making efforts and explicitly inviting stalkers to contribute, community managers can create a more inclusive environment that not only enhances participation but also improves the overall quality of user-generated content related to sustainable travel practices. This strategy helps bridge the gap between passive observation and active participation, making it easier for stalkers to transition into active contributors to the community.

### 3. Limitation and future research

As with all research, this study has certain limitations that present intriguing opportunities for future investigation. One potential limitation of this study is the cultural bias inherent in the China-based sample. The motivations and behaviours related to pro-environmental actions may significantly differ across various cultural contexts. In collectivist cultures like China, where social harmony and face-saving are paramount, the pressures associated with impression management may lead to unique patterns of pro-environmental behaviour that are not easily generalisable to more individualistic societies. This cultural backdrop may shape how individuals perceive and engage with environmental issues, potentially skewing the findings. Furthermore, the study's focus on social media dynamics and pro-environmental UGC engagement may be influenced by the specific characteristics of the Chinese social media landscape, which includes platforms like WeChat and Douyin. The interplay between social validation and environmental consciousness may manifest differently in cultures with varying levels of technological integration, environmental awareness, and societal norms. Consequently, while the findings contribute to understanding pro-environmental behaviour within the context of Chinese tourists, caution should be exercised when extrapolating these results to other cultural settings. Future research should aim to include diverse cultural perspectives to enhance the generalisability of findings related to impression management, social comparison, and pro-environmental behaviours. In addition, to ensure the generalisability of the results of this study, it is crucial to consider intervention factors that bridge the gap between participation in online pro-environmental tourism discussions and actual behaviour. When assessing participants' intentions towards pro-environmental behaviour, they may tend to respond in a socially desirable manner, aligning their answers with the study's expectations. This tendency may arise because the questionnaire explicitly outlines key variables and scenarios related to pro-environmental behaviour intentions. These scenarios include engaging in pro-environmental behaviour to gain respect and recognition from others and caring about one's image in the eyes of important individuals. Consequently, these prompts may influence participants' response patterns to align with the anticipated results sought by the current study. This limitation underscores the study's reliance on scenario assumptions rather than directly observing participants' real behaviours. To overcome reliance on scenario assumptions, future research should consider using experimental designs to assess participants' pro-environmental behaviour intentions and actual behaviour without overt prompts. Such an approach can provide more authentic and objective data.

**Author Contributions:** Conceptualization, H.T.; methodology, H.T.; software, H.T.; validation, H.T. and Y.C.; formal analysis, H.T.; investigation, H.T. and Y.C.; data curation, H.T.; writing - original draft preparation, H.T.; writing - review and editing, C.L.Y and J.A.H.; visualization, H.T.; supervision, C.L.Y and J.A.H.; project administration, H.T.. All authors have read and agreed to the published version of the manuscript.

**Funding:** There was no funding obtained for the execution of this study.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The authors would like to express their sincere appreciation to all participants for their invaluable contributions to this study. We are grateful for your participation and cooperation, which significantly enriched the research process and outcomes. The questionnaire and methodology for the research have obtained approval from the Ethics Committee for Research Involving Human Subjects at Universiti Putra Malaysia (JKEUPM Ref No.: JKEUPM-2023-003). All participants provided informed consent prior to their inclusion in the study.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 25.08.2024 Revised: 26.10.2024 Accepted: 02.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2020-2028
DOI 10.30892/gtg.574spl16-1369

# ANALYSIS OF THE RECREATIONAL IMPACT ON TAXONOMIC INDICATORS AND THE CONDITION OF PINE STANDS IN THE STATE FOREST NATURE RESERVE "SEMEI ORMANY"

**Zhandos MUKAYEV**
Shakarim University, Department of Science Disciplines, Semey, Kazakhstan, e-mail: zhandos.mukaev@mail.ru

**Altyn ZHANGUZHINA**
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: altyn8828@mail.ru

**Meruyert ULYKPANOVA***
Alikhan Bokeikhan University, Department of History and Geography, Semey, Kazakhstan, e-mail: ulykpanova@mail.ru

**Manira ALAGUDZHAEYVA**
JSC "NC "Kazakhstan Garysh Sapary", Astana, Kazakhstan, e-mail: manira_ter@mail.ru

**Aigul YEGINBAYEVA**
L.N. Gumilyev Eurasian National University, Departament of Physical and Economical Geography, Astana, Kazakhstan, e-mail: aeginbaeva@mail.ru

**Citation:** Mukayev, Z., Zhanguzhina, A., Ulykpanova, M., Alagudzhaeyva, M., & Yeginbayeva, A. (2024). ANALYSIS OF THE RECREATIONAL IMPACT ON TAXONOMIC INDICATORS AND THE CONDITION OF PINE STANDS IN THE STATE FOREST NATURE RESERVE "SEMEI ORMANY". *Geojournal of Tourism and Geosites*, 57(4spl), 2020–2028. https://doi.org/10.30892/gtg.574spl16-1369

**Abstract:** The aim of this work is to analyze the impact of recreational impact on the taxation indicators and the condition of pine stands of the Semey Ormany State Forest Reserve. Taxation indicators and the vital condition of pine stands in field studies conducted in 2024. As a result of the study, stages of recreational degeneration were determined for different recreational use zones, and taxonomic indicators of pine trees were analyzed. The research revealed that the recreational use zone I is in a relatively degraded state. There is a general trend of increased damage indicators and a decrease in the condition index by 11-22% for the quantity and size of stands in the zone of active visitation compared to the zone of moderate visitation.

**Keywords:** forest, recreational degeneration, taxonomic indicators, condition assessment, SFNR "Semei Ormany"

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## INTRODUCTION

The modern period is characterized by very intensive natural resource use in all its aspects. Among these, recreational use of forests occupies a special place. This process, among various directions of natural resource use, is becoming one of the foremost. New forest areas are increasingly falling into the realm of recreation, and recreational loads are rising, leading to a deterioration in the quality of forest stands and, in some cases, complete degradation that excludes natural recovery.

Recreational forest use is a collection of phenomena arising from the exploitation of forests for tourism and recreation, characterized by a bidirectional relationship: the impact of the forest on visitors and the impact of visitors on the forest (Tudoran et al., 2022; Riccioli et al., 2019; Mohd Kher, 2014; Patricia et al., 2019; Miller et al., 2022).

The beneficial effects of forests are primarily explained by their microclimatic features (specific temperature regimes, solar radiation, air phytocidicity, ionization, oxygen release into the atmosphere, dust and noise absorption, retention of radioactive particles, reduction of wind speed), as well as their aesthetic functions and landscape properties, etc. (Ferrenberg et al., 2016; Greiser et al., 2018; Menge et al., 2023; Ballantyne et al., 2018).

Environmental pollution, lack of oxygen, increased mental and reduced physical stress, industrial and domestic noise, and confinement negatively impact the human body (Xu et al., 2023; Abad López et al., 2023; Siddiqua et al., 2022; Manisalidis et al., 2020). Under the influence of favorable natural factors, the functions of various bodily systems are altered (Addas, 2023; Butt et al., 2020; Yuan et al., 2020; Bateman and Fleming, 2017). Active recreation can reduce the incidence of cardiovascular diseases by 50%, respiratory organs by nearly 40%, and nervous and musculoskeletal systems by 30%. The constant increase in population, development of infrastructure and transportation lead to the progressive urbanization of natural landscapes, deteriorating conditions of urban and suburban forests, forest parks, and green spaces (Meixia Lin et al., 2020; Xu et al., 2020; Wang et al., 2022, Wan et al., 2024). The benefits of forest recreation and its positive effects on restoring psychological balance and physical strength result in an increased influx of recreational users, which, in turn, raises the load on forest ecosystems and weakens their resilience

* Corresponding author

(Ozgeldinova et al., 2023; Marasinghe et al., 2020; Ozgeldinova et al., 2022). Recreational use of forest plantations leads to adverse changes (such as reduced stand density, increased number of sick and damaged trees, destruction of the forest floor, soil compaction, and the death of undergrowth and saplings), which can pose risks to the continued natural development of ecological components. In some cases, these changes can result in complete, naturally irreversible degradation (Haris et al., 2020; Sanzheev and Namdakov, 2023; Scherbina et al., 2022).

Recreational forest use usually causes negative changes in forest ecosystems, referred to in recreational forestry as recreational degeneration. This term describes complex changes in various elements of forest ecosystems, primarily affecting nutrient exchange, energy flow, and interactions between plant and animal species (Dertien et al., 2021; Rasputina et al., 2019). In assessing the degree of recreational degeneration, it is common to distinguish between 3 and 4 stages (IS 56-84-85; Komarova and Komarov, 2013; Dancheva and Zalesov, 2014; Timashchuk, 2015), less frequently 5 stages (Dyukova and Serikov, 2012; Zakamsky and Musin, 2013), and sometimes 6 stages (Gorshkova et al., 2012) of forest degeneration. The resilience of a forest stand to recreational load is determined by its degree of degeneration (Babushkina, 2011). In most cases, the boundary of forest resilience lies between the III and IV stages of degeneration.

Indicators of recreational degeneration include the magnitude of recreational loads, quantitative and qualitative indicators of the forest floor, live ground cover, saplings, undergrowth, soil, the projected cover of epiphytic lichens on tree trunks, the area of trampled territory, the condition of the stand, etc. (Tokarieva et al., 2022; Rasputina et al., 2019; Scherbina et al., 2022). The forests of SFNR (State Forest Nature Reserve) "Semei Ormany" are characterized by their uniqueness and favorable conditions for tourism and various forms of recreation. However, uncontrolled visitation often leads to exceeding recreational loads, which affects the ecological condition of the forest system and its components, potentially leading to complete degradation. The aim of this work is to analyze the influence of recreational impact on the taxation indicators and condition of pine stands of the «Semei Ormany» state forest nature reserve.

**MATERIALS AND METHODS**

Research was conducted in 2024 on sample plots (SP) in SFNR "Semei Ormany". The subjects of the research were natural and artificial pine forests of SFNR "Semei Ormany". In SFNR "Semei Ormany", pine plantations are located near recreation centers and children's sanatoriums (Figure 1). SFNR "Semei Ormany", located in the Abai region, covers an area of 654,179.8 hectares. Geographically, the reserve is situated within the Irtysh Plain, the Kokpekti-Charsk small mountain range, and the Chinggis Tau Mountains. The ribbon forests are located in the northwestern part of the East Kazakhstan region. The territories of the Begenevsky, Borodulikha, Bukebayevsky, Dolonsky (excluding floodplain forests), Zhanasemeisky, Kanonersky, Morozovsky, Novoshulbinsky, and Semipalatinsk (excluding floodplain forests) branches fall into the steppe latitudinal-geographical zone. The territory of the Zharminsky branch falls into the desert latitudinal-geographical zone. According to botanical-geographical classification, the territory occupied by the ribbon forests of the Irtysh region belongs to the Euroasian Steppe Region, the Volga-Kazakhstan Province, the Eastern Kazakhstan Steppe Subprovince, and the zone of dry fescue-feather grass steppes on chestnut soils.

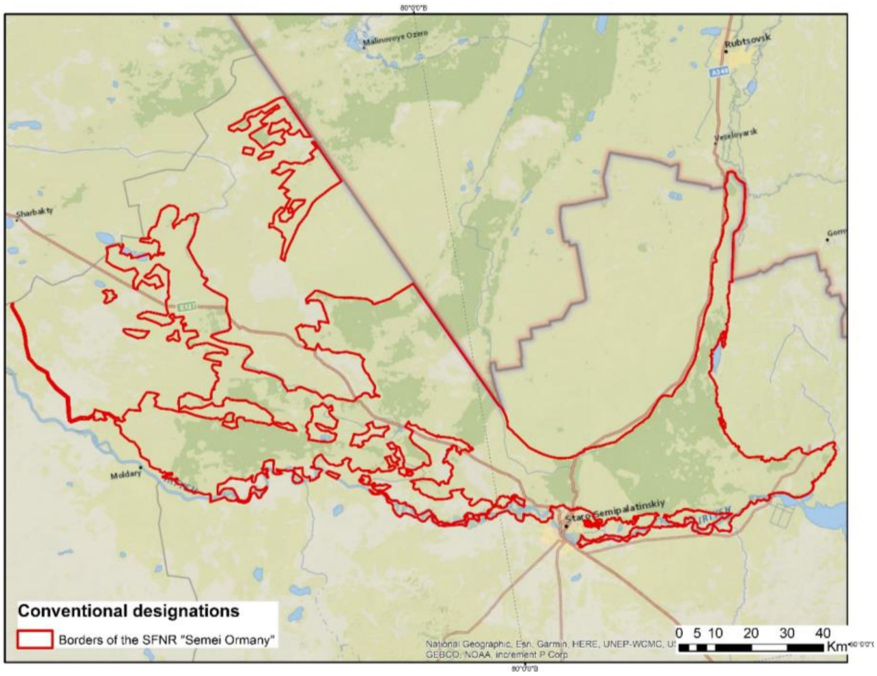


Figure 1. SFNR "Semei Ormany"(Source: Created by the authors in ArcGIS 10.8 using the "National Geographic World Map")

The area is characterized by a unique combination of vegetation types: steppe, forest, desert, shrub, meadow, and swamp. The flora of higher plants in the ribbon forests of the Irtysh region is represented by 344 species from 201 genera and 61 families. The core of the flora consists of angiosperms – 340 species, including dicotyledons – 80.59% (274 species) and monocotyledons – 19.41% (66 species) (https://www.oopt.kz/categories/view/semey_ormany/).

Steppe communities with a dominance of xerophytic, cold-resistant bunch grasses occupied significant areas before extensive plowing. In sandy areas, along with pine forests, there are psammophyte-mixed-grass-fescue-feather grass (Stipa pennata, Festuca valesiaca, Agropyron fragile, Gypsophylla paniculata) steppes. Common accompanying species include Cleistogenes squarrosa, Centaurea sibirica, Helichrysum arenarium, and Ephedra distachya.

Forest Vegetation Type: A unique feature of this area is the presence of forest stands in the steppe zone, consisting of pine, birch, and aspen forests. The existence of forests in the steppe zone has significant water protection and aesthetic value. The forests here occur under specific conditions: on sandy soils and with a close occurrence of groundwater. The typical landscape of such areas is characterized by a mix of pine or aspen-birch forests and sandy steppes. The main forest-forming species are Scots pine (Pinus sylvestris), silver birch (Betula pendula), and aspen (Populus tremula). In the herbaceous layer, the dominant grasses are feather grass (Stipa pennata), previously known as John’s feather grass (Stipa joannis), and fescue (Festuca pseudoovina, F. valesiaca), as well as Marshall's wormwood (Artemisia marschalliana), previously field wormwood (Artemisia campestris) (https://www.oopt.kz/categories/view/semey_ormany/). In SFNR "Semei Ormany", pine forests are represented by dry (C2) and moist (C3) forest types. The natural pine forests of SFNR "Semei Ormany" are characterized by a V age class. The bonitet class is V. The studied plantations are classified as medium-dense (P=0.5-0.6). The establishment of sample plots (SP) and the determination of forest-taxa parameters of stands were carried out in accordance with widely accepted forestry methodologies (Dancheva and Zalesov, 2015).

The issue of rational use of recreational forests should be addressed against the backdrop of proper organization of forest park areas, conducting scientifically-based zoning, and developing architectural and planning solutions for each zone (Dertien Stern et al., 2022; Miller et al., 2023; Lukoseviciute et al., 2022). The classification of pine plantations by usage form was based on earlier studies (Portyanko and Zholdybaeva, 2011). The main criterion for distinguishing recreational use zones (RUZ) was the distance from areas of mass recreation. The authors identified three RUZ:

RUZ-I – zone of intensive visitation, where forest plantations experience maximum recreational load.

RUZ-II – zone of moderate visitation. This zone includes forest areas with average visitation and those directly adjacent to the intensive visitation zone.

RUZ-III – zone of low visitation. It encompasses areas far from convenient transportation routes, inaccessible for pedestrian visits, or lacking attractive landscape elements.

The above method for distinguishing recreational use zones of pine plantations for "Semei Ormany" recreational purposes was based on the principle of distance from mass recreation areas. Our goal was to achieve a more accurate recreational zoning of pine plantations using not only the distance from recreation sites but also additional quantitative indicators, including the magnitude of recreational loads. For measuring recreational load, a registration-measurement method (OST 56-100-95) was used, based on recording visitors and their time spent at sample plots.

The number of visitors was recorded three times a day on calendar dates – in the morning (9:00 AM - 12:00 PM), at lunchtime (12:00 PM - 3:00 PM), and in the evening (3:00 PM - 6:00 PM). Attendance was monitored on both working and non-working days under comfortable and uncomfortable weather conditions (OST-56-100-95). Determining the average annual one-time recreational load would be inaccurate, as the use of the studied pine plantations for recreation and tourism is primarily seasonal. The peak visitation of recreational pine forests in the ribbon forest (SFNR "Semei Ormany") occurs from June to August, so in our studies, the recreational season here and elsewhere will be the aforementioned period, which totals 92 days. In addition to determining recreational loads by recreational zones, the stages of recreational degeneration of pine plantations were assessed. The research was conducted in the pine forests of SFNR "Semei Ormany". For this, all roads, trails, and trampled areas were recorded according to the methodology of Gensiruk et al. (1987). All areas with clear signs of trampling, where the forest floor was absent or in a trampled state, were marked on the map.

The stages of recreational degeneration in the studied sample plots were determined by the ratio of the area of trampling to the mineral horizon of the surface to the total area of the surveyed site (OST 56-100-95): the first (I) stage – up to 1.0%, the second (II) – 1.1-5.0%, the third (III) – 5.1-10.0%, the fourth (IV) – 10.1-25.0%, the fifth (V) – more than 25.0%.

Assessment of the vitality of trees (VST), indices of tree condition by quantity (Ln) and size (Lv), as well as the damage to stands (Dv) were carried out according to the methodology of Alekseev (1989). At 100-80%, the stand was assessed as "healthy", at 79-50% – damaged (weakened), at 49-20% – severely damaged (severely weakened), at 19% and below – completely destroyed. The damage to the stand (Dv) was determined by the formula (Alekseev, 1990):

$$D_v = \frac{30\times M_2+60\times M_3+95\times M_4+100\times M_5}{\sum M}, \ \% \qquad (1)$$

where, M2, M3, M4, M5 – volume of timber of damaged (weakened), severely damaged, dying trees, and deadwood on the sample plot or per hectare, m³; 30, 60, 95, and 100 – coefficients representing the damage levels of different tree categories, %; ΣM – total timber volume on the sample plot, m³/ha (including the volume of healthy trees).

When the damage indicator DvDvDv is less than 20%, the stand can be considered "healthy" (Dv = 11-19% indicates initial weakening of the stand); at 20-49% – "damaged"; at 50-79% – severely damaged; and at 80% or more – "destroyed". The calculation of the stand condition index by the number of trees (Ln) was performed using the formula (Alekseev, 1990):

$$Ln = \frac{(100\times N_1 + 70\times N_2 + 40\times N_3 + 5\times N_4)}{N}, \qquad \% \qquad (2)$$

where, N1 – number of healthy trees, N2 – weakened trees, N3 – severely weakened trees, N4 – dying trees on the sample plot (or per hectare, units); N – total number of trees (including dead trees) on the sample plot or per hectare, units.

The Growth Intensity Coefficient (GIC) of the studied pine stands was determined using the methodology by Gustova and Terekhina (2007):

$$КОП = \frac{H \times 100}{G_{1,3}}, \quad \text{см/см}^2 \tag{3}$$

where, H – average height of the stand, m; G1,3 – cross-sectional area of the average tree at a height of 1.3 m, cm².

For pine stands of I site quality class, the value of the Growth Intensity Coefficient (GIC) is 4.0 cm/cm² at 20 years of age, 3.5 cm/cm² at 30-70 years, and 2.0 cm/cm² at 100 years (Shulga et al., 2007; Shulga, 2012). For normal pine stands, the GIC values are 20.6 cm/cm² for 20-year-old stands, 12.3 cm/cm² at 30 years, 6.8 cm/cm² at 50 years, 4.8 cm/cm² at 70 years, and 3.4 cm/cm² at 100 years. Recreational load was measured using recreational density (Rd) and recreational attendance (Re), calculated using the formula (OST 56-100-95):

$$R_e = R_d \times T^{-1} \times t, \tag{4}$$

where, Re – recreational attendance, people/ha/day (in our studies, people/ha/day); T – duration of the measurement period (in our case, T = 180 minutes or 3 hours); t – duration of a single visit (in our studies, in the active use zone (RUZ-I), on average, t = 10 minutes or 0.17 hours; for the moderate use zone (RUZ-II) and the control zone (RUZ-III), t = 5 minutes or 0.08 hours).

$$R_d = N \times S^{-1}, \tag{5}$$

where, Rd – recreational density, people/ha; N – number of visitors, people; S – area, ha. One of the important features is the crown. Kraft, using these characteristics, classifies all trees into 5 classes (Morozov, 2004) (Figure 2).

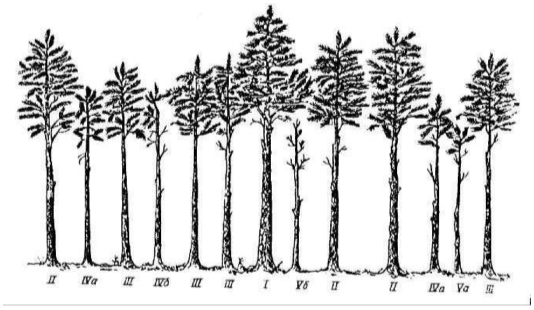

Figure 2. Classification of forest trees

- Class I – Dominant Trees: These trees have a strong, well-developed crown and large height and diameter trunks, standing out from the general canopy. They make up up to 8% by density and up to 20% by volume.
- Class II – Co-dominant Trees: These trees make up the upper part of the tree canopy. They account for 15 to 35% of the total and constitute 40-80% by volume. The maximum number of such trees is found in mature stands, and in immature stands, they appear after thinning.
- Class III – Sub-dominant Trees: These trees are part of the general canopy with the trees of the first two classes but are suppressed by them, as indicated by their narrow crowns. They are shorter in height and vary in number: from 10% in mature managed stands to half of the total in young stands.
- Class IV – Suppressed Trees: These trees make up 5 to 30% by density. They are divided into two subclasses: IVa – trees with symmetrical crowns growing in gaps, and IVb – trees with flag-like one-sided crowns, partially under the crowns of other trees.
- Class V – Shaded Trees: These trees make up 1 to 30% by density. They are also divided into two subclasses: Va – trees with viable crowns and Vb – trees with dying or dead crowns.

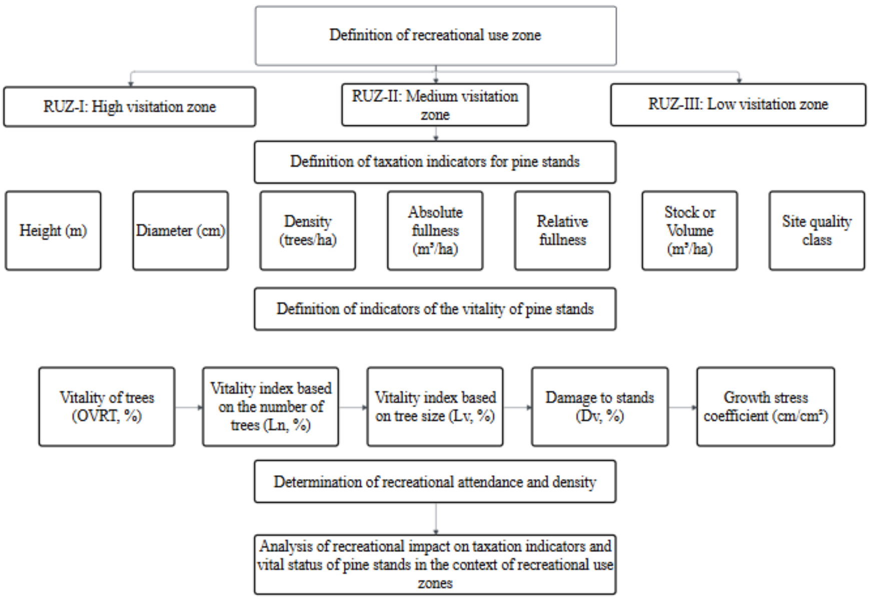


Figure 2. analysis of recreational impact on the taxation indicators and vital status of pine stands of the SFNR "Semei Ormany"

The reasons for tree differentiation include: hereditary traits; soil fertility heterogeneity; the differentiation process is more intense in denser natural stands and where trees grow faster. Tree growth can be weakened by pests, diseases, wind, snow, and other factors. The block diagram of the conducted analysis of recreational impact on the taxation indicators and vital status of pine stands of the SFNR "Semei Ormany" is shown in Figure 2.

**RESULTS AND DISCUSSION**

According to our research, the pine stands in the SFNR "Semey Ormany" in RUZ-I are at stages IV-V of recreational degeneration. The proportion of trampled areas down to the mineral soil layer averages 50.0%, with variation in this indicator across monitoring plots (PP) ranging from 11.2% to 91.0%. Stands in RUZ-II are characterized by stages II-III of recreational degeneration, with the average proportion of trampled surface in this functional zone being 6.1%.

In RUZ-III, no trampled areas down to the mineral soil layer were found, so the pine stands in this zone can be classified as stage I of recreational degeneration. Since, according to OST 56-100-95, the third stage of recreational degeneration is defined as the maximum allowable for forest natural complexes, the values for recreational density (Rd) and recreational attendance (Re) are also considered the maximum allowable. In our research, the maximum values for Rd and Re are those corresponding to RUZ-II. Therefore, for the studied pine stands, the maximum allowable values for recreational density (Rd) are 110-160 people/ha, and for recreational attendance (Re) are 3-10 people/ha/day. The allowable average seasonal value for recreational attendance (Re) is 3.4 people/ha/day. The obtained data allow for some changes and additions to the previously developed recreational use zones (Portyanko and Zholdybaeva, 2011; Dancheva, 2018), extending them to all pine stands in "Semey Ormany":

- RUZ-I – Active Use Zone: This includes pine stands directly adjacent to mass recreation areas, etc. Recreational attendance is 12 or more people/ha/day. The stand is characterized by stages IV and V of recreational degeneration (Figure 3).

-RUZ-II – Moderate Use Zone: This includes areas of pine stands with average attendance, directly adjacent to the active use zone. Recreational attendance is 3-10 people/ha/day. The stand is characterized by stages II-III of degeneration.

-RUZ-III – Low Use Zone (conditionally control): This includes pine stands that are distant from convenient transportation routes, inaccessible for pedestrian visits, or lacking attractive landscape elements.

Figure 3. Medium-dense pine forests of the SFNR "Semey Ormany" in the active use zone (RUZ-I) (Source: Authors, 2024)

Recreational attendance is 0.5-1 people/ha/day. The stand is characterized by stage I of recreational degeneration. As a result of the conducted research, it has been established that with increasing recreational impact, there is an increase in the average diameter and height of high-density pine stands (Table 1). The values of these indicators in the active use zone (RUZ-I) increase by 1.1-1.3 times compared to the corresponding values in the moderate (RUZ-II) and low (conditionally control) (RUZ-III) use zones.

Table 1. Inventory indicators of medium-dense pine stands in the SFNR "Semey Ormany" ( Source: Author, 2024)

| Recreational Use Zone | Height, m | Diameter, cm | Density, ind./ha | Absolute fullness, m²/ha | Relative fullness | Stock, m³/ha | Bonitet class | Growth area, m² |
|---|---|---|---|---|---|---|---|---|
| I | 17,6±0,4 | 29,6±1,1 | 247 | 21,8 | 0,6 | 176 | IV | 38,4 |
| II | 16,7±0,4 | 28,2±1,2 | 278 | 20,9 | 0,6 | 163 | IV | 35,7 |
| III | 15,2±0,5 | 23,4±1,1 | 365 | 21,1 | 0,5 | 168 | IV | 22,6 |

In all the high-density pine forests of "Semey Ormany" examined, an increase in recreational impact is associated with a decrease in stand density (Table 1). This effect is most pronounced in very dry and dry pine forests. For instance, in RUZ-II, the density is 278 trees/ha, which is 1.2-1.5 times lower compared to RUZ-III, while in RUZ-I, the density is 247 trees/ha, which is 2-2.5 times lower than in RUZ-III. The average density in the active use zone (RUZ-I) of fresh and wet growing conditions is 1.2-1.4 times lower compared to the control zone (RUZ-III).

Along with the decrease in stand density, there is an increase in the growth area of trees. In medium-dense stands, stand density increases by 1.1-1.8 times as one moves away from RUZ-I (Table 1). With increasing recreational impact, there is an increase in the number of trees classified as Kraft classes I-II (Figure 4).

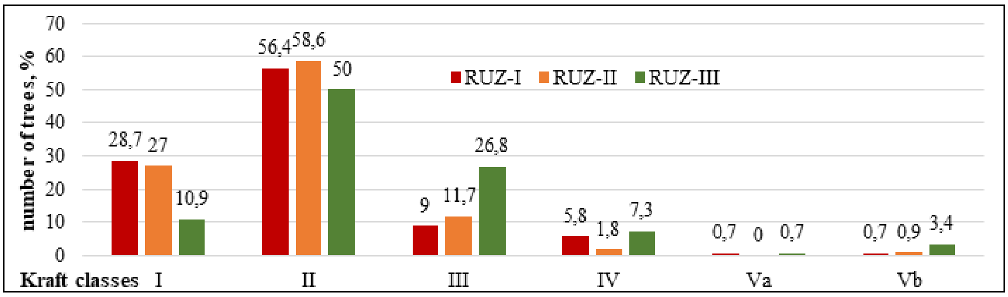

Figure 4. Distribution of pine trees by Kraft classes in medium-dense pine forests of the SFNR "Semey Ormany" (Source: Author, 2024)

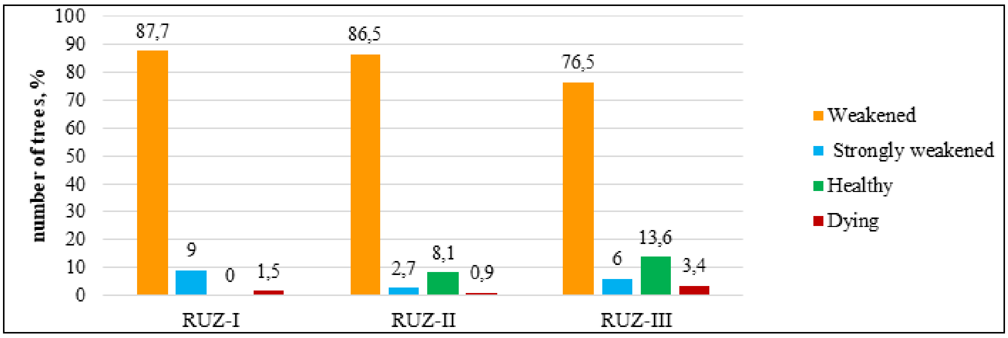

Figure 5. Distribution of trees by vitality categories in medium-dense pine forests of the SFNR "Semey Ormany" (Source: Author, 2024)

In the active use zone (RUZ-I), the proportion of trees classified as Kraft classes I and II is 1.2-1.4 times higher compared to the control zone (RUZ-III). In pine forests, a sharp increase in the number of trees classified as Kraft classes III-IV is noted when recreational impact decreases across all considered forest type groups (Figure 5). In the moderate use zone (RUZ-II) and control zone (RUZ-III) of both dry and fresh pine forests, the number of trees in Kraft classes III-IV is 1.3-2.3 times lower compared to the active use zone (RUZ-I). Deadwood (Kraft class Vb) is mostly present only in the moderate use zone (RUZ-II) and control zone (RUZ-III). The proportion of deadwood in high-density pine stands is 5-10%, while in medium-dense pine stands, it is 1-6% of the total density on monitoring plots (PP). The absence of deadwood in RUZ-I is explained by its timely removal during selective sanitary cutting. One of the main indicators characterizing stand condition is the relative vitality index (RVI). According to Figure 5.13, the RVI of medium-dense pine forests in all functional zones of the considered forest type groups ranges from 54% to 76%, which classifies them as "weakened." An increase in recreational impact leads to a decrease in the vitality index in medium-dense dry pine forests by 15-22%. The differences in RVI values between RUZ-I and RUZ-II, as well as between RUZ-I and RUZ-III, are statistically significant in stands of all forest type groups. With decreasing moisture levels, there is a slight increase in RVI in RUZ-I within medium-dense pine forests. The analysis of the data in Figure 5 indicates that in all RUZs, both high-density and medium-dense pine stands predominantly consist of trees classified as "weakened" – up to 90% of the total number.

As the intensity of recreational impact increases, there is a rise in the number of "weakened" trees and a decrease in the number of "healthy" trees. For example, in medium-dense pine forests in dry growing conditions, the number of "strongly weakened" trees in the active use zone (RUZ-I) is 0.9 times higher compared to the moderate use zone (RUZ-II). The correlation between the increase in the number of "weakened" trees and the decrease in "healthy" trees with increased recreational impact is less pronounced in dry pine forests. The number of trees categorized as "dying" in medium-dense pine stands varies significantly across each of the considered forest type groups. In the active use zone (RUZ-I), their number is 0.6 times higher compared to the moderate use zone (RUZ-II). The analysis of the data in Table 2 indicates a general trend of increasing damage (Dv), and decreasing vitality index by quantity (Ln) and size (Lv) of stands in the active use zone (RUZ-I) compared to the moderate use zone (RUZ-II) and control (RUZ-III).

Table 2. Vitality indicators of medium-dense pine stands in the SFNR "Semey Ormany"(Source: Author, 2024)

| № | 1-19C | 2-19C | 3-19C | 4-19C | 5-19C |
|---|---|---|---|---|---|
| RUZ | I | II | I | II | III |
| RVI, % | 54,3±1,9 | 66,6±1,5 | 63,1±0,6 | 66,8±1,3 | 64,9±3,0 |
| $L_n$, % | 61,5 | 69,7 | 68,5 | 74,1 | 69,5 |
| $L_v$ | 67,3 | 71,5 | 70,3 | 72,6 | 75,3 |
| $D_v$, % | 33,8 | 29,8 | 31,7 | 28,4 | 23,6 |
| GSC, $^{cm/cm^2}$ | 3,4±0,3 | 3,2±0,3 | 2,8±0,1 | 3,4±0,4 | 4,4±0,3 |

The methods currently used to assess the vitality (Alekseev, 1989) and sanitary condition (Rules for Logging in State Forest Fund Areas, 2015) of forest stands are based on visual evaluation of healthy, weakened, strongly weakened trees, as well as deadwood, according to various indicators, one of which is the condition of the crown and photosynthetic apparatus. Therefore, these methods are subjective, depending on the opinion of the specific researcher. For an objective assessment of tree vitality categories, it is advisable to use additional quantitative indicators that should be technological, i.e., easily and accurately measurable (Shevelina et al., 2010). For the studied pine stands, the growth stress coefficient (GSC) (Gustova and Terekhina, 2007) was used for the first time. The data in Table 2 show that the GSC values in medium-dense pine forests range from 2.8 to 4.4 cm/cm², which is optimal for this age category (Shulga et al., 2007). In other words, the pine forests are characterized as biologically stable. The distribution of GSC values by vitality categories presented in Table 2 indicates that in medium-dense pine stands, the lowest GSC values are associated with trees categorized as "healthy" and also with "weakened" trees having an average GSC value. The lowest values of the growth stress coefficient (GSC) across all considered condition categories are found in medium-dense pine stands.

A general pattern is observed where the value of the growth stress coefficient (GSC) increases as the vitality of the trees decreases. Significant differences in GSC values are most often noted between all categories of tree vitality. The conducted research has established a close relationship between the vitality index and the growth stress coefficient (GSC). In the medium-dense mature pine forests of the SFNR "Semey Ormany," across all RUZs, trees classified as "healthy" have GSC values ranging from 3.0±0.1 to 5.0±0.5 cm/cm². The GSC values for "weakened" trees range from 2.8±0.2 to 4.1±0.4 cm/cm². Trees classified as "strongly weakened" and "dying" have GSC values of 5.0±0.7 cm/cm² and above (Table 3).

Table 3. Average GSC values for medium-dense pine forests of the SFNR "Semey Ormany" by vitality categories, cm/cm² (Source: Author, 2024)

| № | 1-19C | 2-19C | 3-19C | 4-19C | 5-19C |
|---|---|---|---|---|---|
| RUZ | I | II | I | II | III |
| Categories of condition | | | | | |
| healthy | – | 3,0±0,1 | – | 4,1±0,3 | 5,0±0,5 |
| weak | 2,8±0,2 | 2,9±0,1 | 2,9±0,1 | 3,3±0,3 | 4,1±0,4 |
| Severely weak | 6,4±0,7 | 9,8±0,8 | 3,6±0,1 | 4,1 | 8,7±0,7 |
| dying | 5,0±0,7 | 10,4 | – | – | 8,5±0,7 |

**CONCLUSION**

Recreational loads exceeding the maximum allowable values contribute to soil surface compaction, trampling of moss-lichen and grass cover, compression of the litter, mechanical damage to the forest stand, destruction of undergrowth and shrubs, changes in insect fauna, and the creation of conditions where restoration processes do not keep pace with destruction processes and the introduction of components of a more stable and capable biogeocoenosis that can exist under higher recreational loads – ruderal biogeocoenosis (Musin et al., 2020; Scherbina et al., 2022; Ozgeldinova et al., 2023). Thus, according to the zoning of recreational use, the pine forests of "Semey Ormany" are divided into 3 zones: active use zone (RUZ-I), moderate use zone (RUZ-II), and low use zone (RUZ-III). The intensity of recreational impact on pine forests varies significantly across these zones. Pine forests in the RUZ-I zone experience the highest recreational load – up to 83 people/ha/day. In comparison, this indicator increases 12-19 and 59-69 times in RUZ-II and RUZ-III, respectively. In the active use zone (RUZ-I), mass recreation such as picnics, beach outings, and walks around sanatoriums and rest houses predominates, whereas in RUZ-II and RUZ-III, recreational activities are more focused on gathering (e.g., mushroom and berry picking). Recreational visitation and density sharply increase on non-working days across all functional zones. The highest recreational loads are observed in RUZ-I during morning and evening hours, in RUZ-II during morning and midday hours, and in RUZ-III during morning hours.

Pine forests in the active use zone (RUZ-I) are characterized by IV and V stages of recreational degradation, while those in the moderate use zone (RUZ-II) are in II-III stages, and those in the control zone (RUZ-III) are in the I stage of recreational degradation. The level of recreational visitation in RUZ-II is the maximum allowable for the pine forests of the studied regions and is equal to 3-10 people/ha/day. The permissible mid-season level of recreational visitation is 3.4 people/ha/day. As recreational loads increase, there is a decrease in tree density and an increase in the growth area of trees by 1.3-2.4 times. This pattern is more pronounced in dry growing conditions (forest type group C2) than in fresh conditions (forest type group C3). Increased recreational loads accelerate the process of natural thinning of the forest stand, which explains the increase in the number of trees of I-II class and the decrease in trees of IV-V class according to Kraft by 1.3-1.8 times in RUZ-I compared to RUZ-II and RUZ-III. On most monitoring plots (PP), according to indicators of condition (damage (Dv), vitality index by quantity (Ln) and size (Lv)), the pine forests are characterized as "weakened."

There is a general trend of increasing damage (Dv) and decreasing vitality index by quantity (Ln) and size (Lv) of stands in the active use zone (RUZ-I) by 11-22% compared to the moderate use zone (RUZ-II) and control (RUZ-III).

It has been established that the growth stress coefficient (GSC) is a reliable indicator of biological stability both of the entire stand and of the separately considered tree groups. A close relationship has been identified between the vitality index (VI) and the growth stress coefficient (GSC) with tree size. As tree size increases, there is an increase in VI and a decrease in GSC. Forest recreation and tourism, including ecological tourism, is a complex and multifaceted economic sector, requiring not only investment but also a balanced infrastructure for the three main elements of sustainable territorial development – economic, ecological, and social (Winter et al., 2019; Tudoran et al., 2022). Recreational forest use is increasingly becoming an important area of joint activities between people and forestry agencies providing forest areas for recreation and tourism (Zigern-Korn et al., 2020; Riccioli, 2019; Miller et al., 2022). Consequently, it is necessary to establish an economic basis for such relationships, where forestry incurs certain costs from public visits to forest areas, while the population gains social benefits such as improved health, treatment of various diseases, and so on. However, currently, the economic assessment of recreational potential is complex and underdeveloped both methodologically and technically. There is no unified and universally accepted method for evaluating these resources either in Kazakhstan or abroad.

**Author Contributions:** Conceptualization, Zh.M.; methodology, Zh.M. and A.Zh.; software, Zh.M. and A.Zh. and U.M.; validation, Zh.M. and A.Zh.; formal analysis, Zh.M., A.Zh, U.M. and M.A,; investigation, Zh.M. and A.Zh.; data curation, Zh.M. and U.M.; writing - original draft preparation, Zh.M., A.Zh., A.Y. and U.M.; writing - review and editing, Zh.M., A.Zh., and U.M.; visualization, A.Zh. and A.Y.; supervision, Zh.M.; project administration, Zh.M. All authors have read and agreed to the published version of the manuscript.

**Funding:** This study was conducted within the framework of grant funding for young scientists on scientific and/or scientific-technical projects for 2022-2024 by the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN No. AP13068020).

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** This study was conducted within the framework of grant funding for young scientists on scientific and/or scientific-technical projects for 2022-2024 by the Ministry of Science and Higher Education of the Republic of Kazakhstan (IRN No. AP13068020).

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 05.09.2024 Revised: 29.10.2024 Accepted: 03.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2029-2040
DOI 10.30892/gtg.574spl17-1370

# BETWEEN TRADITION AND MODERNITY: ETHNOGRAPHIC PERSPECTIVES ON MARRIAGE PRACTICES IN ETHIOPIA, NAMIBIA, ROMANIA AND SENEGAL

**Corina Florina TĂTAR***
University of Oradea, Faculty of Geography, Tourism and Sport, Department of Geography, Tourism and Territorial Planning, Oradea, Romania, e-mail: corina.tatar@didactic.uoradea.ro

**Seedou Mukthar SONKO**
Assane Seck University Ziguinchor, Faculty of Economic and Social Sciences, Department of Tourism, Ziguinchor, Senegal, e-mail: sm.sonko@univ-zig.sn

**Alphonse SAMBOU**
Assane Seck University of Ziguinchor, Faculty of Economic and Social Sciences, Department of Tourism, Ziguinchor, Senegal, e-mail: asambou@univ-zig.sn

**Isobel MANUEL**
Namibia University of Science and Technology, Department of Hospitality and Tourism, Windhoek, Namibia, e-mail: imanuel@nust.na

**Workie WULETAW**
Bahir Dar University, Faculty of Business and Economics, Department of Tourism and Hotel Management, Bahir Dar, Ethiopia, e-mail: workiewuletaw12@gmail.com

**Marius Ioan TĂTAR**
University of Oradea, Department of Political Science and Communication Studies, Oradea, Romania, e-mail: mtatar@uoradea.ro

**Citation:** Tătar, C.F., Sonko, S.M., Sambou, A., Manuel, I., Wuletaw, W., & Tătar, M.I. (2024). BETWEEN TRADITION AND MODERNITY: ETHNOGRAPHIC PERSPECTIVES ON MARRIAGE PRACTICES IN ETHIOPIA, NAMIBIA, ROMANIA AND SENEGAL. *Geojournal of Tourism and Geosites*, 57(4spl), 2029–2040. https://doi.org/10.30892/gtg.574spl17-1370

**Abstract:** The purpose of this study is to examine and compare the traditional marriage practices of four culturally distinct communities: the Amhara in Ethiopia, Damara/Nama in Namibia, Crișana in Romania, and Diola in Senegal to understand their cultural significance, evolution, and resilience in the face of globalization and modernization. Employing ethnographic research methods, including field surveys, structured interviews, and literature reviews, the study highlights the pre-marital, marital, and post-marital rituals that define the cultural identity of these groups. The findings reveal both unique and shared elements in engagement ceremonies, dowry practices, wedding attire, and familial roles. While some communities, such as Crișana and Amhara, exhibit a blend of tradition and modernity, others, like Damara/Nama and Diola, remain more rooted in traditional norms. The insights gained contribute to broader understandings of cultural diversity, social dynamics, and the evolution of traditional practices in a globalized world. By documenting and analyzing these marriage practices, the research contributes to preserving the cultural heritage and can foster cultural appreciation for tourist experiences capitalized in some countries through the living museums (i.e. Damaraland, Mbunza, etc from Namibia).

**Keywords:** cultural identity, marriage practices, Amhara, Nama/Damara, Crișana, Diola

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## INTRODUCTION

Ethnographic research helps in understanding the cultural nuances and authentic practices of a community. This understanding can be used to create more genuine and respectful tourism experiences that honor local traditions and practices (Adams et al., 2019). Ethnographic studies often involve the local community, giving them a voice in how their culture is represented and shared with tourists. This can lead to more sustainable and empowering tourism practices (Frohlick and Harrison, 2008). The current study is ethnographic research about the passage rite of marriage of specific traditional communities from Ethiopia, Namibia, Romania and Senegal, meant to foster cultural understanding and promotion of tradition and folklore from these countries. Ethiopia, Namibia, Senegal and Romania have a rich cultural heritage, and marital traditions reflect this diversity. Weddings often involve a blend of ancient rituals and modern practices where religious ceremonies hold significance. The current study is conceived as a comparative study meant to foster cultural understanding and preservation of traditions. It relates to traditional marriage practices across Ethiopia, Namibia, Senegal and Romania countries which can enrich our understanding of cultural diversity, social dynamics, and the complex interplay between tradition and contemporary influences. By comparing these diverse cultural contexts, we gain insights

* Corresponding author

into the unique customs, rituals, and beliefs associated with marriage in each country. It helps preserve and document traditional practices that may be at risk of fading away due to globalization and modernization, as by comparing practices, we reveal differences and similarities between these cultures. Investigating how traditional marriage-related practices coexist with modern influences provides valuable insights related to gender roles, power dynamics, and family structures.

Ethnographers consider the wedding, by its rich and complex content, the most significant popular artistic manifestation (Todincă, 2005). There are three dimensions in a person's life such the pre-existence, existence and post existence marked by as many biological natural manifestations such as birth, conception and death (Todincă, 2014) or coming of age initiations for boys and girls (Bell, 1997) which shape the ensemble to which human life events revolve around. Related to the marriage event of human existence, many ethnographers, sociologists, demography researchers have approached it from the angle of their specialization. This has yielded a rich and complex material, either descriptive or interpretative (of concepts, terms, comparisons etc). The load of meanings and symbols with manifestations about life places the marriage ceremony as a highly ranked passage rite. The conscience of traditional communities gets new social valences as marriage pinpoints a starting point and a new way of living in the community life and taking part at its formation. The idea of a "new welding" of life gets important existential meanings due to the preparation of the wedding ceremony in the smallest details which heralds the aligning with "the rest of the world" (Todincă, 2005). The protagonists pass from one status to another, separating from a family group and integration into another one. From this perspective, marriage is a combination of spiritual, religious, magical, aesthetic, judiciary and economical shapes to which the whole community participates.

It emerges as a collective manifestation more related to social, community and family life. At this manifestation the members of the community are joining hands through music, dance, poetry and due to its holy nature, it takes the shape of an existential holiday (Todincă, 2014). Therefore, the whole nuptial ceremony reveals a festive optimism where the human being is vital in relation to the biological power of nature, thus giving a meaning to life that the world isn't a chaotic place but a meaningful home, it opens a new vital cycle by the perpetuation of the human species. People from the rural world more authentically penetrate the mystery of this rite of passage through the festive traditions and ceremonies. The current study aims to research the traditional wedding-related practices of four communities such as that of the Amhara from Ethiopia; Damara and Nama from Namibia; Crișana from Romania and Diola from Senegal (i.e. Casamance area) (Figure 1).

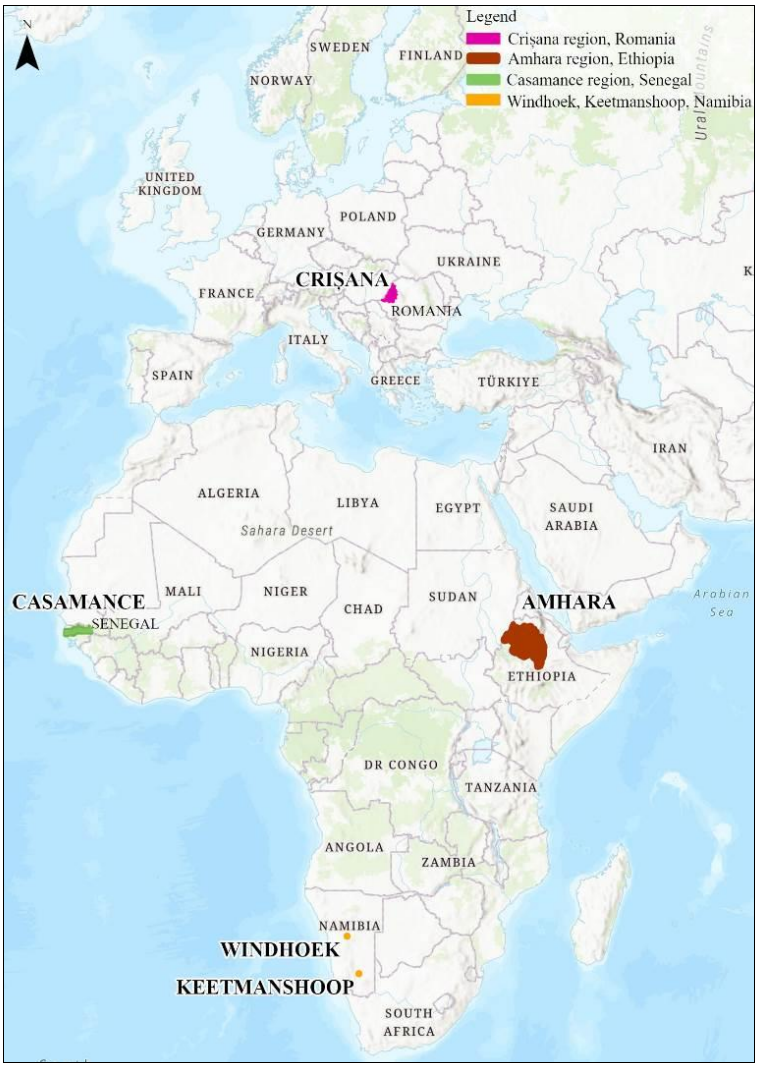



Figure1. Surveyed Amhara, Damara/Nama, Crișana and Diola communities from Ethiopia, Namibia, Romania and Senegal (Source: Authors'elaboration)

Traditional marriage in Ethiopia is a long-standing institution, characterized by unique customs (Mossie, 2019). Ethiopia, one of Africa's oldest nations, also has a distinct legal history. Its ancient legal codes, such as the twenty-fourth chapter of the Fitha Negest, deal specifically with marriage, providing a framework for family-related matters (Augustyniak, 2007). Marriage in the Amhara region of Ethiopia is particularly intertwined with cultural traditions, religious values, and social structures that have been passed down for generations (Shiferaw et al., 2017). This overview examines the traditional marriage practices of the Amhara people, focusing on premarital, marital, and post marital customs.

Namibian wedding has become an extravagant and expensive ritual (Pauli and Dawids, 2017). Studies have indicated how these marriages transformations are linked to the spread of modernization. Weddings have become a significant arena for expressing class distinctions and it has led to the emergence of an elite class of people that will invest as much money and creativity to exhibit and celebrate their distinctiveness during weddings (Pauli, 2011). Until the 1970’s, the decision to marry within local communities in the Damara culture was rarely tied to the economic background of the groom, bride, or family (Pauli and Dawids, 2017). Today this is not the case, as Namibian weddings have become expensive rituals. What is now experienced at these traditional weddings is the addition of new and innovative status markers such as expensive décor, food, and clothing (Pauli, 2012) and this has made the ordinary Namibian unable to afford a wedding. Weddings have thus not only become extremely expensive rituals, but their ritual design has changed substantially, becoming much more elaborate and complex. In the Damara culture the term ‘struggle marriages’ has been brought forth to indicate how costly it is to get married within these communities. The marriages are usually between local community members who have only recently acquired some form of income (Pauli and Dawids, 2017). Furthermore, the Namibian marriage has been researched by Pauli (2010); Pauli (2011); Pauli (2012); Pauli and Dawids (2017); Pauli (2018); Pauli (2019); Pauli (2022); Melber (2014) and Wallace (2011).

Senegal, a country located in West Africa, is made up of several ethnic groups spread across several regions. Each ethnic group guards its traditional heritage, its customs and way of life. Regarding marriage within different ethnic groups, there is a clear difference between them. Traditional marriage in the Peul community, for example, is different from that in the Diola community. The traditional Diola community, located in the south of Senegal, is devoid of centralized authority or established administrative and judicial mechanisms. Indeed, among men, there is a large entity which constitutes their community: the bukut community. It is very often after this initiatory stage which marks the life of men that a boy can aspire to marry. Marriage, it must be remembered, is a union between two people with the aim of founding a family. Despite globalization, some societies still remain rooted in tradition, so it is very often the parents who go looking for a wife for their son, appreciating the values of the future wife's parents.

Concerning Romania, the wedding event takes place on a similar scenario across all geographical space with slight differences according to social and economic life of rural communities where this event takes place (Todinca, 2005). Among the family practices, one of the most complex manifestations is given by the wedding ceremony with its multiple legal, ritualic and folkloric implications forming a big show in which all the community is involved. The works of researchers related to marriage in Romania are relevant such as that of Gorovei (1985); Gorovei (2002); Bernea (1967); (1990); Pop (1991); Marian (1995) and mainly those referring to the wedding of Bihor County, which overlaps Crișana region include the ethnographic research work of Pompiliu (1967); Bocșe (1971); Parasca (1977); Vasilescu (1970) and Graur (1972).

**Pre-marital parctices**

Some of the pre-marital practices in the four countries analyzed are highlighted below, emerging from references’ consultations as well as interviews. In Ethiopia**,** in the Amhara region, arranged marriages are still common, and families play a central role in selecting a spouse. Traditionally, it is the groom’s parents who search for a suitable bride. Before any formal marriage negotiations, they ensure that the families are not related by tracing their ancestry up to seven generations. Another key factor in choosing a bride is ensuring her virginity (Augustyniak, 2007). Moreover, premarital negotiations often center on the exchange of dowries and bride wealth (Basazinewu, 2018). Once the families agree to proceed, they set up a formal meeting called *ketero*, during which the details of the wedding are finalized. As the wedding day approaches, preparations begin. The families gather wood for cooking, seek help from relatives for food preparation (*lemat*), and collect necessary items like water containers and brewing materials for traditional drinks like *Tella* (beer), *tej* (honey wine), and *Areke* ( AllaboutETHIO, 2024; Dessie and Bekelcha, 2023).

In Romania, in the Crișana region, the traditional pre-marital norms relate to the fact that the lad and the maid mostly knew each other from some events of the villages, such as holidays, fairs, etc. After having met, they asked for permission to marry from their families. If permission was not granted, they would elope (Bala, 2011).

If families granted their permission, then some steps were compulsory. The boy accompanied by his father or a trustful orator went to the girl’s house and it was there that “negotiation” began. The bride’s father was asked what he gives the daughter after marriage (i.e.land, cattle, household items). After agreeing upon it, the news was spread into the village that the deal is done, and dowry is agreed upon (Mihancea, 2016). Some maids would have dowry chests in which they kept pillows, covers, tablecloths, usually hand-made by the bride’s mother. Marriage up to three-rank degrees of relativity was forbidden. The callers were the ones to call people to the wedding, one or two weeks before the event. Those who promised to come to the wedding had to drink from the bottled plum brandy and it was considered a pledge (Mihancea, 2016). Courtship of the maid is part of the premarital rituals. After all parts convened to the marriage, the engagement was a premarital pledge sealed by an engagement ring or not.

In Namibia, a pre-marital ritual refers to the marriage asking ritual. Only about one-third of all couples marrying before the 1970s had this ritual, and even then, they were modest and inexpensive. But from the end of the 1970s onward, marriage asking became more common and progressively extended into a costly engagement. For example, the 1984 marriage asking of a wealthy politician, businessman, and livestock owner, resembled the engagement. However, the wealthy politician asking ritual was still relatively small compared to later ones. At that ritual, only a dozen guests had the meat of a cow, soft drinks, and beer. Since the 1970s, "marking" the bride with jewelry (earrings, necklace, bracelet, watch, a diamond ring) also raised expenses. It is now common for the groom to buy engagement and wedding jewelry. None of these luxury goods were present at engagements and weddings prior to the 1970s. From then onwards engagements grew in scale, cost, and complexity, and now more than 70 percent of all marriages include a marriage asking ritual and an engagement ceremony (Fuller, 1993; Gockel-Frank, 2007).

In Senegal, in the Diola community, we can notice different stages which can lead to the finalization of a marriage. Indeed, these steps can begin when the future wife or her family has accepted the first gift offered by the young man. In traditional Catholic families, the marriage proposal process continues with a visit to a delegation from the boy's family with palm wine which is a very respected drink in traditional Diola of Kassa ceremonies.

This visit is very often done with the greatest discretion near the father of the young girl, in order to prevent people with bad intentions from going against the proposed marriage proposal. "Marriage certifies the entry of men and women into the adult generation by allowing them access to social rights" (Dieme, 2018: 197). The father of the family is often the person informed first and in turn he will share the purpose of this visit with his wife (the mother to the daughter). The mother will in turn inform her daughter, so the whole family will be aware.

**Traditional and modern marriage practices**

Traditional and modern marriage rituals were revealed from ethnographic literature in the four countries analyzed, as well as interviews. A specific ritual for the Amharic community during the marriage is the rule of *semania*. In this practice, the couple signs a quasi-contract, often referred to as a "contract of equals," signifying mutual respect and partnership within the marriage (Dessie and Bekelcha, 2023). The wealth exchanged during the marriage, referred to as *tilosh* in Amharic, varies depending on the social and economic status of the families involved. Despite these variations, the exchange of dowry and bride wealth remains vital in maintaining family honor and social cohesion in Amhara marriage traditions. Amhara weddings are often elaborate affairs, with celebrations lasting several days. These festivities include religious rituals (Figure 2), communal feasts (Figure 3), and symbolic ceremonies that represent the union of two families. One of the most important traditions is the blessing of the couple by elders and priests, who pray for divine protection and blessings over the marriage. Many couples also seek the church's blessing, reflecting the deep religious significance of marriage in Amhara culture (Dessie and Bekelcha, 2023; Vergroesen, 2017).

Figure 2. Amhara crown marriage (Source: Authors, 2021)

Figure 3. Amhara marriage (Source: Authors, 2021)

In Namibia, until the 1970s wedding celebrations were modest. The earliest weddings recorded were celebrated in the 1940s. There is little information on Damara weddings before the 1940s or during the German colonial occupation (Fuller, 1993; Gockel-Frank, 2007). Two conditions strongly influenced wedding practices before the 1970s: Christianization and the white settler economy. For example, when a marriage ceremony took place in 1985 the couple both worked for a white farmer. Contrary to the widespread practice of celebrating a wedding at the bride's birthplace, after their wedding ceremony during Sunday mass, they celebrated on the settler's farm. It was a modest wedding, typical of the time. The bride's dress was simple, and the groom wore a new pair of trousers and new shoes. The wedding food, sponsored by an aunt and the bride's mother, consisted of two goats. For entertainment, some Damara/Nama songs were sung. Weddings were usually held several months after the engagement (Pauli, 2009). Since the 1970s, new ritual practices and consumption goods, like wedding cakes and wedding receptions, were incorporated. Inspirations came from other Namibian groups, e.g., Herero, Owambo, and Afrikaans, and from magazines like the South African Drum. Today, women's magazines and newspapers, such as The Namibian, that print photographs of national elite weddings influence brides, grooms, and their families. The ritual marriage-cow slaughtering is also a recent development, again significantly raising wedding costs. Elder informants stressed that during the first half of the twentieth century, only the male kin group chased and slaughtered a cow, if the ritual took place at all (Schmidt, 1981/2:63). Today, slaughtering is common. All recent weddings include this ritual practice. Since the 1980s this practice has added another location to weddings. Previously, weddings were celebrated only at the bride's family house; now it includes the groom's family house. When it became increasingly common in the 1980s to host an official wedding reception, a third location was added: the reception hall. From 2000 to 2004, 60 percent of weddings were held at a reception hall. Wedding attire has also changed. To entertain and impress the guests, the hall is decorated with flowers and sometimes a band is hired. Unlike the informality of the two-family houses, the reception at a wedding hall is formal, and although one of the most luxurious moments of the wedding, it often lasts less than two hours. Usually, hundreds of guests are invited to a wedding reception and huge amounts of food, and drinks are served. From the 1970s onwards, Fransfontein elite weddings have changed from a modest ritual into a conspicuous celebration. The emerging African bourgeoisie (Wallace, 2011:267) of the 1970s and 1980s increasingly expressed its status through their weddings, and this process has continued, Fransfontein weddings stimulate envy and emulation (Veblen, 1994).

In Romania, a traditional wedding in Crisana region is described by Mihancea (2016) from Cetea village. Thus, on the morning of the wedding the guests called at the groom's house headed towards the bride's house ahead with an orator who knew many orations for asking for the bride. At the bride's house, a fake bride was brought forward and tried to dance with him but was rejected. It is supposed to be a funny moment, the cheerier the fake bride, the funniest the atmosphere. Finally, the genuine bride was brought all dressed in white clothing, with a flower wreath on her head. Both the bride and the groom's convoy are accompanied by a folk music band along the way to the church, most chants are sung by women mostly related to the bride (Mîrza, 2014). At the church the religious wedding took place where the weds are given holy bread, princely crowns are placed on their heads and rings are placed on the fingers as symbol of a long-lasting communion (Negru, 2017). Then the big feast follows at the groom's place, a dance with a Romanian colors dressed-up flag and its tossing up and down as part of the dance ritual. At the groom's house the bride must overturn a bucket filled with water, the weds were sprinkled with water from it and then wheat grains were thrown upon them. During the meal and feast ceremony the bride's shoe were stolen, which the godfather had to redeem with a reward such as money or drinks. At midnight the orator would announce the lump gifts or money given to the newlyweds. Towards the morning the bride was dressed in a young wife's clothing while holding a little boy on her arms. Upon departure the guests received a bottle of brandy and after 2 weeks the newlyweds would come to the godparents for a small feast. The attire and clothing (Figure 4, Figure 5) play an important part in the marriage ceremony, the woman is usually all dressed in white at the wedding, village guests will wear the traditional folk costume at the ceremony, for women the folded shirt around the neck and hand wrist (Mozes, 2001). The woman plays a crucial role as a traditions' preserver, faith and domestic rites keeper (Bala, 2011). Marriages parties could be held at both the bride and groom's venues or to only one. The attire after the wedding party is with clothes suitable for a married woman, her long hair is twisted into a loop and covered by a head scarf.

Figure 4. Traditional marriage ceremony from Crișana region. The Ethnography section from the Crișana Land Museum of Oradea, Romania (Source: Authors, 2024)

Figure 5. The protagonists of a traditional wedding from Crișana region. The Ethnography section from the Crișana Land Museum of Oradea, Romania (Source: Authors, 2024)

In Senegal, there are more types of marriages, i.e. marriage by kidnapping, marriage by gift or loan of wives, marriage with levirate, marriage with sororate, marriage by "budji" to name just a few. Among the Diola/Jóola of Kasa, marriages follow an exogamous rule even if they take place outside the villages and neighborhoods. Marriage is prohibited not only between close consanguines, but throughout the father's line and even that of the mother, although flexibility is sometimes granted. Intermarriage extends between different community units. Every marriage is a relationship between different families. Here, the exogamous rule is taken as a broader social expression of the prohibition of incest. After currency, there is livestock used for traditional practices. The Oussouye department is a conservative area of customs, norms and traditional values. Of course, animals given or requested during the marriage proposal process are of utmost importance. The requested livestock returns to the couple and will be used to support their household in times of need. The one given as a dowry is slaughtered or sacrificed for the benefit of tradition and the populations. Wine is an essential element in all ceremonies in a Diola/Jóola environment. According to oral tradition, it has therapeutic and mystical virtues. The wine given by the fiancé's family is distributed as follows: a part is given to the girl's restricted family and the other to that of her mother for the same reasons (to make a sacrifice to ask the ancestors to watch over the girl and to bring happiness and fertility in the household) (Dieme, 2018).

Alongside palm wine, there are liqueurs intended for the bride's family, especially her mother's. Maternal uncles receive what we can literally translate as "iron gender". This is requested as compensation for the gender of their sister who suffered at the birth of the bride. As money and other valuable goods cannot be shared, only liquors, classified as primary consumer goods, can repair this bodily damage. Which proves that, in this patrilineal society, the maternal lineage also has a role to play. The Diola/Jóola give equal importance to the maternal and paternal branches without the filiation being undifferentiated. Each of the two lineages has a specific function. Clothing (Figure 6) is made by the parents of girls during the marriage proposal process. The boubous and loincloths of parents-in-law are gifts that serve as embellishment. The son-in-law is the one who must take his parents-in-law out of poverty, clean them of their filth. Clothing (Figure 7) appears as an external sign of well-being. At the time of marriage, the woman's parents must replace their rags with valuable clothes. Symbolically, boubous and loincloths are fabrics and the fabric encloses life. Extracted from the vital part of the tree, it embodies longevity. Thus, composed and presented, it is matrimonial compensation that materializes marriage which, in turn, opens the doors to the adult world for young people (Dieme, 2018).

Figure 6. Traditional Diola wedding dress – Dianki - Ziguinchor region, Senegal (Source: Authors, 2024)

Figure 7. Traditional Diola wedding dance of the bride, Dianki-Ziguinchor, Senegal (Source: Authors, 2024)

In his work on the Diola/Jóola Banjal, Paolo Palmeri (1995) refers to the importance of circumcision in the conclusion of a marriage plan. The age corresponding to marriage maturity would be between 24 years for men and 20 years for women. Then he adds: "When he is still in the sacred forest, where he completes the complex rituals of initiation, the young man composes songs and poetry dedicated to his girlfriend. For their part, the respective parents also begin to make the first contacts with a view to the future marriage. It often happens that barely out of the forest of circumcision, the young man officially chooses his future wife. Circumcision signifies the completion of the complex rituals of initiation in the sacred forest that a man becomes mature and can choose to take a wife. The act is socially and culturally determining in the future of man in a Diola/Jóola environment (Palmeri, 1995: 244) (Figure 8, Figure 9).

Figure 8. Jola teens taken to the sacred forest during the adulthood passage rite ceremony, Efock village, Senegal (Source: Authors, 2023)

Figure 9. Feasting by the Joola community on the occasion of adulthood passage rite ceremony, Efock village Senegal (Source: Authors, 2023)

**Post-marital practices**

In Ethiopia, Amhara region, following the wedding, the bride typically moves into the groom's family home. The Ethiopian honeymoon, called *yets'agula gizē*, can last from one week to three months, depending on the wealth of the groom's family. During this period, the best man stays with the couple. The bride is expected to remain in her in-laws' house during the day, only leaving at night. After the honeymoon, the couple visits the bride's parents, where they stay for some time, again accompanied by the best man (Augustyniak, 2007). This time is crucial for the bride's transition into wifehood and motherhood. After this initial period, the couple moves into their own home, usually located near the groom's family (Dessie and Bekelcha, 2023).

## METHODOLOGY

The study emerges as a collaborative output among researchers and teaching staff members of the University of Bahir Dar of Ethiopia, the University of Science and Technology of Namibia, the Assane Seck University of Senegal and the University of Oradea, Romania. An ethnographic region was selected from each country, where quizzes were applied in the shape of a survey, so that we could elaborate a comparative framework based on structured surveys which collected data on marriage practices, preferences, and attitudes in Ethiopia, Namibia, Romania and Senegal. The fieldwork included mobility to targeted regions to survey local communities, interviews with elders and couples who have undergone traditional marriages. We surveyed their perspectives, rituals, and meanings attached to marriage. Furthermore we examined literature and traditions related to marriage from all analyzed countries.

Structured surveys were developed to collect primary data on marriage practices, preferences, and attitudes. We sampled participants from different age groups, socio-economic backgrounds, and regions. The quiz included 24 close and open questions related to *pre-marital rituals* (i.e. engagement, dowry, betrothal ceremonies); *marriage ceremonies* (i.e. rituals, attire, music, dance, and feasting); *post-marital practices* (i.e. living arrangements, roles, and responsibilities) and *gender dynamics* (i.e. roles of men and women within marriage), as well as filtering questions related to gender, education, origin country and region. The quiz was applied to 35 persons from Ethiopia, Namibia, Romania and Senegal, aged over 18 up to over 65 and with different levels of education (Figure 10). The response rate was unequal, thus Ethiopia yielded 30 filled-out quizzes, Namibia got 7 quizzes, Romania got 32 quizzes and Senegal got 7 quizzes. The sampled communities belong to the Amhara of Ethiopia, the Damara and Nama community of Namibia, the Crișana community of Romania and the Diola community of Senegal. The respondents' localities for the Amhara region were from Dessa, Bahir Dar, Gondar, Combolcha, Showa, Gojjam, Burra, Deber Tabor, Deber Birhan, Zega; for the Nama/Damara community respondents came from Windhoek and Keetmanshoop; for the Crișana community respondents come from Sânicolau, Oșorhei, Forău, Cauaceu, Borș, Ștei, Alparea, Tinca, Husasău de Criș, Aleșd, Nojorid, Damiș, Bogei, Satu Barba, Bogei, Marghita, Iteu, Suiug ; for the Diola community respondents come from Oussouye, Oukoute, Bignona, Ziguinchor, Kolda. The surveys were applied by the authors from August 2023 to August 2024. All respondents agreed to participate willingly to the surveys applied in Ethiopia, Namibia, Romania and Senegal.

The results were analyzed and revealed similarities and differences across the four countries. The responses were centralized in a SPSS dataset and variables were processed through SPSS through comparative analysis to figure out similarities and differences among these cultures.

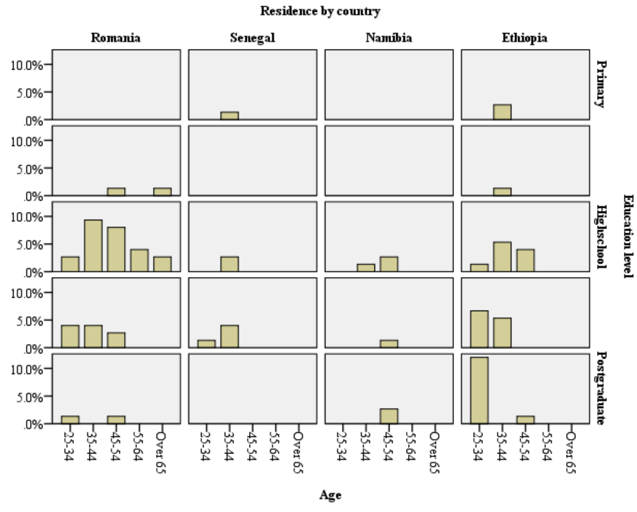



Figure 10. Residence, age and educational level of respondents of the marriage survey

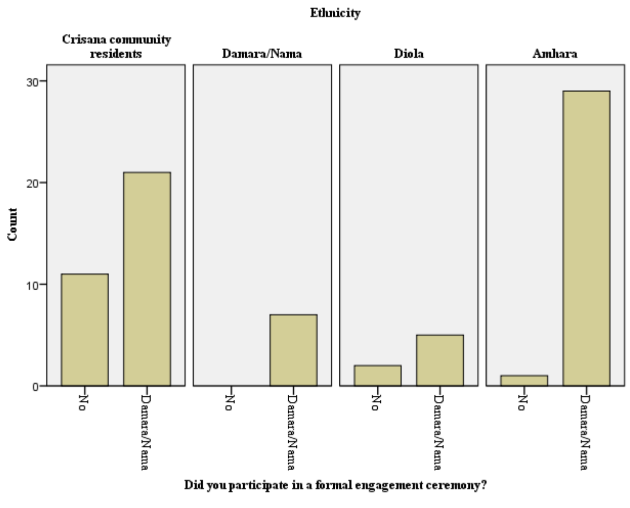


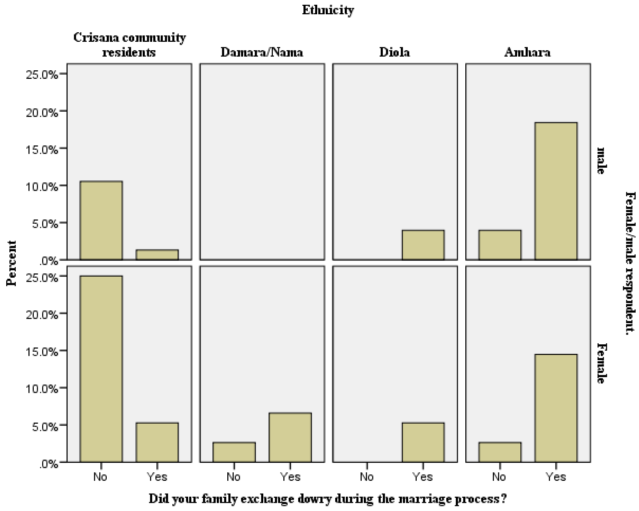

Figure 11. Participation of Crișana, Damara/Nama, Diola and Amhara communities in engagement ceremony

(Source: authors' elaboration based on the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

## RESULTS AND DISCUSSIONS

**Pre-marital practices**

The unique practices or rituals associated with marriage stages related to pre-marital, marital and post marital rituals are highlighted and the results are emphasized below based on the three stages. Among the pre-marital rituals, it merged that in all analyzed countries, engagement is an important step from the marriage process which often involves a formal ceremony, where the families of the bride and groom meet to discuss and agree on the marriage. For the Amhara community of Ethiopia 38,16% of respondents participated in an engagement ceremony, for the Damara/ Nama community there were 9,11% of cases involved in an engagement ceremony, for the Crișana community of Romania 27,63% and for the Diola of Senegal there were 6,57% (Figure 11). The comparison shows that the highest share is held by the Amhara community of Ethiopia where this step is currently highly significant within the marriage process. As far as the dowry exchange process is concerned, we can see that it mostly holds importance in the case of the African analyzed communities of the Amhara, Damara-Nama and Diola communities whereas for the Romanian community of Crișana region 35,53% of the respondents replied that they did not exchange any dowry (Figure 12).



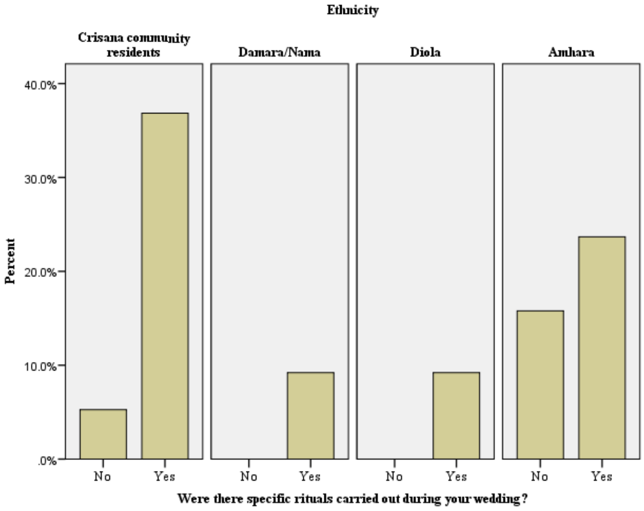




Figure 12. Dowry exchange for the Crișana, Damara/Nama, Diola and Amhara communitie

Figure 13. Respondents' answers related to specific rituals of Crișana, Damara/Nama, Diola and Amhara

(Source: authors' elaboration based on the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

**Marriage practices**

With relevance to marriage rituals, the Crișana community residents have the highest proportion of "Yes" responses, indicating a strong emphasis on rituals in their weddings. Damara/Nama has a low representation of rituals, a result also due to a smaller analyzed sample size. The Diola and Amhara groups display moderate engagement with rituals, but with noticeable variation between individuals. Overall, the data shows that cultural practices regarding wedding rituals differ significantly across these ethnic groups, with Crișana community residents emphasizing them the most (Figure 13).

As far as the open responses form the applied quizzes in in the four ethnographic regions, related to specific rituals, the following was revealed: for Crisana region, specific rituals refer to an old woman dressed as a fake wife; tying of the road and asking questions; changing of the wedding dress; bucket filled with water and basil in front of the house meant to be kicked by the weds for good luck and to pass easily over hard times as meaning; throwing with wheat grains or rice over the weds for good luck; the throwing of the bun so that the one who catches it will merry next; stealing of the bride; wearing of old and new jewelry; stealing of the bride's shoe; the father who brings the bride to the altar; the weds' convoy; the villagers contributing with food for the wedding ceremony; traditional dancing, clothing and hair dressing.

Figure 14. Uitvra ceremony (Source: Authors, 2018) Figure 15. Traditional Nama dresses

For the Diola community specific rituals emphasized by respondents relate to specific clothing, dancing, singing, dances, food and dress. Amhara community responses relate greatly to religion such as performing liturgy; spiritual music, prayer at the covenant; blessing by elders, semania and celebrating; crown marriage; communion, liturgy; wearing traditional clothes; religious program, blessing by the priest; gifting; slaughtering chicken, sprinkle milk over the bride by the groom as soon as they get home, communion, crown marriage; reading from the spiritual book; dowery ceremony; meal ceremony and spiritual singing. Specific rituals referring to Nama/Damara relate to white cow; confessions; "uitvra" (Figure 14) meaning that the wife is given by her family over to her new family along with the things to take with her to new house; clothes (Figure 15); basket exchange; slaughtering of goats or other animals; slaughtering of sheep and also on the day after the wedding; bride's serving the meal to her family and in-laws and slaughtering of cows and sheep.

Figure 16 indicates that cultural practices concerning wedding attire vary significantly across these groups, with Amhara showing the strongest cultural adherence. The Amhara group contrasts sharply with the Crișana community, where the tendency not to wear traditional clothes is much higher. Damara/Nama shows the least differentiation between "Yes" and "No" responses, potentially reflecting low involvement with traditional wedding practices, but it is also due to the small sample sizes. Diola appears more divided but leans toward wearing traditional wedding clothes.

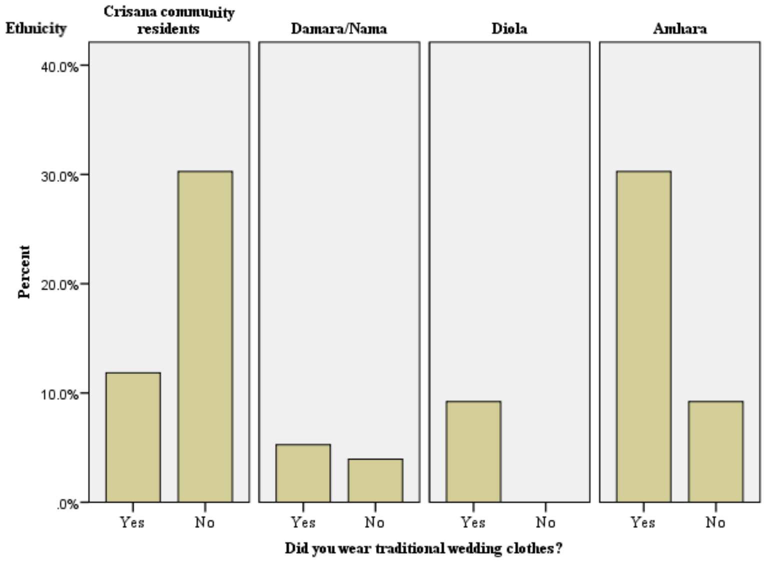



Figure 16. Respondents' answers related to wearing of traditional wedding clothes of Crișana, Damara/Nama, Diola and Amhara communities (Source: authors' elaboration based on the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

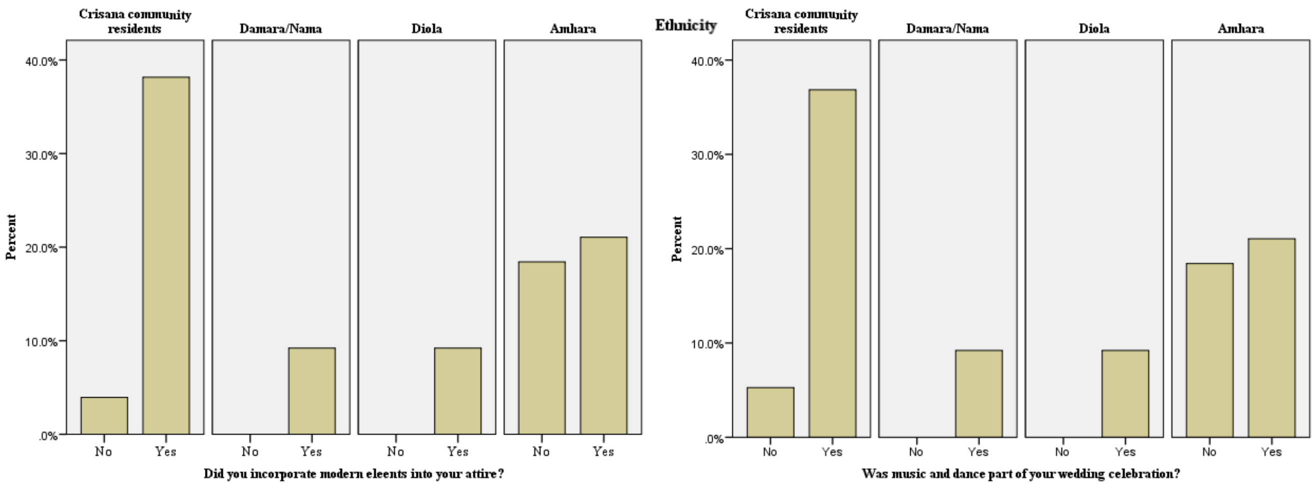



Figure 17. Respondents' answers related to the inclusion of modern elements in the wedding attire (left) and music and dances (right) (Source: authors' elaboration based o the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

In terms of similarities of modern attire, music and dances (Figure 17), Crisana community residents exhibit a high prevalence of both incorporating modern elements into attire and including music and dance in wedding celebrations (40% for "Yes"). Damara/Nama and Diola demonstrate low percentages of engagement for both questions. Responses for both groups remain under 10%, reflecting limited adoption of modern elements and lower emphasis on music and dance in weddings. Amhara presents moderate levels of engagement in both contexts, showing a preference for traditional practices while incorporating some modern elements. In terms of differences, The Crisana community residents show more enthusiasm for both modern attire and wedding music/dance, indicating an openness to modern cultural integration. Damara/Nama and Diola are consistent in their lower engagement levels, reflecting stronger adherence to traditional norms across both attire and wedding celebrations. For Amhara, while the adoption of modern attire leans slightly more traditional, the inclusion of music and dance in weddings shows a balanced distribution, suggesting a more significant cultural emphasis on music and dance in celebrations compared to attire.

**Post-marital practices**

The data suggests that Crișana community residents and Amhara are the most distinct in their living arrangements after marriage (Figure 18). Crișana strongly leans toward souse's familial cohabitation, while Amhara demonstrates a higher tendency toward independence. The Damara/Nama and Diola groups exhibit less differentiation between the categories, suggesting either traditional practices or unique cultural dynamics. Crișana Community Residents strongly favor shared responsibilities, which could reflect progressive attitudes or cultural norms promoting equality in domestic roles. Amhara also shows a substantial inclination toward shared responsibilities, though with a lesser "No" percentage compared to Crișana. Damara/Nama and Diola exhibit minimal engagement with the question, possibly due to cultural practices where responsibilities may not be explicitly shared or are structured differently (Figure 19).

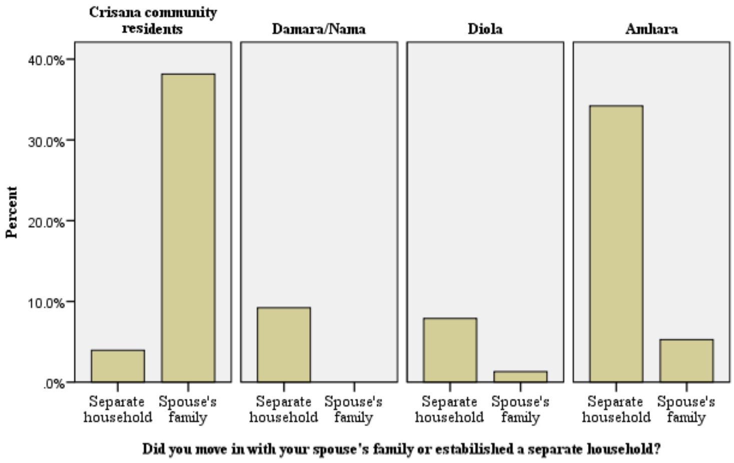



Figure 18. Respondents' answers related to the habit of moving into the spouse's family house or separate household
(Source: authors' elaboration based o the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

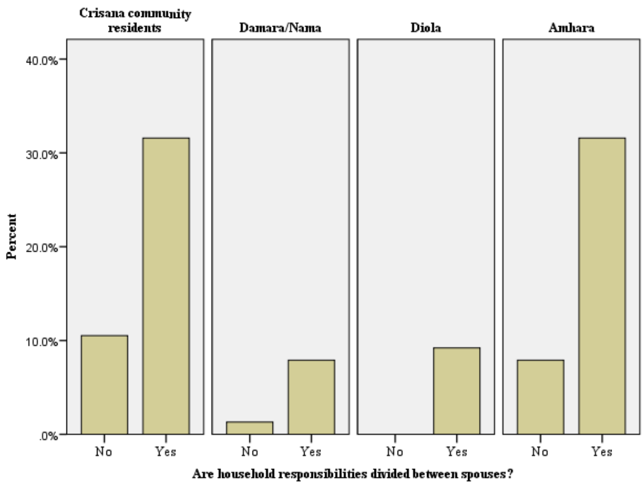



Figure 19. Respondents' answers related to family sharing responsibilities

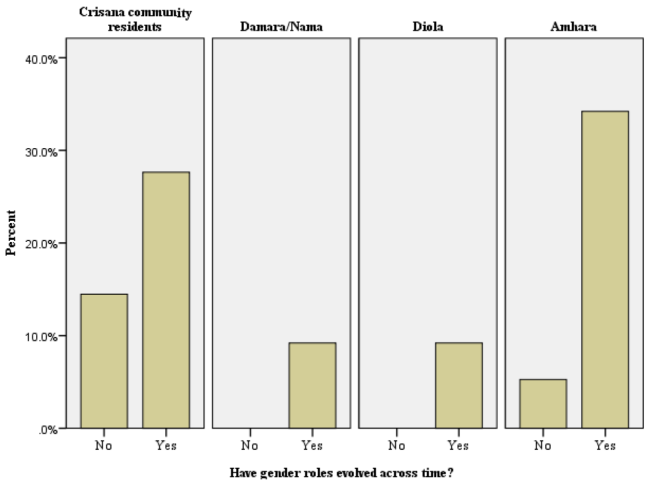



Figure 20. Respondents' answers related to family gender roles evolution

(Source: authors' elaboration based on the survey applied in Ethiopia, Namibia, Romania and Senegal during May-September 2024)

Crisana Community residents and Amhara stand out as groups with a strong acknowledgment of role evolution over time, indicating shifts in cultural or societal norms. Damara/Nama and Diola exhibit minimal engagement, with lower percentages overall, suggesting that role evolution may either be less pronounced or less openly discussed within these communities (Figure 20). Crișana Community Residents and Amhara appear to be at the forefront of modern cultural practices, reflecting a balance of tradition and societal evolution. Damara/Nama and Diola remain more rooted in traditional norms, with less evidence of modernization or evolution in societal roles.

As a concluding remark in terms of post-marital similarities and discrepancies, it can be asserted that the Crișana and Amhara community residents represent communities transitioning toward modern, egalitarian norms while maintaining some traditional aspects while the Damara/Nama and Diola remain more rooted in traditional roles, with lower engagement in shared responsibilities or role evolution. This analysis highlights a spectrum of societal evolution, with Crișana and Amhara at the progressive end and Damara/Nama and Diola anchored in traditional norms.

Figure 21. Dance performance at the Mbunza Living Museum of Namibia (Source: Authors, 2024)

Figure 22. Household activities at the Mbunza Living Museum of Namibia (Source: Authors, 2024)

## CONCLUSION

This ethnographic study provides a comprehensive analysis of marriage-related practices across four culturally diverse communities, uncovering both shared values and distinct traditions. The findings highlight the rich cultural heritage embedded in marriage ceremonies, which serve as pivotal rites of passage in these societies. In Ethiopia's Amhara community, marriage reflects deep-rooted religious and social structures, while in Namibia's Damara/Nama community, weddings have transformed into symbols of social status and economic distinction. Romania's Crișana region preserves intricate rituals that involve the entire community, while Senegal's Diola community demonstrates the interplay between ancestral customs and family-centric practices.

Despite the geographical and cultural differences, commonalities such as the significance of family involvement, symbolic rituals, and the communal nature of weddings emphasize the universal importance of marriage as a social institution. However, the study also reveals the impact of modernization, with some traditions fading while others adapt and evolve. By documenting and analyzing these practices, the research contributes to the preservation of cultural heritage and offers valuable insights for fostering cultural appreciation and sustainable tourism (Di Giovine, 2024).

An example of sustainable tourism practices could be considered the living museums of certain African countries, such as the Damaraland, Mbunza, Herero living museums, etc from Namibia where the immaterial culture of dances (Figure 21), household practices (Figure 22) and songs are performed for tourists; among the four surveyed communities only the Namibian respondents said that they have this tourist product available. The study findings underscore the need for continued ethnographic studies to safeguard and celebrate the diverse ways in which communities navigate the interplay between tradition and contemporary influences in their marital practices (Ye et al., 2024).

**Author Contributions:** Conceptualization, C.F.T and A.S.; methodology, C.F.T.; software, M.I.T.; validation, C.F.T., S.M.S., A.S., I.M. and W.W.; formal analysis, C.F.T., S.M.S., A.S., I.M. and W.W.; investigation, C.F.T., S.M.S., A.S., I.M. and W.W.; data curation, M.I.T.; writing - original draft preparation, C.F.T.; writing - review and editing, C.F.T., S.M.S., A.S., I.M. and W.W.; visualization, C.F.T., S.M.S., A.S., I.M. and W.W.; supervision, C.F.T. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Disclaimer:** All surveyed respondents from Ethiopia, Namibia, Romania and Senegal gave their consent for participating in this study.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The current study is part of a joint research conducted as a result of Erasmus mobility projects.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 15.08.2024 Revised: 30.10.2024 Accepted: 04.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2041-2051
DOI 10.30892/gtg.574spl18-1371

# LEVERAGING MACHINE LEARNING ALGORITHMS TO IDENTIFY POTENTIAL GEOSITES FOR GEOTOURISM PROMOTION IN ZIZ UPPER WATERSHED IN SOUTHEASTERN MOROCCO

**Lahbib NAIMI***
Moulay Ismail University, GL-ISI Team, Department of Computer Science, Faculty of Science and Technology, Errachidia, Morocco, e-mail: l.naimi@edu.umi.ac.ma

**Mohamed MANAOUCH**
Ibn Tofail University, Department of Geography, Faculty of Humanities and Social Sciences, Kenitra, Morocco, e-mail: mohamed.manaouch@uit.ac.ma

**Abdeslam JAKIMI**
Moulay Ismail University, GL-ISI Team, Department of Computer Science, Faculty of Science and Technology, Errachidia, Morocco, e-mail: ajakimi@yahoo.fr

**Citation:** Naimi, L., Manaouch, M., & Jakimi, A. (2024). LEVERAGING MACHINE LEARNING ALGORITHMS TO IDENTIFY POTENTIAL GEOSITES FOR GEOTOURISM PROMOTION IN ZIZ UPPER WATERSHED IN SOUTHEASTERN MOROCCO. *Geojournal of Tourism and Geosites*, 57(4spl), 2041–2051. https://doi.org/10.30892/gtg.574spl18-1371

**Abstract:** The present study aims to tackle the complex task of identifying optimal areas for defining geomorphosites in large regions, considering various influencing factors. The study focuses on Ziz Upper Watershed (ZUW), southeast Morocco, and evaluates the effectiveness of the commonly used machine learning classifier (MLC) in mapping potential geomorphosite areas. The identification and mapping of such areas are crucial for attracting and enhancing geotourism in the region. Initially, a comprehensive inventory of 120 geomorphosites was conducted, and precise measurements of three topographical parameters were taken at each site. Subsequently, the machine learning algorithm, namely Bagging was employed to develop predictive model. The performance, achieving an area under the curve (AUC) of 0.935. This models successfully identified highly favorable areas, encompassing approximately 12% of the study area. These favorable areas were predominantly situated in the western region of the study area, characterized by mountainous terrain with relatively shorter slope lengths and high altitudes. The findings of this research provide valuable guidance to decision-makers, offering a roadmap for improving the chances of discovering geomorphosites.

**Keywords:** geosites, geotourism, geomorphosite, geopark, machine learning, SE Morocco

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## INTRODUCTION

Geosites, comprising a wide range of natural features like rock formations, cliffs, canyons, caves, fossil sites, volcanic landscapes, glaciers, and various geological formations, serve as the fundamental elements for establishing geoparks and promoting the growth of geotourism (Zgłobicki et al., 2024). These sites offer valuable insights into the planet's evolution and serve as significant resources for geotourism, geoheritage, and geoconservation. Their assessment enhances geo-education and geotourism, which are crucial for increasing awareness of geological heritage (Spyrou et al., 2024). This includes areas with geological relevance, such as volcanic sites (Ramos et al., 2024), or archaeological sites (Kudla et al., 2024) that contribute to our understanding of the Earth's geological processes and the interactions between humans and the environment. The preservation and sustainable management of these sites are essential for promoting geotourism, conserving geoheritage, and fostering geoconservation efforts (Carrión-Mero et al., 2024).

In recent years, the significance of geoheritage studies has attracted a growing number of researchers, leading to increased efforts to promote geotourism and geoconservation. These studies have sparked interest and exploration in various countries worldwide. The analysis of scientific contributions indicates a growing body of work in this field, encompassing various countries, including Romania (Herman et al., 2024), Kazakhstan (Yakupova et al., 2024), South Africa (Rogerson and Rogerson, 2024), Malaysia (Abd Halim et al., 2024), and Indonesia (Mulyadi et al., 2024). This global engagement reflects the recognition of the value of geoheritage and the importance of integrating it into geotourism and geoconservation initiatives (Herrera-Franco et al., 2022). In Morocco, there has been a growing focus on the concept of geoheritage at the national level, resulting in a noteworthy emphasis on geoconservation (Errami et al., 2015a, b; Enniouar et al., 2015; Errami et al., 2024; Elkaichi et al., 2024; El Hamidy et al., 2024). This commitment to preserve and promote geoheritage is further reinforced by geomorphosite inventory initiatives undertaken by various Moroccan universities (Baadi et al., 2023; Louz et al., 2023; Bussard, 2023). These initiatives employ inventory and evaluation methodologies that aim to identify, assess, and enhance the country's rich geoheritage (Louz et al., 2023). The integration of these studies

* Corresponding author

and initiatives not only contributes to the scientific understanding of Morocco's geological heritage but also supports the development of sustainable geotourism and effective strategies for geoconservation in the country.

The literature commonly acknowledges the matter of objectivity in geosites inventorying and assessment methods, but it falls short in providing a comprehensive exploration of its inherent nature (Cameron, 2024). The inventory process serves as the most classical effective method for identifying and highlighting the representative sites within the regional geological context. This method effectively identified and highlighted nine Devonian geosites of significance in Morocco (Akhlidej et al., 2024). However, it's important to recognize that inventory is just the initial step in gaining a comprehensive understanding of the potential heritage within a specific area. It provides managers with a valuable database to implement measures for geoconservation. Current methods, including inventories and multi-criteria analyses (such as AHP and PROMETHEE), are subject to distinct limitations. One significant limitation is the inherent subjectivity of evaluations, wherein assessments based on individual expertise can differ (Bilgiç et al., 2024), resulting in varied interpretations of geological significance. Additionally, these methods may not be optimally suited for large-scale analyses, thereby complicating the identification of geosites across extensive areas (Ferrando et al., 2024).

As geosciences enter the era of big data, machine learning for the geosciences presents many challenges and opportunities (Karpatne et al., 2018; Zhao et al., 2024). However, for the purpose of improving geomorphosites assessment, a recent study conducted in the High Atlas region has made significant strides. The study specifically focused on evaluating the suitability of geotouristic stations utilizing a GIS-based multi-criteria decision analysis. As a case study, the research examined the M'Goun UNESCO Geopark, offering valuable insights into the geotourism potential of the region (Elkaichi et al., 2023).

To address the identified research gaps, this study aims to establish a comprehensive decision-making framework designed to enhance the prediction of potential geomorphosites within the mountainous regions of the eastern High Atlas in Morocco. This framework innovatively builds upon traditional GIS-based methodologies by integrating statistical analyses and machine learning algorithms, specifically targeting the identification of candidate geomorphological sites to promote geotourism. The novelty of this research lies in its methodological integration of three topographical factors with the frequency ratio (FR), a Bagging machine learning classifier, and the area under the curve of the receiver operating characteristics (AUC-ROC) metrics. This multifaceted approach seeks to improve the prediction of geomorphosites that could support geotourism initiatives in the Ziz Upper Watershed (ZUW).

## GEOGRAPHICAL AND GEOLOGICAL SETTING OF THE STUDY AREA

The ZUW is located in the southeastern region of Morocco, specifically between 32°05′48″ and 32°64′19″ N latitude, and between 04°11′72″ and 5°46′20″ W longitude (Figure 1), experiences a semi-arid climate with cold winters and dry summers (Manaouch et al., 2021). Annual precipitation ranges from 119 to 377 mm, while average annual temperatures vary between 10.2 and 19.2 °C (Manaouch et al., 2022). The elevation within the catchment spans from 1023 to 3687 meters above sea level, and the slopes typically have angles between 0 and 66° (Manaouch et al., 2023).

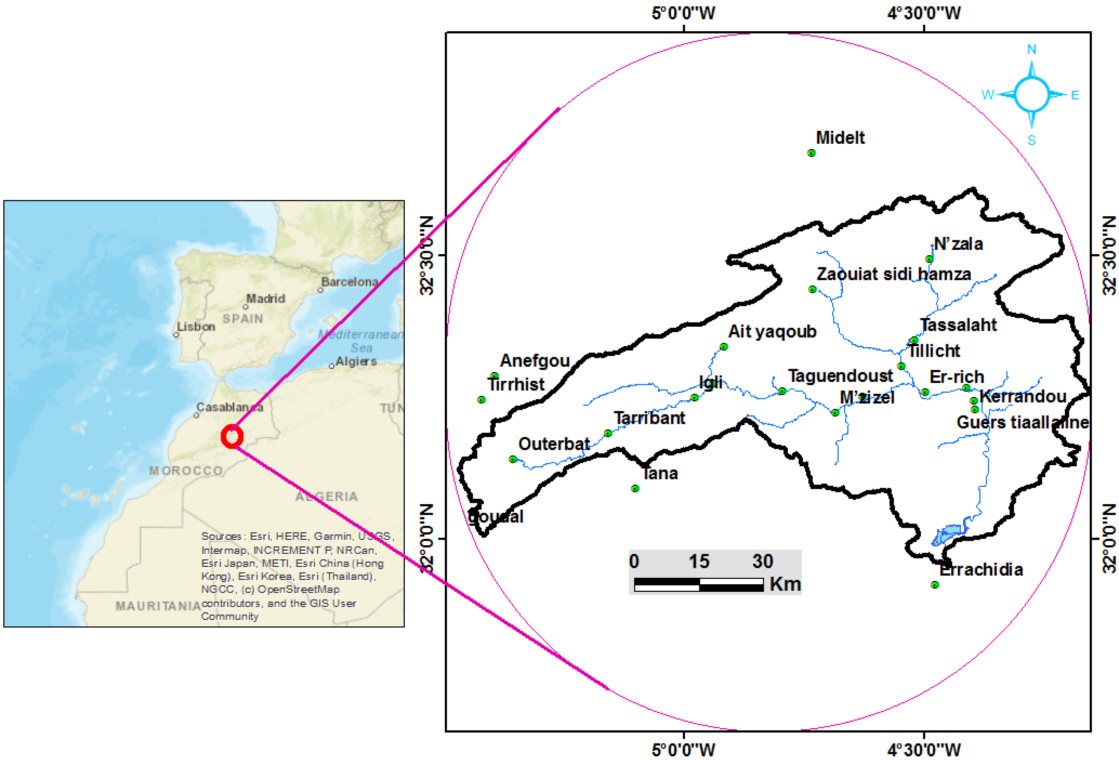


Figure 1. Location of the Ziz Upper Watershed in southeast Morocco

While Holm oak (Quercus ilex) forests are not widespread across the landscapes of the ZUW, there are a few restricted areas where these forests still exist. These remaining Holm oak forests hold significant value and have been designated as protected reserves to ensure their preservation. The ZUW is a region teeming with heritage, characterized by a wide array of sedimentological, paleontological, karstic, and geomorphological features. The geodiversity of the area is derived from a wide range of geological formations (Figure 2), spanning from the Triassic period to the more recent Quaternary era (Navas et al., 2009). However, to accurately inventory these geomorphosites, alternative techniques beyond traditional methods are required. To fill this void, the aim of this study is to address the abundant heritage of ZUW by conducting a thorough inventory using machine learning algorithms. The evaluation findings will form the basis for suggesting measures to conserve and protect the geological treasures of the region.

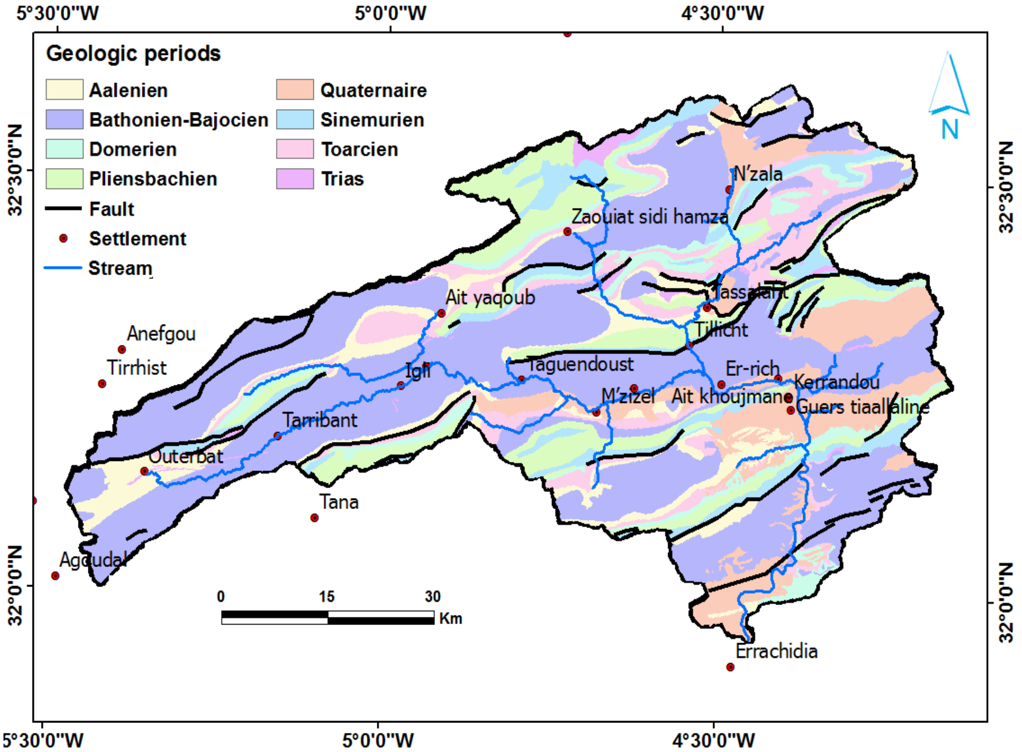


Figure 1. Geology and structural setting of the study area (Source: Nouayti et al., 2015)

The ZUW harbors a multitude of geomorphosites that serve as captivating showcases of the region's distinctive geological and geomorphological characteristics. These geomorphosites not only offer valuable insights into the geological history of the area but also provide opportunities for scientific exploration, educational endeavors, and tourism. Among the noteworthy geomorphosites within the ZUW, the Gorges of Ziz stand out prominently. These remarkable limestone gorges have been intricately carved by the Ziz River over countless millennia, resulting in a breathtaking landscape characterized by towering cliffs and meandering canyons. The allure of these geomorphosites lies in their geological importance and picturesque beauty, drawing the attention of geologists and nature enthusiasts alike.

## MATERIALS AND METHODS

This section outlines the materials and methods used for the geosite inventory. Data were gathered from geological surveys and field observations to ensure a thorough assessment of the study area's geological features. The methodologies for compiling and analyzing this data are detailed below.

### Data used and geomorphosites inventory

To precisely identify the regions where a particular phenomenon will occur, it is crucial to conduct a comprehensive analysis of the intricate relationship between the manifestation of the phenomenon and the underlying factors that have contributed to its occurrence (Al-Abadi, 2018). In order to achieve accurate identification and selection of geomorphological sites, extensive field visits were conducted within the ZUW. Through these visits, a total of one hundred twenty geomorphosites (Table 1) were identified and included in the modeling process, while an equivalent number of non-geomorphosites were also considered. This meticulous approach ensures the precision and reliability of the site selection process. Given the interconnection between geomorphological sites and topographic features, this study integrated three conditioning factors for geomorphosites (GCF), which included slope, length of slope and elevation. These factors serve as independent variables that influence the suitability of areas for the presence of geomorphological sites. These variables were measured for the 240 sites selected in the inventory (Figure 3).

To adhere to standard spatial modeling practices, the dataset was divided into two classes: training data comprising 70% and validation data comprising 30%. Data processing was carried out using ArcGIS 10.5 and SPSS[1] Statistics 26 software, both of which possess robust geoprocessing capabilities for converting geospatial data into a tabular format. This

[1] Statistical Package for the Social Sciences

conversion entails a series of steps, including importing geospatial data, defining attributes, executing geoprocessing tools, configuring parameters, and performing geoprocessing operations.

Table 1. Coordinate system of the 120 inventoried geosites

| Site N° | X[2] | Y* | Site N° | X* | Y* | Site N° | X* | Y* | Site N° | X* | Y* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -4.36806 | 32.17361 | 31 | -4.54833 | 32.32222 | 61 | -4.36222 | 32.13417 | 91 | -4.36806 | 32.09083 |
| 2 | -4.36861 | 32.17389 | 32 | -4.54806 | 32.32278 | 62 | -4.36194 | 32.13472 | 92 | -4.36917 | 32.09083 |
| 3 | -4.36333 | 32.17389 | 33 | -4.52139 | 32.22167 | 63 | -4.36194 | 32.13472 | 93 | -4.36972 | 32.09111 |
| 4 | -4.36556 | 32.17278 | 34 | -4.52639 | 32.22083 | 64 | -4.36278 | 32.13417 | 94 | -4.37028 | 32.09083 |
| 5 | -4.37222 | 32.17167 | 35 | -4.53028 | 32.21972 | 65 | -4.36167 | 32.13556 | 95 | -4.37111 | 32.09056 |
| 6 | -4.37306 | 32.17083 | 36 | -4.50028 | 32.22639 | 66 | -4.36139 | 32.13556 | 96 | -4.37111 | 32.09028 |
| 7 | -4.36722 | 32.15389 | 37 | -4.49861 | 32.22833 | 67 | -4.36111 | 32.13556 | 97 | -4.37222 | 32.09028 |
| 8 | -4.37000 | 32.15361 | 38 | -4.49389 | 32.22611 | 68 | -4.36472 | 32.13278 | 98 | -4.37306 | 32.09028 |
| 9 | -4.36861 | 32.15361 | 39 | -4.49333 | 32.23028 | 69 | -4.36306 | 32.13389 | 99 | -4.37306 | 32.09056 |
| 10 | -4.37944 | 32.11000 | 40 | -4.49417 | 32.22917 | 70 | -4.36222 | 32.13500 | 100 | -4.37222 | 32.09056 |
| 11 | -4.38861 | 32.10583 | 41 | -4.49806 | 32.22833 | 71 | -4.36222 | 32.13500 | 101 | -4.37611 | 32.10306 |
| 12 | -4.39167 | 32.10361 | 42 | -4.49194 | 32.22972 | 72 | -4.36194 | 32.13556 | 102 | -4.37667 | 32.10278 |
| 13 | -4.39278 | 32.10139 | 43 | -4.48556 | 32.23139 | 73 | -4.35944 | 32.12528 | 103 | -4.37750 | 32.10222 |
| 14 | -4.38528 | 32.10778 | 44 | -4.48528 | 32.23194 | 74 | -4.35944 | 32.12500 | 104 | -4.37778 | 32.10250 |
| 15 | -4.37972 | 32.10972 | 45 | -4.48111 | 32.23222 | 75 | -4.35972 | 32.12500 | 105 | -4.37889 | 32.10222 |
| 16 | -4.37667 | 32.11361 | 46 | -4.47833 | 32.23361 | 76 | -4.35944 | 32.12472 | 106 | -4.38028 | 32.10167 |
| 17 | -4.37167 | 32.14444 | 47 | -4.47528 | 32.23556 | 77 | -4.35944 | 32.12444 | 107 | -4.38111 | 32.10139 |
| 18 | -4.37222 | 32.14361 | 48 | -4.47472 | 32.23472 | 78 | -4.35972 | 32.12417 | 108 | -4.38139 | 32.10139 |
| 19 | -4.37361 | 32.14389 | 49 | -4.47472 | 32.23500 | 79 | -4.35972 | 32.12361 | 109 | -4.38167 | 32.10111 |
| 20 | -4.37500 | 32.14389 | 50 | -4.47444 | 32.23528 | 80 | -4.36000 | 32.12361 | 110 | -4.38389 | 32.10056 |
| 21 | -4.35778 | 32.14056 | 51 | -4.47389 | 32.23556 | 81 | -4.36028 | 32.12306 | 111 | -4.38333 | 32.10028 |
| 22 | -4.35722 | 32.14083 | 52 | -4.47306 | 32.23611 | 82 | -4.36028 | 32.12278 | 112 | -4.38417 | 32.09972 |
| 23 | -4.35750 | 32.13500 | 53 | -4.47278 | 32.23639 | 83 | -4.36444 | 32.09222 | 113 | -4.38722 | 32.09778 |
| 24 | -4.35306 | 32.13389 | 54 | -4.36028 | 32.15944 | 84 | -4.36333 | 32.09222 | 114 | -4.38806 | 32.09667 |
| 25 | -4.35222 | 32.13389 | 55 | -4.36750 | 32.17194 | 85 | -4.36528 | 32.09139 | 115 | -4.38833 | 32.09611 |
| 26 | -4.35083 | 32.13389 | 56 | -4.38139 | 32.14722 | 86 | -4.36611 | 32.09139 | 116 | -4.38889 | 32.09500 |
| 27 | -4.36167 | 32.13861 | 57 | -4.36222 | 32.13444 | 87 | -4.36667 | 32.09139 | 117 | -4.38972 | 32.09333 |
| 28 | -4.36111 | 32.13833 | 58 | -4.36306 | 32.13333 | 88 | -4.36667 | 32.09111 | 118 | -4.38972 | 32.09278 |
| 29 | -4.36444 | 32.14639 | 59 | -4.36278 | 32.13361 | 89 | -4.36722 | 32.09111 | 119 | -4.39000 | 32.09222 |
| 30 | -4.36361 | 32.14444 | 60 | -4.36278 | 32.13389 | 90 | -4.36806 | 32.09111 | 120 | -4.39056 | 32.09083 |

Additionally, to ensure the accuracy and performance of the model, the area under the curve (AUC) of the receiver operating characteristics (ROC) was utilized for validation. The AUC/ROC method is widely employed in geospatial modeling studies, as emphasized by Manaouch et al. (2021), to assess and validate the reliability of the models.

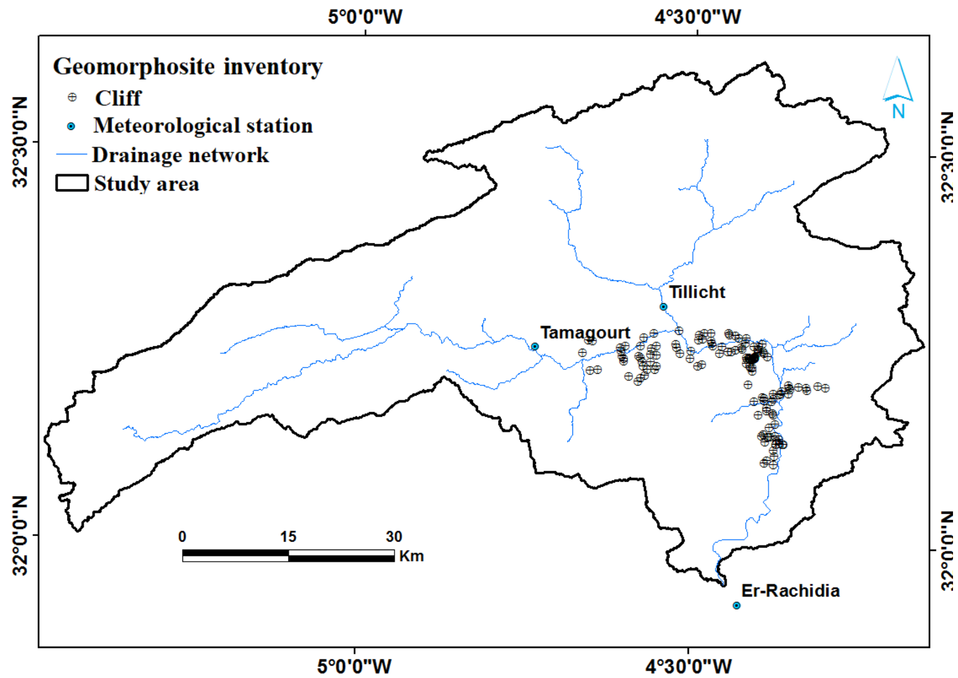


Figure 3. Geomorphosite inventory map (data collected from field surveys, 2024)

[2] Lambert Conformal Conic projection

### Variety of gemorphological sites

Geotourism is centered around the exploration and appreciation of geomorphosites, which encompass captivating natural features such as canyons and cliffs. These remarkable geological formations serve as major attractions, drawing visitors and tourists from far and wide. Within the ZUW, canyons and cliffs hold a pivotal position in the realm of geotourism, offering abundant opportunities for exploration, learning, and the unveiling of geological marvels within the region. Scattered along the Ziz valley, these sites entice tourists and visitors, inviting them to pause and capture breathtaking photographs during their journeys. The following figure (Figure 4) illustrates examples of geomorphosites found along the Ziz valley, including tabular structures, inclined formations, canyons and cliffs.


Figure 4. Examples of geomorphosites identified within the study areas include inclined formations (a) in Hammat Moulay Ali Cherif, canyon (b) at Zaabal Tunnel, tabular formations (c) in Hammat Moulay Ali Cherif, and col (d) in Tamrakecht (Source: Jbdodane, 2024

### METHODOLOGY

Figure 5 depicts a flowchart that shows the step-by-step process of mapping the suitability of geomorphosites utilizing an advanced machine learning algorithm. The subsequent sections delve into a more comprehensive explanation of this methodology.

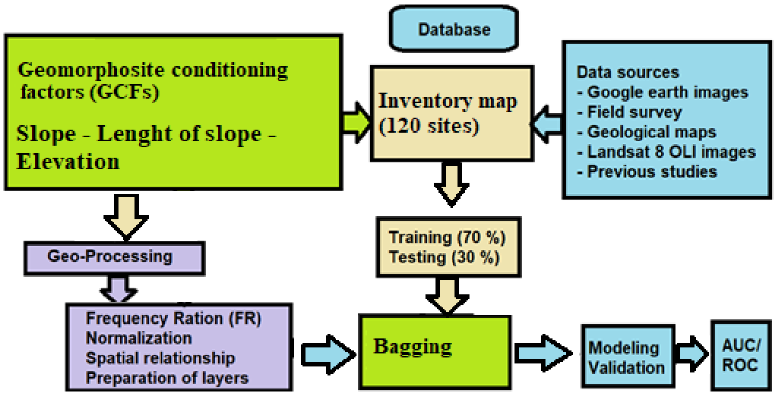


Figure 5. Flow chart of the modelling strategy used

### Geomorphosites conditioning factors (GCFs)

Geomorphosites are influenced by key topographic data such as slope, slope length, and elevation. These factors shape the characteristics and distribution of these remarkable landforms. Figures 6, 7 and 8 display the maps depicting each factor (slope, slope length, and elevation) within the studied area.

**Slope**

A slope in the context of geomorphosites refers to the angle or gradient of a landform's surface. Geomorphosites are specific locations on Earth that have significant geological, geomorphological, or paleontological value. They can include features such as cliffs, mountains, canyons, and other landforms. The formula for calculating slope in ArcGIS is derived from the change in elevation between adjacent cells in a Digital Elevation Model (DEM) raster dataset, which was obtained from the Shuttle Radar Topography Mission (SRTM) provided by the U.S. Geological Survey (USGS) through the EarthExplorer portal (https://earthexplorer.usgs.gov/). The slope is calculated as the ratio of the vertical change in elevation (rise) to the horizontal distance (run) between the cells. The formula for calculating slope in ArcGIS is generally expressed as:

$$\text{Slope} = \text{Rise} / \text{Run} \quad (1)$$

Where Rise is the change in elevation between two neighboring cells in the DEM dataset and the Run present the horizontal distance between the two neighboring cells.

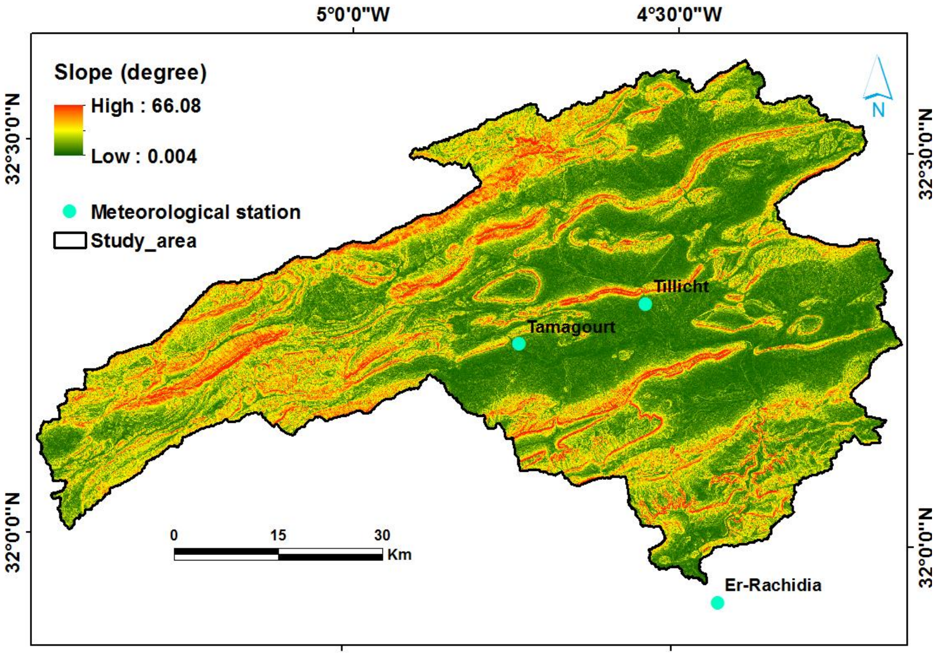


Figure 6. The slope map of the studied area

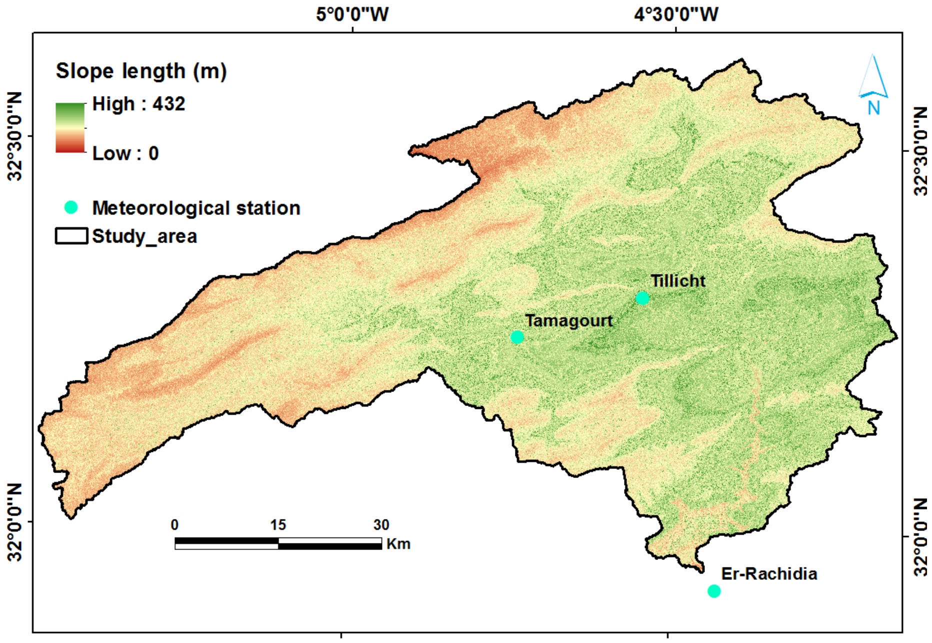


Figure 7. The slope length map of the studied area

**Length of slope (LS)**

The measurement of slope length is a significant factor when describing and defining landforms within geomorphosites. Geomorphosites can consist of different types of slopes, including hillsides, cliffs, and valleys. Quantifying the length of slope aids in assessing the size and magnitude of these landforms. In this study, the LS factor map, displayed in Figure 7, was derived from the Digital Elevation Model (DEM) using ArcGIS 10.5 software. The LS factor values range from 0 to

432 meters. This extraction was performed based on the formula developed by Bizuwerk et al. (2003), which follows the methodology established by Wischmeier and Smith (1978):

$$LS = \left(\frac{L}{22.13}\right)^m (65.41 sin^2(S) + 4.56 \sin(S) + 0.065) \qquad (2)$$

Where: LS is the Slope length (m); L= flow accumulation × DEM spatial resolution and S is the slope gradient (in %).

m: Constant which is equal to: 0.5 for slopes greater than 5%; 0.4 for slopes of 3.5 to 5%; 0.3 for slopes of 1 to 3.5% and 0.2 for slopes of less than 1%.

These values of slope gradient and the corresponding constant are used to determine the slope length in the equation.

**Elevation**

In relation to geomorphosites, elevation is an important characteristic used to describe and differentiate various landforms. Geomorphosites can have different elevations, ranging from low-lying areas such as valleys or plains to high-elevation features like mountains or plateaus. Elevation influences the climate, vegetation, and geological processes occurring within a geomorphosite. Measuring elevation is typically done using surveying techniques, satellite-based systems (e.g., GPS), or remote sensing methods such as Light Detection and Ranging (LiDAR) or radar. These technologies provide accurate elevation data that can be used to create digital elevation models (DEMs) or topographic maps. Elevation, within the context of geomorphosites, refers to the vertical distance or height of a point or location above a reference datum. It is a fundamental parameter used to describe the vertical position of landforms and is essential for understanding the characteristics, processes, and geological significance of geomorphosites.

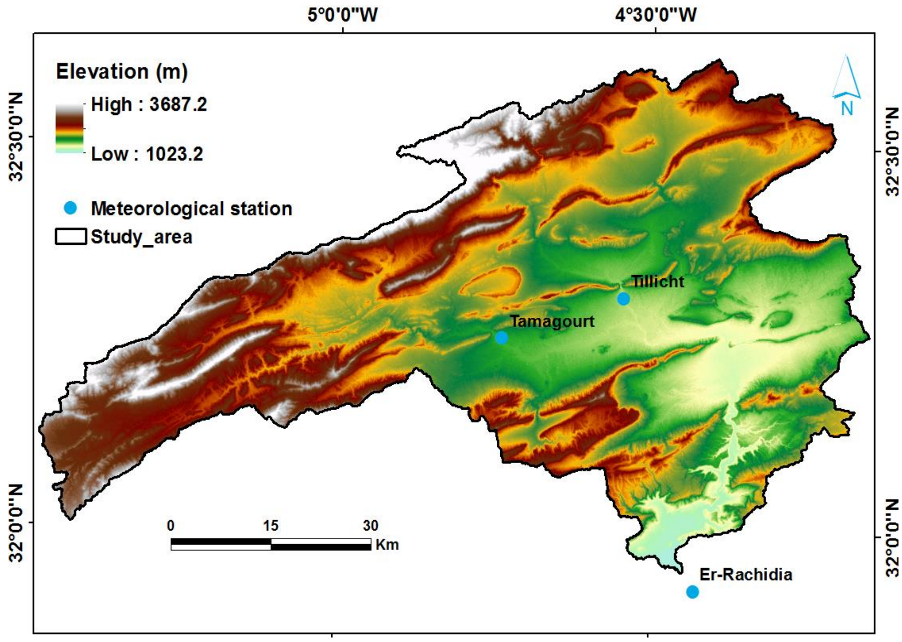

Figure 8. The altitude map of the studied area

**Bagging and Frequency ratio (FR)**

The Bagging method, derived from "Bootstrap Aggregating," involves two primary steps as outlined by Breiman (2001). The initial step involves bootstrapping the samples extracted from the raw data, resulting in multiple training datasets. Subsequently, multiple models are constructed using these training datasets. The ultimate predictions are derived by aggregating the results of these models to obtain a final outcome. The Bagging model is extensively employed in geospatial modeling, such as in the assessment of landslide susceptibility conducted by Zhang et al. (2024), and in the evaluation of agricultural land suitability conducted by Agrawal et al. (2024).

Frequency ratio (FR): The geomorphosites conditioning factors database aims to select and analyze the relationship between various parameters associated with geomorphosites. These parameters undergo normalization using methods like the frequency ratio, as described by Manaouch et al. (2024). The frequency ratio compares the percentage of geomorphosites' presence to the percentage of area occupied by different classes of each conditioning factor. An increased frequency ratio, as noted by Samanta et al. (2018), indicates a higher likelihood of phenomenon occurrence.

$$FRi = (Ni/N)/(Si/S) \qquad (3)$$

Where FRi denotes the frequency ratio of the $i^{th}$ class of a conditioning factor. Ni signifies the count of geomorphosites within the $i^{th}$ class, while Si represents the area size of that class. N corresponds to the total number of geomorphosites present in the study area, and S indicates the total area encompassed by the study. The results section presents the calculated frequency ratio values for the three conditioning factors, each comprising multiple classes. To facilitate analysis, these values are normalized using the normalize filter method, which transforms them into a range of 0.1 to 0.9. A normalized value closer to 1 indicates a stronger association between geomorphosites and the corresponding factor, whereas a value closer to 0 indicates a weaker association. The spatial relationship between the conditioning factors and geomorphosites is assessed through the frequency ratio calculation, the outcomes of which are displayed the results section for all factors.

**Performance and model's validation**

Ensuring the validation of results is crucial in any modeling process. In this study, the evaluation of the generated map indicating potential geomorphosites areas was performed using the area under the curve (AUC) of the receiver operating characteristics (ROC). The AUC/ROC analysis involved 120 geomorphosites along with the classified map depicting potential geomorphosites within the study area. The geomorphosites suitability map was categorized into four groups based on actual and predicted labels: true positive (TP), true negative (TN), false positive (FP), and false negative (FN) events, as outlined in Table 2.

Table 2. Data labeling (predicted and actual)

| Actual label | Predicted label | |
|---|---|---|
| | Positive | Negative |
| Positive | TP | TN |
| Negative | FP | FN |

The values of TP are True Positive, FP are False Positive, TN are True Negative and FN are False Negative. TPR (True Positive Rate) and FPR (False Positive Rate) were computed using the provided equations. Following that, the ROC curve was generated by plotting the FPR values on the X-axis and the TPR values on the Y-axis:

$$TPR = TP/(TP + FN) \quad (4)$$

$$FPR=FP/(FP+TN) \quad (5)$$

**RESULTS**

**Geomorphosites and conditioning factors**

The assessment results of the spatial relationship between GCF (Geomorphosites Conditioning Factors) and geomorphosites points using frequency ratio (FR) are presented in Table 3.

Table 3. Spatial relationship between slope and geomorphosites points using frequency ratio (FR)

| GCF | Class | No. of pixels in class | % of class | No. of sites | % of sites | Frequency Ratio | |
|---|---|---|---|---|---|---|---|
| | | | | | | FRi | FRn |
| Slope (°) | 1 | 1809027 | 0.37 | 2 | 0.016 | 0.045 | 0.1 |
| | 2 | 1250863 | 0.25 | 9 | 0.075 | 0.3 | 0.12 |
| | 3 | 881995 | 0.18 | 16 | 0.13 | 0.74 | 0.15 |
| | 4 | 672053 | 0.14 | 24 | 0.2 | 1.43 | 0.21 |
| | 5 | 304042 | 0.06 | 69 | 0.575 | 9.58 | 0.9 |
| Elevation (m) | 1 | 393526 | 0.08 | 1 | 0.0083 | 0.1 | 0.1 |
| | 2 | 850896 | 0.17 | 4 | 0.033 | 0.2 | 0.1 |
| | 3 | 837542 | 0.17 | 14 | 0.116 | 0.69 | 0.13 |
| | 4 | 885384 | 0.18 | 0 | 0 | 0 | 0.1 |
| | 5 | 655483 | 0.13 | 3 | 0.025 | 0.2 | 0.1 |
| | 6 | 552065 | 0.11 | 0 | 0 | 0 | 0.1 |
| | 7 | 409303 | 0.08 | 73 | 0.608 | 7.6 | 0.55 |
| | 8 | 240897 | 0.05 | 25 | 0.208 | 4.17 | 0.34 |
| | 9 | 92885 | 0.02 | 0 | 0 | 0 | 0.1 |
| Length of slope (m) | 1 | 21828 | 0 | 0 | 0 | 0 | 0.1 |
| | 2 | 76772 | 0.02 | 0 | 0 | 0 | 0.1 |
| | 3 | 1015571 | 0.21 | 4 | 0.033 | 0.16 | 0.11 |
| | 4 | 1949329 | 0.4 | 24 | 0.2 | 0.5 | 0.24 |
| | 5 | 1855923 | 0.38 | 92 | 0.7666 | 2.02 | 0.81 |

**Geomorphosites suitability map**

Figure 9 depicts the geomorphosites suitability map generated by the Bagging classifier.

The map highlights that the northern and western regions exhibit higher suitability for potential geomorphosites compared to other areas. In order to better understand the reasons behind the observed variations and to comprehend the factors contributing to the suitability or unsuitability of specific areas, we sought the expertise of local experts who possess extensive knowledge of the region. Additionally, we validated our findings by cross-referencing them with images obtained from Google Earth. Figure 11 shows the respective area percentages of these suitability classes for the generated map.

**Model's performance**

The Bagging classifier's effectiveness was evaluated using the AUC/ROC method. In the training phase, the classifier achieved an average accuracy rate of 97.29%. During the validation phase, notable variation in classifier performance was observed, as shown in Figure 10. The AUC value obtained was 0.935, indicating that the Bagging classifier was effective in modeling geomorphosites suitability mapping in ZUW.

**DISCUSSION**

**Analysis of Precision:** The performance of machine learning models (MLMs) can vary depending on the specific algorithm employed. In the case of Bagging, its performance was assessed using the 10-fold cross-validation method during the training phase, resulting in a high level of performance with an AUC value of 0.972. However, during the validation phase, the performance of Bagging decreased to 93.5%, as shown in Figure 10. It is generally observed that algorithms with higher AUC values tend to exhibit more accurate and efficient prediction capabilities, as noted by Su et al. (2021). Based on the current AUC value of Bagging, it can be inferred that Bagging performs comparatively lower than the results reported by Manaouch et al. (2023) in predicting potential reforestation areas. However, it is important to note that Bagging still exhibits a favorable level of accuracy and efficiency, as evidenced by its AUC value of 0.935.

**Distribution of suitable geomorphosites areas**

The data attribute obtained from ZUW underwent preprocessing using the stored version of the Bagging classifier. During this preprocessing step, geomorphosite suitability indices were calculated for each pixel within the study area. To classify these suitability indices, the "Natural breaks" algorithm was utilized, resulting in the creation of four classes: low, moderate, high, and very high. This process led to the creation of a geomorphosite suitability map, depicted in Figure 9. The results indicate that approximately 12% of the entire study area consists of areas classified as highly suitable for potential geomorphosites, as shown in Figure 10. According to the Bagging model, the southern parts exhibit low suitability for potential geomorphosites, while the mountainous regions to the west and north demonstrate high suitability. Additionally, the Bagging model reveals that areas classified as very highly suitable for geomorphosites are scattered along the Ziz wadi, located to the south of ZUW.

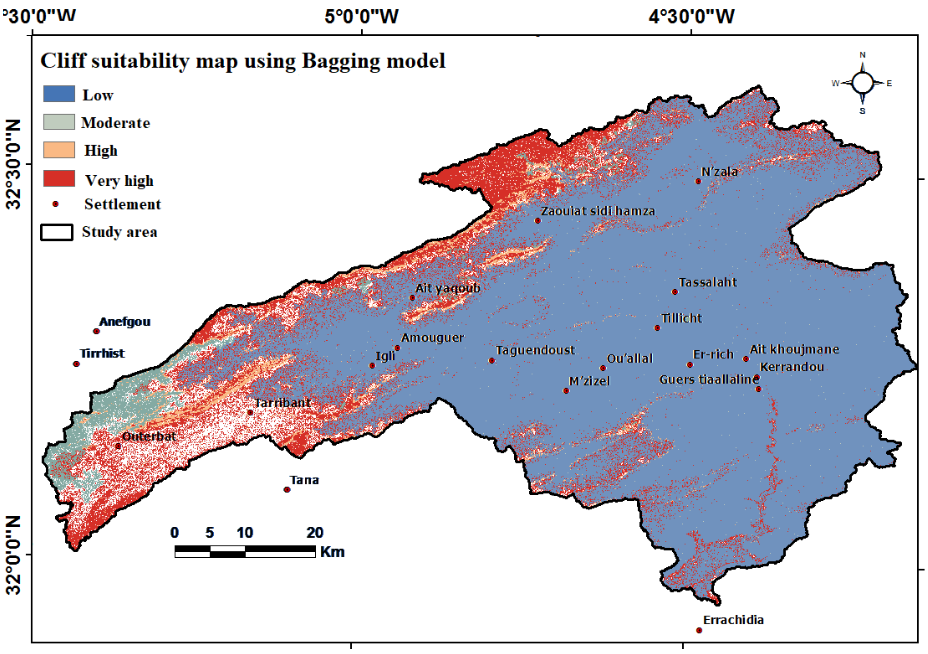

Figure 9. Generated geomorphosite suitability map using Bagging

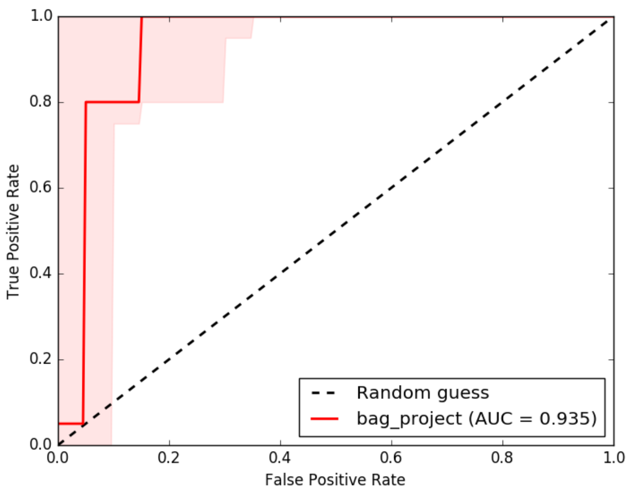

Figure 10. Prediction rate curve for geomorphosite suitability map produced by Bagging

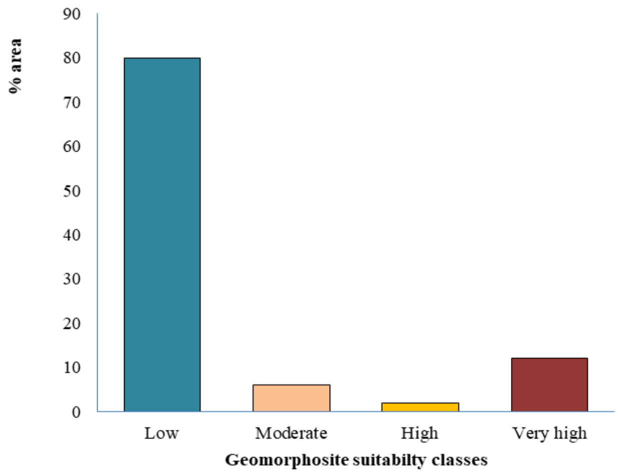

Figure 11. Percentage of geomorphosites suitability classes' areas for Bagging model

## CONCLUSION

The integration of topographical data and Bagging offers significant potential for enhancing geotourism through the identification of suitable geomorphosites. By testing Bagging classifier that utilize topographical features such as slope, length of slope, and elevation, and validating the resulting map using the AUC/ROC metric, valuable insights can be obtained to identify potential geotourism sites in the ZUW in Southeast Morocco.

By incorporating slope, length of slope, and elevation as input variables, Bagging can accurately predict and map areas with high geotourism potential within a future geopark in the Ziz region. Based on the findings, the potential areas for geomorphosites, accounting for approximately 12%, are dispersed primarily in the northern and western regions, as well as around the Ziz wadi, particularly in the downstream part of the study area.

In the current study, the AUC/ROC evaluation metric, which provides a reliable measure of the algorithms' ability to differentiate between suitable and unsuitable geotourism geomorphosites, achieved an impressive score of approximately 93.5%. This indicates that Bagging performed exceptionally well in accurately identifying and distinguishing potential geotourism sites. This validation approach ensures the reliability and accuracy of the generated map, enabling decision-makers and stakeholders in the tourism industry to confidently identify and prioritize areas for geotourism development. Through the strategic utilization of integrated topographical data and machine learning algorithms, stakeholders in the geotourism sector can make well-informed decisions pertaining to site selection and investment. This approach plays a crucial role in fostering the sustainable development of geotourism destinations within the ZUW, specifically in the context of establishing a future geopark. By leveraging the power of advanced data analysis and predictive modeling, stakeholders can accurately identify and prioritize areas with the highest geotourism potential, ensuring optimal allocation of resources and maximizing the positive impact on both the environment and local communities. This approach promotes the preservation of natural and cultural heritage, fosters economic growth, and enhances the overall visitor experience, ultimately advancing geotourism in the region.

**Author Contributions:** Conceptualization, L.N. and M.M.; methodology, L.N. and M.M.; software, L.N. and A.J.; validation, M.M. and A.J.; formal analysis, L.N. and M.M. and A.J.; investigation, L.N. and M.M.; data curation, L.N. and M.M.; writing - original draft preparation, L.N. and M.M.; writing - review and editing, L.N and A.J; visualization, L.N and M.M and A.J; supervision, M.M. and A.J.; project administration, A.J. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received funding from the National Scientific and Technical Research Center (CNRST) under Moroccan project termed “Al-Khawarizmi program in AI and its Applications”.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data used to support the results of this research are available from the corresponding author upon request.

**Acknowledgements:** The authors would like to thank Mr. N. Khan for his valuable help during the validation step.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 15.09.2024 Revised: 01.11.2024 Accepted: 04.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2052-2059
DOI 10.30892/gtg.574spl19-1372

# ENCOURAGING VIRTUAL REALITY EXPERIENCES: THE EFFECT ON TOURISTS' INTENTION TO VISIT TOURISM DESTINATION

**Cheng-Wen LEE**

Chung Yuan Christian University, Department of International Business, Taoyuan City, Taiwan, e-mail: chengwen@cycu.edu.tw

**Idris IDRIS***

Chung Yuan Christian University, Program in Business, Taoyuan City, Taiwan; Universitas Negeri Malang, Social Studies Program, Malang, Indonesia, e-mail: idris.fis@um.ac.id

**Citation:** Lee, C.W., & Idris, I. (2024). ENCOURAGING VIRTUAL REALITY EXPERIENCES: THE EFFECT ON TOURISTS' INTENTION TO VISIT TOURISM DESTINATION. *Geojournal of Tourism and Geosites*, 57(4spl), 2052–2059. https://doi.org/10.30892/gtg.574spl19-1372

**Abstract:** This study aims to analyze the relationship among virtual reality experiences, virtual reality experiential outcomes, destination awareness, and intention to visit a destination. It is also investigated regarding the mediating role of the virtual reality experiences and destination awareness on intention to visit. This study used a questionnaire to collect data from tourist experiences using a virtual reality application. The 115 data collected were analysed by Partial Least Square (PLS) analysis. The finding indicates that the virtual reality experience does not significantly influence intention to visit. Furthermore, the results of the virtual reality experience also proved not to significantly influence intention to visit, so the virtual reality experiential outcomes were not able to become an important factor as an indirect relationship between virtual reality experiences and intention to visit a destination. However, the virtual reality experience still has an influence on destination awareness and has an indirect effect on intention to visit destinations through mediation from destination awareness. Therefore, tourism managers must be able to utilize VR as an information medium related to the destinations offered, so that tourists will get a lot of useful information to be more familiar with these destinations which will ultimately influence the intention to visit a destination. The limitations of the study and future research agenda are also highlighted.

**Keywords:** virtual reality experiences, virtual reality experiential outcomes, destination awareness, and intention to visit destinations

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## INTRODUCTION

Tourism is a service industry that relies on experience in which the product is intangible (Tasci and Gartner, 2016). The intangible of tourism products makes the tourism industry vulnerable to threats and risks (i.e., crime, natural disasters, disease outbreaks, socio-political instability). This also makes tourists have difficulty in assessing the attractiveness of a tourist destination because in making a travel decision it is only based on perception, not reality (Hudson et al., 2011; Ye and Tussyadiah, 2011). In addition, the perception of risk is important for tourists in determining the trip to the destination. Increasing natural threats (e.g., disease outbreaks, natural disasters) can inhibit tourist arrivals (Chew and Jahari, 2014). The emergence of the Covid 19 disease outbreak in recent years is an example of the risk perception in tourism. The Covid 19 pandemic resulted in a dramatic decline in tourism industry (Abbas, 2021). The pandemic impacted a tourist behavior such as canceling planned travel (Bauer et al., 2021).

Now, however, the tourism industry is slowly recovering and there is new interest and opportunities for technology advancement contributing to the recovery of some destinations (Yung et al., 2021). Tourism stakeholders during the post-pandemic period are trying to market their tourism products in a way that is attractive to tourists. A virtual reality (VR) is one of the product that has been widely used around the globe. The advantages in terms of interactivity, diving, and spatial visualization provided by VR are one of the reasons for using this technology in tourism (Guttentag, 2010). In addition, with these advantages VR can provide a view that it can be an outsanding resource for marketing intangible tourism and experiences as a product (Huang et al., 2016; Hyun and O'Keefe, 2012). The use of VR in tourism is used as a medium for tourism promotion (Adachi et al., 2020; Griffin et al., 2017, 2022; Idris et al., 2021). Several studies have revealed that the use of VR is an effective and efficient promotional tool to use. The main reason is because VR can reduce uncertainty related to intangible tourism products. The "try before you buy" option can reduce tourists' worries in deciding their trip because they get a more realistic experience of the destination (Alyahya and McLean, 2022). As a result tourists can be more interested in visiting destinations they have never visited before (Pantano and Servidio, 2011).

Virtual Reality (VR) refers to a computer-generated 3D environment where users can navigate and interact in real-time simulations (Gutierrez et al., 2008; Guttentag, 2010). Computerized interfaces are used in VR to simulate 3D objects such as places, people and other entities in a virtual environment (VE) so that they can involve the use of one or more senses and interact in real time. Then, at the same time, a user gets a sense of presence (Hudson et al., 2019; van Kerrebroeck et al.,

* Corresponding author

2017). The VR in tourism is intended to make tourists can experience VR applications or so-called virtual reality experiences (VRE). Goodwin (2016) revealed that there are six dimensions of VRE including 360 photo and video emulation, VR with interactivity and haptic landscape, and directional motion. However, based on several studies revealed that VRE is affected by "immersion". It is a process of involving the user until they are fully immersed in VE to forget about time and escape from the real world for a while (Vynogradova, 2014; Yee, 2006).

Virtual reality experiential outcomes (VREO), on the other hand, focuses on the results obtained directly from an experience. A number of studies suggest that cognitive orientation or similar influences are common themes associated with end-state experiences. Cognitive experiential outcomes involve conscious thoughts or mental states, while affective experiential outcomes are related to a person's moods, feelings, and emotions (Fernandes and Cruz, 2016). Experiential outcomes consist of loyalty, satisfaction, and advocacy. The experiential outcome is the result of the actual experience (Hassenzahl and Tractinsky, 2011). In VR use, experience outcomes relate to how VR impact users thought processes, feel, and conclusions of their VR experiences (Singh, 2018). Moreover, destination awareness (DA) refers to knowledge, experience, awareness, and expertise (Sharifpour et al., 2013). According to Alba and Hutchinson (1987) DA has a relationship with experience. DA, in the tourism concept, is often conceptualized as one dimension from previous visits (Milman and Pizam, 2016; Sun et al., 2013). However, according to Gursoy (2011) non-visitors can also have certain DA due to knowledge. Education, mass media, travel guides, personal contacts, and the Internet are very helpful in obtaining information on tourist destinations even before visiting them (Xiang et al., 2015). To summarise, the previous studies on experience outcomes, and destination awareness are still rare, especially related to the VR context. Thus, this study aims to examine the correlation among virtual reality experiences (VRE), virtual reality experiential outcomes (VREO), destination awareness (DA), and tourist intentions to visit tourist destinations (IVD).

## LITERATURE REVIEW AND HYPOTHESES

### VRE and IVD

Based on the recent literature, it can be indicated that the minimum requirements to be able to experience VRE have not been well defined. Perez-Marcos (2018) offers VRE dimensions including immersion, interaction, usability, and illusion. The immersion most likely to be associated with VRE is defined as user engagement during the consumption phase, which makes them momentarily forget about the real environment (Vynogradova, 2014). Interaction in VRE naturally starts with visual space exploration. When the user is experiencing immersion, at that time he also performs interaction changing the view point in looking around. That is because their path in the VR environment is predetermined and cannot be changed (Strickland, 2019). The usage is related to users' efficiency, effectiveness, and satisfaction in achieving their goals (Diels et al., 2017). This means that usability is a software product that is easy to understand, learn, and use by users as well as being attractive when used under certain conditions (Costasible, 2001). In the meanwhile, a variety of perceptual illusions pertaining to space, environment, and self make up illusions in VRE (Perez-Marcos, 2018).

Travel motivation or intention visit destination (IVD) has a vital role for tourism planning and marketing. Several tourism literatures in the last decade have examined IVD to understand tourist behavioral intentions in choosing tourism destinations (Lam and Hsu, 2006). One popular motivational model for travel intention is push and pull (Crompton, 1979). The push and pull factors are the two strengths that make up the intention to choose tourist places according to the push and pull travel intention model. Human needs, such as the need to escape, explore new things, seek adventure, fulfill dreams, rest and relax, maintain one's physical and mental well-being, maintain one's social standing, and so on, provide the push factor. Pull factors, which include things like food, people, recreational facilities, historical and natural features, and the destination's image, are external elements that draw people to recognize the desire for specific travel experiences. As a result, the pull element helps to clarify the destination decision, while the push factor helps to explain the urge to travel (Uysal and Jurowski, 1994). As a result, an individual's IVD is drawn toward an objective by outside influences and pushed by internal motivations. Guttentag's research (2010) demonstrated how VR can, but only to a certain extent, meet every push element for an individual. For instance, offering a means of escape, even if it's merely psychological. While the experience felt through reproductions won't be the same as the experience felt in real life, it might still offer novelty and excitement for VR users (Stangl and Weismayer, 2008). VR is also capable of meeting all of a person's pull factors, although only to a certain extent. For example, recreating sites or objects in a virtual environment that is much better than activity, and can enjoy social interaction (Wall and Mathieson, 2006). Therefore, the first hypothesis proposed regarding the relationship between VRE and IVD is as follows.

**H1.** There was a positive effect between VRE and IVD.

### VREO and IVD

VREO is the outcome of travelers' subjective reactions and their experiences with how they feel when engaging in tourism-related activities (Quan and Wang, 2004). The term VREO describes the impact of virtual reality on tourists, including their emotions and inferences from the experience. VREO is seen as the outcome of visitors' emotional interactions with virtual reality technology, which are predicated on their happiness, loyalty, and advocacy for the medium (Singh, 2018). VR experiential satisfaction is a reflection of the satisfaction felt from VR content. Visitors can compare between their experiences from VR and their expectations of VR, the result is positive and negative disconfirmation can occur (Kao et al., 2008). VR experiential loyalty is related to how users experience a VR environment and have the desire to re-purchase VR products and services provided by service providers (Kim et al., 2020). The VREO discussed in this study is VR experiential advocacy. However, in this study it was combined with VR experiential loyalty. VR experiential advocacy relates to how tourists are willing to provide recommendations and praise for VR technology provided to other tourists (Wu and Cheng, 2017). Numerous VR research demonstrated a connection between IVD and VR experience enjoyment (Hosany et al., 2016; Loureiro et al., 2021). Research from Kim et al. (2020) showed positive results that VR engagement directly influences individuals' intention to visit destinations they have visited virtually. Loureiro et al. (2021) also found that VR experiential satisfaction is a significant driver in tourist IVD. Meanwhile, experiential satisfaction and experiential loyalty are two basic things in success in any business (Rust and Chung, 2006). Both of these are related to the conceptualization of combining the idea that the service experienced subjectively by users is better measured by predictors of experiential satisfaction and experiential loyalty than measured objectively (Oliver, 2014). This indicates that these factors have a meaningful association with one another. Regarding the connection between VREO and IVD, there is still unanswered study.

**H2.** There was a positive effect between VREO and IVD.

**DA and IVD**

The ideas of awareness, knowledge, experience, and competence are frequently connected to the concept of destination awareness (DA) (Sharifpour et al., 2013). The quantity of customer experiences pertaining to a product is what defines DA. In other words, DA is a conception of past visits or the quantity of past visits (Alba and Hutchinson, 1987; Sun et al., 2013). However, several studies also show that DA cannot only be obtained from experience, but can also be obtained from education, mass media, personal contact with other individuals, and travel guides (Gursoy, 2011; Xiang et al., 2015). Consequently, DA is more related to the hunt for information and the time spent finding it (Baker et al., 1986). Thus, there are two definitions of DA and experience gained from prior information, knowledge gained from information about service providers and knowledge gained from direct engagement with service providers (Huang et al., 2014; Webb, 2006).

Numerous investigations have demonstrated that DA and IVD do, in fact, have a favorable association (Chen and Lin, 2012; Tsai, 2012). Baloglu (2001) showed that information which is important in DA also has a positive relationship with IVD. In addition, a person's subjective knowledge is also an important indicator in making decisions to visit a destination (Sharifpour et al., 2013). Therefore, we formulate a hypothesis related to the relationship between DA and IVD.

**H3.** There was a positive effect between DA and IVD.

**VRE, VREO and IVD**

VRE has been verified to be an important factor in VREO (Chandra, 2014). Quan and Wang (2004) revealed that VREO comes from the results of the user's experience in participating in the VR environment. VREO is the result of the user's emotional VRE with VR which is based on VR experiential satisfaction, VR experiential advocacy, and VR experiential loyalty (Singh, 2018). Hosany et al. (2016) and Loureiro et al. (2021) found that there is an influence relationship between VR experiential satisfaction and IVD. In addition, in the opinion of Rust and Chung (2006) experiential satisfaction and experiential loyalty are two basic things in success in any business. As a result, we contend that VREO might mediate between VRE and IVD.

**H4.** There was a positive effect between VRE and VREO.

**H5.** VREO can be a mediator between VRE and IVD.

**VRE, DA and IVD**

VRE can be interpreted as a user experience with VR or a VR environment (Perez-Marcos, 2018). In the meantime, awareness, knowledge, experience, and competence are ideas that are connected to DA (Sharifpour et al., 2013). According to Baker et al. (1986) DA is associated with the information search and the duration of time spent finding the information. Virtual reality (VR) can offer comprehensive information about travel places, particularly prior to travel (Cho et al., 2008). Moreover, VR is defined as a visual medium that assummed by Liu (2005) as the most significant contributor to DA, so VR has the potential to offer more information and contribute to DA. Baloglu (2001) explained that information which is important in DA also has a positive relationship with IVD. Numerous investigations have demonstrated that DA and IVD are positively correlated (Chen and Lin, 2012; Tsai, 2012). Therefore, we assumed that DA could potentially mediate VRE and IVD.

**H6.** There was a significant positive effect between VRE and DA.

**H7.** DA can be a mediator between VRE and IVD.

## MATERIALS AND METHODS

### Sample Design and Data Collection

The survey questionnaire was conducted two months after initial contact was made in person with the Tourism Office of North Lombok Regency, Indonesia, explaining research objectives and permits. After obtaining approval, online and offline questionnaires were distributed to tourists in the Lombok area through direct interviews and Google forms. As an experiment, participants tried one of our virtual reality-tourism map applications, called Explotours (Explore Lombok Tours). After trying the Explotours application, 115 respondents completed the questionnaire (the respondents was more than expected samples). The sample was determined based on the Lemeshow formula:

$$n = \frac{z^2 p\,(1-p)}{d^2} \qquad n = \frac{1.96^2 .\, 0.5\,(1-0.5)}{0.1^2} \qquad n = 96.4\ \approx 100$$

Where: n = total sample; z = score of confidence level 95% = 1.96; p = maximum estimation = 0.5; d = margin error = 10%. The majority of responders (62.6%) are men, (55.7%) are between the ages of 17 and 24 (35.8%), work as students (34.8%), and have a high school or technical school degree (45.2%) (Table 1).

Table 1. Distribution of respondent characteristics

| | | n | Presentase | | | n | Presentase |
|---|---|---|---|---|---|---|---|
| Gender | Male | 72 | 62.6 | Age | 17-24 years | 64 | 55.7 |
| | Female | 43 | 37.4 | | 25-34 years | 34 | 29.6 |
| Occupation | Students | 40 | 34.8 | | 35-50 years | 15 | 13.0 |
| | Private sector | 32 | 27.8 | | >50 years | 2 | 1.7 |
| | Civil servant | 1 | 0.9 | Education | Elementary school | 20 | 17.4 |
| | Self-employed | 35 | 30.4 | | Junior high school | 13 | 11.3 |
| | Housewife | 1 | 0.9 | | Senior high school | 52 | 45.2 |
| | Others | 6 | 5.2 | | Bachelor/Master | 30 | 26.1 |

**Variables and Measures**

The variables VRE, VREO, DA, and IVD are included in this study. The evaluation of instrument measurements involved the application of validity and reliability tests in an effort to determine the degree of accuracy and consistency. The loading factor value, which must be greater than 0.6, and the average variance extract (AVE) value, which must be greater than 0.5 for construct validity, served as the foundation for the validation requirements. Additionally, for construct dependability, the values of Cronbach Alpha (CA) and Composite dependability (CR) must be greater than 0.6 and 0.7, respectively (Hair et al., 2016). All of the variables in this study were operationalized using accurate and trustworthy measures from earlier empirical research that was published. VRE questions were compiled from pertinent literature and adjusted for this study's setting. Each item in each construct was measured and rated on a 5-point Likert scale from 1 "Strongly disagree" to 5 "Strongly agree". Wu et al. (2020) developed a 24-item instrument to measure virtual reality experiences (VRE) which includes four indicators: immersion, interaction, usability, and illusion. From this scale, 17 items were selected according to the context of research on virtual reality experiences (VRE). According to Table 2, AVE is 0.645, whereas CR and CA are, respectively, 0.969 and 0.966. This indicates that the construct's validity and reliability standards have been met.

Wu et al. (2020) created ten items to assess virtual reality experience outcomes (VREO), which are comprised of three indicators: VR advocacy, VR experiential loyalty, and VR experiential satisfaction. This work serves as the basis for the VREO instrument. Only two measures, VR experiential loyalty and VR experiential satisfaction, were chosen out of the three. This study included seven items overall from the two indicators since they were pertinent to the context of virtual reality experience outcomes (VREO). With an AVE value of 0.679, which indicates that the VREO items have been fulfilled. Table 2 displays the validity and dependability of the items. In the meantime, they also surpassed the standards, as evidenced by the CR and CA values, which were, respectively, 0.936 and 0.921.

The destination awareness (DA) instrument is measured by four items that are listed in the appendix. These four items are based on relevant previous research and have been modified from Lai and Vinh (2013); Yoo et al. (2017). The instrument's reliability and validity were demonstrated by an AVE of 0.701, CR, and CA of 0.903 and 0.857, respectively. As a result, the instrument's build measurement is deemed consistent. In addition, the intention to visit destination (IVD) instrument is measured by five items that reflect the behavior of tourists in their intention to visit destinations. The five items selected (listed in the appendix) have been adopted and modified from previous studies (Atzeni et al., 2022; Marasco et al., 2018). The AVE value, as seen in Table 2, is 0.760. In the meantime, CR and CA are, respectively, 0.941 and 0.921. This indicates that the instrument complied with the specifications.

Table 2. Value of loading factor, AVE, composite reliability (CR), and cronbach alpha (CA)

| Variables | Indicators | Items | Loading | AVE | CR | CA | Variables | Indicators | Items | Loading | AVE | CR | CA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VRE | Immersion | IM1 | 0.804 | 0.645 | 0.969 | 0.966 | VREO | VR experiential satisfaction | VES1 | 0.752 | 0.679 | 0.936 | 0.921 |
| | Interaction | IN1 | 0.819 | | | | | | VES2 | 0.844 | | | |
| | | IN2 | 0.840 | | | | | | VES3 | 0.826 | | | |
| | | IN3 | 0.829 | | | | | | VES4 | 0.886 | | | |
| | | IN4 | 0.837 | | | | | VR experiential loyalty | VEL1 | 0.803 | | | |
| | | IN5 | 0.828 | | | | | | VEL2 | 0.850 | | | |
| | Usability | US1 | 0.843 | | | | | | VEL3 | 0.798 | | | |
| | | US2 | 0.833 | | | | DA | | DA1 | 0.849 | 0.701 | 0.903 | 0.857 |
| | | US3 | 0.863 | | | | | | DA2 | 0.853 | | | |
| | | US4 | 0.822 | | | | | | DA3 | 0.858 | | | |
| | | US5 | 0.811 | | | | | | DA4 | 0.786 | | | |
| | Illusion | IL1 | 0.746 | | | | IVD | | IVD1 | 0.875 | 0.760 | 0.941 | 0.921 |
| | | IL2 | 0.801 | | | | | | IVD2 | 0.874 | | | |
| | | IL3 | 0.734 | | | | | | IVD3 | 0.861 | | | |
| | | IL4 | 0.737 | | | | | | IVD4 | 0.887 | | | |
| | | IL5 | 0.745 | | | | | | IVD5 | 0.862 | | | |
| | | IL6 | 0.737 | | | | | | | | | | |

**RESULTS AND DISCUSSION**

500 subsamples of the gathered data were utilized in this study's partial least square (PLS) analysis, which was conducted utilizing the bootstrapping technique. Testing the proposed hypotheses is the objective. The hypothesis is accepted if the data indicate that the association between the variables has a significance level of less than 0.05.

Table 3. Hypotheses testing by PLS (Note: VRE - virtual reality experiences; VREO - virtual reality experiential outcomes; DA - destination awareness; IVD - intentions to visit tourist destinations)

| Hypotheses | Relationship | (β) | SE | sig. | Decision |
|---|---|---|---|---|---|
| 1 | VRE - IVD | 0.006 | 0.066 | 0.923 | Not supported |
| 2 | VREO - IVD | 0.153 | 0.097 | 0.115 | Not supported |
| 3 | DA - IVD | 0.728 | 0.077 | 0.000 | Supported |
| 4 | VRE - VREO | 0.531 | 0.085 | 0.000 | Supported |
| 5 | VRE - DA | 0.540 | 0.076 | 0.000 | Supported |
| 6 | VRE - VREO - IVD | 0.082 | 0.056 | 0.146 | Not supported |
| 7 | VRE - DA - IVD | 0.393 | 0.071 | 0.000 | Supported |

According to Table 3, there is no direct correlation between VRE and IVD (β = -0.006, sig. = 0.923), which contradicts the initial hypothesis. This indicates that VRE has no appreciable beneficial impact on IVD. Additionally, VREO (β = 0.153, sig. = 0.115) did not demonstrate any significant favorable impact on IVD. H1 and H2 are therefore disproved. On the other hand, DA has a positive and significant influence on IVD with a value of β = 0.728 and sig. = 0.000. Moreover, VRE had a noteworthy and favorable impact on DA (β = 0.540, sig. = 0.000) and VREO (β = 0.531, sig. = 0.000). H3, H4, and H5 are therefore approved. In the meantime, there was no discernible impact (β = 0.082, sig. = 0.146) in the VREO mediation test results regarding the connection between VRE and IVD. H6 is therefore disregarded. Additionally, it was demonstrated that DA acted as a mediator between IVD and VRE (β = 0.393, sig. = 0.000). H7 is therefore approved. The path coefficient of the proposed hypothesis is displayed in Figure 1.

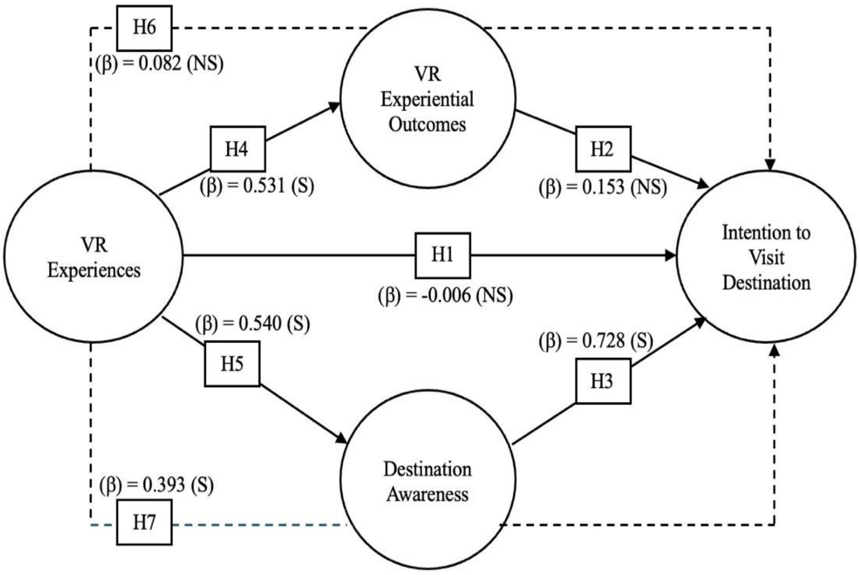


Figure 1. The diagram of hypotheses (Note: S = Significant, NS = Not Significant)

Numerous earlier investigations that examined the impact of VRE on IVD produced encouraging and noteworthy findings (H. Lee et al., 2020; M. Lee et al., 2020; Park et al., 2015). A study from Alyahya and McLean (2022) in the United Kingdom based on a lab experiment on 204 participants was conducted to test their attitudes towards tourist destinations before receiving stimuli (VR experience stimuli and traditional website experiences).

The result was a difference between the two, as evidenced by a positive and significant effect of the VRE on tourist attitudes in IVD. Although several previous studies showed significant results, in this study the results were different. The results of the correlation test between VRE and IVD showed that there was no positive relationship.

This finding supports Deng et al. (2019) study which states that VRE actually weakens IVD. The VR experience felt by tourists makes them feel a consumption experience that is close to reality weakens their desire or intention to visit. Tourists feel that the experience provided by VR has been considered similar to the actual experience so they feel satisfied. The result is reduced interest or intention to get involved or visit.

The same finding was also shown in the relationship between VRE and IVD where the relationship between the two was not positive and significant. This is because the existence of VREO is the result of VRE. In accordance with the opinion of Quan and Wang (2004) that VREO is the result of the VR experience of tourists about how they feel and their subjective responses after participating in a VR environment. VREO refers to how tourists are affected by VR and how they feel and draw conclusions from VRE (Singh, 2018). However, the research findings also show that VRE has a positive correlation to VREO. This means that these results are in accordance with previous findings which state that VREO is the result of VRE. In addition, Verhagen et al. (2011) also found that the VRE dimension, namely interaction, is a driver of user satisfaction with the VR world (VREO = VR experiential satisfaction). Mütterlein's opinion (2018) also said that the VRE dimension—immersion—affects satisfaction with the VR experience and is an appropriate predictor in the VR context. As with the VRE dimension, illusion is also a predictor of visitor satisfaction in the VR context (Slater, 2018). Although several studies have shown that VR experiential satisfaction can have a positive effect on IVD (Hosany et al., 2016; Loureiro et al., 2021). However, the findings also show that there is no indirect relationship between VRE and IVD via VREO.

Regarding the destination awareness, this study found that there was a positive connection between DA and IVD. This finding supports the findings of Baker et al. (1986) that DA, which is defined as information search and the amount of time spent accessing information related to a destination, has a positive correlation to IVD. In addition, the intention to visit is basically in the decision making. Thus, one's subjective knowledge is an important indicator (Baloglu, 2001).

Furthermore, a positive relationship was found between VRE and DA which also verified that there was an indirect relationship between VRE and IVD through DA. According to Sharifpour et al. (2013) DA is related to the concepts of awareness, knowledge, experience, and expertise. Therefore, VRE can be positively related to DA. Additionally, Cho et al. (2008) stated that DA is more related to information seeking. Meanwhile, VR in its use can provide a wealth of information to users. These findings support the findings of Liu (2005) which states that VRE has great potential to provide more information and contribute to DA which ultimately affects IVD.

## CONCLUSION

VREO and DA, in this study, are positioned as mediation between VRE and IVD to determine the indirect effect of these two variables. The findings show that VRE has no direct influence as an important factor in intention to visit a destination (IVD). The study also found that VREO associated with VRE also did not show a direct effect on IVD. The findings from VRE and VREO also influence the role of VREO as a mediator for IVD. The findings of this study contradict several previous studies which stated VRE and VREO to be important factors for tourist IVD. Therefore, tourism managers are advised to make more use of the use of VR in tourism. This is because VREO has VR experiential satisfaction and VR experiential loyalty which can increase tourist interest. This means that there is still a lack of use of VR in tourism which causes tourists not to experience satisfaction and leads to a lack of tourist interest in visiting or returning to tourism destinations. However, VRE is still proven to be an important factor in IVD through the mediation of DA.

This means that the use of VR can increase the level of tourist familiarity with a destination. If tourists are more familiar with a destination, it will affect the intention of tourists to visit the destination. Therefore, tourism managers must be able to utilize VR as an information medium related to the destinations offered, so that tourists will get a lot of useful information to be more familiar with these destinations which will ultimately influence the intention to visit the destination.

This study has several limitations in its process including; This study tested VRE of tourists using VR applications that had little sensory experience, even categorized as low-level sensory VR experiences that only included visual and tactile information. Therefore, future research is expected to be able to use VR applications that provide high-level sensory (visual, tactile, and auditory) VR experiences in order to find new results related to the effect of VRE on IVD. Moreover, to enrich the literature in this discipline, testing the influence of moderator variables should also be considered for future research.

**Author Contributions:** Conceptualization, C.W. L. and I.I.; methodology, C.W. L. and I.I.; software, I.I.; validation, C.W.L.; formal analysis, C.W. L.; investigation, C.W. L. and I.I.; data curation, I.I.; writing - original draft preparation, C.W. L. and I.I.; writing - review and editing, C.W. L.; visualization, I.I; supervision, C.W. L.; project administration, C.W.L. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 06.09.2024 Revised: 06.11.2024 Accepted: 05.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2060-2070
DOI 10.30892/gtg.574spl20-1373

# ON THE PATH TO TOURISM DIGITALIZATION: THE DIGITAL ECOSYSTEM BY THE EXAMPLE OF KAZAKHSTAN

**Balzhan SHILIBEKOVA***
Almaty Management University, Graduate School of Business, Almaty, Kazakhstan, e-mail: b.shilibekova@almau.edu.kz

**Roman PLOKHIKH**
Al-Farabi Kazakh National University, Faculty of Geography and Environmental Sciences, Department of Recreation Geography and Tourism, Almaty, Kazakhstan; University of International Business, Department of Tourism and Hospitality, Almaty, Kazakhstan, e-mail: plokhikh.r@uib.kz

**Lóránt Dénes DÁVID***
John von Neumann University, Faculty of Economics and Business, Department of Tourism and Hospitality, Kecskemét, Hungary; Hungarian University of Agriculture and Life Sciences (MATE), Institute of Rural Development and Sustainable Economy, Department of Sustainable Tourism, Gödöllő, Hungary; Eötvös Loránd University, Faculty of Social Sciences, Savaria University Centre, Savaria Department of Business Economics, Szombathely, Széchenyi István University, Győr, Hungary, email: david.lorant@gmail.com

**Citation:** Shilibekova, B., Plokhikh, R., & Dávid, L.D. (2024). ON THE PATH TO TOURISM DIGITALIZATION: THE DIGITAL ECOSYSTEM BY THE EXAMPLE OF KAZAKHSTAN. *Geojournal of Tourism and Geosites*, 57(4spl), 2060–2070. https://doi.org/10.30892/gtg.574spl20-1373

**Abstract:** Global digitalization dramatically affects tourism actions, varying the principles of its organization, data support and the traveler himself. The main goal of the study is to analyze the digitalization process of the tourism industry at the current stage of development and its state in Kazakhstan. The article considers the issues related to the impact of electronic technology on the growth and progress of digitalization in tourism. An overview of examples for the tourism digital technologies is provided. Crucial new trends in the industry of tourism associated to digitalization are identified. The conducted research on the application of several scientific methods and technologies of information processing was based. In particular: bibliometric analysis in the field of tourism digitalization and digital ecosystems; study of Kazakhstan' tourist Internet portals; survey of representatives of Kazakhstan' travel agencies and modeling based on regression ordinal model. Bibliometric analysis was used to study the success level implementation of the activities in the field of tourism digitalization. This method was as a basis for identifying gaps, formed and future trends in the field of digital tourism ecosystem. The data source was the databases, which includes a wide range of publications on tourism scientific issues. The main analysis of articles was carried out in the special software Voyant Tools. Two additional research methods in this paper are applied: content analysis and modeling based on regression ordinal model. The current state of the market place in tourism, the level of application of elements of digital technologies in the sphere of tourism based on Kazakhstan' tourist platphorms is evaluated. With the help of a survey it was analyzed the degree of penetration of digital technologies currently used by companies in the local tourism market.

**Keywords:** mountain tourism, digitalization, digital, transformation, information technology, circular economy digital ecosystem, Internet, Kazakhstan

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## INTRODUCTION

With the development of digital technology, tourism is becoming increasingly accessible and attractive to many people around the world (Baggio, 2022; El Archi et al., 2023). This is partly due to the widespread use of various technical gadgets, which have become an integral part of the daily lifestyle of modern people (Nautiyal et al., 2023). However, the main role in this process is played by the Internet, which provides travelers with a unique opportunity to study in advance the country or region they plan to visit (Gozgor et al., 2024). This helps them not only to assess the potential and limitations of their future travel, but also to make their choices more informed (Benaddi et al., 2024). In the context of developing countries and regions, tourism often becomes a key economic priority especially in the context of investment cooperation (Otarbayeva et al., 2024). Kazakhstan, with its huge potential in the tourism sector, is no exception. However, despite the richness of its nature and cultural heritage, the country still lags behind many other countries in the development of the tourism industry, as well as in the degree of utilization of digital technologies in this sphere (Alibekova and Bapiyeva, 2019; Shilibekova and Plokhikh, 2024). Therefore, there is a need to improve the level of quality of tourism services in the country (Wendt, 2020). For this purpose, it is necessary to first assess the current level of digitalization of the tourism industry, then determine the barriers and prospects for growth of digitalization in this sphere and formulate further effective measures for its development. This is the relevance of studying this aspect of tourism in Kazakhstan. The main goal of the study is to analyze the digitalization process of the tourism industry at the current stage of development of Kazakhstan. For this, the following tasks were set: 1) to research the state of the digital tourism ecosystem in Kazakhstan and show how digital technologies are being introduced into various aspects of the tourism; 2) to identify key problems and digital

* Corresponding author

solutions that contribute to the improvement of tourism services and their accessibility for local and international travelers; 3) to demonstrate the opportunities and challenges on the path of digitalization and improving the quality of service in the tourism sector. The study seeks to substantiate the importance of digitalization for Kazakhstan' tourism sector and its impact on the development and attractiveness of the country for tourists.

**LITERATURE REVIEW**

Digital transformation is the main trend of economic development in the 21$^{st}$ century, presenting information to increase economic efficiency and improve the quality of life. It explains the requirement for tourism and hospitality companies to continuously improve the competitiveness of their products and services in the context of digital business (Busulwa et al., 2024; Santarsiero et al., 2024; Cardoso et al., 2024). The application of digital technologies contributes to increasing the speed of exchange, accessibility and security of information in tourism (Christou et al., 2023). One of the factors contributing to the digitalization of the tourism industry is the availability of the Internet. For the majority of the population, the Internet has become an accessible and primary source of obtaining, collecting and sharing information (Akarsu, 2025).

One final definition that is important to outline as the foundation of tourism business transformation is the notion of a digital ecosystem. It is an open, dynamic system of connecting people and organizations through technology and data that interact with each other to create and share value and meet each other's needs more efficiently and deeply. James F. Moore supports this thesis by stating that a digital ecosystem is a business network that uses digital technologies to create and deliver value to customers (Moore, 1993). The term "ecosystem" is borrowed from biological systems of interacting organisms placed in a habitat. This concept and terminology were first applied in scientific literature by James F. Moore (Moore, 1996). Later Marco Iansiti and Roy Levien (Iansiti and Levien, 2004), by analogy with the development of biological and economic systems, used this term to describe the interdependence of actors in the economy. Currently, a digital ecosystem can be defined as an interconnected and interdependent group of economic actors that share digital platforms for mutually beneficial purposes, such as commercial gain, innovation or common interests. Due to the synergistic effect of the interaction of companies united by an ecosystem, a new quality of products and services is formed based on the effect of complementarity. Ecosystems focus on the needs of the user, allowing them to receive different products and services through a single point of access within the ecosystem.

Some authors present arguments in favor of the assertion that the digital revolution is decisively changing the world. Sensors can connect devices such as thermostats, washing machines, televisions, laptops, tablets, and other objects to Internet of Things platforms. Industry 4.0 signals the end of established models and calls on scientists, managers, and citizens to observe new prisms and paradigms. Tourism actively participates in digital transformations, increasingly qualifying them as "Tourism 4.0" or "Smart Tourism". The author emphasizes that in the near future, tourist ecosystems will have to incorporate perspectives of smart tourism such as sustainability, circular economy, quality of life, and social value (Pencarelli, 2020).

The digitalization of tourism is an important trend that will develop in the coming years. Digital technology is changing the way people travel and making tourism more personalized, convenient, accessible and interactive. Famous author Michael Porter (Porter, 2008), who has made great contributions in the field of marketing competition studies adds that digitalization is not so much a matter of technology, but of the ability to create new business models and create competitive advantage. Digitalization itself is the process of converting information from analog to digital format, as well as the use of digital technologies for storing, processing, transmitting and displaying information. Of course, this also applies to the field of tourism. Another author Nicholas Carr (Carr, 2014) echoes what Michael Porter said, that digitalization is not just the automation of existing processes, but the possibility of creating new ways of doing business. Thus, digitalization is not useful in itself, but it is useful for transforming existing businesses and creating new businesses.

According to Ulrike Gretzel and Daniel Fesenmaier digital travel services allow tourists to plan and book their own trips, get information about attractions and itineraries, and share their experiences with other travelers. Digital services include a variety of online services and applications that enhance travelers' experiences (Gretzel and Fesenmaier, 2009). Some of the leading experts in this field, Dimitrios Buhalis and Aditya Amaranggana, point out that the development of digital travel services leads to personalization of travel offerings, improved service quality, and lower travel costs (Buhalis and Amaranggana, 2014). Some authors argue that mobile devices and applications have become indispensable tools for tourists. Despite their crucial role in tourism and continuous development, our understanding of their use and integration is limited. The authors analyzed and characterized 347 tourist mobile applications. The central attributes of the applications were identified through factor analysis, including tourist functionality, orientation and navigation, efficiency, effective mobility, and social activity (Birenboim et al., 2023). Marek Nowacki and Agnieszka Niezgoda conducted an analysis of TripAdvisor reviews to identify memorable hotel experiences. In their study, the authors employed quantitative methods such as text analysis, topic modeling, and sentiment analysis. The content analysis allowed them to identify six positive and two negative factors (Nowacki and Niezgoda, 2023). Spanish researchers in their study demonstrated the interrelationships between the use of traditional tour operators, online travel agencies such as Booking.com and Expedia, comparators, tour operators and traditional travel agencies, airlines, new non-tourism companies such as Google, and the use of sharing platforms for obtaining tourist information. They applied analysis to 13,243 tourists from 19 European countries for binomial logit analysis using the statistical analysis program SPSS (Almeida-Santana et al., 2020).

Some researchs emphasize that new digital technologies enable the creation of new services and business models, leading to constant changes in the digital tourism ecosystem. In the tourism sector, new players are entering and creating entirely new market segments, while existing players must rethink their business logic. The authors conducted a review of the value creation network of the European tourism ecosystem. By analyzing the business models and value creation flows of 704 European enterprises based on Crunchbase data, they identified 27 roles and their interrelationships (Schaffer et al., 2021). Digitalization has increased the interdependence among stakeholders in tourism. The constantly changing environment and business requirements have intensified competition and collaboration among various organizations, leading to the emergence of the concept of the digital ecosystem. The authors emphasize the importance of the digital ecosystem in the tourism business. They construct a taxonomy of various tourism scenarios and a conceptual model of the digital tourism ecosystem. This work can serve as a reference and knowledge base for digital business system analysts, system designers, and digital tourism business implementation specialists for more effective design and implementation of digital business systems in the tourism sector (Shrestha et al., 2021). Tourism has undergone significant changes since information and communication technologies in all their forms began to permeate the industry and market. Researchers and practitioners have been drawn to a new concept – the digital ecosystem. It can be viewed as a technological infrastructure aimed at creating a digital environment to support and expand connections between businesses and stakeholders operating in the tourism sector. Rodolfo Baggio and Giacomo Del Chiappa attempted to assess the extent to which technological connectivity has influenced the structural configuration of the tourism system and tourist destinations. They note that when assessing relationships between stakeholders within a tourist destination, two components can be considered: the real and the virtual. The researchers demonstrated how these two components are structurally interconnected and simultaneously evolving, forming a unified system (Baggio and Chiappa, 2014). Thus, all the above authors argue the value of digitalization, digital ecosystems and digital services in terms not of the digital technologies themselves, but of the opportunity to create new businesses, to create a competitive advantage by better meeting the needs of consumers, tourists and travelers. The presented facts and analysis of scientific publications allowed us to identify several major trends (Figure 1).

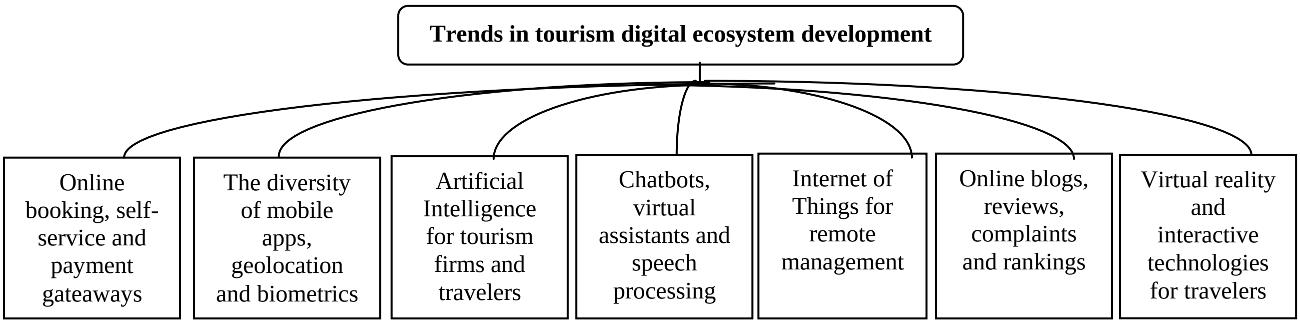


Figure 1. Several major trends in tourism digital ecosystem development (Source: Authors)

Online booking, self-service and payment gateways are becoming increasingly popular in the tourism industry (Rodrigues et al., 2024; Meier et al., 2025). Consumers increasingly prefer online booking of hotels, airline tickets, tours and other services, leading to the growth of online platforms and self-service systems (Wibowo et al., 2021; Yanis et al., 2023; Abdirazakov et al., 2023). The indispensability for tourists of mobile devices is caused by the increasing diversity of mobile apps, geolocation, biometrics and other technologies of this type (Ying et al., 2024). Smartphone applications allow customers to access information, make payments, book hotel rooms, select tours and guides, translate from any language into their native language and many other useful functions that make the life of a modern traveller much easier (Williams et al., 2020; Gburová et al., 2024). Thus, while travelling, there is no need to communicate directly with anyone in the traditional way (Mikhaylova et al., 2021; Sun et al., 2022).

Artificial Intelligence is finding more and more niches for application for tourism firms and travelers (Solakis et al., 2024). The application of artificial intelligence, particularly recognition technology, provides added convenience and enhances the safety of hotel stays around the world (Dwivedi et al., 2024). Analytics and artificial intelligence systems allow travel companies to create personalized offers and recommendations based on customer preferences and behavior (Suanpang and Pothipassa, 2024). Putting this into practice allows room access to be granted via retina scanning or fingerprint scanning. Facial recognition technology can improve the customer experience by personalizing services. An important trend in the tourism industry is the use of chatbots, virtual assistants and speech processing. Chabot is a computer-generated program that can be defined as a tool that allows people to communicate interactively using pre-programmed artificial intelligence (Benaddi et al., 2024). Chatbots fall into two categories based on how they interact with people: auditory (voice) and text, and the use of these chatbots is becoming increasingly popular on travel websites. The advantage of a chatbot or online assistant is that it works 24 hours a day and is ready to respond to a wide variety of queries from people (Majid et al., 2024; Mandić et al., 2024).

Internet of Things for remote management. This technology allows companies to better and more quickly meet the needs of their customers (Rosário and Dias, 2024). For example, this technology allows travelers to remotely set the temperature in their room, order room service and other services from their smartphone, without directly communicating with hotel staff. This technology also reduces staff workload, and therefore reduces staffing costs (Mathew et al., 2024; Ma, 2024).

Online blogs, reviews, complaints and rankings have been developed as elements of the digital ecosystem of tourism and important trends (Chen et al., 2025; Bulchand-Gidumal and Melián-González, 2024). To allow customers to quickly and easily share their opinions online, especially on social media platforms developed for the travel industry such as Booking, Airbnb, TripAdvisor or on travel websites, it will help accommodation agencies and travel service providers to gain a deeper understanding of travelers' needs (Wan and Forey, 2024; Robertson et al., 2024).

Virtual reality and interactive technologies are revolutionizing the travel industry, offering travelers extraordinary, comfortable and highly engaging ways to explore destinations and attractions, planning trips and navigate in real time (Any et al., 2024). Virtual and augmented reality provides consumers with the opportunity to explore places and attractions before traveling, making travel more informative and interesting, thus providing the necessary information to help travelers better understand the destination (Sousa et al., 2024; Phoong et al., 2024). Some tourist attractions and hotels utilize interactive technologies such as touch screens, interactive maps, and smart devices to enhance the visitor experience.

All the noted trends are reflected in the tourism and hospitality sector of Kazakhstan, but their manifestations are still very small. This is explained by the initial level of tourism industry's development, as evidenced by the country's place in the Travel and Tourism Development Index (TTDI). In the most recent version of the TTDI for 2021, Kazakhstan ranked 66th out of 117 countries. The index is based on 17 criteria. If we compare the position of Kazakhstan compared to other former countries that were part of the Soviet Union, Kazakhstan lags behind such countries as Estonia (29), Lithuania (42), Georgia (44), Latvia (48), Armenia (61), Azerbaijan (63), but ahead of such countries as Moldova (77), Kyrgyz Republic (90), Tajikistan (92). Thus, Kazakhstan is still at the bottom of the ranking, relative to its middle (TTDI, 2022).

In 2023, Kazakhstan reached inbound tourism figures that could be observed before the crisis caused by the COVID-19 pandemic. The country was visited by 9.2 million guests from abroad. This is the highest figure since 2019, when 8.5 million foreigners came to the country. However, of the 9.2 million visitors, only 1.1 million stayed in hotels, hostels, campgrounds, resorts and vacation homes. This is only about 12% of the total amount. The remaining 8.1 million people either rented apartments or houses for rent or stayed with relatives and acquaintances. Of those who stayed in hotels, only less than half – 523,000 people – visited the country for any personal purposes unrelated to professional activities. The rest of foreign visitors came to the Republic of Kazakhstan simply on business. The majority of tourists are CIS citizens (Shaimardanov, 2022). The Ministry of Tourism and Sports of the Republic of Kazakhstan reports an increase in the number of hotels, rest houses, sanatoriums, but also recognizes that the country is characterized by insufficient development of infrastructure in places of tourist attraction, poor logistics, limited number of accommodations, low quality of the offered tourist products, high prices for air tickets, high degree of moral and physical deterioration of accommodation facilities (Shevyakova et al., 2019; Issakov et al., 2022; Issakov et al., 2023). However, the state represented by the Ministry of Tourism and Sports is making efforts to develop the tourism industry of Kazakhstan. In 2023, the Ministry of Tourism and Sports developed the next, third concept for development of the tourism industry in the Republic of Kazakhstan until 2029 Government of the Republic of Kazakhstan, 2023). As measures to stimulate the growth of tourist flows to entrepreneurs, the state support provides reimbursement of part of the costs in several areas: construction and reconstruction of tourist facilities, roadside service facilities, maintenance of hygienic sanitary facilities, purchase of tourist class transport or ski equipment. Subsidies to tour operators for each imported tourist and free flights for children under the Kids Go Free program are also provided (Tleuberdinova et al., 2024; Akbar et al., 2024).

In the area of digitalization of the tourism industry, the Ministry of Tourism and Sports recognizes that Kazakhstan is characterized by such problems related to the creation of a convenient information environment for tourists as: low level of integration of modern tourism technologies and low level of digitization; weak level of awareness and knowledge about real tourist facilities and recreational opportunities in the country; lack of a holistic tourism product from all available tourism segments (each operates in isolation); lack of Internet infrastructure, as well as poor Internet access in remote regions, including along tourist routes in the territory of the special natural protected areas. Nevertheless, the state is working on the digitalization of the tourism industry (Rakhmetova et al., 2024; Adai et al., 2024). In 2017, the JSC "National Company "Kazakh Tourism"" was founded to promote Kazakhstan globally as a tourist destination. Several online platforms have been created, the content analysis of which is given below. These platforms are interconnected by cross-referencing each other's resources. For example, for the convenience of foreign tourists the platform "eQonaq" was created, which offers the service of using a QR code when crossing the border to apply for a visa, which eliminates the human factor. The data of a foreign tourist are automatically sent to the migration service of the country. It can also be used to find guides, hotels, apartments, find out the cost of cab fares, buy a SIM card and much more.

**MATERIALS AND METHODS**

The research conducted on the application of several scientific methods and technologies of information processing was based. In particular: bibliometric analysis in the field of tourism digitalization and digital ecosystems; study of Kazakhstan' tourist Internet portals; survey of representatives of Kazakhstan' travel agencies and modeling based on regression ordinal model (Figure 2). Bibliometric analysis was used to study the success level implementation of the activities in the field of tourism digitalization. This method as a basis for identifying gaps, formed and future trends in the field of digital tourism ecosystem can be useful (Ng et al., 2022; Roziqin et al., 2023; Ogutu et al., 2023; Rahmat et al., 2024). The data sources were the Scopus and Web of Science databases, which include a wide range of publications on tourism scientific issues. A search by title, abstract and keywords as of April 20, 2024 was used. As a result, key terms and their definitions such as digitalization, digital ecosystem, digital services and others were identified.

Content analysis as a method of qualitative and quantitative study of the content of articles on the topic under study was used. The application of this method involves searching for certain words in the articles, their interrelation, classification, their subsequent counting and quantitative and visual presentation of the results. Preliminary texts of articles should be lemmatized and cleaned from stop words. Then it is necessary to count the number of keywords and stable word combinations. The frequency of occurring words is visualized in the form of a word cloud. The visually larger the size of a word, the more often it was mentioned in the articles. Next, the relationship between the detected keywords is analyzed.

Words that are related to each other are connected using lines. The thicker the line connecting the words, the stronger the connection between these words. Search of scientific articles in Scopus and Web of Science databases on the phrases "digital tourism" + Kazakhstan or "digitalization tourism" + Kazakhstan did not give good results, which indicates the low degree of study of this topic in the scientific environment of the country. Therefore, the main search for articles on these word combinations was carried out in the special software Voyant Tools webapp and Google search engine by Kazakh, Russian and English with translation of final results into English. Based on the found articles the content analysis was carried out in order to understand what keywords were most often encountered in them and what connection is there between them.

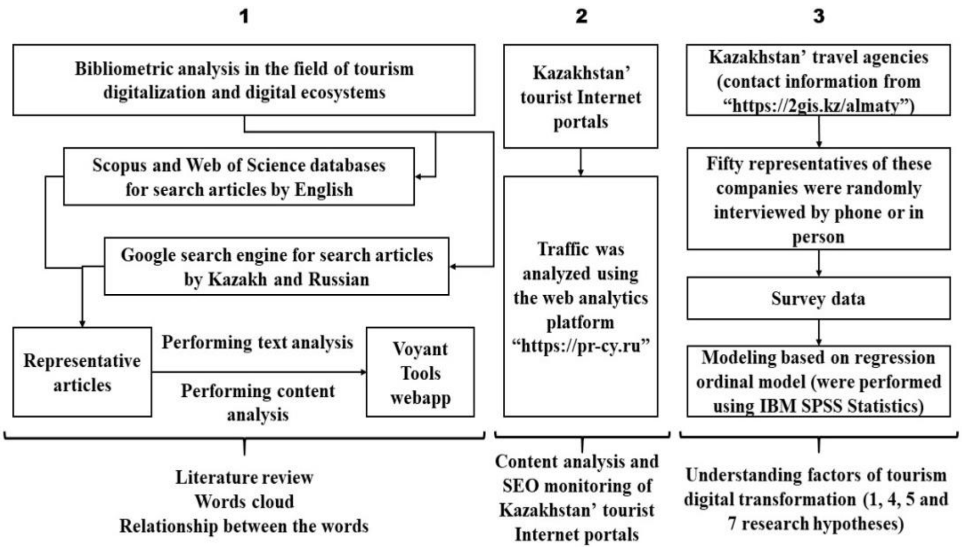


Figure 2. Methodological background of research (Source: Authors)

In Kazakhstan, attempts are being made to create tourist portals that accumulate information about events, routes, places and everything else that a tourist may need. Such Internet platforms were created on the initiative of the state. As part of the content analysis, several such tourist portals were analyzed for the usefulness, diversity and relevance of the information they contain. The traffic to these sites was analyzed using the web analytics platform "https://pr-cy.ru" as of March, 2024. The results of this analysis are presented in the form of a comparative table in the section on content analysis.

The next method of analysis was to conduct modeling using ordinal regression based on the survey data. Since the questions in the questionnaire belong to the ordinal scale and are measured on a Likert scale from 1 to 5, it was decided to use ordinal regression. In order to determine the impact of digitalization of tourism companies' business on their activities, a survey of owners and managers of travel agencies operating in the market of Almaty, the largest metropolitan area of the country, was conducted. To assess the general population of travel agencies, the directory of organizations "https://2gis.kz/almaty" was used. On the request "Travel agencies", the electronic directory found 762 companies, with addresses, phone numbers and websites. Fifty representatives of these companies were randomly interviewed by phone or in person. Survey data processing and model building were performed using IBM SPSS Statistics (Statistical Package for the Social Sciences) program, version 27. Respondents were asked various questions regarding the degree of digitalization of their business and their attitude to digital transformation. Thus, the survey participants were asked the question "What digitalization tools have already been implemented in the company". Each implemented digitalization tool was given 1 point, in total the company could score from 0 to 10 points. The scores were further divided into 5 groups on a Likert scale: 1) 0-2 points; 2) 3-4 points; 3) 5-6 points; 4) 7-8 points and 5) 9 or more points. Thus, a rating of digitalization of travel agencies was compiled, which was further applied in the regression model as the dependent variable.

Based on the formulated factors that may influence the degree of digitalization of travel agency business, 7 research hypotheses were identified, which will be further tested using regression analysis.

**H1**: Respondents' agreement that social media and online advertising play an important role in attracting attention to our tour packages, leads to a high degree of digitalization of travel agency business.

**H2**: Respondents' agreement that online reviews have a significant impact on our agency reputation, leads to a high degree of digitalization of travel agency business.

**H3**: Respondents' agreement that mobile apps provide additional opportunities to interact with customers.

**H4**: Respondents agree that pressure from competitors, including online travel agencies and new players in the market, are forcing us to adopt digitalization tools to attract customers and leads to a high degree of digitalization of travel agency business.

**H5**: Respondents agree that partnerships with foreign tour operators encourage faster and more effective implementation of new digital solutions and lead to a high degree of digitalization of travel agency business.

**H6**: Respondents agree that consumer demand, increasing consumer preference for online booking, mobile apps and convenient digital services drives the degree of digitalization of our business and leads to a high degree of digitalization of travel agency business.

**H7**: Respondents' agreement that economic factors such as costs of digitalization, availability of funding and expectations of return on investment influence the degree of digitalization of travel agency business.

## RESULTS AND DISCUSSION

The text analysis of scientific articles revealed that the most frequently used words were: online booking (52), cashless payments (48), mobile applications (39), mobile check-in (33) and other words and phrases as shown in the word cloud below. The numbers in brackets show the number of uses of the words (Figure 3). Figure 4 shows the relationship between the words.


Figure 3. Words cloud (Source: based on Authors' text analysis)

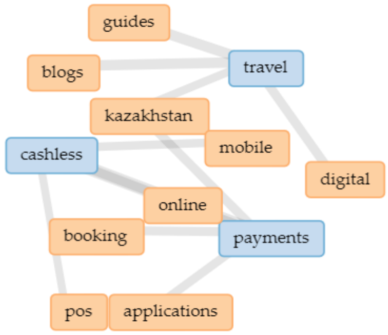


Figure 4. Keyword relationships (Source: Authors)

Table 1. Results of content analysis and SEO monitoring of online travel platforms

| Criteria | Websites | | | | | | |
|---|---|---|---|---|---|---|---|
| | https://kazakhstan.travel | https://eqonaq.kz | https://tourismkaz.kz | https://kaztour-association.com | https://qaztourism.kz | https://www.tourismonline.kz | https://tourstat.kz |
| About the project | Promotion of Kazakhstani tourism products | The system of collection and accounting of tourist flow and migration control, registration of foreigners | Promotion of Kazakhstani tourism products | The Association was founded in May 1999 with the support of the President of the Kazakhstan | JSC "National Company "Kazakh Tourism"" was founded in 2017 | Promotion of Kazakhstani tourism products | Provides government statistics on tourist flows |
| Number of supported languages | 7 | 3 | 3 | 3 | 3 | 2 | 3 |
| Contact details | 1 | 1 | 1 | 1 | 1 | | 1 |
| Relevance of news, date of last news posting | 21.06.2023 | 23.03.2024 | 04.04.2024 | 04.04.2024 | 12.03.2024 | 15.03.2024 | 28.02.2022 |
| Photo materials | 1 | 1 | 1 | | 1 | | |
| Videos | 1 | 1 | 1 | | 1 | | |
| Regional information | 1 | | 1 | | 1 | | |
| Routes, maps, sights | 1 | 1 | 1 | | 1 | 1 | |
| 3D tours | 1 | 1 | 1 | | | | |
| Catalog of accommodation (hotels, guest houses, apartments) | 1 | 1 | 1 | 1 | | 1 | |
| Register of travel agents, tour operators, tour guides, tour guides, tour guides, guides-interpreters | 1 | | | 1 | | 1 | 1 |
| Weather information | 1 | 1 | 1 | 1 | | | |
| Exchange rate information | 1 | 1 | | | | | |
| Virtual assistant, online chat with support | 1 | | | | | 1 | |
| Number of social media accounts | 5 | | 2 | 4 | 3 | | |
| Smartphone app | | 1 | 1 | | | | |
| Regulatory framework on tourism, legal support for tourists | 1 | 1 | | 1 | | 1 | |
| Tourism training courses | | | | 1 | | 1 | |
| Geography, offline offices | | | | 4 | | | |
| Attendance in March 2024, thousand times | 71,7 | 36,2 | 8,6 | 6,9 | 5,7 | 4,7 | 1 |
| Position in the country by traffic | 12 079 | 9 598 | 106 814 | 29 513 | 46 045 | 38 297 | |
| Country leader in terms of attendance | Kazakhstan: 19% | Kazakhstan: 97% | Vietnam: 12% | Vietnam: 13% | Kazakhstan: 8% | Kazakhstan: 22% | Kazakhstan: 100% |

Notes: based on Authors' content analysis and SEO Monitoring Platform ("https://pr-cy.ru", March, 2024)

It can be seen that there is a relationship between the words "cashless", "online" and "payments"; "travel", "blogs", "digital" and "guides". In addition to the analysis of articles on the topic of tourism digitalization in Kazakhstan, a content analysis of 7 specialized Kazakhstan's Internet resources was conducted. The purpose is to promote Kazakhstan's tourism products, that is, their content and filling with various information related to the development of tourism in the country. These resources are sorted by the number of visits in March 2024 (Table 1).

In general, we can conclude that these sites are not very popular and do not occupy high places in terms of attendance and traffic. Filling these resources with interesting content leaves much to be desired. Often these sites duplicate information and link to each other, because they are created by order of the state. It can be concluded that for the real digital transformation of the country's tourism sphere it is necessary not to have a formal approach on the part of the state, but a more free approach based on competition, market freedom and involvement of foreign management, including by attracting foreign investment in the country's tourism sphere. Within the framework of the survey conducted among tourism companies of Almaty city the question "What do you think, what key problems hinder the successful realization of the digital transformation project in your company?" was asked, the respondents agreed that the main problems are: "lack of financial resources" (38%); "lack of experienced ICT specialists" (26%); and "resistance (or lack of experience) of staff" (18%) (Figure 5).

After finding out the barriers that are encountered in the way of digitalization of business in travel agencies, an open question was asked about what needs to be done to make digital transformation projects more actively implemented in travel agencies. The following answers were given by travel agency representatives: affordability; government support; development of technological infrastructure; staff training; knowledge management in the company; popularization of digitalization; management's awareness and willingness to realize digital transformation. Figure 6 shows the distribution of digital tools that travel companies have already implemented in their activities at the time of the survey. Most of all, companies have implemented electronic communication systems between employees – 15.2%, followed by electronic document management systems – 13.6% and POS-terminals for cashless payment – 12.1%. To the smallest extent, companies have implemented the use of blockchain and digital tourist passport in their work – 3% and 4.5% respectively (Figure 6).

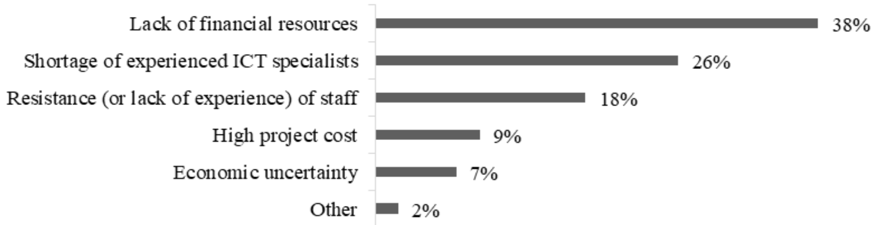


Figure 5. Key challenges hindering digital transformation in the company (Source: Authors)

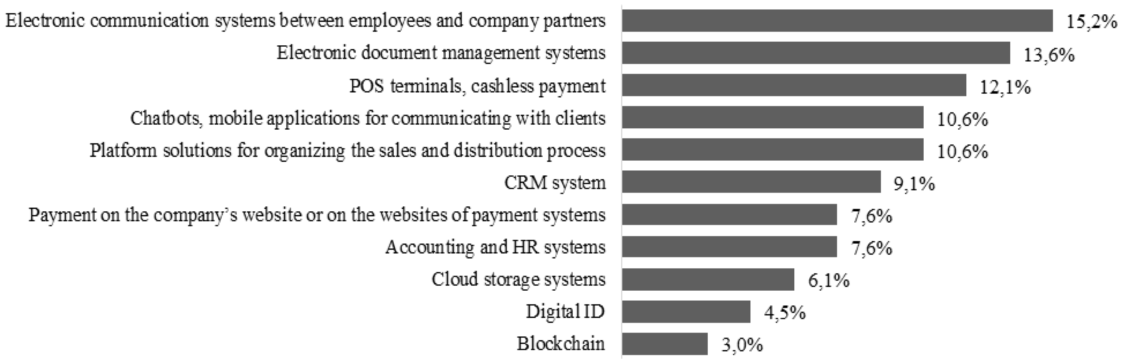


Figure 6. Digitalization tools implemented in the company (Source: based on survey data conducted by the Authors)

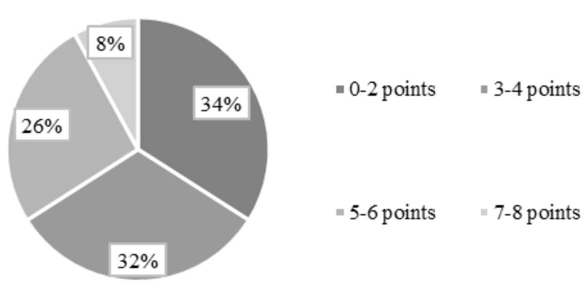


Figure 7. Digitalization tools implemented in the company (Source: based on survey data conducted by the Authors)

Figure 7 shows the percentage distribution of travel companies according to the calculated ranking, which is based on the total number of digitalization tools applied. According to this graph, there are no companies that have implemented 9 or more digitalization tools in their work. The largest groups are companies that have implemented only up to 2 tools (34%) or up to 4 tools (32%) of digitalization in their work. As independent variables, the model included the following statements, which were offered to be evaluated on a Likert scale from 1 to 5, where 1 meant the minimum significance of the factor's impact on increasing the degree of digitalization of the company's activities, and 5 meant the maximum significance of the factor. The list of such factors is given below.

1. Social media and online advertising play an important role in attracting attention to our tour packages.
2. Online reviews have a significant impact on our agency's reputation.
3. Mobile apps provide additional opportunities to interact with customers.
4. Pressure from competitors, including online travel agencies and new players in the market are forcing us to adopt digitalization tools to engage customers.
5. Partnerships with foreign tour operators encourage faster and more efficient implementation of new digital solutions.
6. Consumer demand, increasing consumer preference for online booking, mobile apps and convenient digital services are driving the degree of digitalization of our business.
7. Economic factors such as the cost of digitalization, the availability of financing and expectations of return on investment influence the degree of digitalization of our company.

An ordinal regression model was created on the basis of these statements. As a result, 4 factors out of 7 showed statistically significant influence on the dependent variable. These variables, their coefficients and their significance level are presented in Table 2. According to the selected factors, it is possible to understand what factors drive the development of digital transformation of travel agency business. And thanks to the coefficients of the obtained ordinal regression, it is possible to calculate the probability of the degree of digitalization of travel agency.

Table 2. Factors of the ordinal regression model (Notes: based on survey data conducted by the Authors)

| Factors | | Estimate | Std. Error | Wald | df | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| Threshold | [Digitalization = 1] | 65.418 | 14.868 | 19.361 | 1 | .000 | 36.278 | 94.558 |
| | [Digitalization = 2] | 68.792 | 15.138 | 20.650 | 1 | .000 | 39.121 | 98.463 |
| | [Digitalization = 3] | 72.887 | 15.547 | 21.980 | 1 | .000 | 42.417 | 103.358 |
| Location | [Consumer_demand=1] | 32.541 | 6.011 | 29.306 | 1 | .000 | 20.760 | 44.323 |
| | [Consumer_demand=2] | 27.096 | 4.945 | 30.029 | 1 | .000 | 17.404 | 36.787 |
| | [Consumer_demand=3] | 26.031 | 5.259 | 24.497 | 1 | .000 | 15.723 | 36.339 |
| | [Consumer_demand=4] | 27.688 | 5.157 | 28.827 | 1 | .000 | 17.581 | 37.796 |
| | [Consumer_demand=5] | 0[a] | . | . | 0 | . | . | . |
| | [Partnerships=1] | 26.478 | 5.693 | 21.633 | 1 | .000 | 15.320 | 37.635 |
| | [Partnerships=2] | 31.144 | 6.346 | 24.086 | 1 | .000 | 18.706 | 43.582 |
| | [Partnerships=3] | 31.197 | 6.325 | 24.327 | 1 | .000 | 18.800 | 43.593 |
| | [Partnerships=4] | 29.296 | 6.147 | 22.711 | 1 | .000 | 17.247 | 41.344 |
| | [Partnerships=5] | 0[a] | . | . | 0 | . | . | . |
| | [Social_media=1] | 23.756 | 5.038 | 22.238 | 1 | .000 | 13.882 | 33.629 |
| | [Social_media=2] | 5.595 | 2.334 | 5.747 | 1 | .017 | 1.020 | 10.169 |
| | [Social_media=3] | 6.522 | 2.215 | 8.668 | 1 | .003 | 2.180 | 10.863 |
| | [Social_media=4] | 1.833 | 2.049 | .800 | 1 | .371 | -2.183 | 5.849 |
| | [Social_media=5] | 0[a] | . | . | 0 | . | . | . |
| | [Competition=1] | 27.780 | 5.452 | 25.961 | 1 | .000 | 17.094 | 38.467 |
| | [Competition=2] | 3.905 | 2.205 | 3.136 | 1 | .077 | -.417 | 8.226 |
| | [Competition=3] | 3.765 | 2.015 | 3.490 | 1 | .062 | -.185 | 7.716 |
| | [Competition=4] | 1.888 | 1.739 | 1.179 | 1 | .278 | -1.521 | 5.296 |
| | [Competition=5]. | 0[a] | . | . | 0 | . | . | . |
| | [Mobile_apps=1] | 1.819 | 3.670 | .246 | 1 | .620 | -5.373 | 9.012 |
| | [Mobile_apps=2] | 4.898 | 3.395 | 2.081 | 1 | .149 | -1.757 | 11.552 |
| | [Mobile_apps=3] | 5.266 | 3.385 | 2.421 | 1 | .120 | -1.368 | 11.900 |
| | [Mobile_apps=4] | -14.045 | .000 | . | 1 | . | -14.045 | -14.045 |
| | [Mobile_apps=5] | 0[a] | . | . | 0 | . | . | . |
| | [Economic_factors=1] | -3.835 | 2.737 | 1.962 | 1 | .161 | -9.200 | 1.531 |
| | [Economic_factors=2] | -2.425 | 2.939 | .681 | 1 | .409 | -8.186 | 3.335 |
| | [Economic_factors=3] | 2.747 | 2.800 | .963 | 1 | .326 | -2.740 | 8.235 |
| | [Economic_factors=4] | -2.392 | 2.986 | .642 | 1 | .423 | -8.244 | 3.460 |
| | [Economic_factors=5] | 0[a] | . | . | 0 | . | . | . |
| | [Online_reviews=1] | -3.703 | 2.050 | 3.264 | 1 | .071 | -7.721 | .314 |
| | [Online_reviews=2] | -.315 | 2.160 | .021 | 1 | .884 | -4.549 | 3.919 |
| | [Online_reviews=3] | .578 | 2.063 | .078 | 1 | .779 | -3.465 | 4.621 |
| | [Online_reviews=4] | 0[a] | . | . | 0 | . | . | . |
| Link function: Logit; a. This parameter is set to zero because it is redundant | | | | | | | | |

Thus, the results of ordinal regression confirmed the 1, 4, 5 and 7 research hypotheses, namely:

**H1**: Respondents' agreement that social media and online advertising play an important role in attracting attention to our tour packages leads to a high degree of digitalization of travel agency business.

**H4**: Respondents agree that pressure from competitors including online travel agencies and new players in the market are forcing us to adopt digitalization tools to attract customers and leads to a high degree of digitalization of travel agency business.

**H5**: Respondents agree that partnerships with foreign tour operators encourage faster and more efficient implementation of new digital solutions and leads to a high degree of digitalization of travel agencies' business.

**H6**: Respondents agree that consumer demand, increasing consumer preference for online booking, mobile apps and convenient digital services drive the degree of digitalization of our business and lead to a high degree of digitalization of travel agency business.

## CONCLUSIONS

According to the results of the analysis of articles describing the process of digitalization of the tourism industry in Kazakhstan, it can be concluded that Kazakhstan is in direct need of development of its tourism industry, which is currently lagging behind leader countries of the world. The domestic tourism industry has a number of serious problems, the solution of which requires modernization, large investments and support from the state, not only in the form of cash injections, but also incentives in the form of tax breaks and preferences for potential investors, preferential financing of strategic projects, assistance in solving land, infrastructure and other issues, as well as improving information digital systems. The competition between countries for tourists' money in the world is very fierce and Kazakhstan has a long way to go for several decades. At present, it can be noted that Internet platforms created on the initiative of the state do not reach the level of similar sites of foreign countries and they should and can be improved. Tourism companies themselves are well aware of the importance of digital transformation of their business and have such a need, which is driven by consumer demand, fierce competition with local and foreign competitors, and the requirements of foreign partners.

However, they experience a number of difficulties with deeper implementation of digital technologies in their activities, which are caused by problems with financing, shortage of qualified personnel and knowledge. Respondents' agree that social media and online advertising play an important role in attracting attention to our tour packages leads to a high degree of digitalization of travel agency business. They marked that pressure from competitors including online travel agencies and new players in the market are forcing to adopt digitalization tools to attract customers and leads to a high degree of digitalization of travel agency business. Partnerships with foreign tour operators encourage faster and more efficient implementation of new digital solutions and leads to a high degree of digitalization of travel agencies' business.

Consumer demand, increasing consumer preference for online booking, mobile apps and convenient digital services drive the degree of digitalization of business and lead to a high degree of digitalization of travel agency business. In turn, the state could also assist travel agencies in addressing these issues. In general, it can be concluded that it is advisable to create a digital ecosystem of tourism on the terms of public-private partnership, taking into account the interests of both commercial entities and the state, as well as citizens traveling and residing in tourist destinations.

For this purpose, it is necessary to achieve coordinated cooperation and integration of interests of public organizations, private companies and self-governments, as well as local representatives of government structures and communities. This will make it possible to stimulate and control common participation at various stages of tourist destination development. Only in this case we can talk about creating the prerequisites for a deep digital transformation of the entire tourism industry of the country for the effective development of tourism at the international, national and regional levels.

**Author Contributions:** Conceptualization, B.Sh. and R.P.; methodology, B.Sh. and R.P.; software, B.Sh.; validation, B.Sh. and R.P.; formal analysis, B.Sh. and L.D.D.; investigation, B.Sh. and R.P.; data curation, B.Sh. and R.P.; writing, B.Sh., R.P. and L.D.D.; visualization, B.Sh., R.P. and L.D.D.; supervision, R.P.; project administration, B.Sh. All authors have read and agreed to the published version of the manuscript.

**Funding:** Project of the IRN 19175225 "Conceptual model development of digital ecosystem for the Kazakhstan tourism industry and its forced development" in frameworks of young scientist grant financing for 2023-2025, the source of financing is the Ministry of Science and Higher Education of Kazakhstan.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The study was limited to documents that have been posted on the Internet for the last 20 years. A bibliometric review was used to identify key concepts, but has limitations Presented data can be obtained on request from the corresponding author, B.Sh..

**Acknowledgements:** The article undertaken was made possible by the Ministry of Science and Higher Education of the Kazakhstan and the equal involvement of authors concerned. This work was supported by the Flagship Research Groups Programme of the Hungarian University of Agriculture and Life Sciences (MATE).

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 08.09.2024 Revised: 07.11.2024 Accepted: 05.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2071-2079
DOI 10.30892/gtg574spl21-1374

# IMPACTS OF CLIMATE CHANGE ON TOURISM IN THE PROVINCES ALONG THE MEKONG RIVER IN THAILAND

**Sakkarin NONTHAPOT***

Khon Kaen University, Department of Social Sciences, Faculty of Interdisciplinary Studies, Nong Khai, Thailand, e-mail: sakkno@kku.ac.th

**Tanawat WATCHALAANUN**

Independent Researcher, Nong Khai, Thailand, e-mail: gng3379@gmail.com

**Citation:** Nonthapot, S., & Watchalaanun, T. (2024). IMPACTS OF CLIMATE CHANGE ON TOURISM IN THE PROVINCES ALONG THE MEKONG RIVER IN THAILAND. *Geojournal of Tourism and Geosites*, 57(4spl), 2071–2079. https://doi.org/10.30892/gtg.574spl21-1374

**Abstract:** The objective of this study was to consider the impacts of climate change on tourism along the Mekong River in Thailand. The factors to be considered included temperature and rainfall on the number of Thai and international tourists. Panel data were used, i.e., cross-sectional data from eight provinces of Thailand located along the Mekong River, from January 2013 to December 2023. The results revealed that, over the long-term, only higher temperatures affected the number of Thai tourists. In the short run, average temperatures and rainfall showed the opposite relationship with regard to the number of Thai tourists. The results identified climate change as a cause of the smaller number of Thai tourists in those provinces, mainly as a result of higher average temperatures. Therefore, higher temperatures could be considered a major obstacle for tourism activities.

**Keywords:** climate change, Mekong, tourism development, tourism, GMS

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## INTRODUCTION

Climate change is a key cause of environmental changes (Siddiqui and Imran, 2019), which subsequently have impacts on the daily lives of humans. The study of Shivanna (2022), stated that the impacts of climate change will lead to worsened natural degradation, higher sea levels, lower farming productivity, and loss of biodiversity. In regard to the impacts of climate change on tourism, visitors face various types of obstacles which decrease the attractiveness of tourist attractions resulting from the environmental changes at such sites, i.e., floods, fires, storms, landslides, etc., or lower biodiversity, which is more obvious where natural resources are a key attraction. For this reason, climate change may be a cause of decreasing tourism demand in certain countries and may be a huge problem for tourism-dependent countries.

In 1992, the United Nations Framework Convention on Climate Change (FCCC) described the phenomenon as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”. According to the definition, this phenomenon can be divided into three points: the phenomenon is caused by human activity; it affects the weather overall, and may not be a temporary change. Temperature is one of the indicators that reflect the climate change phenomenon Lindsey and Dahlman (2023). The impact of global warming, which is caused by human greenhouse gas emissions, on the increasing global temperature was confirmed by a study by Chen et al. (2022), who identified trends in regard to global temperatures and the atmospheric concentration of greenhouse gases. The increasing global temperature affects the severity of rainfall because it intensifies the heating and evaporation of water, especially the water in the ocean, which is a cause of many storms Lindsey and Dahlman (2023), and heavy rainfall in each region. Thus, the severity of rainfall is also a popular climate change indicator.

When focusing on the effects of this phenomenon on tourism demand, a number of recent studies confirmed the negative effect of the indicator on tourism demand, such as the study of Susanto (2020) in Indonesia, and the region of Baltic Sea countries in the study of Atstāja and Cakrani (2024). The results in regard to inland countries showed the negative effect of these indicators on tourism demand such as the study of Nonthapot et el. (2024) in Thailand and in the study of Chang et al. (2024) in China, and a study of European regions by Matei et al. (2023). In the case of Indonesia, Susanto (2020) found that in five provinces which received the largest number of tourists, every time temperatures and relative humidity increased by 1%, the number of international tourists in Indonesia would decrease by 1.37% and 0.59%, respectively. However, climate-related extreme events were found not to have the same effects on tourism in all regions. The study by Atstāja and Cakrani (2024) found that an annual average mean surface air temperature had a negative impact on the total travel inbound expenditure and the total number of overnight visitors in the Baltic Sea countries.

In regard to the study in China, Chang et al. (2024) found a decrease in tourist arrivals and revenue when the temperature rose in the summer, but they increased in autumn when the temperature increased. This is in line with the study by Matei et al. (2023) in Europe, which found increasing tourism demand in winter but reduced demand in summer. The

* Corresponding author

cases of China and Europe suggest a negative effect of temperature on tourism demand, which may be a sign that hot weather negatively affects tourism. At the same time, the weather being too cold may also negatively affect tourism. This suggests that tourism demand in these countries may be affected by the suitability of temperature Nonthapot et al. (2024) considered the effects of climate change on representative provinces in each region of Thailand and found the maximum temperature, rainfall and the amount of the PM 10 pollution were the key factors that negatively affected the number of tourists in the popular provinces in each region of Thailand. The study differed from previous research because it did not account for seasonal effects. However, Thailand being a tropical country may explain this approach. Moreover, the direct impact of climate change indicators on tourism demand for islands and inland countries was similar while the differences in the cases of autumn in China and winter in Europe were considered to be seasonal. However, the studies cited above investigated the issue at the national or global regional level, which includes the overall attractiveness of these countries. A domestic regional level study may be a topic for future research. Rivers are one of the most popular attractions as there are a lot of associated tourist activities such as water-skiing, cruising, fishing etc. Moreover, tourists also enjoy cultural attractions along the river. However, river attractions have a high risk of the effects of climate change, especially the effects of temperature and the severity of rainfall. The river may become dry because of high temperatures, storms may cause the river to overflow and flood cities adjacent to the river, causing damage to riverbanks and infrastructure. Unfortunately, few studies have investigated the impact of climate change on tourism demand in regard to river attractions.

In Southeast Asia, the Mekong is the main river flowing through Myanmar, Laos, Thailand, Cambodia, and Vietnam. The river is not only a water source for agriculture, commerce, and electric power, but is also a key resource for tourism in the region, particularly Thailand, and is a popular destination for tourists all along the riverside areas. This utilization includes natural tourist attractions such as rapids that originate from erosion caused by the river, the two-color river phenomenon at the confluence between the Mun River and the Mekong River, the scenic atmosphere at sunrise and sunset, and the beaches on the bank of the Mekong River, which appear for a few months when there are low water levels. Cultural tourist attractions based on the riverside way of life are also popular, such as boat racing festivals and events related to the legend of the Naga, e.g., Naga fireballs seen in the Mekong River in Nong Khai and Bueng Kan.

Thailand is the most popular country in Southeast Asia. In 2019, there were almost 40 million tourists coming to Thailand before the number was hugely reduced due to the COVID-19 pandemic. Eventually, everything recovered again after the world was able to control the outbreak. The data from the Ministry of Tourism  Sports of Thailand indicated that there were over 28 million international tourists who came to Thailand in 2023 (Ministry of Tourism & Sports of Thailand, 2024). One of the strengths of Thailand's tourism industry is the diversity of tourist attractions, which are distributed throughout all of Thailand and throughout the domestic region. The Mekong River is a natural resource which is a source of many important attractions in northeastern Thailand. There are eight provinces of Thailand which are located along the Mekong River: Chiang Rai in the northern region and other provinces in the northeastern region of Thailand, such as Amnat Charoen, Bueng Kan, Loei, Mukdahan, Nong Khai, Nakhon Phanom, and Ubon Ratchathani provinces with the total number of international tourists at 756,821; 5,257; 27,564; 29,363; 115,435; 849,968; 118,090; and 19,609, respectively. The numbers of international tourists staying at accommodation establishments from 2013 to 2022 are shown in Table 1.

Table 1. The number of international tourists staying at accommodation establishments in the different provinces (Source: Ministry of Tourism & Sports of Thailand, 2024)

| Year | Chiang Rai | Amnat Charoen | Bueng Kan | Loei | Mukdahan | Nong Khai | Nakhon Phanom | Ubon Ratchathani |
|---|---|---|---|---|---|---|---|---|
| 2013 | 430,074 | 5,383 | 1,872 | 15,266 | 11,602 | 35,404 | 5,834 | 61,714 |
| 2014 | 426,630 | 5,432 | 1,976 | 15,799 | 11,634 | 34,631 | 5,944 | 60,690 |
| 2015 | 461,276 | 5,712 | 2,168 | 17,481 | 14,232 | 36,280 | 6,203 | 63,238 |
| 2016 | 461,830 | 5,858 | 2,220 | 18,276 | 14,440 | 37,313 | 6,293 | 65,647 |
| 2017 | 492,345 | 6,589 | 2,205 | 19,325 | 15,272 | 36,393 | 6,458 | 79,760 |
| 2018 | 513,519 | 6,611 | 2,259 | 20,095 | 15,832 | 37,439 | 6,792 | 81,697 |
| 2019 | 525,845 | 6,413 | 2,268 | 20,100 | 16,144 | 37,516 | 6,960 | 82,491 |
| 2020 | 89,244 | 1,092 | 443 | 3,556 | 2,165 | 8,841 | 877 | 18,220 |
| 2021 | 4,661 | 23 | 167 | 1,233 | 77 | 1,021 | 294 | 252 |
| 2022 | 153,076 | 459 | 4,411 | 7,369 | 4,697 | 17,288 | 7,331 | 2,335 |

Thailand has also been hugely affected by climate change. According to Limjirakan and Limsakul (2012), it was found that the maximum, minimum, and average temperatures in Thailand increased by 0.96, 0.92, and 1.04 °C within 40 years between 1970 and 2009. The World Bank (n.d.) revealed that Thailand's mean annual temperature has increased by 0.8 Celsius per century since the 1950s, with particularly significant impacts of climate change in the northeastern region, a region which partly adjoins the Mekong River, with a high risk of major disasters, i.e., heat, floods, and drought. There were also negative impacts on biodiversity and loss of cultural aspects as well as natural tourism areas caused by destruction from disasters (Office of Natural Resources and Environmental Policy and Planning, 2022). This may be an obstacle to tourism in the area.

The study by Nonthapot et al. (2024) revealed the effects of those factors on tourism, and it was found that there were different effects of climate on tourists in each region (Susanto, 2020). The study by Nonthapot et al. (2024) considered the overall impact by employing the data on tourism, climate change and economic factors in the main tourism provinces in each region. However, it was found that each province had various tourist attraction characteristics, which did not always reflect the natural and cultural tourism attractions in the provinces. The study focused on tourism demand in eight provinces located along the Mekong River. The key objective of this study was to consider the impacts of climate change, which is indicated by temperature and rainfall, on tourism demand, such as the number of Thai and international tourists visiting the provinces along the Mekong River in Thailand. The researcher expects that the results will be useful for the development of local tourism under environmental changes in the riverside areas of the Mekong River in the future.

## LITERATURE REVIEW

Climate change is a cause of environmental change as a result of sea level change, loss of forest resources caused by wildfire, melting glaciers, and other phenomena (Siddiqui and Imran, 2019). These all affect tourism resources. However, these obvious incidents of environmental changes have occurred after the climate has slightly changed over a long period of time. Temperatures and rainfall are one of the key factors which can be used to observe the climate change phenomena. There is much research about the impact of climate change on the tourism demand which pick the temperature or the rainfall as the climate change factors in their papers such as Nonthapot et al. (2024), Susanto (2020), Chang et al. (2024), Atstāja and Cakrani (2024), Fauzel (2019), and Matei et al. (2023). The negative impact of temperatures and rainfall on tourism demand was usually found when the relationship wasn't considered with the season, as in the case of Nonthapot et al. (2024), Susanto (2020) and Matei et al. (2023). However, the seasonal separation from the relationship may indicate that tourism demand may be attracted by the suitable temperature. However, the ambiguity of the impact directional to tourism demand is not only the temperature, but also the rainfall situation. Nonthapot et al. (2024) and Fauzel (2019) studies found the negative effect of rainfall on tourism demand in Thailand and the Small Island Developing States respectively. In contrast, the domestic tourism of Korea on Jeju Island was positively affected by the rainfall (Bae and Nam, 2019).

In the case of Thailand, Nonthapot et al. (2024) found negative effects in both indicators of overall tourism demand by employing data on tourism, climate change and economic factors in the main tourism provinces in each region. Although the study conforms with previous studies, this result also differs from findings in China and Europe, which assessed seasonal impacts on the relationship. However, Thailand is a tropical country located approximately between 5° to 21° North (latitude) and 97° to 106° East (longitude) which experiences hot weather throughout the year. Although there is a cooler period from December to February, it is still relatively warm compared to temperate regions. During this time, the lowest recorded temperature, such as in December 2023, was not below 4.5°C, occurring in specific locations like Doi Inthanon (Thai Meteorological Department, 2023). The average annual minimum temperature was around 23.39°C during 2011-2020 (Thai Meteorological Department, 2022). This situation implies that Thailand's temperature is suitable for tourism activities all year round. Thus, seasonal effects in Thailand may not occur.

In addition to the factors of climate, tourism can be affected by other factors as well, particularly economic factors, e.g., the factors of price and tourism-related economic conditions. The factors of price can be considered from the data that reflect inflation such as CPI. The factors that reflect tourism-related economic conditions can be considered from the data that reflect national income such as GDP and GDP per capita. These factors affect tourism demands differently. Nonthapot et al. (2024) applied the factors of price, i.e., CPI, to support this consideration. They found the opposite relationship regarding the number of tourists in the famous provinces among the international tourists in each region of Thailand. Soofi (2018) also found the congruent relationship resulting from GDP per capita to be the same as other considered factors, i.e., the exchange rates, population, and free trade, but the relationship between CPI and tourism demands was not found. When considering tourism demands based on income for research in the Organization of Islamic Cooperation (OIC), with regard to the results of a study conducted in Tunisia by Dekkiche (2023), the researcher found the opposite relationship among CPI, GDP per capita, and real exchange rates. Seetanah et al. (2015) applied CPI by categorizing it into relative price with comparison between the CPI of tourist attractions and the country of origin, and relative cost with comparison between the CPI of tourist attractions and competitive countries. The results revealed the opposite relationship between relative price and tourism demands, and also the long-term congruent relationship between relative cost and tourism demands.

## METHODOLOGY

This study on the effects of climate change on the number of tourists in the provinces along the Mekong River in Thailand used the relevant data, average temperatures, and monthly rainfall as the indicators of climate change. The number of Thai and international tourists was considered based on the total number of tourists staying at accommodation establishments in the target provinces using panel data. This data included cross-sectional data from eight provinces in Thailand along the Mekong River, i.e., Chiang Rai, Amnat Charoen, Bueng Kan, Loei, Mukdahan, Nong Khai, Nakhon Phanom, and Ubon Ratchathani, and time-series data as monthly data from January 2013 to December 2023, a total of 132 months. The variables and sources of data are shown in Table 2.

Table 2. Data used in the study (Source: The researcher)

| Variable | Symbol | Definition | Unit | Source |
|---|---|---|---|---|
| The number of international tourists | TR_F | The number of international tourists staying at accommodation establishments in the target provinces | Person | Ministry of Tourism and Sports (2024) |
| The number of Thai tourists | TR_T | The number of Thai tourists staying at accommodation establishments in the target provinces | Person | Ministry of Tourism and Sports (2024) |
| Rainfall | Rain | Monthly average rainfall from weather stations in the target provinces | millimeter | Hydro and Agro Informatics Institute (2024) |
| Average temperatures | Tmean | Monthly average temperatures (°C) from weather stations in the target provinces | Celsius | Hydro and Agro Informatics Institute (2024) |
| GPP per capita | GPP | Gross Provincial Product per capita | Baht | Office of the National Economic and Social Development Council (2024) |
| CPI | CPI | Basic consumer price index in each province | - | Office of Trade Economic Indices (2024) |

The data on rainfall and average temperatures in this study were obtained by purposive sampling, with one site/province as the representative from several weather stations in each province. Completeness of the data collected by those stations was considered throughout the study duration. These data were modified from hourly into recorded monthly data. More specifically, means were used for all data on temperature. The sum of all data in one month was used for rainfall.

Furthermore, the data on GPP were also improved. As the data of each province were not officially announced in 2023, It was inferred from the results of Thailand's estimated economic expansion from the Office of the National Economic and Social Development Council, assuming that Thailand had the growth rate of 1.9% in 2023. After that, the data were transformed throughout the study duration into monthly data. The value of GPP each month was set to be equal to the GPP for that year. Because the panel data in this study were the data that collected the qualifications and limitations of the cross-sectional data and time-series data, when using this data to consider relationships under regression-related statistical tools, the suitability of the qualifications of the data and relationships must be considered in order to reduce conclusion errors. Qualifications of the data to be considered included cross-sectional dependence and panel unit root testing, and the qualifications of the relationships to be tested included slope homogeneity and cointegration. The results of each test led to the selection of a suitable related test, including the characteristics of the models that would be used to consider the relationships between the independent variables and dependent variables. Cross-sectional dependence testing was used to test the independence of the cross-sectional data. Dependences of this type of data can cause errors of data analysis results (Baltagi and Pirotte, 2010), e.g., the size of the Chow type F-test that is larger than usual (Basak and Das, 2017). In this study, the cross-sectional dependence was tested by Pesaran's method, as per Equation (1).

$$CD = \sqrt{\frac{2}{N \times (N-1)}} \times \sum_{i}^{N}\sum_{t}^{T}\sqrt{T_{ij} \times r_{ij}} \qquad \text{Eq (1)}$$

Where $CD$ refers to the CD test statistic that was used to test cross-sectional dependence under the key hypothesis; in other words, whether the data used for analysis showed strict cross-sectional independence (Pesaran, 2004) or weak cross-sectional dependence (Pesaran, 2015). $x$ refers to a variable for testing, N refers to the number of the total cross section or total provinces in the study, T refers to the total duration of the study while i refers to cross-section or the data about that variable in a certain target province, t refers to the data for the variable in a certain target year, and $r_{ij}$ refers to the correlation coefficient obtained by the following calculation.

$$r_{ij} = \frac{1}{T_i - 1} \sum_{t}^{T}\left(\frac{x_{it} - \bar{x}_{it}}{s_i} \times \frac{x_{jt} - \bar{x}_{jt}}{s_j}\right) \qquad \text{Eq (2)}$$

Furthermore, $s_i$ refers to the standard deviation obtained by the following calculation.

$$s_i = \sqrt{\left(\frac{1}{T_i - 1} \times \sum_{t}(x_{it} - \bar{x}_{it})^2\right)} \qquad \text{Eq (3)}$$

Therefore, in the case of significant rejection of the key hypothesis, it could be said that the cross section of the considered data might not be independent or might have cross-sectional dependence. As for consideration of the interfering factor in terms of the time-series data from the panel data that usually cause conclusion errors by regression equations for data analysis, it mainly relied on panel unit root testing. The interfered data might be non-stationary or have a unit root. In case of cross-sectional dependence, the panel unit root was required for testing by methods in the 2nd generation, e.g., the cross-sectionally augmented IPS test (CIPS test) of Pesaran (2007), which relieved the qualifications of the cross-sectional independence of the tested data. The statistics for the CIPS test were considered as follows.

$$CIPS(N,T) = N^{-1}\sum_{i=1}^{N} t_i(N,T) \qquad \text{Eq (4)}$$

Where $t_i(N,T)$ refers to the t-ratio of $b_i$ in Eq(5) as follows.

$$\Delta y_{it} = a_i + \delta_i t + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{it} \qquad \text{Eq (5)}$$

Where $a_i$ and $\delta_i t$ are the terms of the intercepts and trend, respectively. Their values were not set. In the case that the data were not considered for co-effects in the model, of which the key hypothesis for testing was homogeneous non-stationary data, $b_i = 0$ for all cross-sectional data.

In the case of stationary data, the results of the model for long-term relationships might be reliable, without cointegration, a qualification which indicates reliable relationships between the independent variables and the dependent variables obtained by estimation, despite interference from the unit root. That was because those relationships adjusted to long-term equilibrium when they were affected. Still, if all data used were non-stationary, those data would be tested again after they had been modified into the 1st difference to consider cointegration testing, and to set a suitable model for estimating relationships, particularly panel autoregressive distribution lag (panel ARDL) that could be used for testing qualifications, along with consideration of long-term and short-term relationships.

Apart from the qualifications of the studied data according to the previous testing, the results of the estimated panel data might contain errors due to the effects of the different independent variables in the cross-sectional data on the dependent variables (slope heterogeneity). Therefore, those qualifications must be considered according to the results of the estimated relationships for panel data. In this study, slope homogeneity was applied for the standard delta test (Pesaran and Yamagta, 2008) under the key hypothesis: "The independent variables in the cross-sectional data have effects on the dependent variables in the same way." In order to determine if the results revealed slope heterogeneity, the use of the Pedroni test (Pedroni, 1999) and Westerlund test (Westerlund, 2005) for testing panel cointegration was a suitable method. The Pedroni test and Westerlund test for testing panel cointegration were modified to consider relationships in the case of slope heterogeneity. Basically, this method was applied from the test of Engle-Granger. Cointegration was considered based on the stationary data and errors due to estimation by regression. For the Pedroni test, the statistics obtained by error estimation were tested by comparison with critical values in different forms, i.e., Modified PP t (MPP), PP t (PP), and ADF t (ADF). Likewise, the Westerlund test was employed to apply the statistical values obtained by error estimation, and then they were compared with the critical values of VR. If the errors from estimation for testing were stationary, they indicated that the relationships under consideration contained cointegration. When cointegration was confirmed, the analysis of the effects of climate change on tourism were considered by panel autoregressive distribution lag (panel ARDL). In this study, the relationships of the independent variables, i.e., GPP, CPI, Tmean, and Rain, on the dependent variables, i.e., TR_T and TR_F, were considered. The general models for this study are as follows.

$$TR\_F_{it} = \Sigma_{j=1}^{p} b_{1,i,j} TR\_F_{i,t-j} + \Sigma_{j=0}^{q_2} b_{2,i,j}\mathrm{GPP}_{i,t-j} + \Sigma_{j=0}^{q_3} b_{3,i,j} CPI_{i,t-j} + \Sigma_{j=0}^{q_4} b_{4,i,j}\mathrm{Tmean}_{i,t-j} + \Sigma_{j=0}^{q_5} b_{5,i,j} Rain_{i,t-j} + u_{i,t} \quad \text{Eq (6)}$$

$$TR\_T_{it} = \Sigma_{j=1}^{p} d_{1,i,j} TR\_T_{i,t-j} + \Sigma_{j=0}^{q_2} d_{2,i,j}\mathrm{GPP}_{i,t-j} + \Sigma_{j=0}^{q_3} d_{3,i,j} CPI_{i,t-j} + \Sigma_{j=0}^{q_4} d_{4,i,j}\mathrm{Tmean}_{i,t-j} + \Sigma_{j=0}^{q_5} d_{5,i,j} Rain_{i,t-j} + v_{i,t} \quad \text{Eq (7)}$$

Where $b_{1,i,j}$ and $d_{1,i,j}$ revealed their long-term effects based on the number of former tourists affecting the number of current tourists, while $b_{2,i,j} \dots b_{5,i,j}$ and $d_{2,i,j} \dots d_{5,i,j}$ revealed the long-term effects of the independent variables on the number of tourists. They were transformed into a vector error correction mechanism as follows.

$$\Delta TR\_F_{it} = \alpha_i + \beta_i ECM_{i,t-1} + \Sigma_{j=1}^{p}\gamma_{1,i,j}\Delta TR\_F_{i,t-j} + \Sigma_{j=0}^{q_2}\gamma_{2,i,j}\Delta\mathrm{GPP}_{i,t-j} + \Sigma_{j=0}^{q_3}\gamma_{3,i,j}\Delta CPI_{i,t-j} + \Sigma_{j=0}^{q_4}\gamma_{4,i,j}\Delta\mathrm{Tmean}_{i,t-j} + \Sigma_{j=0}^{q_5}\gamma_{5,i,j}\Delta Rain_{i,t-j} + D_1 Co + u_{i,t} \quad \text{Eq (8)}$$

$$\Delta TR\_T_{it} = \eta_i + \theta_i ECM_{i,t-1} + \Sigma_{j=1}^{r}\lambda_{1,i,j}\Delta TR\_T_{i,t-j} + \Sigma_{j=0}^{s_2}\lambda_{2,i,j}\Delta\mathrm{GPP}_{i,t-j} + \Sigma_{j=0}^{s_3}\lambda_{3,i,j}\Delta CPI_{i,t-j} + \Sigma_{j=0}^{s_4}\lambda_{4,i,j}\Delta\mathrm{Tmean}_{i,t-j} + \Sigma_{j=0}^{s_5}\lambda_{5,i,j}\Delta Rain_{i,t-j} + D_2 Co + v_{i,t} \quad \text{Eq (9)}$$

While Eq (8) revealed the short-term relationship of the independent variables on the number of international tourists, Eq (9) revealed the short-term relationship of the independent variables on the number of Thai tourists, $\alpha_i$ and $\eta_i$ represented the intercepts, $D_1$ and $D_2$ revealed the short-term effects of COVID-19 on tourism, $\gamma_{1,i,j}$ and $\lambda_{1,i,j}$ revealed the short-term effects of the number of former tourists on the number of current tourists, and $\gamma_{2,i,j} \dots \gamma_{5,i,j}$, and $\lambda_{2,i,j} \dots \lambda_{5,i,j}$ revealed the short-term effects of the independent variables on the number of tourists.

The models were applied to suit three estimation methods, i.e., pooled mean group (PMG), mean group (MG), and dynamic fixed effect (DFE). The data obtained by these methods were selected, with the consideration to use the Hausman test. According to the methodology, the progress of this study can be illustrated as shown in Figure 1 below.

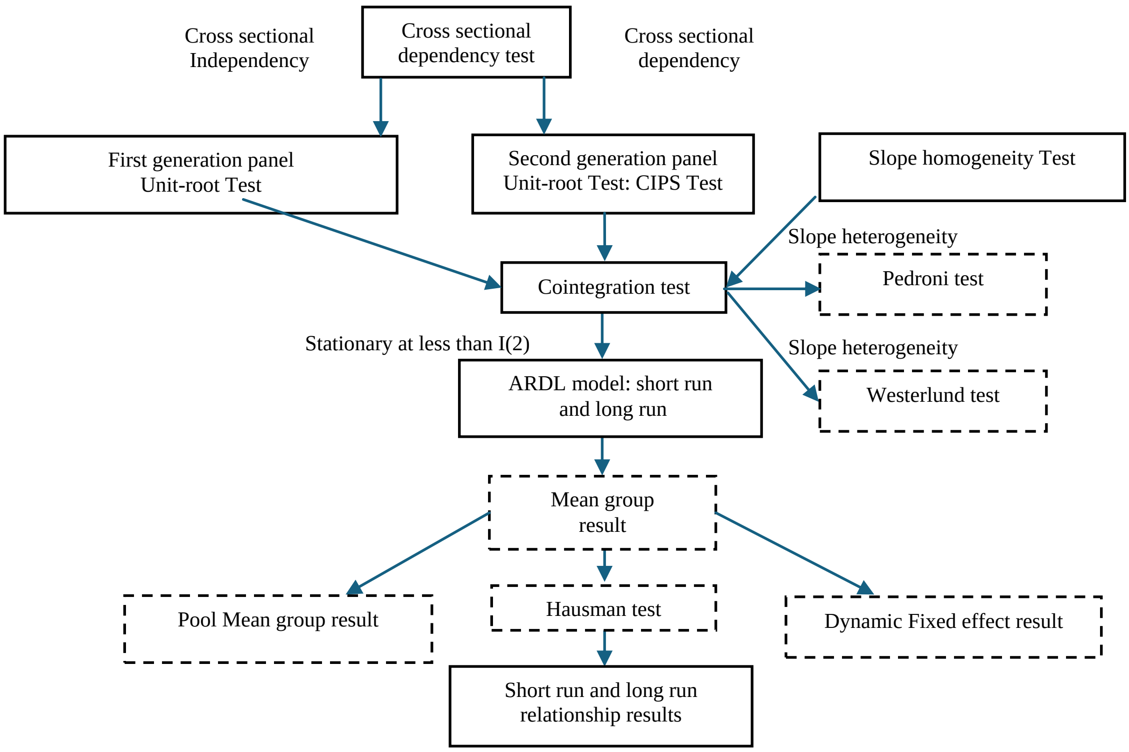


Figure 1. Methodology

## RESULTS AND DISCUSSION

As seen in Table 3, which displays the results of the tested cross-sectional independence by Pesaran's CD-test for cross-sectional dependence in the panel variables, it was found that all panel variables contained dependent cross-sectional data. Therefore, the unit root test in these panel data should rely on the method in the 2$^{nd}$ generation unit root test in the panel variables that relieved the qualifications of independence of cross-sectional independence in the panel variables. In this study, cross-sectionally augmented Im, the Pesaran test, and the Shin test (CIPS test) were used for further consideration.

Table 3. The results of tested cross-sectional independence in the panel variables (Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Variable | CD-test |
|---|---|
| TR_F | 31.68*** |
| TR_T | 53.614*** |
| Rain | 34.762*** |
| GPP | 56.659*** |
| CPI | 59.117*** |
| Tmean | 45.081*** |

When considering the results of the panel unit root test by CIPS test at the data level, it was found that all variables, except TR_F and GPP, were without unit root process, i.e., the model without trend and intercepts, the model with the effects of the intercepts, and the model with the effects of trend and the intercepts. However, for TR_F, the unit root process was found in the model without trend and intercepts as well as the model with the effects of the intercepts. This process was also found in GPP in all three models. When removing the results of the unit root process by changing the current data using the 1$^{st}$ difference, it was found that TR_F and GPP were without the effects of the unit root process at the 1$^{st}$ difference of the data (Table 4).

Table 4. The results of tested panel unit root by CIPS test (Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Variable | Level | | | 1$^{st}$ difference | | |
|---|---|---|---|---|---|---|
| | None | Intercept | Intercept and Trend | None | Intercept | Intercept and Trend |
| TR_F | -1.570 | -2.076 | -3.365*** | -6.120*** | -6.190*** | -6.420*** |
| TR_T | -4.321*** | -5.032*** | -5.424*** | - | - | - |
| Rain | -5.915*** | -5.978*** | -6.249*** | - | - | - |
| GPP | -1.342 | -2.011 | -2.125 | -6.120*** | -6.190*** | -6.420*** |
| CPI | -2.250*** | -3.050*** | -3.417*** | - | - | - |
| Tmean | -4.530*** | -4.686*** | -5.036*** | - | - | - |

According to the tested slope homogeneity as seen in Table 5, it was found that the effects of the independent variables affecting the dependent variables contained a range of slope heterogeneity, which might cause errors in the models or hypothesis testing that rely on the relationship analysis under the hypothesis of similarity of slope heterogeneity.

Table 5. The results of tested slope homogeneity (Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Dependent Variable | Delta | Adj. Delta |
|---|---|---|
| TR_F | 34.556*** | 35.510*** |
| TR_T | 31.409*** | 32.276*** |

According to the panel cointegration testing by these two methods, it was found that the relationships of the independent variables; i.e., GPP, CPI, Rain, and Tmean; including the effects of COVID-19 on TR_F, contained cointegration when evaluated by the Pedroni test, but it was not found when they were considered using the Westerlund method. Moreover, when considering Thai tourists, the relationships of the independent variables; i.e., GPP, CPI, Rain, and Tmean, including the effects of COVID-19 on TR_F; contained cointegration according to both methods (Table 6).

Table 6. The results of panel cointegration tested by the Pedroni test and Westerlund test
(Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Dependent Variable | Pedroni | | | | | | Westerlund | |
|---|---|---|---|---|---|---|---|---|
| | None | | | Trend | | | None | Trend |
| | MPP | PP | ADF | MPP | PP | ADF | | |
| TR_F | -4.945*** | -4.734*** | -5.268*** | -4.454 | -4.642*** | -4.750*** | -1.180 | -0.172 |
| TR_T | -5.789*** | -5.806*** | -6.023*** | -5.477*** | -5.756*** | -5.451*** | 2.069** | -1.920** |

According to the cointegration from the independent variables on the number of Thai and international tourists, the long-term relationships of the independent variables on the number of those tourists could be noticed. However, when considering the qualifications of the stationary data at different levels, the relationships in the ARDL models must be estimated. This relieved the limitations of the different levels for stationary data. Analysis by ARDL models in the panel data can be considered by applying three models, i.e., pooled mean group (PMG), mean group (MG), and dynamic fixed effect (DFE), as shown in Table 7.

Table 7. The suitable models obtained by the Hausman test and cointegration test from ECM
(Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Independent Variable | Hausman test ($\beta$) | | | | ECM |
|---|---|---|---|---|---|
| | $\beta$ | PMG | MG | DFE | |
| TR_F | PMG | - | - | - | -0.073 (0.046) |
| | MG | - | - | -2.99 | -0.268*** (0.057) |
| | DFE | - | 0 | - | -0.055*** (0.0123) |
| TR_T | PMG | - | -1.88 | -217.47 | -0.158*** (0.0405) |
| | MG | 1.54 | - | -146.96 | -0.272*** (0.0263) |
| | DFE | 0 | 0 | - | -0.156*** (0.0175) |

The results of the long-term and short-term relationships of GPP, CPI, Tmean, and Rain on TR_F and TR_T are displayed in Table 8 and 9, respectively. Long-term relationships from the independent variables on the dependent variables were confirmed through the coefficient of ECM, which was significantly negative. This reflects the rapidity of adjustment to long-term equilibrium when they were affected by other factors. The relationships of the independent variables on the number of international tourists estimated by MG and DFE and the relationships of the independent variables on the number of Thai tourists according to the estimation results of all three models are seen in Table 7.

Moreover, the results from the Hausman test revealed DFE as the most effective method to estimate relationships from the models of relationships of the independent variables on international and Thai tourists. According to the relationships of the independent variables on international tourists, it was found that the considered values did not contain statistical significance when considering the selection results between DFE and MG. To clarify, the DFE model was more suitable than the MG model. For the relationships of the independent variables on Thai tourists, it was found that the considered values did not contain statistical significance when considering the selection results between MG and PMG. To clarify, the MG model was more suitable than the PMG model.

When considering the selection results between DFE and MG, and DFE and PMG, it was found that the considered values did not contain statistical significance. To clarify, the DFE model was more suitable. According to the results of the long-term equilibrium estimation by DFE, it was found that Tmean affected the number of Thai tourists only in the opposite way at 99% reliability, and CPI affected the number of Thai and international tourists in the same way at 99% and 95% reliability, respectively. In contrast, the results from the DFE estimation for the effects of GPP and Rain on the number of Thai and international tourists did not have statistical significance.

Table 8. Long-term relationships from the panel ARDL (Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Independent Variables | Dependent Variables | | | | | |
|---|---|---|---|---|---|---|
| | TR_F | | | TR_T | | |
| | PMG | MG | DFE | PMG | MG | DFE |
| GPP | 0.370 (0.269) | 0.090 (0.072) | 0.230 (0.340) | 1.123 (0.653) | 0.0873 (0.5451) | -0.6091 (0.8756) |
| CPI | 1787.680*** (469.918) | 1347.092 (834.012) | 2208.893** (1043.959) | 8876.750*** (1425.936) | 9268.419*** (2734.284) | 12667.48*** (2094.703) |
| Tmean | -1820.039 (447.930)*** | -755.233 (391.877) | -1357.863 (756.324) | -9187.306 (1624.45)*** | -8073.872 (2508.034)*** | -7634.194*** (1669.526) |
| Rain | -28.161** (13.021) | -8.917 (4.730) | -5.786 (20.302) | 31.132 (33.481) | -13.339 (17.036) | 2.306 (44.510) |

When considering the short-term relationships, it was found that the number of international tourists was not affected by any independent variables besides the impacts of COVID-19, no matter by which estimation methods. This was different from the results for Thai tourists, which indicated opposite short-term relationships due to climate change, i.e., average temperatures and rainfall, according to estimation by DFE. In contrast, these effects were not found from the estimation by PMG and MG. However, the results from all estimation methods revealed the negative impacts of COVID-19.

Table 9. Short-term relationships from the panel ARDL (Note: ***, **, * significant at 99%, 95% and 90%, respectively)

| Independent Variables | Dependent Variables | | | | | |
|---|---|---|---|---|---|---|
| | TR_F | | | TR_T | | |
| | PMG | MG | DFE | PMG | MG | DFE |
| ECM | -0.073 (0.046) | -0.268*** (0.057) | -0.055*** (0.0123) | -0.158*** (0.041) | -0.2718***(0.0263) | -0.156*** (0.0175) |
| $\Delta$GPP | -0.083 (0.2135) | -0.1013 (0.2064) | 0.076 (0.0898) | -0.027 (0.8843) | -0.246 (0.6235) | -0.397 (0.559) |
| $\Delta$CPI | -193.081 (175.879) | -265.792 (221.898) | -218.426 (200.1472) | 91.901 (820.995) | 107.2509 (792.3757) | -537.3753 (1249.062) |
| $\Delta$Tmean | -50.108 (94.132) | 0.925 (113.697) | -54.178 (50.921) | -852.392 (1217.029) | -158.8302 (678.9181) | -572.746 (321.357) |
| $\Delta$Rain | -0.380 (0.514) | 0.320 (0.369) | -0.799 (1.073) | -23.9471 (15.9143) | -13.351 (8.700) | -11.345 (6.698)* |
| CO | -2892.480 (2274.680) | -3579.124 (2272.188) | -1295.122*** (306.634) | -15331.590*** (4335.768) | -21580.180*** (5648.117) | -12882.39*** (1999.891) |
| Constant | -9139.423 (5396.690) | -18353.060 (11818.510) | -10194.870** (4009.676) | -94950.23*** (23622.49) | -156465.600*** (45678.090) | -141108.100*** (26825.05) |

## CONCLUSIONS

In this study, the relationships between climate change and the number of tourists were analyzed. They were considered based on the climate change data on average temperatures and rainfall. The number of Thai and international tourists was also considered based on the number of tourists staying at accommodation establishments in the target provinces. The data that reflected economic conditions in each province were based on GPP per capita as well as CPI, and the results of COVID-19 were also considered.

According to estimation by the most suitable models, the relationships of the independent variables on the number of Thai and international tourists were revealed. To clarify, there were opposite relationships of Tmean on the number of Thai and international tourists. Moreover, the results of this part also conformed to the results obtained by other estimation methods. In contrast, they were different from the study of Falk (2013) in Australia and Chen and Lin (2014) in Taiwan. However, they conformed to the study of Nonthapot et al. (2024) in Thailand and Susanto (2020) in Indonesia. These differences might be caused by the variations of the areas. Because Thailand and Indonesia are located close to the equator, temperatures are relatively high all year round. As a consequence, increasing average temperatures have become an obstacle for tourism activities and can be harmful for health. In contrast, Taiwan and Australia are located farther from the equator. Therefore, increasing temperatures can attract local tourism because they are suitable for tourism activities in those areas.

For estimation by DFE and other methods for the effects of rain on the number of Thai and international tourists, relationships were not found. This did not conform to Nonthapot et al. (2024) in Thailand, Falk (2013), or Chen and Lin (2014), who found opposite relationships to tourism demands. To clarify, Nonthapot et al. (2024) considered tourism using the panel data used in the samples as cross-sectional data, i.e., the provinces which represented tourism in each region, reflecting general rainfall, but this study used the provinces in Thailand as cross-sectional data. Those target provinces adjoin the Mekong River, with slight spatial distribution. Therefore, the relationships of rainfall on tourism in the target areas contained the effects of spatial characteristics. Also, this lack of conformity to the studies of Falk (2013) and Chen and Lin (2014) could be clarified as follows. The areas along the Mekong River were not negatively affected by rainfall to a significant degree, while Australia and Taiwan were more obviously affected by this phenomenon. Nevertheless, the results of estimation by PMG and MG for international tourists might also confirm the obstacles to tourism caused by rainfall.

For the results of the relationships of climate change on the number of tourists, it was found that average temperatures were a factor with long-term impacts on the number of tourists in each province along the Mekong River in Thailand. An increase of average temperatures by 1 °C resulted in the decrease of international tourists in the areas by 1,358 on average. Similarly, such change also resulted in the decrease of Thai tourists by 7,634 on average. In contrast, there were no long-term effects of rainfall either on the number of international tourists or Thai tourists in those areas. Therefore, it could be said that climate change negatively affected the number of Thai tourists in the provinces along the Mekong River mainly through average temperatures, possibly because temperatures in those areas were relatively high. Therefore, increasing temperatures might be an obstacle for tourism activities. Ruamree and Khonwai (2018) stated that higher temperatures and drought negatively affected biodiversity and ecosystems, which basically attract ecotourists. These impacts could be considered to obviously result from drought, which caused damage to famous tourist attractions in Nakhon Phanom, i.e., Tad Pho Waterfall and Tad Kham Waterfall, which completely ran out of water in 2015. This phenomenon affected local tourism, particularly tourist attractions' entrepreneurs, who were impacted by the lower number of tourists (MGR Online, 2015).

The results of this study reflect that the entrepreneurs of tourism areas along the Mekong River must find measures to motivate tourists to join local activities, or to change some types of investment in accommodation activities, e.g., using thin and ventilating tent sheets instead of thick materials. Furthermore, they can provide activities that are suitable in areas with high temperatures, e.g., tourism activities or sightseeing boats on the Mekong River.

**Author Contributions:** Conceptualization, S.N.; methodology, S.N. and T.W.; software, S.N. and T.W.; validation, S.N.; formal analysis, S.N. and TW.; investigation, S.N.; data curation, S.N.; writing - original draft preparation, S.N. and T.W.; writing - review and editing, S.N. and T.W.; visualization, S.N.; supervision, S.N; project administration, S.N. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** This manuscript is part of the research on the impact of climate change on tourism demand along the Mekong River. It received support under the Fundamental Fund budget request for fiscal year 2024 and Research Administration Division, Khon Kaen University, Thailand.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 09.09.2024 Revised: 08.11.2024 Accepted: 06.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2080-2089
DOI 10.30892/gtg.574spl22-1375

# CHOOSING ADVENTURE TOURISM DESTINATION: THE CASE OF QUANG BINH, VIETNAM

**Tram Nguyen Thi HUYEN**
HCMC University of Technology and Education, Faculty of Economics, Ho Chi Minh City, Vietnam, e-mail: tramnth@hcmute.edu.vn

**Phuong Mai Vo TRUC**
HCMC University of Technology and Education, Faculty of Foreign Languages, Ho Chi Minh City, Vietnam, e-mail: mvtp@hcmute.edu.vn

**Kien Cao PHUOC**
Thu Duc College of Technology, Faculty of Finance and Accounting, Ho Chi Minh City, Vietnam, e-mail: kiencp@tdc.edu.vn

**Nguyet Phan MINH**
Van Lang University, Faculty of Accounting and Auditing, Ho Chi Minh City, Vietnam, e-mail: nguyet.pm@vlu.edu.vn

**Hien-Huynh THI**
Thu Duc College of Technology, Faculty of Finance and Accounting, Ho Chi Minh City, Vietnam, e-mail: hienhuynh@tdc.edu.vn

**Tuan Anh LE***
Duy Tan University, Institute of Research and Development, Da Nang City, Vietnam, e-mail: latuan0507@gmail.com

**Citation:** Huyen, T.N.T., Truc, P.M.V., Phuoc, K.C. Minh, N.P., Thi, H.H., & Le, T.A. (2024). CHOOSING ADVENTURE TOURISM DESTINATION: THE CASE OF QUANG BINH, VIETNAM. *Geojournal of Tourism and Geosites*, 57(4spl), 2080–2089. https://doi.org/10.30892/gtg.574spl22-1375

**Abstract:** The purpose of this study is to examine the factors and their level of influence on the choice of adventure tourism destinations in Quang Binh, Vietnam. The author has synthesized prominent studies related to adventure tourism, combined with the search for underlying theories to build a research model. SPSS 20 software was used to analyze based on the survey results of 260 tourists including domestic and foreign tourists, to verify the relationship of these factors to the choice of adventure tourism destinations. The results show that there are 5 factors influencing the choice of Quang Binh as an adventure tourism destination, arranged in the following order: (1) Travel costs; (2) Cultural experience, people of the destination; (3) Communication and advertising; (4) Tour guide capacity; (5) Brand of the operating company. Based on the research results, the author has made some recommendations to help develop adventure tourism in Quang Binh better.

**Keywords:** adventure tourism, destination selection, tourists, Quang Binh, Vietnam

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## INTRODUCTION

With many potentials and advantages, Quang Binh is striving to truly become one of the attractively adventural and experienced tourism centers of the region and the world. Quang Binh is a locality with many potentials and advantages to develop tourism, especially exploration, adventure and experience tourism. Quang Binh's outstanding tourism resource for adventure tourism is the World Natural Heritage Phong Nha-Ke Bang National Park. With natural conditions of terrain and habitat, Phong Nha-Ke Bang area is hiding many beautiful natural landscapes that are still wild and mysterious. These are the system of rivers, streams, underground rivers, rocky beaches, waterfalls, valleys, tropical primeval forests, grasslands, and especially the cave system. Since 1990, the British Cave Research Association (BCRA) expedition team led by Mr. Howard Limbert in collaboration with the University of Natural Sciences, Vietnam National University, Hanoi has conducted nearly 20 surveys, explorations and published important information.

The explorers believe that the Phong Nha-Ke Bang cave area has hundreds to thousands of large and small caves. The team has surveyed and explored over 350 caves with a total length of 223 km. Among them, there are special caves, such as: Khe Ry cave is the longest water cave in the world (18,902m), Vom cave is 16km long, Phong Nha cave is the cave with the longest underground river (7,729m), Thien Duong cave is the dry cave with the most unique and majestic stalactite system and length (over 7km), etc. In particular, on April 22, 2009, the British Royal Cave Association surveyed Son Doong cave and confirmed that this is the largest cave in the world with a width of 200m, a length of 9km, a height of over 150m and a volume of 38.5 million. Son Doong cave surpasses Deer cave in Gunnung Mulu National Park of Malaysia to become the largest cave in the world. Explorers assess that Phong Nha-Ke Bang area can be considered the "kingdom" of caves in the world. The diversity and uniqueness of geology, topography, and geomorphology are prerequisites for other unique features, which are beautiful, fascinating, and wild landscapes. In particular, primeval, pure forests, such as: Gao forest (over 10 hectares), green cypress forests on limestone mountains,

* Corresponding author

Sinh Ton valley have favorable conditions for organizing types of tourism, such as: eco-tourism, natural discovery experience tourism and especially adventure tourism to explore caves or underground rivers.

In Quang Binh, there are currently 25 tourism products as destinations for tourists who want to experience, explore and choose many attractive types of tourism, such as: discovery tourism, adventure tourism, experiential tourism, resort tourism, cultural and historical sightseeing tourism, spiritual tourism, community tourism, etc. Among the tourism products as destinations, there are 15 discovery, experience or adventure tourism destinations organized in the Phong Nha-Ke Bang area. From the survey results of the British Royal Caving Association, Quang Binh has focused on developing cave exploration tourism products, turning this type of tourism into a typical tourism product of the province, affirming the brand of Quang Binh tourism on the world map. This type is divided into two main segments as follows: Popular experience products, visiting the beauty of caves, entertainment: Phong Nha cave, Tien Son cave, Thien Duong cave, water games in Chay river - Dark cave, Mooc stream and so on. Cave exploration and exploration products: exploring and exploring Va cave - Nuoc Nut cave; exploring and exploring Tu Lan cave system - Tien cave; exploring Rao Thuong - En cave; exploring Ma Da valley - Tra Ang cave, exploring Vom cave, Gieng Vooc cave, En cave, Pygmy cave, Dai A cave, Over cave, etc. The most special thing is the product of exploring and exploring Son Doong cave, the largest cave in the world with the most experiences with adventure tourism.

In 2018, over 800 guests registered and successfully conquered Son Doong cave exploration and conquest. With the above potentials and advantages, Quang Binh is expected to become one of the leading centers for adventure tourism and natural exploration not only in the region but also in the world. With the above characteristics, studying the factors affecting the choice of Quang Binh as an adventure tourism destination is very practical, this will help managers come up with solutions to increase the number of tourists and improve the quality of tourism services.

## LITERATURE REVIEW AND RESEARCH HYPOTHESES

Adventure tourism has recently received a lot of attention, and some researchers have studied the decisions of individuals when choosing this form of tourism (Lin et al., 2020). Through experiments on individual technological behavior when choosing a form of tourism, adventure, the results show that participants tend to seek adventure based on their own decisions, and they will also be interested in destinations with high safety and clear advertising (Lin et al., 2020). Mawarni et al. (2022) conducted a review of data on economic, social, political, healthy and natural conditions of more than 191 economies, which will affect the development of the adventure tourism index in these countries. The results show that adventure tourism will develop based on the innovation of economies. If a country has a higher innovation index, it will have an advantage. Cultural diversity as well as high per capita medical expenses will also be factors affecting the choice of that country for adventure tours. Wang et al. (2024) stated that operators play a very important role in adventure tours, they play a role in designing conditions to ensure that adventure tours are safe such as escape conditions, or predicting the impact of adventure tours on natural environmental conditions. Tour guides play a very important role in adventure tourism experiences, almost whether the experience of tourists when choosing adventure tourism is highly satisfying or not largely depends on the health and emotions of the tour guide (Mackenzie and Raymond, 2020).

This shows that there is a need to pay attention to the health, emotions and satisfaction of tour guides when wanting to develop the adventure tourism sector. Most tourists make decisions to choose adventure tourism destinations when it is associated with a reputable brand, which means that the choice of adventure tourism destinations is often associated with brands of reputable companies in this sector (Karagiorgos et al., 2023). When mentioning these brands, tourists will feel secure and make quick decisions for their experiences. Pop et al. (2023) stated that adventure tourism is a viable form of tourism for young people after the pandemic, which will help young people regain balance in their lives and explore more positive travel experiences. Furthermore, the factors that influence young people's choice of adventure tourism are reducing stress in life, helping them to be self-aware, seeking new life experiences and interacting more with the surrounding society. In addition to choosing adventure tourism services influenced by the factor of seeking new sensations, people with personality and a love of adventure will be very proactive in choosing destinations with adventure tourism characteristics (Torres et al., 2022). Jin et al. (2019) stated that tourists' motivations, personalities, and destination characteristics will affect their choice of adventure tourism activities. Tourists tend to choose tourist destinations that are branded and ensure safety, quality of accompanying services such as tour guides, and guaranteed infrastructure.

Xiao et al. (2024) stated that it is important to identify the location of adventure tourists, which increases safety in travel as well as increases customers' trust when choosing travel experiences, which shows the importance of adventure tour operators. Phạm (2019) stated that factors such as tourism and entertainment activities; tourism environment; service capacity; infrastructure; safety and staff capacity will affect the level of satisfaction of tourists when they participate in some marine ecotourism activities. Vietnam tourism is a prominent destination in terms of culture, pristine nature, and hospitality. The image of Vietnam tourism is also diverse according to different tourist groups. Besides, Vietnam has many other resources that are assessed by experts as having great potential but have not been highly appreciated by international tourists. The study pointed out the strengths and weaknesses of Vietnamese tourism from the perspective of international tourists and made suggestions for developing the image, brand and products of Vietnamese tourism (Phạm, 2012).

Schmidt Rojas et al. (2024) affirmed that adventure tourism companies need to take necessary measures with nature, local people, and preserve ecosystems to move towards regeneration in adventure tourism, towards developing a sustainable adventure tourism environment. Loan and Thanh (2014) explored the factors affecting tourist attraction in Binh Dinh province and the results showed that there are eight factors affecting tourist attractions arranged in order of importance: Natural resources; Culture, history and art; Tourism environment; Accessibility; Food, shopping and entertainment services; Infrastructure; Accommodation facilities; Prices of services. Janowski et al. (2021) compiled many documents related to adventure tourism, thereby providing 22 aspects related to adventure tourism, thereby helping to form a multi-dimensional perspective on this field. Among the aspects related to adventure tourism, issues related to risk and danger, thrill and excitement as well as facing challenges, increasing physical activities, having the opportunity to explore more about the natural environment are considered as core aspects in the field of adventure tourism. Rohman (2020) conducted a study on determining tourist loyalty when participating in adventure tourism services through tourist satisfaction and quality of life. The results showed that perceived value did not affect loyalty, but tourist satisfaction and quality of life had a significant impact on tourist loyalty. In addition, a mediating relationship was also found between satisfaction and quality of life affecting loyalty through the perceived value factor.

There have not been many studies on personality traits, motivations, and socio-demographic factors affecting the choice of adventure tourism. Gross et al. (2023) analyzed demographic aspects when tourists chose mild or strong adventure tourism. The results showed that gender and age of tourists were descriptive characteristics that influenced the choice. In addition, extroversion and self-discovery are also characteristics of tourists who choose strong forms of adventure tourism. Developing adventure tourism will cause certain impacts on the environment, but it is also an opportunity to develop livelihoods for people in the area where adventure tourism services are exploited (Chakrabarty and Sadhukhan, 2019). Therefore, in order to develop sustainable adventure tourism, managers need to pay attention to how it affects the surrounding living environment, it is necessary to have truly scientific planning to ensure harmony with nature but also create livelihood conditions for local people. The gender characteristics of tour guides when they are female will have certain impacts on adventure tourism, which helps tourism service operators have some considerations when choosing female adventure tour guides (Mackenzie et al., 2020).

It is understandable that there are barriers for female adventure tour guides, such as health issues, interactions with customers or even with co-guides. Nasution et al. (2023) through their study on adventure tourist satisfaction recommended that light adventure tours should add more challenges to increase customer satisfaction, avoiding boredom when participating in simple challenges in adventure tours. Alemshet and Legese (2019) affirmed that destinations with diverse tourism products, high adventure as well as combined with majestic natural landscapes will be the top choice for tourists who are passionate about adventure tourism. Realizing tourists' ideals when participating in adventure tourism is very necessary, they need to be based on basic factors such as interacting with the natural environment, increasing physical activities, self-discovery, independence in many situations, unexpected challenges and careful preparation (Ponte et al., 2021). Lötter and Welthagen (2020) stated that the development of adventure tourism will help people develop both physical health and mental health very well. This is an opportunity for tourists to improve their emotions and enhance their quality of life by experiencing the cultures at adventure tourism destinations. Carvache-Franco et al. (2022) have identified a number of factors that influence the increase in motivation to participate in adventure tourism, including experiential learning, social interaction, travel safety, relaxation, and mastery of life skills.

These are the factors that adventure tour managers and operators need to develop in the process of communicating and marketing tourism products as well as developing a variety of adventure tourism products. The wildness of the destination as well as the difficulty of the challenges in adventure tours will have a very positive impact on tourists' perceptions when participating in adventure tours, in addition, the mastery and interaction skills when participating in these tours also have a similar positive trend (Tsaur et al., 2020). Based on the synthesis of the above studies, the research hypotheses in the proposed research model are as follows:

**H1:** Guide competence (GUID) positively influences (+) the choice of adventure tourism destination (ADTO)

**H2:** Communication and advertising (COMM) positively influences (+) the choice of adventure tourism destination (ADTO)

**H3:** Attractiveness of adventure tourism product (PROD) positively influences (+) the choice of adventure tourism destination (ADTO)

**H4:** Brand of operating company (BRAND) positively influence (+) the choice of adventure tourism destination (ADTO)

**H5:** Cultural experience, people of the destination (EXPE) positively influences (+) the choice of adventure tourism destination (ADTO)

**H6:** Travel cost (COST) positively influences (+) the choice of adventure tourism destination (ADTO)

## METHODOLOGY

The main method of this study is a mixed method, in which the author uses a qualitative method combined with a quantitative method. The steps are as follows:

**Step 1:** Identify the problem and research objectives. The research problem of the study is determined on the basis of analyzing the current theoretical and practical context in the world in general and in Vietnam in particular regarding adventure tourism. The author finds that there is a need for studies to measure the level of perception of tourists towards choosing Quang Binh as an adventure tourism destination, thereby proposing appropriate strategies to develop this form of tourism in Quang Binh. Based on the above research problem, the study identifies general research objectives and specific research objectives. Research questions are also raised to clarify specific research objectives.

**Step 2:** Qualitative research. The study has reviewed the documents, including background theories, related studies at home and abroad. Based on the literature review, the author identifies research concepts and the relationships between research concepts and proposes a research model as well as builds an initial scale. Then, through expert group discussions, new factors are discovered, research concepts, research models and scales are adjusted and supplemented to suit practical conditions. The results of the expert group discussions, research models and scales are developed and perfected to become the official scale for quantitative research. The experts selected to discuss and exchange issues on adventure tourism destinations and destination selection are specialized researchers related to this field; senior managers in tourism enterprises or macro-level managers in the tourism business, this helps the author have more information about the problem being researched, understand more about situations, practical issues related to factors affecting the choice of tourist destinations. From the useful information obtained, the author will redefine the relationship between factors affecting the choice of tourist destinations, and at the same time discover new factors affecting this relationship. Secondary data sources are collected from statistics, reports of state agencies and enterprises, from books, newspapers, magazines, and the internet. This is a preliminary study, helping to determine the optimal research design before conducting quantitative research. Moreover, the expert method is highly reliable and saves time. Therefore, this method can be used for the author to briefly grasp the initial influences of factors influencing the choice of Quang Binh as an adventure tourism destination before carrying out the next research steps.

**Step 3:** Quantitative research. The quantitative research is conducted in 2 steps: preliminary and official. - Preliminary quantitative research: The scales used in this study are inherited from the original scales in foreign studies, then adjusted and completed from the results of qualitative research. Preliminary quantitative research is conducted to preliminarily assess the reliability of the scale using Cronbach's Alpha and EFA factor analysis. The research sample is conducted with a sample size of 80 observations, the sampling method is probability, stratified sampling technique. The results of the preliminary quantitative research on the scale are completed and used to design the official questionnaire for the official quantitative research in the next step. Preliminary quantitative research will help the research check the accuracy and understandability of the survey content, and at the same time evaluate the effectiveness of the survey in collecting and exploiting data. After collecting preliminary research samples, the author used SPSS 20 software to test the research hypothesis. First, Cronbach's Alpha coefficient was used to preliminarily assess the reliability and values of the scale to increase the reliability of the scale. Finally, use EFA to screen and eliminate observed variables that do not meet the standards. From there, the author can adjust the survey to be more reasonable and clear to conduct official quantitative analysis.

Official quantitative research: Sampling research on the whole population is impossible for researchers because time, money and human resources are limited. Therefore, researchers only conduct surveys on a number of units called research samples and based on the characteristics and properties of the survey sample to infer the characteristics and properties of the whole population. The most important issue is that the researcher must ensure that the research sample is capable of representing the general population. Conducted with probability sampling method, stratified sampling technique, the survey subjects include tourists who have traveled to Quang Binh. They are those who directly experienced some tourism activities and can see the potential of adventure tourism, so they understand the issues related to adventure tourism. In business research, researchers use some forms to collect opinions of survey subjects such as direct meetings, mailing (by post, using email, social networks). In the case of direct meetings, if respondents have any questions about the questions, they can be explained on the spot and the researchers can collect completed answers in a short period of time. Mail surveys can reach a wide geographical area and are less expensive than direct meetings but the response rate is lower. Therefore, in this study, the author combines both forms to collect samples. Data were collected using face-to-face and online surveys, questionnaires sent via email and using Microsoft Forms. The purpose of the formal quantitative study was to assess the reliability and validity of the scale, and to test the suitability of the research model and research hypotheses.

**Step 4:** Research results and discussion. The official quantitative research results are presented with contents such as research sample statistics, scale testing results, assessment of multicollinearity, and assessment of regression models of factors affecting the choice of adventure tourism destinations. The author discusses the research results with experts. This step is carried out to collect more comments from experts to contribute to proposing managerial implications in the next step.

**Step 5:** Management implications. This final step is carried out to draw general conclusions of the research and propose managerial implications to help business administrators in the field of adventure tourism business in Quang Binh in particular and Vietnamese enterprises in general to improve the effectiveness of adventure tourism activities at the enterprise. The research process is shown in Figure 1.

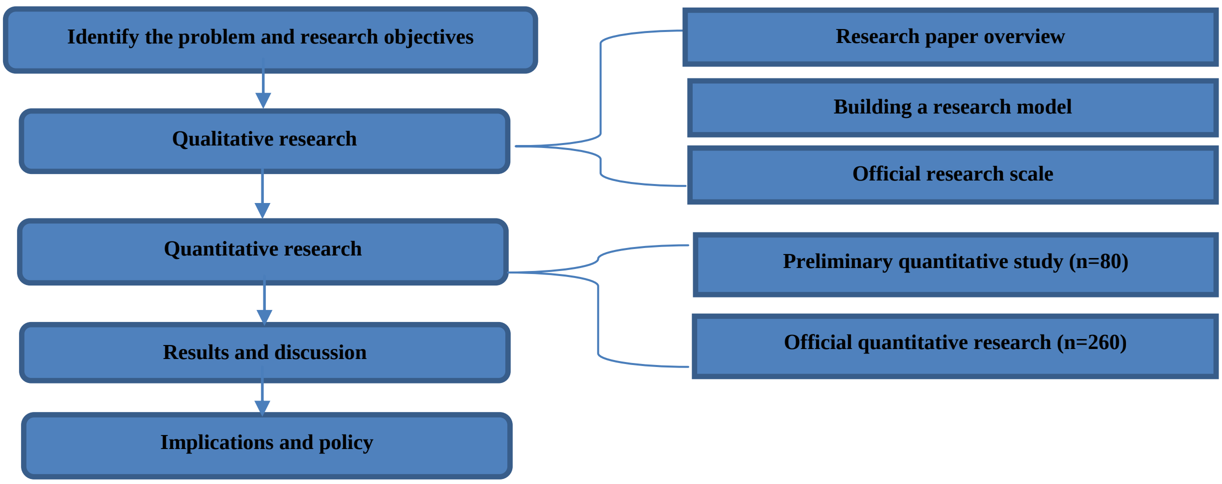


Figure 1. Research process (Source: Author's proposal)

**RESULT AND DISCUSSION**

The group conducted a survey on 260 different tourists including domestic and international tourists, of which 90 were domestic tourists and 170 were international tourists (Figure 3), most of them had been to Quang Binh at least once, especially many domestic tourists had been here more than 3 times, this shows that they have researched quite thoroughly about tourism activities, especially specific tourism products such as Phong Nha Cave exploration and other activities here. Among the tourism activities in Quang Binh that tourists choose, most of them are tourism activities related to famous caves of Quang Binh, especially after the movie "Kong: Skull Island" was released, the level of curiosity of tourists has increased. The age of customers when choosing adventure tourism activities in Quang Binh ranges from 20 to over 50, in which the majority are from 20 to 35 years old, accounting for the largest proportion of 48.46%. (Table 1)

Table 1. Descriptive statistics of the basic sample of visitors (Source: The authors collected)

| | | Frequency | Percent |
|---|---|---|---|
| **Number of times traveling to Quang Binh** | 1-3 times | 96 | 36.92% |
| | 3-5 times | 104 | 40.00% |
| | >5 times | 60 | 23.08% |
| | **Total** | **260** | **100.00%** |
| **Tourism activities in Quang Binh** | Kayaking/Sup | 61 | 23.46% |
| | Zipline | 56 | 21.54% |
| | Sightseeing, Cave Exploration | 45 | 17.31% |
| | Experience Quang Phu Sand Dunes | 30 | 11.54% |
| | Adventure Mountain Climbing | 26 | 10.00% |
| | Visit Spiritual Sites | 24 | 9.23% |
| | Others | 18 | 6.92% |
| | **Total** | **260** | **100.00%** |
| **Age of visitors** | 20-35 years old | 126 | 48.46% |
| | 35-50 years old | 84 | 32.31% |
| | >50 years old | 50 | 19.23% |
| | **Total** | **260** | **100.00%** |
| **Average spending for a trip to Quang Binh** | <10.000.000 VND | 87 | 33.46% |
| | 10.000.000-20.000.000 VND | 91 | 35.00% |
| | >20.000.000 VND | 82 | 31.54% |
| | **Total** | **260** | **100.00%** |
| **Tourists are classified by destination** | Other Domestic Tourism | 90 | 34.62% |
| | Foreign Tourists: | 170 | 65.38% |
| | + Western Europe | 58 | 22.31% |
| | + Eastern Europe | 26 | 10.00% |
| | + Americas | 19 | 7.31% |
| | + Northeast Asia | 45 | 17.31% |
| | + South Asia | 10 | 3.85% |
| | + Other | 12 | 4.62% |
| | **Total** | **260** | **100.00%** |

Most of the foreign tourists choose to experience high-level adventure services such as mountain climbing, Zipline, cave exploration and overnight stays. Some other guests choose a service that combines relaxation and tourism, also visiting spiritual sites or kayaking (Figure 2). We see that tourists spend different amounts of money due to different levels of needs, for example, foreign guests are willing to spend a large amount of money on cave exploration tours or adventurous mountain climbing for the day (with a lot of support staff such as guides, assistants) for their adventure tour, not to mention there are guests who are willing to pay a large amount of money in advance to be able to "reserve" a place for an adventurous experience, this is a positive sign for the economic development of Vietnam in general and Quang Binh in particular.

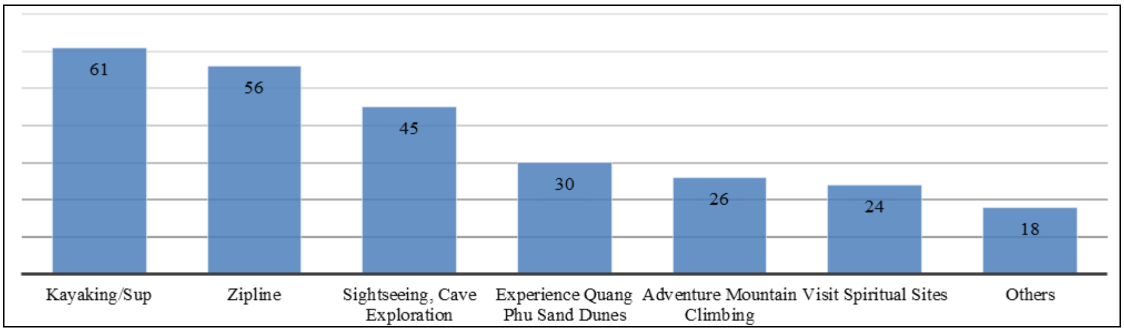


Figure 2. Activities tourists have experienced in Quang Binh (Source: The authors collected)

**Exploratory analysis of independent variables**

The scale of 06 independent variables is measured by 24 observed variables. After checking the reliability level by Cronbach's Alpha, it was found that 21 observed variables belonging to 6 independent factors exist in the model, all ensuring reliability (Table 2). The researchers continue to conduct exploratory analysis of EFA for independent factors. The results are as shown in Table 3, with KMO value of 0.813> 0.5 and Sig value of Bartlett's test of 0.000 < 0.05, showing that the variables are correlated with each other, so the model is suitable for exploratory factor analysis.

Table 2. Reliability according to Cronbach's Alpha coefficient (Source: The authors collected)

| **Variable** | **Variable abbreviation** | **Number of observations** | **Cronbach'sAlpha** |
|---|---|---|---|
| Guide competence | GUID | 4 | 0.936 |
| Communication and advertising | COMM | 4 | 0.819 |
| Attractiveness of adventure tourism product | PROD | 4 | 0.898 |
| Brand of operating company | BRAN | 4 | 0.902 |
| Cultural experience, people of the destination | EXPE | 4 | 0.788 |
| Travel cost | COST | 4 | 0.845 |

Table 3. Exploratory factor analysis EFA of independent factors (Source: The authors collected)

| **KMO and Bartlett's Test** | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | .813 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 3529.163 |
| | df | 276 |
| | Sig. | .000 |

**Total Variance Explained** (Extraction Method: Principal Component Analysis.)

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.024 | 20.933 | 20.933 | 5.024 | 20.933 | 20.933 | 3.118 | 12.990 | 12.990 |
| 2 | 3.405 | 14.186 | 35.119 | 3.405 | 14.186 | 35.119 | 3.114 | 12.976 | 25.966 |
| 3 | 3.219 | 13.414 | 48.533 | 3.219 | 13.414 | 48.533 | 3.086 | 12.857 | 38.822 |
| 4 | 2.330 | 9.707 | 58.240 | 2.330 | 9.707 | 58.240 | 3.063 | 12.764 | 51.586 |
| 5 | 2.107 | 8.778 | 67.018 | 2.107 | 8.778 | 67.018 | 2.619 | 10.913 | 62.498 |
| 6 | 1.223 | 5.095 | 72.114 | 1.223 | 5.095 | 72.114 | 2.308 | 9.615 | 72.114 |
| 7 | .817 | 3.403 | 75.517 | | | | | | |
| 8 | .632 | 2.635 | 78.151 | | | | | | |
| 9 | .564 | 2.348 | 80.499 | | | | | | |
| 10 | .532 | 2.215 | 82.715 | | | | | | |
| 11 | .489 | 2.036 | 84.751 | | | | | | |
| 12 | .465 | 1.937 | 86.688 | | | | | | |
| 13 | .402 | 1.675 | 88.363 | | | | | | |
| 14 | .365 | 1.523 | 89.885 | | | | | | |
| 15 | .344 | 1.433 | 91.318 | | | | | | |
| 16 | .319 | 1.331 | 92.649 | | | | | | |
| 17 | .304 | 1.265 | 93.914 | | | | | | |
| 18 | .284 | 1.182 | 95.096 | | | | | | |
| 19 | .258 | 1.077 | 96.173 | | | | | | |
| 20 | .245 | 1.020 | 97.193 | | | | | | |
| 21 | .221 | .922 | 98.115 | | | | | | |
| 22 | .184 | .768 | 98.883 | | | | | | |
| 23 | .140 | .584 | 99.467 | | | | | | |
| 24 | .128 | .533 | 100.000 | | | | | | |

**Rotated Component Matrix**[a] (a. Rotation converged in 6 iterations)

| | Component | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| BRAN1 | .918 | | | | | |
| BRAN4 | .864 | | | | | |
| BRAN2 | .857 | | | | | |
| BRAN3 | .826 | | | | | |
| EXPE4 | | .894 | | | | |
| EXPE3 | | .877 | | | | |
| EXPE2 | | .851 | | | | |
| EXPE1 | | .839 | | | | |
| COMM4 | | | .916 | | | |
| COMM2 | | | .898 | | | |
| COMM1 | | | .854 | | | |
| COMM3 | | | .791 | | | |
| GUID4 | | | | .866 | | |
| GUID1 | | | | .859 | | |
| GUID3 | | | | .848 | | |
| GUID2 | | | | .825 | | |
| COST4 | | | | | .815 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| COST1 | | | | | .752 | |
| COST3 | | | | | .747 | |
| COST2 | | | | | .723 | |
| PROD4 | | | | | | .822 |
| PROD1 | | | | | | .807 |
| PROD2 | | | | | | .673 |
| PROD3 | | | | | | .621 |
| Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization | | | | | | |

The extracted factors all have Eigenvalues greater than 1 and the stopping point when extracting factors at the 6th factor has an Eigenvalue of 1.223 > 1. The total variance extracted from the 6 factors is 72.114% > 50%, which shows the ability to use these 6 component factors to explain 72.114% of the variation of the observed variables. Based on the factor rotation matrix when running EFA, 24 variables are extracted into 6 factors.

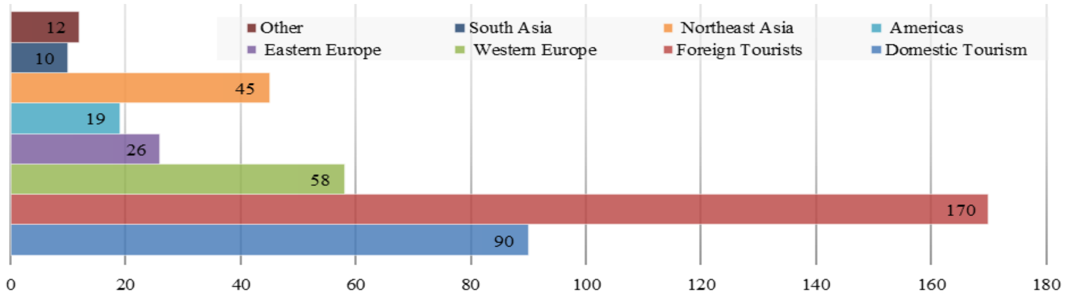


Figure 3. Classification of interviewed tourists by destination (Source: The authors collected)

**Exploratory analysis of dependent variables**

The results of the EFA exploratory factor analysis with KMO equal to 0.901 > 0.5 and Bartlett's test with sig equal to 0.000 < 0.05, so it can be affirmed that the data is suitable for factor analysis. The analysis extracted from 5 variables assessing the influence on the choice of adventure tourism destination into a main factor with Eigenvalue of 4.054 and total extracted variance of 81.082% >50% (Table 4).

Table 4. Exploratory factor analysis EFA of dependent variable (Source: The authors collected)

| **KMO and Bartlett's Test** | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .901 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1185.563 |
| | df | 10 |
| | Sig. | .000 |

| **Component Matrix**[a] (a. 1 components extracted.) | |
|---|---|
| | Component |
| | 1 |
| ADTO4 | .951 |
| ADTO5 | .903 |
| ADTO2 | .898 |
| ADTO3 | .878 |
| ADTO1 | .870 |
| Extraction Method: Principal Component Analysis | |

| **Total Variance Explained** | | | | | | |
|---|---|---|---|---|---|---|
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.054 | 81.082 | 81.082 | 4.054 | 81.082 | 81.082 |
| 2 | .313 | 6.266 | 87.347 | | | |
| 3 | .276 | 5.511 | 92.859 | | | |
| 4 | .240 | 4.801 | 97.659 | | | |
| 5 | .117 | 2.341 | 100.000 | | | |
| Extraction Method: Principal Component Analysis | | | | | | |

**Regression model analysis results**

After extracting the factors from the exploratory factor analysis, we conduct regression analysis to determine the factors affecting the choice of Quang Binh as an adventure tourism destination. Regression analysis will be performed with 6 independent factors: GUID; COMM, PROD, BRAN, EXPE and COST; the dependent variable is ADTO.

**The multivariate linear regression equation of this study is as follows:**

Overall regression function:

ADTO=β0 + β1GUID + β2COMM + β3PROD + β4BRAN+ β5EXPE + β6COST + Ui

The regression model will find 06 independent factors that impact the dependent factor. At the same time, the model also describes the level of impact, thereby helping us predict the value of the dependent factor. According to Table 5, the level of explanation of the model with Adjusted R Square index = 0.472, so about 47.2% of the choice of Quang Binh as an adventure tourism destination is influenced by the independent factors of the model, with a confidence level of over 99% (F test, sig < 0.05).

Table 5. Results of regression model analysis (Source: The authors collected)

| **Model Summary[b]** | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .687[a] | .472 | .460 | .46609 | 1.836 |
| a. Predictors: (Constant), COST, COMM, BRAN, EXPE, PROD, GUID; b. Dependent Variable: ADTO | | | | | |

| **Coefficients[a]** | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.558 | .347 | | -1.607 | .109 |
| | GUID | .171 | .043 | .196 | 3.947 | .000 |
| | COMM | .176 | .042 | .196 | 4.152 | .000 |
| | PROD | .012 | .043 | .014 | .280 | .780 |
| | BRAN | .144 | .042 | .166 | 3.460 | .001 |
| | EXPE | .230 | .044 | .257 | 5.274 | .000 |
| | COST | .533 | .085 | .357 | 6.257 | .000 |
| a. Dependent Variable: ADTO | | | | | | |

The regression results show that 5 independent factors affect the selection in the following order: COST; EXPE, COMM, GUID and BRAN because they are all statistically significant, sig < 0.05 is satisfactory and will be retained in the research model. According to the above results, 01 factor, PROD, is eliminated because it is not statistically significant, sig > 0.05.

Table 6. ANOVA analysis results (Source: The authors collected)

| **ANOVA[a]** | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 49.198 | 6 | 8.200 | 37.745 | .000[b] |
| | Residual | 54.962 | 253 | .217 | | |
| | Total | 104.161 | 259 | | | |
| a. Dependent Variable: ADTO; b. Predictors: (Constant), COST, COMM, BRAN, EXPE, PROD, GUID | | | | | | |

Based on the results of Table 6, ANOVA has a Sig value = 0.000 < 0.05, it can be concluded that the model exists. In other words, with a significance level of 5%, it can be concluded that tourists choosing Quang Binh as an adventure tourism destination is influenced by at least 1 of the remaining 5 factors. Travel costs are considered the most important factor for adventure tourism services, which is completely understandable because in this market, the prices of this service have a huge difference among companies providing adventure tourism services in Quang Binh. Most tourists will choose services with suitable prices (Loan and Thanh, 2014), a factor that needs to be considered is the cost related to medical services, which is also a matter of great concern (Mawarni et al., 2022).

When choosing adventure tourism, in addition to reducing life pressure, cultural experiences and social interactions are very important (Mackenzie and Raymond, 2020; Karagiorgos et al., 2023; Pop et al., 2023), this is the second most influential factor in choosing Quang Binh as an adventure tourism destination. Tourists have learned about the characteristics of overnight adventure tourism, they will experience life as real locals. Culinary culture is also what tourists look for in Quang Binh, they have the opportunity to enjoy specialties from both the sea and the highlands when choosing Quang Binh as a destination. The issue of communication in tourism is almost mandatory (Lin et al., 2020; Tsaur et al., 2020) when a destination wants to promote its products to domestic and foreign tourists.

Tourists will feel and imagine the products they will experience through modern communication techniques, which further stimulates them to choose the destination. Tour guides play a very important role in adventure tours (Mackenzie and Raymond, 2020; Jin et al., 2019). They will decide on key issues in the trip such as the schedule, participating in experiences, and adventure travel experiences that need to ensure safety, the tour guide is the main person responsible. If the tour guide is a local, knowledgeable about information such as terrain, culinary facilities, and culture, it will increase the possibility of choosing a tourist destination.

In addition, the brand of the company operating adventure tours also receives attention from customers (Wang et al., 2024; Karagiorgos et al., 2023), especially customers who choose high-level adventure tours, they are actually people in the middle class, always concerned about safety issues, medical expenses or accident insurance.

## CONCLUSION

According to the planning approved by the Government, adventure tourism will be a key economic sector, a breakthrough to promote growth, socio-economic development of Quang Binh, developing in the direction of exploring nature, caves, historical culture, and sea sports. Key tourist areas include Phong Nha - Ke Bang; Dong Hoi city and surrounding sea; the center of cultural, historical tourism, resort, and nature experience in the South; the Northern region and Vung Chua - Yen Island. Quang Binh's Phong Nha - Ke Bang National Park - which has been recognized by UNESCO twice as a world natural heritage site, will be invested in resources and infrastructure to submit to the Minister of Culture, Sports and Tourism for recognition as a national tourist area and submit to UNESCO for recognition as a world biosphere reserve. Phong Nha - Ke Bang will also develop specific products such as cave exploration, ecological nature conservation, community, resort, cultural history, biodiversity exploration, archaeology; become a Southeast Asian-class tourism center. Some recommendations for developing adventure tourism in Quang Binh: The Government and local authorities need to seek support and cooperation from authorities at all levels to allocate resources, provide necessary funding and create favorable policies for the development of adventure tourism in the region.

The Government should soon issue a decree specifying the development of ecotourism projects, entertainment resorts for forest areas, a decree on rural agricultural tourism business when the revised Land Law is issued to help businesses have favorable investment mechanisms, increase the number of adventure tourism investors to offer competitive service prices in tourism. In order to increase cultural and human experiences in adventure tourism products, local authorities and travel companies need to attract and engage local communities to participate in the tourism development process; encourage community-based tourism initiatives, homestays and cultural exchanges to provide visitors with authentic local experiences while enabling local people to own and benefit from the tourism activities they participate in; continue to prioritize conservation efforts in the national park; conduct research and monitoring programs to conserve the park's biodiversity, protect endangered species and maintain ecological balance.

In terms of advertising and communication, businesses, in collaboration with the Department of Tourism and other agencies, it should be developed a comprehensive marketing strategy to promote Quang Binh in general and Phong Nha – Ke Bang National Park in particular as Asia's adventure tourism hub. This may include online and offline campaigns, participation in tourism fairs and exhibitions, creating informative promotional materials, visually appealing video clips on platforms such as TikTok, Instagram. In addition, travel businesses should invest in training local guides, adventure instructors and hotel staff to ensure high-quality services and memorable experiences for visitors. This includes providing language skills training, customer service training and knowledge of the history, flora and fauna of adventure tourism sites in Quang Binh. Finally, the Government and travel businesses operating in Quang Binh province should promote partnerships with adventure tourism companies and operators in various forms such as linkages, cooperation, public-private partnerships to promote Phong Nha – Ke Bang National Park as a leading adventure destination in Asia.

Cooperation with these operators is needed to provide unique adventure tourism packages and experiences. They should promote digital transformation and build a smart tourism management system, creating convenient direct connections between customers and service providers at Phong Nha - Ke Bang destination, Quang Binh. Although the research results have shown the factors and their level of influence on the development of adventure tourism in Phong Nha-Ke Bang, there are still certain limitations. Firstly, the research has not been conducted on a larger sample size due to limitations in time and survey costs. Secondly, the research has not been conducted in many provinces and cities with similar characteristics of adventure tourism services. Thirdly, the characteristics of adventure tourism sectors in Phong Nha, Ke Bang have not been analyzed too deeply. This is also a suggestion for further research in the future.

**Author Contributions:** Conceptualization, L.T.A. and H.T.N.T.; methodology, H.T.N.T. and L.T.A.; software, M.N.P., P.K.C. and L.T.A.; validation, L.T.A. and M.N.P.; formal analysis, L.T.A. and T.H.H.; investigation, L.T.A. and T.P.M.V.; data curation, L.T.A, P.K.C. and H.T.N.T.; writing - original draft preparation, L.T.A. and Truc, P.M.V.; writing - review and editing, L.T.A., H.T.N.T. and Truc, P.M.V.; visualization, L.T.A., H.T.N.T. and T.H.H.; supervision, L.T.A., P.K.C. and H.T.N.T.; project administration, P.K.C., L.T.A., and H.T.N.T. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 10.09.2024 Revised: 01.11.2024 Accepted: 06.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2090-2100
DOI 10.30892/gtg.574spl23-1376

# EXAMINATION OF THE MODERATOR ROLE OF COUNTRY IMAGE IN THE EFFECT OF EWOM AND EMOTIONAL INVOLVEMENT ON VISIT INTENTION

**Bahman HUSEYNLI***
Azerbaijan State University of Economics (UNEC), Research Center of Marketing, Consumer Behavior and Branding, Baku, Azerbaijan; Division of Labor Market Analysis, Azerbaijan Public Employment Agency, Baku, Azerbaijan; Western Caspian University, Economic Research Center, Baku, Azerbaijan e-mail: bahmanhuseynli@gmail.com

**Nigar HUSEYNLI**
Azerbaijan State University of Economics (UNEC), Department of Business Administration, Baku, Azerbaijan; Western Caspian University, Economic Research Center, Baku, Azerbaijan; Khazar University, Department of Economics and Management, Baku, Azerbaijan, e-mail: nigar.f.huseynli@gmail.com

**Citation:** Huseynli, B., & Huseynli, N. (2024). EXAMINATION OF THE MODERATOR ROLE OF COUNTRY IMAGE IN THE EFFECT OF EWOM AND EMOTIONAL INVOLVEMENT ON VISIT INTENTION. *Geojournal of Tourism and Geosites*, 57(4spl), 2090–2100. https://doi.org/10.30892/gtg.574spl23-1376

**Abstract:** Restaurants that operate in any country and serve food from another country create an image of those countries in customers. Based on this, this research was designed considering that Turkish, Italian, and Japanese restaurants operating in Baku, the capital of Azerbaijan, create the image of their own countries among these customers and also affect the customers' intention to visit to their own countries. The aim of this study is to investigate the effect of electronic word of mouth and emotional involvement on the intention to visit foreign country restaurants and the moderator role of the country images of these restaurants on this effect. The study was analyzed with data obtained from Azerbaijani consumers who visited restaurants serving Turkish, Italian, and Japanese cuisine. Within the scope of the study, 12 hypotheses were analyzed with SPSS and Process v4 statistical analysis programs. As a result of the study, all hypotheses were supported. It was found that both E-WOM and emotional attachment on the intention to visit a restaurant were higher in Japanese cuisine compared to other countries. The moderator role of country image in the effect of E-WOM and emotional attachment on the intention to visit was found to be the highest in Japanese cuisine and the lowest in Turkish cuisine. It can be said that the findings of the study can be used especially for restaurant operators in decision-making processes.

**Keywords:** country image, emotional involvement, word of mouth, visit intention

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## INTRODUCTION

Tourism is a fascinating pastime that allows individuals to learn about new countries, cultures, cuisines, traditions, and lifestyles. Traditional food experience based on culture (gastronomy) has become an exciting topic for tourists worldwide (Sutiadiningsih et al., 2023). Tourists often organize meaningful associations with the image and its symbolic and experiential values and keep these associations in their memories (Aaker, 1991; Keller, 1993; Cai, 2002; Lai et al., 2020; Akay, 2020). The image of a place is considered an important factor in the traveler's investment and decision-making process (MacKay and Fesenmaier, 1997; Tasci and Gartner, 2007). Country images are important external cues in product evaluations. Country images elicit associations and can influence purchase decisions. A positive country image can promote a positive reputation for the entire product category (Hakala et al., 2013). The concept of food image and the role that food and culinary traditions play in the formation of the destination image have also been addressed (Zain et al., 2018). A person's emotions, attitudes, ideas, and beliefs affect the person's image of a product, and this image has a greater impact on human behavior than objective facts (Martineau, 1958). Studies in the literature on country image mostly consist of studies on product-country image (PCI) or "country-of-origin" (COO) (Maher and Carter, 2011; Papadopoulos and Heslop, 2003). Studies on product-country image include studies that analyze how the perception of a country, and its residents affect consumers' attitudes towards that country's products (Heslop et al., 2004; Laroche et al., 2005; Maher and Carter, 2011) and are based on structural foundations. Some studies indicate that the impact of country image may differ across service categories (e.g., Berentzen et al., 2008). Studies on how information about the country of origin of a service offering influences consumer purchasing behavior are releated to banking, airlines, and insurance (Pecotich et al., 1996; Lin and Chen, 2006; Berentzen et al., 2008), although specific to food services are scarce (Martinelli and De Canio, 2019).

Tourists' word-of-mouth information about their experiences with other tourists in the context of a tourist destination and being strong enough to make a decision expresses the satisfaction of the tourist with both positive and negative information (Bigne et al., 2001). Today, electronic word-of-mouth (eWOM) is considered one of the most effective forms of communication in tourism businesses. The use of eWOM as an alternative decision aid on social media can benefit consumers (Silaban et al., 2023). Online review ratings and comments have significant effects on restaurant selection (Jeong and Jang,

* Corresponding author

2011; Aureliano-Silva, 2021; Zhang et al., 2010). Online ratings are scores obtained from customer evaluations by websites, and online comments are short texts expressing customers' experiences with a company (Mariani et al., 2019). Involvement theory, which has become more important in the field of marketing, explains how individual differences can affect consumer purchasing and communication behavior (Laurent and Kapferer, 1985). The perceived importance or relevance of a product or purchase decision for consumers is described as involvement (Petty et al., 1983). According to involvement theory, customers react according to the importance they give to a product, which affects purchase intention (Laurent and Kapferer, 1985). Customers' evaluations and comments serve as a signal for other people evaluating alternatives on the same online platform to make purchase decisions (Aureliano-Silva et al., 2021). Online review comments can be functional or emotional. Emotional comments refer to consumers expressing their feelings about these attributes in their own words (Standing et al., 2016). After the analysis of previous studies, it was seen that the cognitive dimension of "involvement" was mostly addressed (Brijs et al., 2011). This study addresses the emotional dimension of participation. While tourism literature proves that many factors affect travelers' consumption of tourism products (Lepp and Gibson, 2008; Hsu et al., 2009), research on the effects of restaurant meals on the country image and thus on visiting that country has been insufficient in the literature. Following other studies such as Nadeau et al. (2008), Kim and Yoon (2003), a model has been developed that connects the country image with the destination image and integrates the cognitive and emotional components of the destination image in a single structure. While these authors explain the cognitive part with the country image dimensions, other authors (Chen and Phou, 2013) consider the destination image as a cognitive component of tourist attitude.

Following these criteria, a new model has been tested in this study. In the literature, studies have been conducted on country images and culinary products of countries such as Thailand (Lertputtarak, 2012; Tsai and Wang, 2017; Promsivapallop and Kannaovakun, 2019), Vietnam (Chi et al., 2019; Yasami et al., 2021), Bosnia (Peštek and Činjarević, 2014), Türkiye (Önçel et al., 2018), Lebanon (Assaker and O'Connor, 2021), Indonesia (Pahrudin et al., 2023), Finland (Hakala et al., 2013), Italy (Martinelli and De Canio, 2019; Pagliuca and Rosciano, 2018). Considering all these, the main purpose of this study is to investigate the effect of electronic word of mouth and emotional involvement on the intention to visit foreign country restaurants and the moderator role of the country images of these restaurants on this effect. In this study, the electronic word-of-mouth communication and emotional involvement originating from Italian, Turkish and Japanese cuisines in Baku, the capital of Azerbaijan were analyzed on the behavior of visiting that country.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 1. Electronic Word of Mouth (EWOM)

One of the sources of information in communication sources is electronic word of mouth (e-WOM). Many studies are conducted in marketing and tourism using electronic word of mouth marketing. Electronic word of mouth communication is "all information communication made to consumers directly or through internet-based technology about the use of certain goods and services" (Pahrudin et al., 2023). Electronic word of mouth (e-WOM) affects tourists' decisions in the tourism sector. Some studies have been conducted on the relationship between e-WOM and visit intention. Reichheld and Sasser (1990) accepted the recommendation of the product to others as a specific indicator of future behavioral intention. Another important indicator of positive post-purchase behavioral intentions is the positive spread of the product to others (Boulding et al., 1993). Zeithaml et al. (1993) emphasized that positive word of mouth communication is the primary information tools for consumers. Tourists who have a satisfactory experience are more likely to recommend the destinations they visit to their friends and relatives (Beeho and Prentice, 1997).

Williams and Soutar (2009) argued that this is important in tourism because new business relies on positive word-of-mouth marketing. Hutchinson et al. (2009) suggested that tourists who intend to revisit are more likely to recommend the destination to others. Liu and Jang (2009) used word-of-mouth, recommendation, and repeat purchase as indicators in their research on post-meal behavioral intentions. Wang (2015) found that e-WOM affects tourists' intention to visit a destination. Abubakar et al. (2017) found that e-WOM can affect tourists' intention to visit in health tourism. The study conducted by Williams and Buttle (2014) revealed that word-of-mouth marketing can influence tourists' perceptions and behaviors regarding their visit intentions. Therefore, word-of-mouth marketing can predict and influence tourist behavior (Zhang et al., 2010). The study conducted by Assaker and O'Connor (2021) with data obtained from participants in the United Kingdom and France examined the effects of various electronic word-of-mouth platforms (travel websites, social media, photo and video sharing platforms, blogs, and online communities) on visit intention in Lebanon.

The study conducted by González-Rodríguez et al. (2022) with an online survey from 460 participants examined the relationships between the credibility of the electronic word-of-mouth (eWOM) source, perceived risk, and information usefulness, and how these affect tourists' destination visit intention and online review participation. Pahrudin et al. (2023) study examined the tourist behavior in the post-earthquake disaster linkage between information sources (word of mouth and electronic word of mouth) and risk perception towards tourists' intention to visit a destination in Indonesia. The study conducted by Silaban et al. (2023) with data from 263 individuals examines the information adoption model to determine how consumers adopt eWOM on Instagram and its impact on travel behavior. Meenakshy et al. (2024) studied the electronic word of mouth (eWOM) sharing intentions among domestic tourists on personal and public online networks. The analysis of data from 630 domestic tourists visiting five major tourist destinations in India revealed that the friendliness of the destination residents and the natural beauty of the destination affect the overall destination experience of the tourists.

**H1:** Electronic word of mouth (E-WOM) has a positive impact on visit intention

### 2. Emotional involvement

Product image cannot be defined from only one perspective, it is constructed from both cognitive and emotional aspects

(Dichter, 1985). While cognitive image expresses the totality of a person's beliefs and attitudes towards the features of a product and is the precursor of emotional image (Holbrook, 1987), emotional image represents the person's feelings and emotions about the product (Stern and Krakover, 1993). Tourists are very interested in the historical value of food in each area they visit (Pavlidis and Markantonatou, 2020). Koufaris (2002) examined the effects of emotional and cognitive reactions to visiting a virtual store on revisit intentions and revealed an indirect relationship between emotional involvement and behavioral intentions. In a study examining the use of technological products by Pohlmeyer and Blessing (2011), it was determined that emotional commitment has a positive effect on behavioral intentions. In a study conducted by Yao (2013), the mediating effects of tourists' emotional involvement in the destination were investigated in order to evaluate the relationship between tourist motivation and satisfaction. Biswas et al. (2020) investigated the relationship between destination characteristics and tourist satisfaction and the extent to which emotional involvement mediates the relationship between destination characteristics and tourist satisfaction. Lai et al., 2020 analyzed the predictive power of cognitive and emotional food image components on potential tourists' behavioral intentions by using Chinese tourists' perception of Australia as a context. Aureliano-Silva et al. (2021) investigated the effect of online reviews on consumers' restaurant visit intentions with the mediating role of involvement.

**H2:** Emotional involvement has a positive impact on visit intention

### 3. Country image

Recently, destination image has received considerable attention in tourism literature (Alvarez and Campo, 2014; Bruwer et al., 2018; Kim, 2018; Papadimitriou et al., 2018). Although there is a large body of literature on behavioral intention models that destination image positively and directly affects, there is very little research that facilitates the understanding of country image as a determinant of destination image in behavioral intention models (Palau-Saumell et al., 2016). Ouellette and Wood (1998) suggested that past behaviors explain future behavioral intentions. Sönmez and Graefe (1998) and Petrick et al. (2001) stated that past behaviors are a predictor of travelers' revisit intentions. In the study conducted by Lam and Hsu (2006), it was suggested that past behaviors increase travelers' predictive intentions to choose Hong Kong as a travel destination. Ryu and Jang (2006) found a positive causal relationship between past behaviors and tourists' intention to consume local cuisine in travel destinations. On the other hand, destination image psychologically represents a person's perceptions and feelings about a destination (Crompton, 1979). In light of Crompton's definition of destination image, tourism researchers have suggested that although destination image is a multidimensional structure that includes cognitive and emotional images, the emotional evaluation of a destination largely depends on cognitive evaluations (Lin et al., 2007; Luque-Martinez et al., 2007).

They concluded that local cuisine is one of the important elements in the formation of the destination image (Zain et al., 2018), and this positively affects tourists' intentions to revisit and spread positive word of mouth (Kim, 2018; Liu et al., 2017; Prayag et al., 2017). In a study conducted by Lertputtarak (2012) using survey data collected from 476 foreign visitors, tourists' perceptions of destination image and Thai food image were examined and the relationship between these two variables and tourists' revisit intentions was analyzed. In a study conducted by Hakala et al. (2013) using a survey among American, French, and Swiss university students, the country image of Finland was examined among potential consumers of Finnish products. In a study conducted by Martinelli and De Canio (2019), data were collected from Danish customers of Italian restaurants in Copenhagen using a structured questionnaire and the role played by the image of Italian cuisine in shaping customers' attitudes was examined. As a result of a study conducted by Nguyen et al. (2020) with customers eating at Thai and Korean restaurants in Ho Chi Minh City, Vietnam, the important role of the emotional country of origin image in the relationship with the cuisine image and subsequently with behavioral intention was determined. In the study conducted by Yasami et al. (2021) a survey was conducted with 411 Chinese tourists visiting Phuket to examine the multidimensional structure of food image, evaluate the impact of destination food image on tourist loyalty intentions, and examine the mediating effect of food satisfaction on this relationship. In the study conducted by Nguyen and Hsu (2022), the relationships between electronic word of mouth (eWOM), destination image, and visit intentions of Southeast Asian solo female travelers towards India as a tourist destination were examined. In the study conducted by Kar et al. (2024), the dimensions affecting the destination food image in the state of Odisha were examined with a sample of 270 participants in India. As a result of the study, it was found that five independent variables, namely attitude, social media, local food experience, food culture and advertising, had a positive and significant effect on the destination food image.

**H3:** Country image positively moderates the impact on between electronic word of mouth (E-WOM) and visit intention.

**H4:** Country image positively moderates the impact on between emotional involvement and visit intention.

### 4. Visit intention

In studies conducted in the field of tourism, behavioral intentions are often interpreted as the intention to visit, revisit, or repurchase, and the desire to recommend the tourism product to others. Visit intention is the customer's intention to visit a new destination or recommend it to others. The more interested the customer is, the higher the intention to visit. According to Jeong and Jang (2011), restaurant service quality, ambiance and pricing are all components of eWOM and affect customers' visit intention. A study by Loi et al. (2017) found that a destination's good service quality has a positive effect on satisfaction and revisit intention. Similarly, a study conducted by Tsai and Wang (2017) revealed that a positive image of Taiwanese food leads to tourists' revisit intention and willingness. Chi et al. (2019) revealed how important the cognitive image foreign tourists perceive of Vietnamese food is in forming their revisit intentions. Xu et al. (2019) investigated the role of positive and negative emotions in examining tourist satisfaction in the context of tourists' visits to museums and tourist attractions.

The study conducted by Yoopetch and Chirapanda (2024) examined the health and spa tourism intention from the perspective of international tourists visiting Thailand after COVID-19. The results of this study, which analyzed the survey data collected from 403 international tourists visiting Thailand, found that satisfaction, service quality, and electronic word-of-mouth significantly affected the revisit intention of health tourists. The study conducted by Sugiama et al. (2024) investigated the effect of tourism components on satisfaction and revisit intention based on the data of 269 young water park tourists. The results of the study found that attractiveness, accessibility, and main facilities were significant predictors of the satisfaction and revisit intention of young water park tourists.

## METHODOLOGY

### 1. Purpose

Azerbaijan is a country rich in oil resources and oil revenues cover a significant share of the state budget. The development of non-oil-based production and services has been determined as one of the main goals in the country's future strategy Different foreign country restaurants are available in each country, especially in big cities and cultural centers. These restaurants attract customers with the images of the countries where they serve their meals. The main purpose of this study is to analyse the intentions of customers who go to different country restaurants in their own city and eat the food of that country to travel to those countries. Therefore, the intentions of customers who go to the restaurants of three countries (Turkish, Italian, and Japanese) in Baku, the capital and the biggest city of Azerbaijan and taste the national food of these countries to travel to these countries were analyzed. In the research model, the visit intention was included as the dependent variable, and EWOM and emotional involvement were included as the independent variables. The country image variable was included in the model as a moderator variable and the level of its effect on the causality between the dependent and independent variables was tested. The variables and hypotheses of the research are shown in Figure 1. Figure 1 presents the research framework of this study. The independent variable is visit intention. The dependent variables are electronic word of mouth and emotional involvement. The moderating variable is country image.

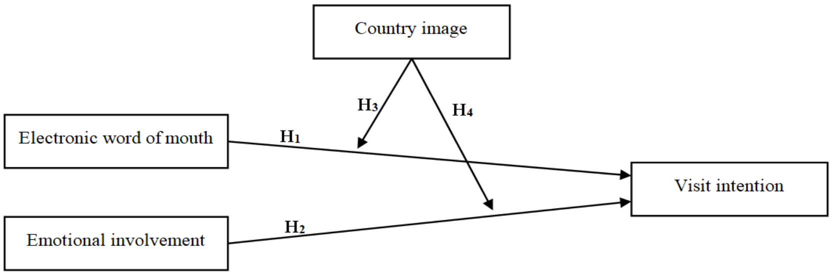


Figure 1. Research model

### 2. Design and Data collected

The food of a country is governed by environmental factors and is influenced by social, cultural, and religious roots (McIntosh, 1995). Relationships with foreign products depend on how the country of origin of this product affects its norms and internal values (Brijs et al., 2011). These three components, operationalized as cognitive (beliefs or knowledge towards the country and its products), emotional (feelings towards the country and its products) and conative (behavioral intentions towards its products), have also been used in studies on tourism country image (Campo and Álvarez, 2014; Sönmez and Sirakaya, 2002). Two other types of studies on PCI (product-country-image) argue that love and admiration for a certain country influence evaluations and attitudes towards products (Batra et al., 2000), while in the case of emotional studies, there are also normative studies that analyze the consumer. However, attitude, represented by a sequential process of behavior, cognitive, emotional, and inviting factors, is a sequential process and is represented by the “country image dimension” created by the person's eating and experiencing behavior in the restaurant in the conceptual model of the study. Destination image and food image form the basis of tourists' destination choices. In this study, the behavior of visiting a country after eating its food was analyzed. In the light of all this information, the survey of the research was designed, and data was collected. Initially, the survey items were prepared in English and then translated into Azerbaijani (McGorry, 2000). All measurements were made on a five-point Likert-type scale ranging from “5” = “strongly agree” to “1” = “strongly disagree”. Before the survey was shared among consumers, a pretest was conducted with 12 people. Since the relationship between Turkish, Italian, and Japanese cuisine restaurants in Azerbaijan and the images of these countries was analyzed within the scope of this research, a screening question was added to the survey. The screening question was as follows: “Have you eaten at a restaurant serving Turkish, Italian, or Japanese cuisine in the last 3 months?”. Those who answered “yes” to this question continued the survey, while those who answered “no” did not participate in the survey.

### 3. Measures and Data Analysis Procedure

Previous studies in the literature were used to measure the variables. We used six items from Bambauer-Sachse and Mangold`s (2011) study to assess EWOM and three items from Huang et al. (2013) study to measure Emotional Engagement. We measured country image with four items from Baldauf et al.'s (2009) study and visit intention with four items from Jang and Namkung's (2009) study. We used SPSS 25.0 to examine the data that we had gathered. The impacts of EWOM ($H_1$), Emotional Involvement ($H_2$), and the moderating role of country image on these variables were assessed analytically using simple regression. Nonetheless, SPSS PROCESS was used to investigate the moderating impact of country image ($H_3$, $H_4$). To test the working model, SPSS was utilized using Hayes (2022) PROCESS macro. One of the bootstrap analysis techniques for analyzing indirect effects that Hayes (2012, 2022) suggests using is the

PROCESS macro. The influence of the moderator variable on the relationships between these variables was examined after regression analysis was used to assess cause-and-effect relationships between the variables.

## ANALYSES AND RESULTS

### 1. Sample Characteristics

The study was based on the responses to the online survey questions that were given by 450 people. Among the survey participants, 287 (63,8%) people are female, 318 (70,7%) are single, 213 (47,3%) are bachelor's degree, 234 (52%) people's monthly income is between 0-499 AZN, 156 (34,7%) people are shopping once a month. Within the scope of the survey, 150 participants from all three countries participated in the survey using the purposive sampling method. Table 1 provides a summary of the socio-demographic characteristics of the participants.

Table 1. Sample profile

| Demographic Variables | Category | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 163 | 36.2% |
| | Female | 287 | 63.8% |
| Marital status | Single | 318 | 70.7% |
| | Married | 132 | 29.3% |
| Education | School graduate | 38 | 8.4% |
| | Bachelor's degree | 193 | 42.9% |
| | Master's degree | 213 | 47.3% |
| | PhD degree | 6 | 1.3% |
| Monthly personal income (AZN) | 0-499 | 234 | 52% |
| | 500-999 | 143 | 31.8% |
| | 1000-1499 | 45 | 10% |
| | 1500-1999 | 24 | 5.3% |
| | 2000 and over | 4 | 0.9% |
| Work sector | Public sector | 69 | 15.3% |
| | Private sector | 188 | 41.8% |
| | Entrepreneur sector | 101 | 22.4% |
| | Student | 88 | 19.6% |
| | Unemployment | 4 | 0.9% |
| Frequency | Every day | 0 | 0% |
| | Twice in a week | 1 | 0.2% |
| | Once in a week | 52 | 13.8% |
| | Twice in a month | 145 | 32.2% |
| | Once in a month | 156 | 34.7% |
| | Once in three months | 86 | 19.1% |
| Which country's restaurant do you prefer the most? | Türkiye | 150 | 33.3% |
| | Italy | 150 | 33.3% |
| | Japan | 150 | 33.3% |

### 2. Measurement of Validity and Reliability

Cronbach's alpha and composite reliability were used to evaluate the constructs of the model. To validate the measurement model, a factor analysis was initially conducted (Table 2). All items of the variables showed high factor loadings. Cronbach's Alpha was used to ensure that the scales were internally consistent before conducting the reliability study (Hair et al., 2010). Cronbach's Alpha coefficient can be found between 0 and 1. For all constructs, Cronbach's alpha and composite reliability were determined to be higher than the required standard of 0.70 (Hair et al., 2010). The results of the validity and reliability analysis of the data set are given in Table 2.

Table 2. Factor analysis

| Variables | Items | Factor Load | Total Variance Explained | KMO | Cronbach Alpha |
|---|---|---|---|---|---|
| **Electronic word of mouth (EWOM)** | EWOM-1 | 0.914 | 73% | 0.867 | 0.925 |
| | EWOM-2 | 0.911 | | | |
| | EWOM-3 | 0.888 | | | |
| | EWOM-4 | 0.884 | | | |
| | EWOM-5 | 0.804 | | | |
| | EWOM-6 | 0.709 | | | |
| **Emotional involvement** | EI-1 | 0.913 | 70% | 0.610 | 0.777 |
| | EI-2 | 0.860 | | | |
| | EI-3 | 0.720 | | | |
| **Country image** | CI-1 | 0.835 | 64% | 0.780 | 0.807 |
| | CI-2 | 0.829 | | | |
| | CI-3 | 0.812 | | | |
| | CI-4 | 0.713 | | | |
| **Visit intention** | VI-1 | 0.920 | 73% | 0.767 | 0.869 |
| | VI-2 | 0.859 | | | |
| | VI-3 | 0.855 | | | |
| | VI-4 | 0.764 | | | |

### 3. Hypotheses Analysis

It was investigated if electronic word of mouth had any effect on the intention to make an online purchase in accordance with the study's stated objectives. The findings of the regression analysis revealed that electronic word of mouth had a favorable influence on the visit intention ($H_1$). The next thing that was done was an investigation into whether or not emotional involvement had any effect on the visit intention ($H_2$). Therefore, it was discovered that the $R^2$ value and the F values that were established via the process of regression analysis were acceptable ratios in the context of social sciences and the relevant body of literature. Table 3 displays the R, $R^2$, corrected $R^2$, B, and Beta v p values for each variable.

Finally, it was tested whether the country image has a moderating effect on these effects ($H_3$). For two of the three examples, we have used model 1 from Andrew F. Hayes' SPSS Process v4 (2022). At the beginning, it was centralized by taking the standard values of each variable. The product of the independent variable and the moderator variable was then calculated to estimate the interaction effect. After that, a two-step linear regression analysis was used to assess whether or not the moderator variable had a significant effect. Country image has a moderating effect on the relationships between electronic word of mouth and visit intention for Türkiye ($H_{3a}$, Table 4). Country image has a moderating effect on the relationships between emotional involvement and visit intention for Türkiye ($H_{4a}$, Table 5).

Table 3. Regression analyses of the variables (Note: EWOM – Electronic word of mouth; EI – Emotional involvement; VI – Visit intention)

| Country | Independent variable | Dependent variable | R | $R^2$ | Adj. $R^2$ | B | Beta | Sig. |
|---|---|---|---|---|---|---|---|---|
| Türkiye | EWOM | VI | 0.332 | 0.110 | 0.104 | 0.362 | 0.332 | 0.000 |
| | EI | VI | 0.290 | 0.084 | 0.078 | 0.376 | 0.290 | 0.000 |
| Italy | EWOM | VI | 0.430 | 0.185 | 0.179 | 0.393 | 0.430 | 0.000 |
| | EI | VI | 0.218 | 0.047 | 0.041 | 0.335 | 0.218 | 0.000 |
| Japan | EWOM | VI | 0.379 | 0.143 | 0.138 | 0.245 | 0.379 | 0.000 |
| | EI | VI | 0.557 | 0.310 | 0.306 | 0.631 | 0.557 | 0.000 |

Table 4. Moderation analysis output of the country image on the relationship between visit intention and electronic word of mouth for Türkiye

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Model Summary** | **R** | **$R^2$** | **MSE** | **F** | **df1** | **df2** | **P** |
| | 0.3570 | 0.1274 | 0.5183 | 7.1074 | 3.0000 | 146.0000 | 0.0002 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | 0.9507 | 0.8792 | 1.0814 | 0.2813 | -0.7869 | 2.6883 |
| | Electronic word of mouth | 0.4043 | 0.3328 | 1.2149 | 0.2263 | -0.2534 | 1.0621 |
| | Country image | 0.3055 | 0.4438 | 0.6883 | 0.4924 | -0.5717 | 1.1827 |
| | Int_1 | -0.0340 | 0.1649 | -0.2062 | 0.8370 | -0.3600 | 0.2920 |
| | **Product terms key:** Int_1: Electronic word of mouth x Country image | | | | | | |
| | Y= Visit intention; X= Electronic word of mouth; W= Country image | | | | | | |

Table 5. Moderation analysis output of the country image on the relationship between visit intention and emotional involvement for Türkiye

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Model Summary** | **R** | **$R^2$** | **MSE** | **F** | **df1** | **df2** | **P** |
| | 0.3171 | 0.1006 | 0.5342 | 5.4420 | 3.0000 | 146.0000 | 0.0014 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | 0.3042 | 0.8442 | 0.3603 | 0.7191 | -1.3643 | 1.9727 |
| | Emotional involvement | 1.0178 | 0.4317 | 2.3577 | 0.0197 | 0.1646 | 1.8709 |
| | Country image | 0.7326 | 0.4511 | 1.6240 | 0.1065 | -0.1589 | 1.6242 |
| | Int_1 | -0.3391 | 0.2111 | -1.6065 | 0.1103 | -0.7563 | 0.0781 |
| | **Product terms key:** Int_1: Emotional involvement x Country image | | | | | | |
| | Y= Visit intention; X= Emotional involvement; W= Country image | | | | | | |

Country image has a moderating effect on the relationships between electronic word of mouth and visit intention for Italy ($H_{3b}$, Table 6). Country image has a moderating effect on the relationships between emotional involvement and visit intention for Italy ($H_{4b}$, Table 7). Country image has a moderating effect on the relationships between electronic word of mouth and visit intention for Japan ($H_{3c}$, Table 8). Country image has a moderating effect on the relationships between emotional involvement and visit intention for Japan ($H_{4c}$, Table 9). A total of 12 hypotheses were tested because of the analyzes made in line with the purpose and method of the research. All hypotheses were supported (Table 6).

Table 6. Moderation analysis output of the country image on the relationship between visit intention and electronic word of mouth for Italy

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Model Summary** | **R** | **$R^2$** | **MSE** | **F** | **df1** | **df2** | **P** |
| | 0.5054 | 0.2555 | 0.4300 | 16.7996 | 3.0000 | 146.0000 | 0.0000 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | -0.0399 | 0.8411 | -0.0475 | 0.9622 | -1.7022 | 1.6223 |
| | Electronic word of mouth | 0.5397 | 0.3239 | 1.6662 | 0.0978 | -0.1004 | 1.1797 |
| | Country image | 0.7057 | 0.4582 | 1.5401 | 0.1257 | -0.1999 | 1.6112 |
| | Int_1 | -0.1162 | 0.1706 | -0.6810 | 0.4970 | 0.4535 | 0.2210 |
| | **Product terms key:** Int_1: Electronic word of mouth x Country image | | | | | | |
| | Y= Visit intention; X= Electronic word of mouth; W= Country image | | | | | | |

Table 7. Moderation analysis output of the country image on the relationship between visit intention and emotional involvement for Italy

| **Model Summary** | R | $R^2$ | MSE | F | df1 | df2 | P |
|---|---|---|---|---|---|---|---|
| | 0.3587 | 0.1487 | 0.4916 | 8.5029 | 3.0000 | 146.0000 | 0.0000 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | -0.0398 | 0.8678 | -0.0458 | 0.9635 | -1.7548 | 1.6752 |
| | Emotional involvement | 0.6418 | 0.4559 | 1.4077 | 0.1614 | -0.2593 | 1.5428 |
| | Country image | 1.0432 | 0.4354 | 2.3960 | 0.0178 | 0.1827 | 1.9037 |
| | Int_1 | -0.2740 | 0.2138 | -1.2816 | 0.2020 | -0.6965 | 0.1485 |
| | **Product terms key:** Int_1: Emotional involvement x Country image | | | | | | |
| | Y= Visit intention; X= Emotional involvement; W= Country image | | | | | | |

Table 8. Moderation analysis output of the country image on the relationship between visit intention and electronic word of mouth for Japan

| **Model Summary** | R | $R^2$ | MSE | F | df1 | df2 | P |
|---|---|---|---|---|---|---|---|
| | 0.5672 | 0.3217 | 0.4189 | 23.70825 | 3.0000 | 146.0000 | 0.0000 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | 0.6592 | 0.4022 | 1.6390 | 0.1034 | -0.1357 | 1.4541 |
| | Electronic word of mouth | 0.1947 | 0.1258 | 1.5483 | 0.1237 | -0.0538 | 0.4432 |
| | Country image | 0.4950 | 0.2421 | 1.0451 | 0.0426 | -0.0166 | 0.9735 |
| | Int_1 | 0.0346 | 0.0760 | 0.4556 | 0.6493 | 0.1156 | 0.1849 |
| | **Product terms key:** Int_1: Electronic word of mouth x Country image | | | | | | |
| | Y= Visit intention; X= Electronic word of mouth; W= Country image | | | | | | |

Table 9. Moderation analysis output of the country image on the relationship between visit intention and emotional involvement for Japan

| **Model Summary** | R | $R^2$ | MSE | F | df1 | df2 | P |
|---|---|---|---|---|---|---|---|
| | 0.6168 | 0.3805 | 0.3826 | 29.8892 | 3.0000 | 146.0000 | 0.0000 |
| **Model** | | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** |
| | **Constant** | -0.8117 | 0.4974 | -1.6319 | 0.1049 | -1.7948 | 0.1714 |
| | Emotional involvement | 2.0656 | 0.3745 | 5.5159 | 0.0000 | 1.3255 | 2.8058 |
| | Country image | 1.2942 | 0.3388 | 3.8205 | 0.0002 | 0.6247 | 1.9637 |
| | Int_1 | -0.8607 | 0.2123 | -4.0541 | 0.0001 | -1.2803 | -0.4411 |
| | **Product terms key:** Int_1: Emotional involvement x Country image | | | | | | |
| | Y= Visit intention; X= Emotional involvement; W= Country image | | | | | | |

Table 6. The result of the hypotheses

| Hypothesis | Result |
|---|---|
| **$H_1$: E-WOM has a positive impact on visit intention.** | **Accepted** |
| $H_{1a}$: E-WOM has a positive impact on visit intention for Türkiye. | Accepted |
| $H_{1b}$: E-WOM has a positive impact on visit intention for Italy. | Accepted |
| $H_{1c}$: E-WOM has a positive impact on visit intention for Japan. | Accepted |
| **$H_2$: Emotional involvement has a positive impact on visit intention.** | **Accepted** |
| $H_{2a}$: Emotional involvement has a positive impact on visit intention for Türkiye. | Accepted |
| $H_{2b}$: Emotional involvement has a positive impact on visit intention for Italy. | Accepted |
| $H_{2c}$: Emotional involvement has a positive impact on visit intention for Japan. | Accepted |
| **$H_3$: Country image positively moderates the impact on between E-WOM and visit intention.** | **Accepted** |
| $H_{3a}$: Country image positively moderates the impact on between E-WOM and visit intention for Türkiye. | Accepted |
| $H_{3b}$: Country image positively moderates the impact on between E-WOM and visit intention for Italy. | Accepted |
| $H_{3c}$: Country image positively moderates the impact on between E-WOM and visit intention for Japan. | Accepted |
| **$H_4$: Country image positively moderates the impact on between emotional involvement and visit intention.** | **Accepted** |
| $H_{4a}$: Country image positively moderates the impact on between emotional involvement and visit intention for Türkiye. | Accepted |
| $H_{4b}$: Country image positively moderates the impact on between emotional involvement and visit intention for Italy. | Accepted |
| $H_{4c}$: Country image positively moderates the impact on between emotional involvement and visit intention for Japan. | Accepted |

## Discussion and Conclusions

The effect of e-WOM on the intention to visit a restaurant has been determined in both Turkish, Italian, and Japanese cuisines. It has been determined that this effect is higher in Japanese cuisine compared to other countries. This finding is also consistent with previous studies in the literature. As a result of the study conducted by Lai et al. (2020), it has been revealed that cognitive food image is a stronger determinant of intention than emotional image and the moderating effect of food neophobia, the need to develop a destination image formation strategy. As a result of the study conducted by Martinelli and De Canio (2019) among Danish customers of Italian restaurants in Copenhagen, it has been determined that product country image affects the formation of positive attitudes towards ethnic restaurants even when the multi-signal approach is used. It can be said that the higher performance of e-WOM on the intention to visit a restaurant in Japanese cuisine is due to the closeness and respect of consumers to these country values, the positive effects of the Japanese country image, and also the different characteristics of consumers. Namely, relationships with foreign products depend on how the country of origin of this product affects its norms and internal values (Brijs et al., 2011).

Other studies on Far Eastern food also show that these effects are positive. For example, in a study conducted by Nguyen et al. (2020) based on survey data collected from 560 customers who ate at Thai and Korean restaurants in Ho Chi Minh City, Vietnam, the effects of various factors such as country image, culinary knowledge, food and environmental authenticity on the behavioral intention to experience ethnic cuisine restaurants and the customer's intention to experience ethnic cuisine restaurants were examined. As a result of the study conducted by Lertputtarak (2012), it was found that the destination image and Thai food image have a positive relationship with tourists' revisit intention.

The moderator role of country image in the effect of e-WOM on visit intention has been found to have a positive effect in both Turkish, Italian, and Japanese cuisines. It was found that this effect was highest in Japanese cuisine and lowest in Turkish cuisine compared to other countries. As a result of the study conducted by Biswas et al. (2020), it was determined that destination features other than security also significantly affect the emotional involvement of tourists. As a result of the study conducted by Aureliano-Silva et al. (2021) it was determined that online reviews with higher online ratings and emotional appeal lead to higher restaurant visit intentions. However, it was found that customers with low restaurant participation were more affected by emotional comments than functional comments. It can be said that the findings of the study can be used especially in decision-making stages for restaurant operators. As in other studies, the results of this study are subject to various limitations. However, these limitations can provide a basis for future studies to continue investigating the effective factors affecting customer experience in a restaurant business context. First, this study was conducted on consumers who go to restaurants serving Turkish, Italian, and Japanese cuisine in Azerbaijan. Therefore, the results of this study cannot be generalized to all country restaurants. In future studies, restaurants from different countries in addition to these three cultures can be included in the scope of the research. Second, this study tried to determine whether the image of the country the restaurant belongs to affects going to restaurants serving cuisine specific to different cultures. In future studies, different variables can be added to the research model.

**Author Contributions:** Conceptualization, B.H. and N.H.; methodology, B.H.; software, B.H.; validation, B.H. and N.H.; formal analysis, B.H.; investigation, N.H. and B.H.; data curation, B.H.; writing - original draft preparation, N.H. and B.H.; writing - review and editing, N.H. and B.H.; visualization, B.H.; supervision, B.H.; project administration, B.H. and N.H. The authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 14.09.2024 Revised: 04.11.2024 Accepted: 09.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2101-2113
DOI 10.30892/gtg.574spl24-1377

# FACTORS AFFECTING SOCIO-ECONOMIC DEVELOPMENT POLICIES FOR ETHNIC MINORITIES IN RURAL AREAS

**Phan Van TUAN**
Vinh University, College of Social Sciences and Humanities, Faculty of Politics and Journalism, Nghe An Province, Vietnam, e-mail: phanvantuan94@yahoo.com

**Vu Thi Phuong LE**
Vinh University, College of Social Sciences and Humanities, Faculty of Politics and Journalism, Nghe An Province, Vietnam, e-mail: levtp@vinhuni.edu.vn

**Nguyen Khanh LY**
Nghe An University of Economics; Vinh University, College of Social Sciences and Humanities, Nghe An Province, Vietnam, e-mail: nguyenkhanhly@naue.edu.vn

**Nguyen Chi HAI***
An Giang University, Vietnam National University Ho Chi Minh City, An Giang Province, Vietnam, e-mail: nchai@agu.edu.vn

**Nguyen Thi Kim NGAN**
An Giang University, Vietnam National University Ho Chi Minh City, An Giang Province, Vietnam, e-mail: ntkngan@agu.edu.vn

**Citation:** Tuan, P.V., Le, V.T.P., Ly, N.K., Hai, N.C., & Ngan, N.T.K. (2024). FACTORS AFFECTING SOCIO-ECONOMIC DEVELOPMENT POLICIES FOR ETHNIC MINORITIES IN RURAL AREAS. *Geojournal of Tourism and Geosites*, 57(4spl), 2101–2113. https://doi.org/10.30892/gtg.574spl24-1377

**Abstract:** Socio-economic development policies for ethnic minority areas in rural areas aim to promote socio-economic development, comprehensively improve the lives of ethnic minorities in rural areas, and at the same time protect culture and environment. Factors influencing socio-economic development policies for ethnic minority areas in rural areas play an important role in shaping, implementing, and effectiveness of policies. Understanding and adjusting these factors will help policies achieve better results, creating sustainable and equitable development conditions for ethnic minority areas. The study aims to identify and analyze factors affecting the implementation of socio-economic development policies in ethnic minority areas in rural areas. The research data was collected in the Mekong Delta, Vietnam. In the questionnaire survey, 936 people directly answered the questionnaire. SPSS 25 and AMOS 24 software were used for data analysis. The data collection process was carried out between April and July 2024. The implementation methods include data descriptive statistics, testing scales, analysis of factor fit, and testing research structure. The research results show six factors affecting socio-economic development policies for ethnic minority areas in rural areas, including nature and geography, socio-economics, socio-culture, policy and law, politics and security, and international cooperation. This study provides administrators with a comprehensive view of the factors affecting development policies, thereby helping to optimize development strategies and improve efficiency for ethnic minority areas in rural areas.

**Keywords:** policy implementation, ethnic minority, socio-economic development, development challenges, Vietnamese rural development

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## INTRODUCTION

Ethnic minorities in Vietnam have diverse and complex socio-economic characteristics, reflecting differences in the natural environment, culture, and development conditions. Ethnic minorities in Vietnam live in mountainous and midland areas where natural conditions are difficult. The main economy of ethnic minorities is based on subsistence agriculture, such as growing rice, corn, cassava, and raising livestock (Do and Nguyen, 2023). Cultivation methods are backward, and dependent on weather and nature. Ethnic minorities have many traditional crafts such as weaving, knitting, and making handicrafts. These crafts not only generate income but also preserve and promote the cultural identity of each ethnic group. In some areas with favorable conditions for tourism development, ethnic minorities participate in tourism service businesses, sell handicrafts, and organize traditional cultural activities to attract tourists (Feng and Cheung, 2008).

Ethnic minorities in Vietnam account for about 14.6% of the country's population and are mainly distributed in the northern mountainous regions, the Central Highlands, and the Mekong Delta. The literacy rate of ethnic minorities is lower than the national average. Learning conditions in ethnic minority areas are still difficult, with a lack of schools, teachers, and facilities. However, the government is trying to improve the education system for ethnic minorities through many support programs (Nguyen and Nguyen, 2019). Health services in ethnic minority areas are still limited,

* Corresponding author

leading to substandard health care. The government and non-governmental organizations have implemented many health programs to improve the health of ethnic minority communities. Ethnic minorities in Vietnam have diverse and rich cultures, with their languages, costumes, customs, practices, and beliefs. However, the cultures of some ethnic groups are gradually being lost under the impact of the integration and globalization process. Preserving and promoting traditional cultural values is a big challenge (Abdulkareem et al., 2023).

The Vietnamese Government has had many policies to support ethnic minorities, focusing on areas such as hunger eradication and poverty reduction, infrastructure development, and improving the quality of education and health care. Policy programs such as 135, and 134, and policies to support residential land, production land, and domestic water have significantly improved the lives of ethnic minorities. However, there are still many challenges in sustainable socio-economic development for ethnic minorities, including reducing the gap between rich and poor, protecting the environment, and preserving cultural identity (Nguyen-Anh et al., 2022). Socio-economic development policies for ethnic minorities in rural areas are important in improving lives, promoting sustainable development, and maintaining social stability.

The socio-economic development policy for ethnic minorities in rural areas of Vietnam is established to improve living conditions, promote sustainable economic development, preserve cultural identity, and ensure social security. These goals aim to create a comprehensive and sustainable development for ethnic minorities in rural areas, which helps improve the people's quality of life, develop the economy, protect culture, and ensure security and social stability. For the socio-economic development policy for ethnic minorities in rural areas to be effective, research to discover factors affecting the policy needs to be carried out, which helps the socio-economic development policy achieve results (He et al., 2024).

## LITERATURE REVIEW

Ethnic minority areas in rural Vietnam are home to many ethnic minority groups, mainly concentrated in mountainous, border, and remote areas. These areas have distinct geographical, economic, cultural, and social characteristics. Geographical distribution in the Northwest region includes provinces such as Lao Cai, Son La, Dien Bien, Lai Chau, Yen Bai, and Hoa Binh, home to ethnic groups such as H'Mong, Thai, Dao, Tay, and Nung. The terrain is mainly high mountains, and dense forests, with a cool climate but harsh winter, in the Central Highlands, including Dak Lak, Dak Nong, Gia Lai, Kon Tum, and Lam Dong provinces. This is home to ethnic groups such as E De, Gia Rai, Bana, and Xo Dang. The terrain here is mainly plateau, suitable for growing industrial crops such as coffee, rubber, and pepper. In the Mekong Delta, the Khmer, Cham, and Chinese, live mainly in provinces such as An Giang, Kien Giang, Soc Trang, and Tra Vinh. This is a fertile alluvial plain where ethnic minorities primarily practice agriculture. Ethnic minority areas have poor infrastructure, difficult transportation, and a lack of electricity and water, greatly hindering economic development (Tuyen, 2015).

Ethnic minority groups in rural areas maintain many traditional cultural features such as costumes, languages, festivals, and beliefs. However, due to cultural exchange, some customs and practices are gradually disappearing. Ethnic minority areas face many challenges such as poverty, lack of infrastructure, and limited access to health and education services. They are having difficulty preserving and promoting their culture under the impact of urbanization and globalization (Tran et al., 2015). Ethnic minority groups have underdeveloped economic conditions, leading to low incomes and high poverty rates; they have limited access to the labor market. Ethnic minority areas in rural areas of Vietnam have great development potential, but they require a lot of support to overcome difficulties and develop sustainably (Nguyen et al., 2021).

Socio-economic development policies for ethnic minority areas are measures, programs, and plans implemented by the government to promote economic growth and improve social conditions in ethnic minority areas. This policy aims to improve living standards, reduce poverty, enhance social welfare, and promote comprehensive and sustainable development (Yousaf et al., 2024). The main goal of socio-economic development policies is to create sustainable economic development, including income growth, development of industry, services, agriculture, and job creation for workers. Support ethnic minority areas to reduce income disparities and improve living conditions (Tan et al., 2023). Ensure ethnic minority areas have access to health, education, and social security services equitably and effectively. Improve the education level, vocational skills, and health of the workforce to promote labor productivity and economic competitiveness. Protect the environment, use natural resources efficiently, and promote forms of economic development that do not harm the environment and communities (Ye et al., 2024). Socio-economic development policies for ethnic minority areas in rural Vietnam are facing many difficulties such as natural conditions, economic, social, and management. Ethnic minority areas in mountainous areas with hilly terrain, fragmentation, and difficult access cause difficulties in building infrastructure, transportation, and providing public services (Tuan et al., 2023). The poverty rate in rural ethnic minority areas is still high, employment opportunities are few, and income is unstable. The economy mainly relies on self-sufficient agriculture, low productivity, and low ability to respond to economic changes. The education level and skills of ethnic minority people in rural areas are still low, limiting their ability to participate in modern economic and industrial activities (Zhao et al., 2021).

According to Phuong et al. (2023) in the study of livelihood of climate change in ethnic minority communities. The authors believe that these ethnic minority communities are heavily dependent on agriculture and natural resources, making them vulnerable to climate change, such as droughts, floods, and changes in weather patterns (Phuong et al., 2023). The authors make policy recommendations for communities, including strengthening adaptive capacity and sustainable development for ethnic minorities to mitigate the impacts of climate change. The study has focused on the difficulties in natural conditions in minority areas. However, research has not shown solutions for improving infrastructure; diversifying livelihoods, and policies to support ethnic minority communities to ensure sustainable development for ethnic minority communities facing climate change have not been identified. Fahad et al. (2023) studied for multidimensional poverty of rural households and proposed economic growth policies. The study analyzed the multidimensional poverty status of rural households based on the sustainable livelihood framework focusing on five important types of household assets. The authors discussed policies that affect human, social, natural, financial, and physical capital factors, and proposed improving access to health services, education, infrastructure, and natural resources to reduce poverty sustainably (Fahad et al., 2023). Policies should focus on developing human resources and facilitating households' access to financial capital, land, and social networks to enhance their livelihood capabilities. Policy recommendations for sustainable economic growth, aiming to improve the quality of life and reduce poverty in rural areas (Hatma Indra Jaya et al., 2024).

According to Nguyen-Anh et al. (2024, 506) in the study "Drivers of land use efficiency among ethnic minority groups in Vietnam: a longitudinal study". The study analyzed the factors affecting the land-use efficiency of ethnic minority groups. The study highlighted the role of traditional land tenure systems, government land allocation and land reform policies, and access to agricultural technology and markets. In addition, factors such as climate change, land degradation, and social factors, including gender roles and community cooperation, were also considered (Nguyen-Anh et al., 2024). This study proposed how ethnic minority groups can adapt to environmental, economic, and social changes to improve land use efficiency. Policy recommendations to improve land use efficiency in ethnic minority areas.

Currently, some socio-economic development policies for ethnic minority areas are not suitable for reality, leading to low efficiency. The allocation of financial resources and investment for ethnic minority areas is not effective. Managers in ethnic minority areas lack skills and knowledge, reducing the effectiveness of policy implementation. Lack of people's participation often makes monitoring and evaluating the effectiveness of development programs difficult, leading to waste of resources and not achieving the expected results. Rural ethnic minority areas often face severe impacts of climate change, such as floods, droughts, and landslides (Pham and Mukhopadhaya, 2022). It is necessary to carefully consider socio-economic development policies for ethnic minority areas to detect factors affecting these policies.

## THEORETICAL FRAMEWORK AND RESEARCH STRUCTURE

### Theoretical framework

Research on socio-economic development policies in ethnic minority areas is an area that has received much attention from scientists, international organizations, and governments. Many studies have focused on various aspects of this issue. The works aim to identify economic, social, political, cultural, and environmental factors that may affect the development of ethnic minority areas, and evaluate the effectiveness of policies. Van and Guzikova (2024) studied the factors affecting the poverty rate in ethnic minority areas. According to the author, sustainable poverty reduction is being urgently implemented by governments in parallel with each stage of socio-economic development. The study identified and assessed the impact of factors on the level of multidimensional poverty in ethnic minority areas including transportation, electricity, cultural centers, health, education and other social issues, commodity exchange, civil servant qualifications, and arable land (Van and Guzikova, 2024). However, the study did not mention the government's policies and priorities for rural areas. The study proposed a reasonable allocation of resources to reduce poverty, towards sustainable social development.

According to Kanagawa and Nakata (2008, 2016) in the study "Assessment of access to electricity and the socio-economic impacts in rural areas of developing countries". Investment in infrastructure is considered the key to increasing access to markets and services. Sustainable livelihoods and agriculture have been pointed out by studies and analyzed the dependence of ethnic minority communities on subsistence agriculture (Kanagawa and Nakata, 2008). The need for measures to support sustainable economic development, applying new technology in agricultural production.

In the study "Socio-Economic factors of poverty in rural areas of almaty region and prospects for their regulation" by Kuzembekova and Zhanbyrbayeva (2022, 81). Social, educational, and health factors were considered, and the study emphasized the important role of education and health in improving the quality of life of ethnic minorities. The study showed the influence of social, educational, and health factors on the implementation of socio-economic development policies in rural areas (Kuzembekova and Zhanbyrbayeva, 2022). The culture and customs of ethnic minority groups are considered one of the important factors affecting the ability to absorb and implement policies. The study shows that policies that are not suitable for local culture are often not very effective.

According to Minh et al. (2020), research on cultural and human identity in ethnic minority areas has an impact on socio-economic development in rural areas. The authors argue that political and legal factors should be considered, and land policies include land ownership, compensation policies, and land management. It shows the difficulties that ethnic minorities face in accessing land rights. This directly affects the implementation of economic development policies for ethnic minorities in rural areas. Ethnic policies have analyzed the role of programs for ethnic minorities in rural areas (Minh et al., 2020). The government should issue more policies to support poverty reduction, infrastructure development, and improving the quality of life of ethnic minorities (Shao and Zoh, 2024).

According to Nguyen and Hanh (2024), human resource development for ethnic minorities is a development strategy that includes improving education and training. Local authorities should focus on vocational skills for ethnic minorities, and areas that are suitable for local resources such as agriculture and ecotourism. In addition, policies to support and develop infrastructure such as the Internet and transportation should be prioritized to connect mountainous areas with the wider economic network. Community participation in decision-making ensures sustainable development and creates economic development opportunities for ethnic minorities (Nguyen and Hanh, 2024). The study also addresses resource conflicts between ethnic minority communities and resource exploitation enterprises.

According to Ha (2023), strengthening international cooperation to support socio-economic development in ethnic minority areas. Forms of cooperation between governments, international organizations, non-governmental organizations, and the private sector play an important role in providing resources, knowledge, and technology to address the unique challenges in these areas. Developing infrastructure in ethnic minority areas such as investing in transportation, health, education, and digital infrastructure to improve living standards and expand economic opportunities. Preserving ethnic minority culture, maintaining cultural identity, and promoting community tourism and traditional crafts (Ha, 2023). The government should support economic development policies and provide technical assistance to improve ethnic minority communities in rural areas, improve management capacity, and provide social services.

Pham and Mukhopadhaya (2022) social capital plays an important role in poverty reduction for ethnic minority groups in rural areas. Social capital includes community networks, trust, mutual support, and access to resources through relationships, which are considered important factors in poverty reduction. Strong social networks provide people with more opportunities to access finance, information, and employment. Strengthening social capital helps improve lives and increase the ability to escape poverty sustainably for ethnic minority communities in rural areas (Pham and Mukhopadhaya, 2022). The government should consider income-based poverty reduction, and evaluate it according to many aspects such as health, education, living standards, and access to basic services (Vercher et al., 2023).

Research in Vietnam has focused on specific cases in the Northwest, Central Highlands, Northern mountainous regions of Vietnam, and the Southwest, where ethnic minorities have a high proportion. According to Le et al. (2023) in the study "Vietnam's poverty reduction policies for ethnic minorities". This study evaluates the effectiveness of policies such as the Hunger Eradication and Poverty Reduction Program, and the National Target Program for Sustainable Poverty Reduction, and proposes adjustments to better suit practical conditions (Le et al., 2023). Research on development policies for ethnic minorities has focused on reducing poverty and inequality within communities. Many studies have shown that ethnic minorities face economic, social, and cultural barriers, leading to higher poverty rates than the majority. Financial support programs, vocational training, and job creation are proposed solutions to alleviate this situation.

Building social government for ethnic in rural by Chen (2024). Effective social governance is considered an important foundation for improving living standards, preserving cultural identity, and promoting sustainable development in ethnic minority areas. Community participation will help policies to be suitable for local needs and customs, creating community autonomy and responsibility. A suitable combination of traditional and modern governance will maintain traditional customs alongside modern policies to ensure comprehensiveness and adaptability to new contexts (Chen, 2024). Encourage ethnic minority communities to participate in economic activities such as ecotourism, handicrafts, and sustainable agriculture. Local governments invest in education and health to facilitate the development of ethnic minority communities.

According to Sabet and Khaksar (2024), local government performance, social capital, and citizen participation play a role in sustainable rural development. Local government performance is the foundation for implementing policies and programs that meet community needs, ensuring the rational and transparent use of resources (Wu et al., 2024). Social capital, including relationships and trust within the community, enhances the ability to cooperate, support each other, and recover from difficulties. Active citizen participation is a key factor, in facilitating the implementation of sustainable initiatives, enhancing self-management capacity, and environmental responsibility (Sabet and Khaksar, 2024). The close coordination between these three factors creates a solid foundation for sustainable rural development, protecting resources, and promoting social welfare. In general, the research situation on factors affecting socio-economic development policies for ethnic minorities in rural areas is very rich and multi-dimensional. However, the research still faces many challenges in implementing highly practical policies that are suitable for the cultural, geographical, and social characteristics of each ethnic group.

**Hypotheses**

The research hypothesis on factors affecting the socio-economic development policy in ethnic minority areas in rural areas is put forward. Factors that are likely to affect this policy, and have a great influence on the success of socio-economic development policy in ethnic minority areas in rural areas. Factors related to natural and geographical conditions affect the development of infrastructure, agriculture, and transportation (Csata et al., 2024). This directly affects the planning and implementation of socio-economic development policies. Policies need to consider sustainable resource exploitation while protecting the environment and ensuring long-term livelihoods for people.

**H1:** Natural and geographical conditions affect socio-economic development policies for ethnic minorities in rural areas.

Socio-economic factors include the level of economic development of ethnic minority areas in rural areas, economic structure, and human resources. It requires policies to focus on poverty reduction, improving living standards, supporting economic restructuring, and diversifying income sources (Hoang et al., 2020). The educational level and skills of ethnic minority people in rural areas are still low. Policies need to focus on education, vocational training, and improving production skills for people.

**H2:** Socio-economic factors have an impact on socioeconomic development policies for ethnic minority areas in rural areas.

Ethnic minority groups have a diversity of languages, cultures, and customs. Development policies need to respect and preserve traditional cultural values while encouraging integration and socio-economic development (Vlasov et al., 2024). Rural ethnic minority areas have a high sense of community. Solidarity and mutual support within the community are important factors in successfully implementing policies.

**H3:** Socio-cultural factors have an impact on socio-economic development policies for ethnic minorities in rural areas.

Policy and legal factors show that the government needs to implement many specific support programs for ethnic minority areas in rural areas. Financial resources from the state budget and international organizations play an important role in implementing development programs (Le et al., 2024). Policies need to ensure fair and transparent allocation of these resources while encouraging private investment in areas such as agriculture, tourism, and small-scale industry.

**H4:** Policy and legal factors have an impact on socio-economic development policies for ethnic minority areas in rural areas.

The capacity of local officials in rural areas need to have skills, knowledge, and understanding of ethnic minority culture and customs to effectively manage and implement policies. Policies need to encourage the active participation of people in the process of planning, implementing, and monitoring development programs (Hai et al., 2023). This helps to increase transparency and ensure the sustainability of projects.

**H5:** The factor of capacity for policy management and implementation has an impact on socio-economic development policies in rural ethnic minority areas.

Security and political stability in rural ethnic minority areas are important for stability. Development policies ensure political stability and security in the region while creating conditions for socio-economic development (Hai and Ngan, 2022). Development policies with consensus from the support of local people will ensure success in implementing development programs.

**H6:** Political and security factors have an impact on socio-economic development policies in rural ethnic minority areas.

Financial and technical support from international organizations can help improve the effectiveness of rural ethnic minority development programs (Hu et al., 2024). Policies need to make good use of these international resources and coordinate closely to ensure sustainability.

**H7:** International cooperation factors have an impact on socio-economic development policies for ethnic minority areas in rural areas.

These hypotheses need to be tested through the analysis of data collected from ethnic minority areas, to determine the causal relationship and impact.

**Research structure**

The research structure is based on existing studies and theoretical frameworks. Factors affecting socio-economic development policies for ethnic minority areas in rural areas, Vietnam. Seven factors can affect socioeconomic development policies for ethnic minority areas, including Nature and geography; Socio-economic; Culture and Society; Policy and law; Management and policy implementation capacity; Politics and security; and International cooperation. It is shown in Figure 1.

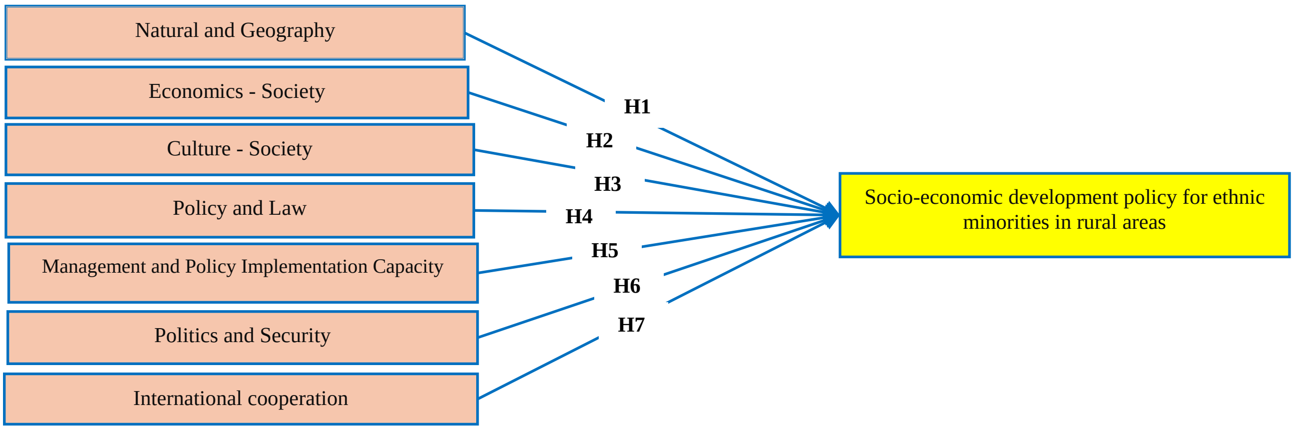


Figure 1. Structural model (Source: Authors, 2024)

Factors and variables observed in the structural model of factors affecting socio-economic development policies for ethnic minority areas. It is shown in Table 1.

Table 1. Factors and observed variables in the structure(Source: The authors synthesized from available studies, 2024)

| Factors in the structural model | Encode | Observed variables within the factor |
|---|---|---|
| Natural and Geography | NAGE | (1) Geographical location; (2) Natural resources; (3) Climate change; (4) Natural environment; (5) Transportation. |
| Economics – Society | ECSO | (1) Economic structure; (2) Education level; (3) Professional level; (4) Level of economic development; (5) Human resources. |
| Culture – Society | CUSO | (1) Cultural identity; (2) Customs and practices; (3) Community solidarity; (4) Cultural enjoyment; (5) Education and health care. |
| Policy and Law | POLA | (1) Special support policies; (2) Financial investment; (3) Land policy; (4) Ethnic policy; (5) Rural policy. |
| Management and Policy Implementation Capacity | MPIC | (1) Government policy; (2) Local implementation; (3) Capacity of civil servants; (4) Cooperation of people; (5) Policy suitability; (6) Maintenance of policy implementation. |
| Politics and Security | POSE | (1) Political stability; (2) Rural security; (3) Ethnic minority consensus; (4) Border stability; (5) People's trust in the government; (6) Crime situation. |
| International cooperation | INCO | (1) Financial support; (2) Technical support; (3) Customers; (4) Business environment; (5) Cultural exchange. |
| Socio-economic development policy for ethnic minorities in rural areas | SEDP | (1) Poverty reduction and improvement of living standards; (2) Sustainable economic development; (3) Preservation and promotion of ethnic minority cultural identity; (4) Improvement of human resource quality. |

**METHODOLOGY**

The methods used in the study include descriptive statistics, scale testing, factor fit analysis, and research structure testing. The steps of the research method are shown in Figure 2.

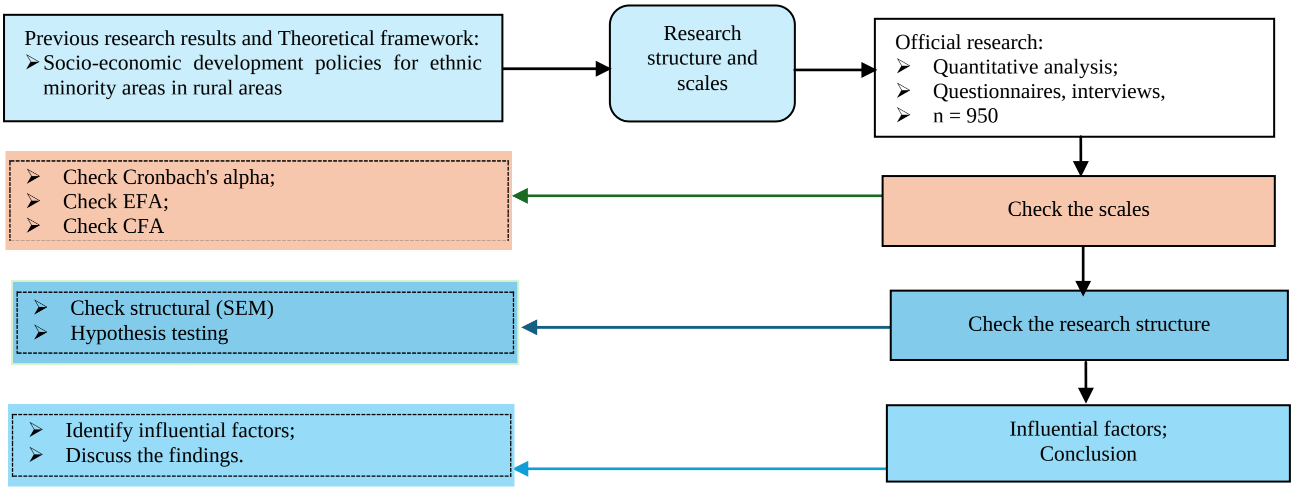


Figure 2. Flowchart of research methodology steps (Source: Authors)

**Research area**

The Mekong Delta is an important economic region of Vietnam, home to many ethnic minorities, but it faces challenges in socio-economic development. This region is characterized by a flooded ecosystem, with many areas of saltwater wetlands and river deltas. These natural conditions directly affect agricultural production methods and people's lives. The Mekong Delta is strongly affected by climate change, such as rising sea levels, saltwater intrusion, and riverbank erosion. These phenomena negatively affect the livelihoods and lives of ethnic minorities. The research area is shown in Figure 3.

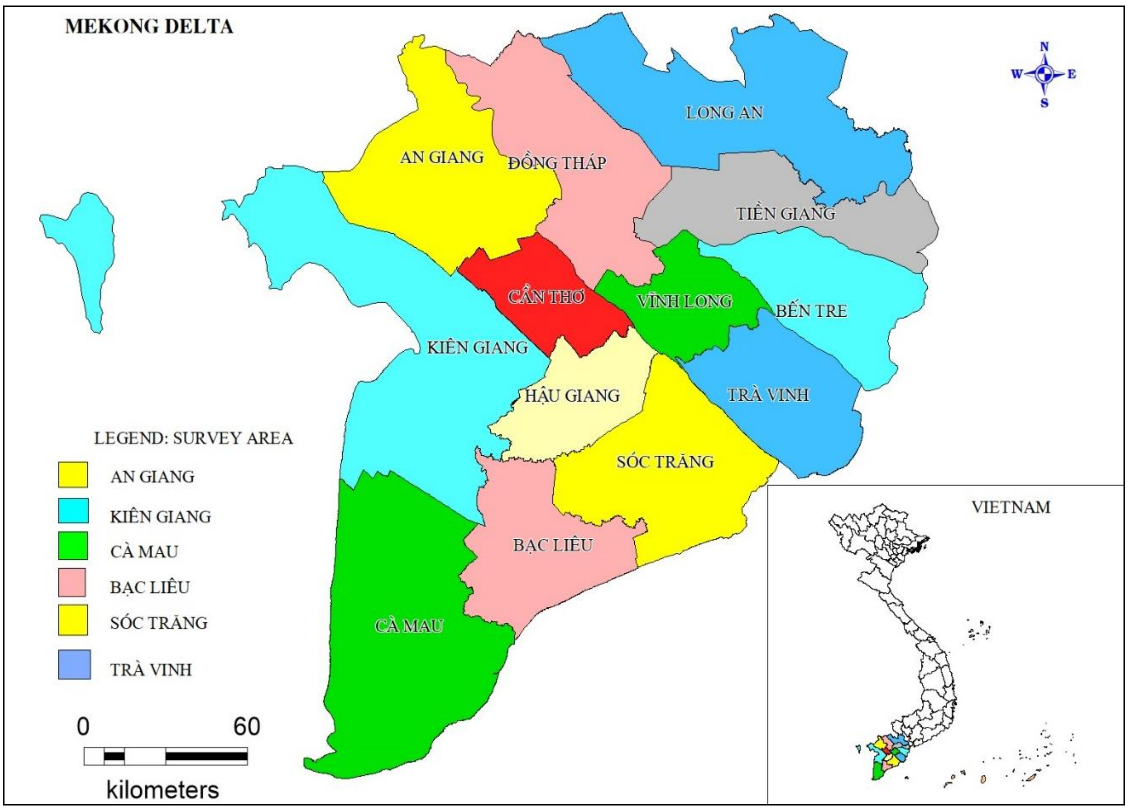


Figure 3. Research survey area in the Mekong Delta, Vietnam (Source: Authors)

The Mekong Delta region is home to many ethnic minority groups, of which the three main ethnic groups are the Khmer, the Chinese, and the Cham. The number and distribution of ethnic minorities in the Mekong Delta according to data from the General Statistics Office of Vietnam, as of 2019. The Khmer group has a population of 1.3 million people, concentrated in the provinces of Tra Vinh, Soc Trang, Kien Giang, An Giang, and some other provinces. They account for about 7% of the population of the entire Mekong Delta. The Chinese group has a population of 230,000 people, mainly distributed in Can Tho, Soc Trang, Bac Lieu, Tra Vinh, and Kien Giang. The Cham group has a population of 17,000 people, mainly distributed in An Giang, especially in Tan Chau and An Phu districts. In addition to the three main ethnic groups above, the Mekong Delta also has the presence of several other ethnic minorities, but in very small numbers and scattered distribution. In total, ethnic minorities in the Mekong Delta account for about 9-10% of the region's population (General Statistics Office, 2019). The Khmer have their own culture, language, and beliefs, which greatly influence the socio-economic development policies in the region. The Cham people live scattered in An Giang and neighboring areas, and their own Islamic culture and customs, influence the formulation and implementation of development policies. The Mekong Delta has a young population, but the proportion of ethnic minorities with access to education and social services is lower than that of the Kinh people, leading to a development gap between population groups.

**Survey sampling**

Based on the theoretical framework and previous studies, a questionnaire was developed on factors affecting the socio-economic development policy of ethnic minorities in rural areas. The survey questionnaire has 47 Likert items, including 6 demographic scales, and 41 scales measuring for eight factors. The survey data collection process took place from April to July 2024. The Likert scale 5-point (range of 1 to 5) was used to measure respondents' perceptions (1: strongly disagree to 5: strongly agree). Respondents answered the questionnaire directly. The questionnaire was distributed to 950 people in the Mekong Delta, Vietnam. A total of 936 valid responses were collected (98.5%), 14 invalid responses were eliminated (1.5%), it is shown in Figure 4, and the study was conducted. The responses from the survey were coded and analyzed using SPSS version 25 and AMOS version 24 software.

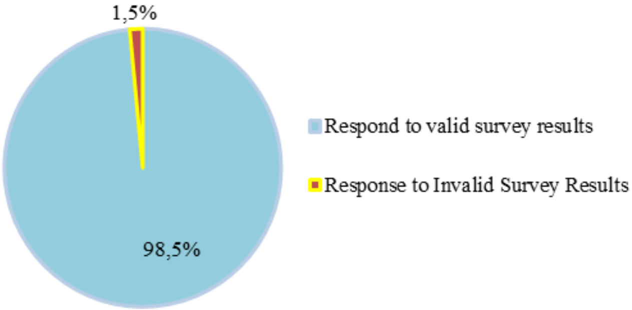


Figure 4. Response results by respondents (Source: Authors)

**Research data analysis**

The collected data were coded and analyzed for the study of factors affecting the socio-economic development policies of ethnic minorities in rural areas. The statistical results describing the demographic characteristics of the survey area are shown in Table 2.

Table 2. Demographic characteristics of the survey sample (Source: Authors' analysis of survey data, 2024, n = 936)

| Demographic characteristics and survey area | Number of survey respondents | Percentage |
|---|---|---|
| 1. Survey area (ĐBSCL) | 936 | 100% |
| An Giang Province | 158 | 16.9 |
| Kien Giang Province | 136 | 14.5 |
| Bac Lieu Province | 133 | 14.2 |
| Ca Mau Province | 180 | 19.2 |
| Soc Trang Province | 163 | 17.4 |
| Tra Vinh Province | 166 | 17.7 |
| 2. The gender | 936 | 100% |
| Female | 456 | 48.7 |
| Male | 480 | 51.3 |
| 3. Occupation | 936 | 100% |
| Government Employee | 66 | 7.1 |
| Company Manager | 97 | 10.4 |
| Starting a Business | 90 | 9.6 |
| Salesperson | 202 | 21.6 |
| Technical Employee | 63 | 6.7 |
| Agricultural Worker | 166 | 17.7 |
| Freelance Worker | 111 | 11.9 |
| Other | 141 | 15.1 |
| 4. Years (Age) | 936 | 100% |
| <30 | 226 | 24.1 |
| 30-40 | 204 | 21.8 |
| 40-50 | 169 | 18.1 |
| >50 | 337 | 36.0 |
| 5. Education | 936 | 100% |
| Master's degree or higher | 61 | 6.5 |
| College or Bachelor's degree | 245 | 26.2 |
| Professional degree holder | 203 | 21.7 |
| Other | 427 | 45.6 |
| 6. Monthly Income (million VND) | 936 | 100% |
| <10 | 185 | 19.8 |
| 10-20 | 245 | 26.2 |
| 20-30 | 169 | 18.1 |
| >30 | 337 | 36.0 |

Cronbach's Alpha reliability test is a test that reflects the close correlation between observed variables in the same factor (Cronbach, 1951). The results of survey data analysis show that all eight scales have high reliability. Cronbach's Alpha coefficient of the scales > (.8) and Corrected Item-Total Correlation > (.3), is shown in Table 3. It shows the appropriateness of the rankings in the research structure. Exploratory factor analysis (EFA) of the structure showed Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .838 (.5 ≤ KMO ≤ 1), and Sig Bartlett's Test of Sphericity = .000 (<.5). The test results show that Total Initial Eigenvalues = 1.217 ( ≥ 1). The Cumulative Extraction Sums of Squared Loadings = 68.274% (≥ 50%); (EFA) analysis shows that the structure of the model is appropriate (Hair et al., 2010). Therefore, all eight factors in the structure are retained in the research model. Table 4. The rotated component matrix shows 41 observed variables, which are classified into eight factors. All observed variables have factor loadings > (.5). Therefore, all eight factors are retained in the research model (Doll et al., 1994). Confirmatory factor analysis (CFA) of the research model is shown in Table 5. The results of reliability and convergence testing of the factors. The test result (CR) > (.7), shows that the reliability of the scale is guaranteed (Nunnally and Bernstein, 1994). Besides, (AVE) > (.5) and (MSV) < (AVE), the square root of AVE (SQRTAVE) > Correlation coefficient between the structures. Therefore, reliability and convergence in the structure are guaranteed in all scales (Baumgartner and Homburg, 1996).

Table 3. Test results of eight scales (Source: SPSS data analysis by authors, 2024, n = 936)

| Factors | Encode | Number of observed variables | Mean | Cronbach's Alpha | Corrected Item-Total Correlation range |
|---|---|---|---|---|---|
| Natural and Geography | NAGE | 5 | 2.930 | .884 | .651 - .826 |
| Economics - Society | ECSO | 5 | 3.394 | .854 | .637 - .705 |
| Culture - Society | CUSO | 5 | 3.677 | .867 | .593 - .831 |
| Policy and Law | POLA | 5 | 3.099 | .958 | .851 - .909 |
| Management and Policy Implementation Capacity | MPIC | 6 | 3.360 | .867 | .563 - .810 |
| Politics and Security | POSE | 6 | 4.020 | .937 | .686 - .899 |
| International cooperation | INCO | 5 | 3.575 | .948 | .713 - .931 |
| Socio-economic development policy for ethnic minorities in rural areas | SEDP | 4 | 3.762 | .933 | .793 - .903 |

Table 4. Rotated component matrix (Source: Authors' analysis of survey data, 2024, n = 936)

| | Factor | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| POSE5 | .948 | | | | | | | |
| POSE6 | .943 | | | | | | | |
| POSE1 | .861 | | | | | | | |
| POSE4 | .837 | | | | | | | |
| POSE2 | .718 | | | | | | | |
| POSE3 | .674 | | | | | | | |
| POLA4 | | .912 | | | | | | |
| POLA1 | | .909 | | | | | | |
| POLA3 | | .886 | | | | | | |
| POLA5 | | .867 | | | | | | |
| POLA2 | | .849 | | | | | | |
| INCO3 | | | .970 | | | | | |
| INCO5 | | | .962 | | | | | |
| INCO4 | | | .961 | | | | | |
| INCO2 | | | .792 | | | | | |
| INCO1 | | | .692 | | | | | |
| NAGE5 | | | | .863 | | | | |
| NAGE3 | | | | .766 | | | | |
| NAGE4 | | | | .736 | | | | |
| NAGE1 | | | | .690 | | | | |
| NAGE2 | | | | .642 | | | | |
| MPIC6 | | | | | .908 | | | |
| MPIC5 | | | | | .780 | | | |
| MPIC4 | | | | | .764 | | | |
| MPIC3 | | | | | .667 | | | |
| MPIC2 | | | | | .633 | | | |
| MPIC1 | | | | | .590 | | | |
| CUSO5 | | | | | | .889 | | |
| CUSO3 | | | | | | .824 | | |
| CUSO2 | | | | | | .649 | | |
| CUSO1 | | | | | | .638 | | |
| CUSO4 | | | | | | .591 | | |
| ECSO5 | | | | | | | .754 | |
| ECSO4 | | | | | | | .745 | |
| ECSO3 | | | | | | | .703 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ECSO2 | | | | | | | | .700 | |
| ECSO1 | | | | | | | | .658 | |
| SEDP2 | | | | | | | | | .790 |
| SEDP4 | | | | | | | | | .717 |
| SEDP1 | | | | | | | | | .676 |
| SEDP3 | | | | | | | | | .573 |

Table 5. The results of reliability and convergence testing of the factors (Source: Survey data analyzed by the authors, 2024, n = 936)

| Factor construct | CR | AVE | MSV | MaxR(H) | LAMA | FABS | COIN | LOGP | EDAT | TINF | LSPR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAMA | .945 | .743 | .091 | .998 | .862 | | | | | | |
| FABS | .953 | .776 | .040 | .997 | -.130*** | .881 | | | | | |
| COIN | .924 | .677 | .086 | .998 | .122** | .083* | .823 | | | | |
| LOGP | .914 | .645 | .278 | .947 | .274*** | -.076* | .118** | .803 | | | |
| EDAT | .900 | .614 | .207 | 1.003 | .210*** | .038 | .142*** | .381*** | .783 | | |
| TINF | .888 | .576 | .153 | .935 | .064† | -.040 | .124** | .264*** | .216*** | .759 | |
| LSPR | .937 | .787 | .278 | .946 | .302*** | .201*** | .293*** | .528*** | .455*** | .391*** | .887 |

**RESULTS AND DISCUSSION OF THE FINDINGS**

The results of the structural test by AMOS of factors affecting socio-economic development policies for ethnic minority areas are shown in Figure 5. The results show that Chi-square/df = 5.221; GFI = .860; CFI = .940; RMSEA = .067; PCLOSE = .000. The analysis results show that the structural model is suitable.

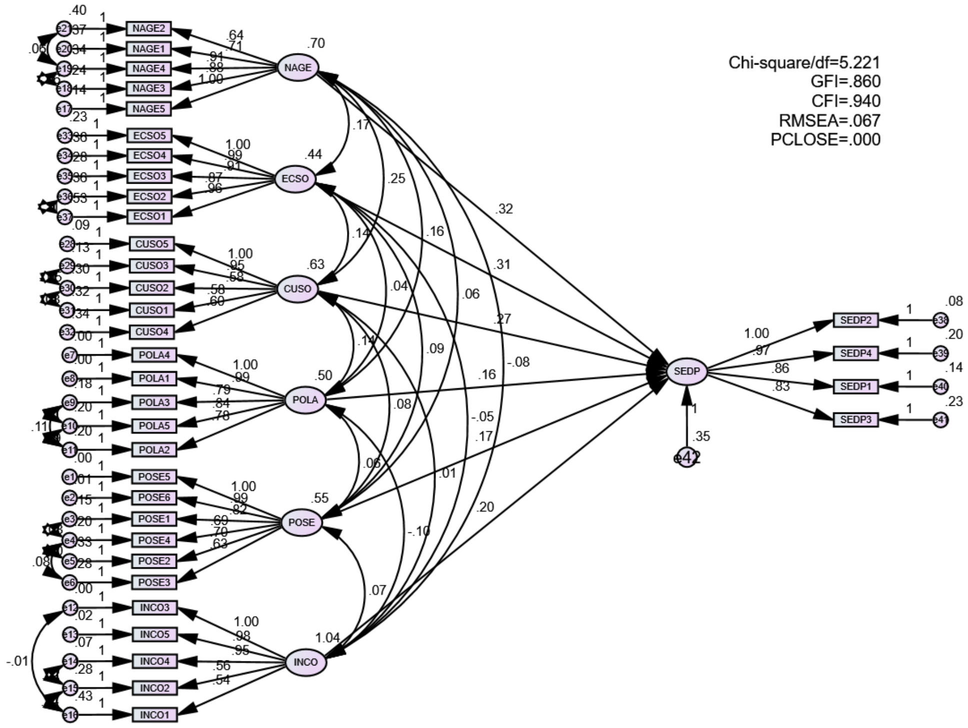


Figure 5. Results of structural test of factors affecting socio-economic development policies for ethnic minority areas
(Source: Analysis of survey data by the authors, 2024, n =936)

The results of the linear regression test of the model of factors affecting socio-economic development policies for ethnic minority areas are shown in Table 6. The analysis data shows that the P-value (Sig) of the NAGE scale = .000 (<.05), ECSO = .000 (<.05), CUSO = .000 (<.05), POLA = .000 (<.05), MPIC = .179 (>.05), POSE = .000 (<.05), INCO = .000 (<.05). The Management and Policy Implementation Capacity (MPIC) factor was eliminated from the research model because it had a P-value (Sig) = .179. Thus, six factors have proven to have an impact relationship between the independent variables and the dependent variable (Hu and Bentler, 1999).

Table 6. Results of testing the relationship between concepts in the research structure
(Source: Analysis of survey data by the authors, 2023, n = 735)

| The relationship direct effects | Estimates | P-value (Sig) | Standardized estimates |
|---|---|---|---|
| SEDP <----- NAGE | .323 | .000 | .318 |
| SEDP <----- ECSO | .299 | .000 | .238 |
| SEDP <----- CUSO | .272 | .000 | .253 |
| SEDP <----- POLA | .155 | .000 | .130 |
| SEDP <----- MPIC | .036 | .179 | .123 |
| SEDP <----- POSE | .176 | .000 | .152 |
| SEDP <----- INCO | .199 | .000 | .238 |

Table 6. Results of testing the relationship between concepts in the research structure, and Figure 6. Results of structural test of factors affecting socio-economic development policies for ethnic minority areas. It shows that there are six factors affecting socio-economic development policies for ethnic minority areas by level, including NAGE = (0.318), ECSO = (0.238), CUSO = (0.253), POLA = (0.130), POSE = (0.152), INCO = (0.238).

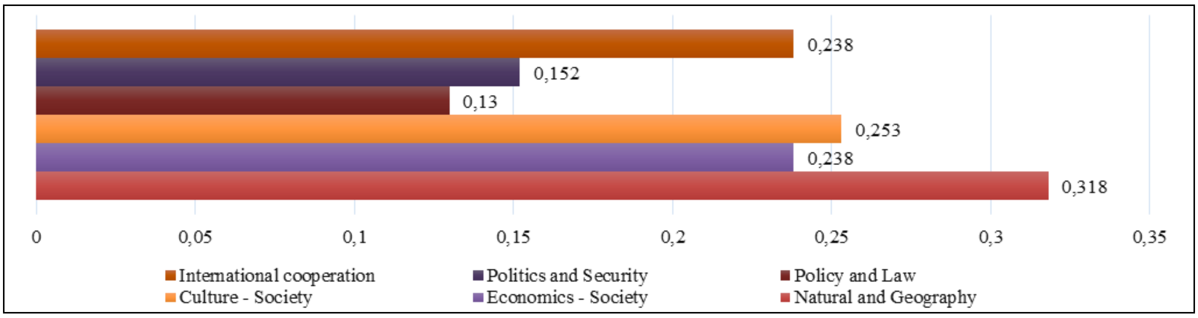


Figure 6. Level of factors affecting socio-economic development policies for ethnic minority areas
(Source: Analysis of survey data by the authors, 2024, n = 936)

**RESULTS AND DISCUSSION OF THE FINDINGS**

The study findings show that there are 6 factors affecting the socioeconomic development policy for ethnic minority areas in rural areas: Nature and geography; Socio-economic; Culture and Society; Policy and law; Politics and security; and International cooperation.Natural and geographical factors affecting socio-economic development policies for ethnic minority areas in rural areas are .318. Ethnic minority areas in rural areas are located in difficult terrain such as mountains, plateaus, or remote areas. These characteristics cause major limitations in terms of poorly developed transport infrastructure, and narrow or insufficient roads, leading to difficulties in transporting goods, and accessing markets and public services (Nyika, 2020). This directly affects the effectiveness of economic development and improving the quality of life. Natural resources such as land, forests, and water resources are important factors in the livelihoods of ethnic minority communities. However, resource exploitation is unsustainable or limited by natural conditions. This requires policies to focus on developing sustainable agricultural models, such as ecological agriculture or planting trees suitable for local soils (Wang et al., 2021). Natural and geographical factors have a direct impact on socio-economic development policies in ethnic minority areas in rural areas. A clear understanding of the terrain, climate, and local resources will help design more effective policies that are suitable to the actual conditions of each region while ensuring long-term sustainability and feasibility (Megoran and Rakhmatullaev, 2022).

The Socio-Economic factor affecting socio-economic development policies for ethnic minorities in rural areas is .238. Socio-economic development policies help reduce poverty rates and improve living standards and incomes for ethnic minorities through supporting livelihoods, creating jobs, and developing sustainable industries. Policies need to ensure that ethnic minorities in rural areas have access to basic services such as health, education, clean water, and transport infrastructure, thereby improving the quality of life and comprehensive human development (Ray, 2000). Promoting sustainable economic development is important for ethnic minorities in rural areas. Policies to support the development of agriculture, forestry, and traditional industries based on natural conditions and characteristics of each region, thereby improving economic efficiency and ensuring food security (Terluin, 2003). Policies to encourage the diversification of economic activities, including community tourism, handicraft production, and services, help ethnic minorities in rural areas reduce their dependence on agriculture and increase their resilience to economic fluctuations.

The socio-cultural factor affecting the socio-economic development policy for ethnic minority areas in rural areas is .253. Preserving and promoting ethnic culture plays an important role in protecting and promoting the traditional cultural values of ethnic minorities, helping to maintain and develop customs, festivals, languages, and ethnic arts. Encouraging cultural exchange is associated with preserving cultural identity in integration with modern society, thereby creating diverse and rich cultural development (Zulu and Richardson, 2013). To improve community capacity and human resources, the government should create educational opportunities, and improve the educational level and skills of ethnic minorities, especially the youth, helping them to participate in the labor market and develop their economy (Hai and Ngan, 2022). Education is an important factor, directly affecting the ability of ethnic minority communities to access development opportunities. In many rural areas, high illiteracy rates and low levels of education make it difficult for people to access the knowledge and skills needed for economic development. Policies need to improve access to education and provide vocational training programs that are appropriate to local conditions (Slater, 2022).

The Policy and Legal factors affecting socio-economic development policies for ethnic minority areas in rural areas are .130. Policy and legal factors act as a legal framework and orientation for development activities, ensuring that development goals can be achieved in a fair, sustainable, and effective manner. The characteristics of ethnic minority areas require development policies to have special support and incentives to overcome socio-economic difficulties (Li and Li, 2022). The government should implement preferential policies on education, exempting tuition fees, building schools, training teachers, and providing scholarships for ethnic minority students as measures to help improve educational levels and develop human resources for these areas. Livelihood and employment support policies: Local authorities should provide agricultural development support programs, vocational training, and job creation for people in ethnic minority areas, helping them escape from dependence on subsistence agriculture and increase their income (Hai et al., 2023).

The Political and security factors affecting socio-economic development policies for ethnic minority areas in rural areas are .152. Political stability is an important foundation for all socio-economic development activities. In ethnic minority areas, with political stability, development policies and programs will be easily implemented and receive support from the people. The State needs to have solutions to minimize social conflicts, improve economic life, and ensure social justice, policies that contribute to minimizing the risks of social conflicts and disagreements in the community, thereby creating a stable and peaceful environment. Ethnic policies of the State and localities have a direct impact on the development of ethnic minority areas (Lukaniszyn-Domaszewska, 2021). Security in ethnic minority areas is often sensitive to issues related to land and cultural conflicts. A good security environment, without conflicts, will encourage investment and promote economic development. Conversely, if there is conflict or security threat, investors and people may hesitate to engage in productive activities, hindering development.

The factor of international cooperation influencing socio-economic development policies for ethnic minority areas in rural areas is .238. International cooperation plays an important role in influencing and supporting socio-economic development policies in ethnic minority areas in rural areas. International cooperation factors not only bring financial resources but also open up opportunities for exchanging knowledge, technology, and management experience (Li et al., 2022). International cooperation is also an opportunity to transfer new technology and knowledge to rural areas and ethnic minorities. Training programs, seminars, and professional exchanges help local people learn advanced production techniques in agriculture, forest product processing, or sustainable green technologies (Jing et al., 2024). This not only increases productivity but also helps protect natural resources and the living environment of the community. International partners can assist in developing sustainable development policy frameworks for ethnic minority areas, including protecting traditional cultures, protecting people's rights, and ensuring their participation in decision-making (Ibragimovna and Isokhjonovna, 2023). They also help monitor and evaluate the effectiveness of development programs, thereby improving policy implementation (Nemes and Tomay, 2022). Partnerships with the United Nations, the World Bank, and international NGOs provide financial and technological resources to help ethnic minority areas in rural areas improve infrastructure such as roads, electricity, water, and schools, reducing poverty. Through international assistance, sustainable agricultural development projects are implemented, including advanced farming techniques, new crop varieties, and smart irrigation systems, helping to increase productivity and income for people. Internationally funded public health and education programs help improve the quality of life and reduce illiteracy and disease (Zhakupov et al., 2023). Overall, international cooperation plays an important role in supporting and promoting socio-economic development policies for ethnic minority areas in rural areas. International resources not only provide financial support but also provide knowledge, experience, and connections to help ethnic minority communities develop more sustainably (Kandpal, 2022).

## CONCLUSION

The research model assumes that the factors affecting the socio-economic development policy for ethnic minority areas in rural areas have been tested on the scales, showing the appropriateness of the factors in the research structure. The research results have verified that the model is appropriate. Of these, six factors show the influence on the socioeconomic development policy for ethnic minority areas in rural areas, including Nature and geography; Economy - society; Culture - society; Policy and law; Politics and security; and International cooperation. The results achieved in the research have satisfied the set objectives. The research results discussed have suggested to help policymakers understand the relationship between factors. Political factors, security, international cooperation, socio-cultural factors, resources, and infrastructure, along with environmental factors have been and are deeply affecting the construction and implementation of socio-economic development policies in ethnic minority areas in rural areas. These factors interact with each other, creating challenges and opportunities for improving people's lives while maintaining sustainable development for the region.

Political stability and security are prerequisites for ensuring a sustainable development environment. International cooperation provides important resources, from finance to knowledge and technology, to help promote the development process. The socio-cultural factor requires respect for the identity and rights of ethnic minority communities in the policy implementation process. Resources and infrastructure need to be allocated and used effectively to ensure that all communities have access to basic services such as education, health, and transportation. Climate change and the environment require adaptation and sustainable development policies to minimize damage and protect the livelihoods of ethnic minority communities. In general, socio-economic development policies for ethnic minority areas in rural areas need to be comprehensive and flexible, combining economic development with cultural and environmental protection, along with close cooperation from relevant parties, both domestic and foreign. Research on socio-economic development policies for ethnic minorities in rural areas has used quantitative analysis methods, but there are still some limitations. The data in the research have not been specified for each ethnic group, reducing the detail and ability to accurately reflect the actual situation of each region. The research has not compared the effectiveness of policies over time or between regions, to highlight fluctuations and development trends in each period. The research sample has not been representative enough of the diversity of ethnic minorities in rural areas. Sampling mainly focuses on certain areas, omitting many areas with different socio-economic characteristics, thereby reducing the generalizability of policy conclusions. In addition, the sample size has not been expanded large enough to reflect the fluctuations in living conditions and development levels among ethnic groups.

**Author Contributions:** Conceptualization, T.P.V., H.N.C., L.V.T.P., L.N.K., and N.N.T.K.; methodology, H.N.C., L.V.T.P., and L.N.K.; software, N.N.T.K., and T.P.V.; validation, T.P.V., and L.V.T.P.; formal analysis, H.N.C., and L.N.K.; investigation, L.N.K., and T.P.V.; data curation, T.P.V., and L.V.T.P.; writing - original draft preparation, L.V.T.P., and H.N.C.; writing - review and editing, T.P.V., H.N.C., L.V.T.P., L.N.K., and N.N.T.K.; visualization, T.P.V.,

and L.V.T.P.; supervision, N.N.T.K.; project administration, T.P.V., H.N.C., L.V.T.P., L.N.K., and N.N.T.K. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 16.09.2024 Revised: 05.11.2024 Accepted: 09.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2114-2122
DOI 10.30892/gtg.574spl25-1378

# EXAMINING THE DEMAND RELATIONSHIPS OF BETWEEN RELIGIOUS TOURISM AND EXAMPLE OF URBAN ATTRACTIONS IN THE GYŐR-PANNONHALMA TOURIST AREA

**Ferenc DARABOS**
Széchenyi István University, Tourism and Hospitality, Kautz Gyula Faculty of Business and Economics, Győr, Hungary, e-mail: darabos.ferenc@sze.hu

**Csaba KŐMÍVES***
Széchenyi István University, Tourism and Hospitality, Kautz Gyula Faculty of Business and Economics, Győr, Hungary, e-mail: komives.csaba@sze.hu

**Kevser ÇINAR**
Necmettin Erbakan University, Tourism Management, Konya, Turkey, e-mail: k.cinar22@gmail.com

**Anne-Marie LEBRUN**
Université de Bourgogne, Faculté des Sciences du Sport, Dijon, France, e-mail: anne-marie.lebrun@u-bourgogne.fr

**Citation:** Darabos, F., Kőmíves, C., Çinar, K., & Lebrun, A.M. (2024). EXAMINING THE DEMAND RELATIONSHIPS OF BETWEEN RELIGIOUS TOURISM AND EXAMPLE OF URBAN ATTRACTIONS IN THE GYŐR-PANNONHALMA TOURIST AREA. *Geojournal of Tourism and Geosites*, 57(4spl), 2114–2122. https://doi.org/10.30892/gtg.574spl25-1378

**Abstract:** This study examines the sacred places of Győr-Moson-Sopron County (Western Hungary), focusing on people's attitudes towards them. Pannonhalma is part of the world heritage, the Győr Cathedral, and the five church festivals (Roman Catholic, Jewish, Reformed, Lutheran, Greek Oriental) held in the city are important places of worship. The aim of the study was to analyse the scope of religious tourism in the World Heritage Site and to examine the demographics of the demand for urban religious centres. Primary research was conducted with a quantitative (questionnaire) survey between 10th September 2023 and 30th October 2023. The sample of 666 persons is not representative, respondents were chosen with arbitrary sampling. Data were processed using the SPSS 23 statistical program package which contains cross-table analysis, in addition to the descriptive statistical analyses. The most important finding of the study is that travel propensity is determined by the importance and familiarity of urban landmarks, and significance can be found here. Respondents' age, educational attainment and gender also show significant differences in terms of the attractiveness of visiting attractions (distance from their residence). The research investigated the demand for Roman Catholic, Jewish, Reformed, Evangelical and Greek Orthodox religious attractions in Győr and the Pannonhalma Benedictine Abbey, a World Heritage Site, according to local specificity. There is significant evidence of a regional pull effect of the World Heritage status of the built heritage site. The city churches and their associated events are most popular with the elderly, women and those with higher education.

**Keywords:** church, Hungarian, religion, touristic attractions, world heritage

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## INTRODUCTION

Religion, based on the belief in one or more supernatural beings, has always played an important role in people's lives. They can call them God, Allah, or Buddha, they pray to them (people of faith) when they are in trouble, they ask them for help, among other things, so that they have a bountiful harvest and get to heaven after their earthly life. Historic and cultural built heritage is an important attraction for cities, generating profits and having a significant impact on their economic development. The cultural tourism system is based on familiarising tourists with the history, culture, customs, cultural and religious richness of the destination. Of the six main types of historical and cultural resources, the 4th is religious resources: interest in religion, visits to cultic buildings, pilgrimage sites, and knowledge of religious customs, traditions, rituals, and ceremonies (Ismagilova et al., 2015). However, sacred objects are especially revered objects, natural and cultural heritage, secular and cultural architecture, mausoleums, and places associated with historical and political events that have lasting value in the memory of the people of Kazakhstan and act as a symbol of national unity and revival (Uaisova et al., 2024). In addition to its positive economic impact, religious tourism can also contribute to the promotion of a destination (Sánchez et al., 2017, Kouchi et al., 2018). In our research, we investigate the motivations related to religious memories in an urban approach in a Hungarian county. In Tsai's (2021) research, religious tourism is presented as an important part of the history of tourism development, based on different demand motives. Rinschede (1992) also points out that religious destinations are the oldest attractions in the world. One of the main subjects of our study is the monastery of St Benedict in Pannonhalma, founded in 996. The building itself has been a historic bastion of Christianity for 1028 years.

The other city landmark, the Romanesque apse of the Cathedral of the Blessed Virgin Mary in Győr, dates back to the 11th century. A special concentration is represented by the fusion of Roman Catholic, Jewish, Reformed, Evangelical, and Greek-

* Corresponding author

Eastern religious centers in Győr. National governments have a huge role in legislation through their regulations setting the framework conditions. Tourism professionals also have a role to play in contributing to the cultural and spiritual enrichment of tourists and in providing the conditions for them to practice their religion while travelling (Kundi, 2023). In our research, we wanted to find out how tourists' demand shows significant correlations with their visits to religious attractions and events in the city. There is significant evidence of a regional pull effect of the World Heritage status of the built heritage site. The city churches and their associated events are most popular with the elderly, women and those with higher education.

## LITERATURE REVIEW

The oldest type of tourism according to the motivations of travellers (recreational, cultural, social, sport, economic, political) is religious tourism (Rinschede, 1992). According to Raj et al. (2015), religious tourism is based on spiritual location and related services that tourists visit for both secular and religious reasons. Particularly important in this respect are the urban churches studied and the Benedictine Abbey of Pannonhalma. Examples of religious travel and tourism include pilgrimages, retreats, conferences, seminars and festivals (Stausberg, 2012). In the case of Győr, the 5 churches and the cultural program organised around the four religions attract religious tourism. Most of the previous studies on religious tourism by Olsen (2010) have focused on monotheistic societies. The present research follows this line of research, based on the examples above. For some visitors, the site serves as a religious pilgrimage (cultural or nostalgic), while for others it is simply tourism (adventurous or cultural) (Ebadi, 2014). Every religious tourist wants to have an experience that is linked to a visit to a religious site. The experience may be related to gaining spiritual benefits, learning something, or fulfilling an obligation (Packer, 2008; Bond et al., 2015; Chang et al., 2020). Mazumdar and Mazumdar (1993) found a strong link between religion and place attachment. They argue that place can be part of religion, but religion helps to create attachment to place. The religious monuments of the Hungarian cities studied, Győr and Pannonhalma, reinforce the patriotism of the local population. Some authors emphasise the role of volunteering in improving the quality of life in local communities, through fraternity and empathy (Kabil al., 2023).

Religious tourists are motivated in two ways. The push motivation refers to the intrinsic forces within the traveller that motivate him to travel; the pull factors refer to the characteristics of the destination that attract the traveller (Crompton, 1979). Travel motivations become directly influenced by believers' intimate and emergent performances not only of places but also of religion itself; the meaning of places being based on lived experiences of doing religion and interacting with the sacred, as exemplified in vows and visions (Terziodu et al., 2018). The latter category includes media elements that communicate religious tourism (Dann, 1977). With this in mind, we have examined the role of external attractiveness in the visitation of religious centers. We believe that we need to distinguish between religious tourists and tourists visiting religious sites. According to Hyde and Harman (2011), religious tourists see their trip to a sacred place as an extension of their religious self. Our findings are supported by research by several authors. With the development of modern tourism, the group of visitors motivated by religious sites has expanded to include tourists driven by more secular motivations, including cultural, educational and recreational interests (Amaro et al., 2018; Liro, 2020, Wang et al., 2020; Tsai, 2021). The development process is generating more and more visitors, so our research focuses on visitors' motivations for sustainable development. This finding is supported by the research findings of several authors. As a result of this growing interest, many churches have lost their essence and original mission, which would have been their main attraction (Mansfield, 2008, Rishi et al., 2010). Other researchers point to additional sustainability concerns; overcrowding is thus an obvious problem in the management of religious sites (Shackley, 2006; Woodward, 2004). Iliev's (2020) research confirms that religious tourism is undergoing a transformation and that new concepts and identities have contributed to the renewal of religious tourism. Religious tourism refers to travel undertaken with the primary aim of visiting sacred or spiritual destinations, participating in religious activities, or seeking deeper spiritual experiences (Kim et al., 2019). Other authors have used qualitative research to analyse how to increase resilience in religious tourism building in South Africa after COVID-19 (Mzobe and Nyikana, 2024).

## MATERIALS AND METHODS

Data for this survey was collected between 10 September 2023 and 30 October 2023. A mixed methodology survey was used and the electronic questionnaire (Google form) was shared on social media platforms. Paper questionnaires were produced, but people preferred the electronic form. The study examines the sacred sites of Győr-Moson-Sopron County (West Hungary), with a special focus on people's attitudes towards them. Pannonhalma as a World Heritage Site, the Győr Cathedral, and the churches of the five feasts (Roman Catholic, Jewish, Reformed, Evangelical, Greek Orthodox) are important places of worship. The chosen research approach consisted of a survey in which participants were recruited by random selection. In addition to collecting demographic and educational data, the survey focused on 4 key areas. The questionnaire consisted of 28 scaled questions (7 questions were demographic (age, gender, education, place of residence), 20 questions were 4-point Likert scale, 10 questions were 5-point Likert scale, where 1 means strongly disagree and 5 strongly agree), 7 questions were 4-point Likert scales, where 1 meant I would not visit at all 4 I would always visit if I could, and 4 were open-ended questions, such as which cultural or natural heritage site is most important to you. The Likert scale output (7 points) was used because it gave more sophisticated results. The methods used in this study are appropriate and reliable for answering the research questions, since in a cross tabulation analysis you can examine the relationship between two or more variables, ordinary or nominal. The most commonly used method is the Pearson x2 Chi-square statistic, which measures the significance level of two variables; and whether there is a statistical relationship between the two variables. The Chi-square is sensitive to the number of items as there is a linear relationship between the two, i.e. the result may be biased if the number of items is small as it does not indicate a relationship between variables, but may show a significant result as the number of items increases. In the case of nominal scales, the strength of the correlation can be assessed using, for example, Cramer-V or Lambda indices, while for ordinal scales Kendall tau-b/c or Gamma can be used (Sajtos and Mitev, 2007). The study analysed a number of dependent variables (age group, gender, education), such as whether there is a detectable difference between religious events in towns and villages and whether age and education affect participation in religious events. Analysis of Variance (ANalysis Of Variance=ANOVA) is an explanatory model, a method of analysis that examines the effect of one or more independent variables on one or more dependent variables (Sajtos and Mitev, 2007). The data were processed using the IBM SPSS 25.0 statistical software package, with descriptive statistical analysis, number/percentage analysis. The study seeks answers to the questions of whether there is a difference in the demographic factors (gender, age group, education level) of the respondents in terms of their participation in church events. The following hypotheses were formulated:

**H1:** There is no significant difference between participants' willingness to travel (from their place of residence) and their visit to Pannonhalma Abbey

**H2:** Middle-aged people are most interested in the five church festivals in Győr

**H3:** No significant difference between women and men in participation in the five church festivals in Győr

**H4:** No significant difference between respondents' educational attainment and participation in the five church festivals in Győr

**H5:** Religious attractions are more popular with older people in Csorna

The data were processed using the IBM SPSS 25.0 statistical software package, in which descriptive statistical analysis and frequency/distribution/mode analysis were performed. As shown in the flowchart in Figure 1 below, the research was structured as follows: the outline of the topic was followed by a literature review, in which a literature review and analysis of previous research was carried out to define the research area and context. Practical background: here the practical aspects of the research are discussed, followed by a resources section which sets out the key research questions that need to be answered. This is followed by a presentation of the aims of the research, which defines the direction and scope of the research to be carried out, on which the hypotheses can be built: here the assumptions or predictions that can be made on the basis of the research and which can be tested later are formulated.

The methodology section describes the research design and methods used, including the type of questionnaire used. This is followed by an analysis of the data collected and a presentation of the results. At the end of the research, a summary of the results and conclusions is presented, demonstrating the contribution of the research to the topic. Table 1 shows that of the 8 dependent variables, the World Heritage site (Pannonhalma) has the highest mean of 3.13, i.e. respondents would visit this religious site the most. The lowest mean is related to the search for Jesus on Kunsziget (2.00), meaning that people would least visit this as a possible alternative. The peak value is negative for all metric variables, which means that the distribution is flatter than normal. The most frequent value is 3, which means that people who fill in the questionnaire visit the websites once. The only exception is the search for Jesus on Kunsziget, where the most common value is 1, meaning that respondents would not visit it at all. The process of secondary and primary research is illustrated in Figure 1. The table shows that of the 8 dependent variables, the World Heritage site (Pannonhalma) has the highest mean of 3.13, meaning that respondents would visit this religious site the most. The lowest mean is the search for Jesus on the Isle of Man (2.00), meaning that people would visit this only as a possible alternative. Peakedness is negative for all metric variables, meaning that the distribution is flatter than normal. The most frequently occurring value is 3, meaning that people who filled in the questionnaire would visit the sites once. The one exception is the search for Jesus on Kunsziget, where the most frequent value is 1, meaning that respondents would not visit this place at all. The reliability (freedom from random error) and internal consistency of the questionnaire were tested using the Cronbach's alpha index shown in Table 2 and Table 3. This procedure measures all the possible combinations of all the questions in the questionnaire, with values between 0 and 1. The closer they are to 1, the more reliable they are. If the value of the indicator is between 0.9 and 1, it is considered excellent, between 0.8 and 0.9 good, between 0.7 and 0.8 acceptable, between 0.6 and 0.7 questionable, between 0.5 and 0.6 poor, below 0.5 unacceptable (Sajtos and Mitev, 2017).

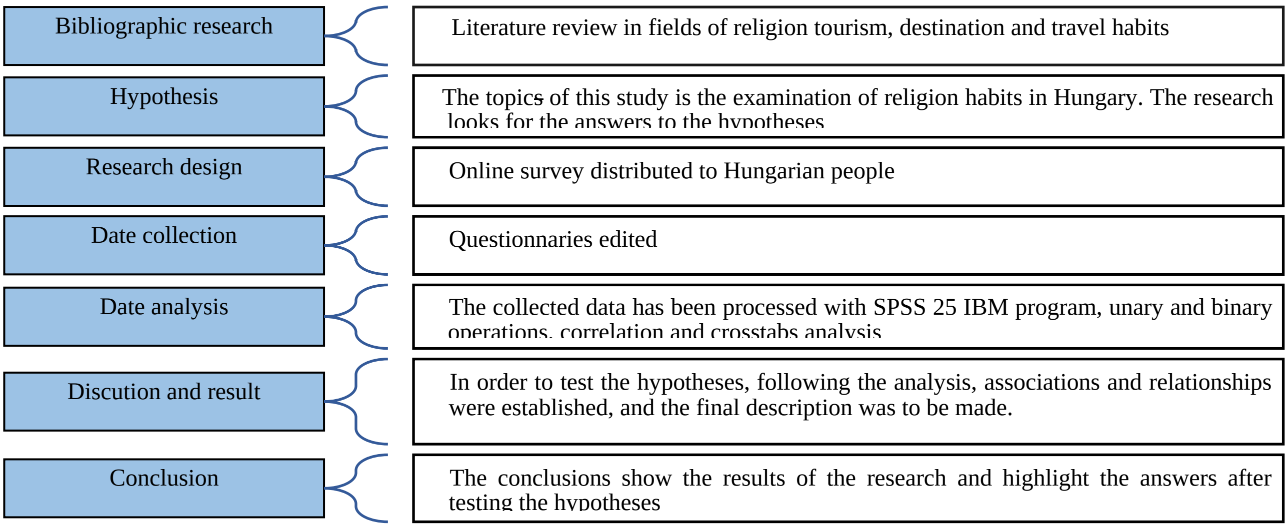


Figure 1. Flow chart of the paper (Source: authors' own editing 2024)

Table 1. Descriptive statistics (Source: SPSS analysis results of the research team 2024)

| | | Variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Visiting the Five Temples festival in Győr | Visiting Kunsziget. Search for Jesus | Visiting the cathedral at Győr | Visiting Carmelita curch at Győr | Visiting Benedictine Abbey at Pannonhalma | Visiting Premonstratensian Abbey at Csorna | Visiting the Roman Catholic Parish Church of Szany | Visiting the holy cross (Italian) chapel "Szent Kereszt" in Mosonmagyaróvár |
| N | Valid | 666 | 666 | 666 | 666 | 666 | 666 | 666 | 666 |
| | Missing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mean | | 2.41 | **2.00** | 2.49 | 2.44 | **3.13** | 2.44 | 2.20 | 2.29 |
| Median | | 3.00 | 2.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 | 2.00 |
| Mode | | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 |
| Std. Deviation | | .897 | .918 | .925 | .909 | .809 | .860 | .886 | .894 |
| Variance | | .804 | .844 | .855 | .827 | .654 | .740 | .785 | .800 |
| Skewness | | -.152 | .341 | -.181 | -.184 | -.881 | -.263 | -.008 | -.065 |
| Std. Error of Skewness | | .095 | .095 | .095 | .095 | .095 | .095 | .095 | .095 |
| Kurtosis | | -.850 | -1.057 | -.849 | -.858 | .564 | -.725 | -1.075 | -.967 |
| Std. Error of Kurtosis | | .189 | .189 | .189 | .189 | .189 | .189 | .189 | .189 |
| Range | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

Table 2. Reliability Statistics (Source: SPSS analysis results of the research team 2024)

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .892 | .890 | 7 |

Table 3. Item-Total Statistics (Source: SPSS analysis results of the research team 2024)

| | Cronbach's Alpha if Item Deleted |
|---|---|
| To visit Benedictine Abbey at Pannonhalma | .904 |
| To visit Kunsziget. Search for Jesus | .881 |
| To visit Premonstratensian Abbey in Csorna | .876 |
| To visit the Five Temples festival in Győr | .875 |
| To visit the holy cross (Italian) chapel "Szent Kereszt" in Mosonmagyaróvár | .870 |
| To visit the cathedral in Győr | .864 |
| To visit Carmelita church in Győr | .862 |

Table 4. Descriptive (Source: SPSS analysis results of the research team 2024)

| | | N | Mean | Std. Deviation | Std. Error | 95% confidence interval for mean | | Minimum | Maximum | Between-Component Variance |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | | |
| Under 20 km | | | | | | 2.47 | 2.79 | | | |
| Between 21-50 km | | 288 | 2.77 | .983 | .058 | 2.65 | 2.88 | 1 | 4 | |
| Over 50 km | | 211 | 2.79 | 1.007 | .069 | 2.65 | 2.93 | 1 | 4 | |
| Total | | 662 | 2.74 | 1.000 | .039 | 2.67 | 2.82 | 1 | 4 | |
| Model | Fixed Effects | | | .999 | .039 | 2.67 | 2.82 | | | |
| | Random Effects | | | | .045 | 2.55 | 2.94 | | | .002 |

## RESULTS

In their research, Carvache-Franco et al. (2024) segmented people's motivations and goals for religious events. Based on this, the study analysed the demographic data of respondents such as gender, age and education level.

**H1:** There is no significant difference between participants' willingness to travel (from their place of residence) and visit Pannonhalma Abbey. This hypothesis will be analyzed by cross-tabulation analysis. The chi-squared test is 0.011 (Table 5), which is below the 5% allowed. H1 is rejected with 95% confidence that there is a demonstrable difference between a visit to the UNESCO World Heritage Site of Pannonhalma Benedictine Abbey and the willingness to travel of participants. It is clear from the table that people are willing to travel up to 50 km to visit Pannonhalma Abbey (Table 4 and Figure 2).

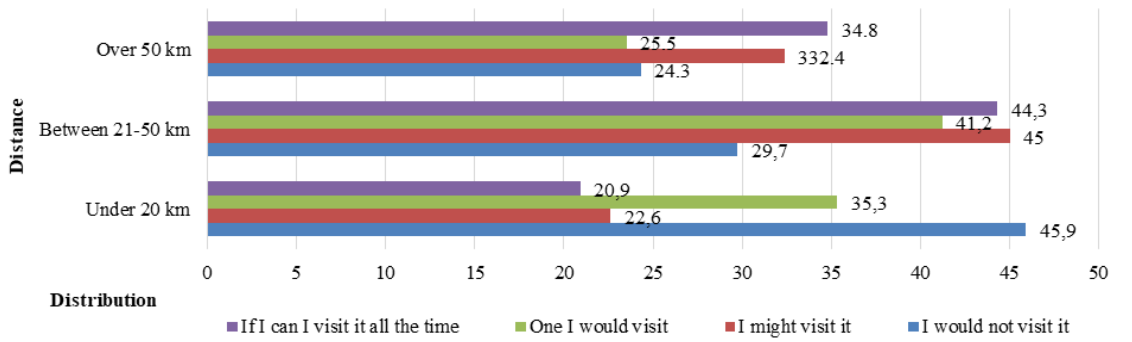


Figure 2. Testing of the propensity to travel to the Benedictine Abbey at Pannonhalma (%) N = 662 (SPSS analysis results of the research team 2024)

Table 5. Chi-Square Tests regarding respondents' willingness to travel (Source: SPSS analysis results of the research team 2024)

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 16.503[a] | 6 | .011 |
| Likelihood Ratio | 15.206 | 6 | .019 |
| Linear-by-Linear Association | 2.177 | 1 | .140 |
| N of Valid Cases | 662 | | |
| a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 9.11. | | | |

Table 6. Test results for the hypothesis regarding visiting the five Temples festival at Győr (Source: SPSS analysis results of the research team 2024)

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum | Between-Component Variance |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | | |
| Youngsters between 16-39 years | | 491 | 2.31 | .891 | .040 | 2.23 | 2.39 | 1 | 4 | |
| Middle-aged (between 40-59 years) | | 153 | 2.63 | .834 | .067 | 2.49 | 2.76 | 1 | 4 | |
| Elderly (over 60 years) | | 22 | 3.05 | .950 | .203 | 2.62 | 3.47 | 1 | 4 | |
| Total | | 666 | 2.41 | .897 | .035 | 2.34 | 2.48 | 1 | 4 | |
| Model | Fixed Effects | | | .880 | .034 | 2.34 | 2.47 | | | |
| | Random Effects | | | | .211 | 1.50 | 3.32 | | | .073 |

Table 7. Significance of the ANOVA analysis of the results for the hypothesis regarding visiting the five Temples festival at Győr (Source: SPSS analysis results of the research team 2024)

| To visit the Five Temples festival at Győr | | | | | |
|---|---|---|---|---|---|
| | Sum of Squares | df | Mean Square | F | **Sig.** |
| Between Groups | 21.064 | 2 | 10.532 | 13.594 | **.000** |
| Within Groups | 513.664 | 663 | .775 | | |
| Total | 534.728 | 665 | | | |

Table 8. Chi-Square Tests regarding gender and participation in the five Temples festival at Győr (Source: SPSS analysis results of the research team 2024)

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 18.652[a] | 3 | .000 |
| Likelihood Ratio | 18.637 | 3 | .000 |
| Linear-by-Linear Association | 2.854 | 1 | .091 |
| N of Valid Cases | 666 | | |
| a. 0 cells (0.0%) have an expected count less than 5. The minimum expected count is 20.11. | | | |

**H2:** Middle-aged people are mostly more interested in the five church festivals at Győr

This hypothesis was tested by ANOVA test. The significance level can be read from the ANOVA table .000 (Table 7). The older age group has the highest average (3.05), followed by the middle age group (average 2.63), and then the younger age group with an average of 2.31 (Table 6). Therefore, this hypothesis can be rejected, and it can be concluded that older people are the most interested in this event.

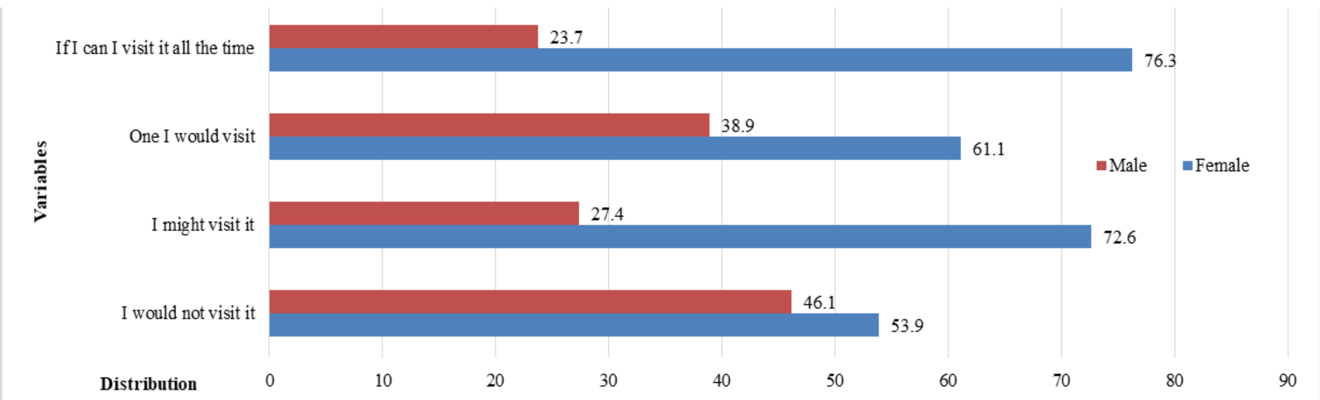


Figure 3. Analysis of the role of gender regarding the willingness to visit the five church festivals at Győr (%). N= 666 (Source: SPSS analysis results of the research team 2024)

**H3:** There is no significant difference between women and men in their participation in the five church festivals at Győr

The hypothesis was also cross-tabulated. The significance level of the Chi-square is 0.000, as shown in Table 8. Figure 3 shows the frequency of attendance at five church festivals by women and men. Hypothesis H3, that there is no detectable gender difference in participation in the five church festivals, can be rejected. The average for women is higher than for men, the former 2.32 and the latter 2.20 (Table 9).

Table 9. Response to the question: did you visit the five Temples festival at Győr (Source: SPSS analysis results of the research team 2024)

| I visited five Temples festival at Győr | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum | Between-Component Variance |
| | | | | | | Lower Bound | Upper Bound | | | |
| Female | | 439 | 2.32 | .860 | .041 | 2.24 | 2.40 | 1 | 4 | |
| Male | | 227 | 2.20 | .899 | .060 | 2.09 | 2.32 | 1 | 4 | |
| Total | | 666 | 2.28 | .875 | .034 | 2.22 | 2.35 | 1 | 4 | |
| Model | Fixed Effects | | | .874 | .034 | 2.22 | 2.35 | | | |
| | Random Effects | | | | .061 | 1.50 | 3.06 | | | .005 |

**H4:** There is no significant difference between respondents' educational attainment and participation in the five church festivals at Győr.

This hypothesis was also analyzed using ANOVA. The result is significant, i.e. there is a detectable difference between the attitudes of people with different levels of education. The average of those with tertiary education is the highest (2.69), followed by those with secondary education (average 2.38) and the lowest for those with primary education (2.15), which means that they prefer not to participate in this religious event (Table 10). Since ANOVA is significant, i.e. H0 can be rejected.

Table 10. Results of the investigation whether education plays a role in the willingness to visit the five-temples festival at Győr (Source: SPSS analysis results of the research team 2024)

| To visit the Five Temples festival at Győr | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum | Between-Component Variance |
| | | | | | | Lower Bound | Upper Bound | | | |
| Higher education | | 143 | 2.69 | .875 | .073 | 2.54 | 2.83 | 1 | 4 | |
| Secondary | | 410 | 2.38 | .885 | .044 | 2.29 | 2.47 | 1 | 4 | |
| Primer | | 113 | 2.15 | .879 | .083 | 1.99 | 2.31 | 1 | 4 | |
| Total | | 666 | 2.41 | .897 | .035 | 2.34 | 2.48 | 1 | 4 | |
| Model | Fixed Effects | | | .882 | .034 | 2.34 | 2.47 | | | |
| | Random Effects | | | | .151 | 1.76 | 3.06 | | | .047 |

Table 11. Results of the ANOVA analysis regarding the relationship between age and willingness to visit the five temples festival in Győr would be visited (Source: SPSS analysis results of the research team 2024)

| To visit the Five Temples festival at Győr | | | | | |
|---|---|---|---|---|---|
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 18.803 | 2 | 9.401 | 12.081 | .000 |
| Within Groups | 515.926 | 663 | .778 | | |
| Total | 534.728 | 665 | | | |

**H5:** In the city of Csorna religious attractions are more popular among older people

The hypothesis was tested using a cross-tabulation. According to the data in Table 12, the probability associated with the Chi-square 24.104 p=0.000 (the significance level is .000). The H5 hypothesis that age groups have different perceptions of religious events in the city can be accepted. The mean for those over 40 years of age is 2.63, while the mean for those not young is 2.38 (Table 13). The age of the group and their willingness to visit the Premonstratensian Abbey of Csorna is illustrated in Figure 4.

Table 12. Chi-Square Tests regarding the influence of age on the popularity of the city of Csorna as a religious attraction (Source: SPSS analysis results of the research team 2024)

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 24.104[a] | 3 | .000 |
| Likelihood Ratio | 25.742 | 3 | .000 |
| Linear-by-Linear Association | 10.725 | 1 | .001 |
| N of Valid Cases | 661 | | |
| a. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 13.19. | | | |

Table13. Results of the age-related question about having visited the Premonstratensian Abbey at Csorna (Source: SPSS analysis results of the research team 2024)

| visited Premonstratensian Abbey at Csorna | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum | Between- Component Variance |
| | | | | | | Lower Bound | Upper Bound | | | |
| Not youngsters | | 490 | 2.38 | .899 | .041 | 2.30 | 2.46 | 1 | 4 | |
| Over 40 years | | 171 | 2.63 | .702 | .054 | 2.53 | 2.74 | 1 | 4 | |
| Total | | 661 | 2.45 | .859 | .033 | 2.38 | 2.51 | 1 | 4 | |
| Model | Fixed Effects | | | .853 | .033 | 2.38 | 2.51 | | | |
| | Random Effects | | | | .136 | .71 | 4.18 | | | .028 |

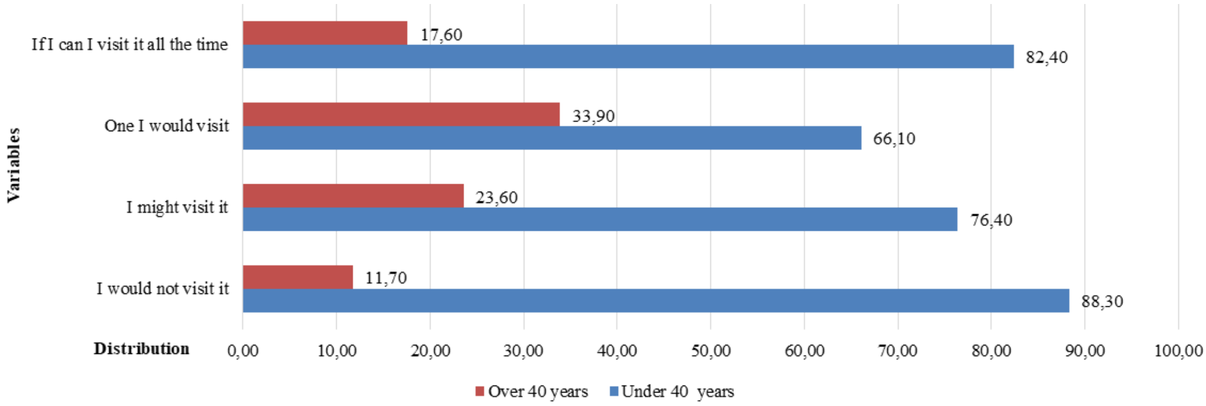


Figure 4. Analysis of the group ages and their willingness to visit the Premonstratensian Abbey at Csorna (%). N = 661(Source: authors' own editing 2024)


Figure 5. Investigating the "Golden Triangle" (Source: authors' editing 2024 based on https://www.google.com/maps/@47.6695171,17.5762849,12z?entry=ttu&g_ep=EgoyMDI0MTAwMi4xIKXMDSoASAFQAw%3D%3D)

Due to its location, Győr plays an important role in the tourism of the macro-region, being halfway between Vienna and Budapest, 80 km from Bratislava, and 22 km from Pannonhalma, as shown in Figure 5. The natural, cultural, and architectural attractions of the area mean that accessibility, infrastructure, and superstructure development, combined with regional cooperation, can create the conditions for growth in the region. Some authors have explored the different dimensions of the visitor experience in tourist destinations. Their research has focused on aesthetics, social effects, cognitive experience, introspective experience, hedonic effects, spiritual experience, transformative experience, relational experience and educational experience (Doering, 1999; Masberg and Silverman, 1996; Packer and Ballantyne, 2016).

Doering (1999) examined museums, social, material and cognitive introspective experiences. She did not address the role of churches as built heritage. Masberg and Siverman (1996) analyzed the perspectives of college students' visitors to the heritage sites they visited but did not discuss demographics or gender. In their research, Amaro et al. (2018) examined the role of gender and found that women are more motivated than men in terms of spiritual aspects and experiences. Their findings on the educational attainment of pilgrims, that participation is not related to qualifications, were not supported. The intention to visit urban attractions depends on the level of education. Sacerdote and Glaeser, 2001; Voas and Mcandrew, 2012 showed that more educated people are less religious. Their research, however, involved a pilgrimage to several sites at once.

Our study supports the findings of previous research; Gill et al (2019); Pande and Fangfang (2023). The physical environment is a major motivating factor for religious tourists. Pande and Fangfang (2023) investigated tourists' experiences at religious heritage sites related to Hinduism and Buddhism. In our research, we investigated the demand conditions for Roman Catholic, Jewish, Reformed, Evangelical, and Greek-Eastern religious attractions in Győr, according to the local specificity. Carvache-Franco et al., 2024 found that women were the most likely to participate in religious events. In terms of age groups, it was also found that passive religious tourists are over 40 years old and frequently attend religious events. We disagree with the findings of Hassan et al., 2022, who find that religious events are more likely to be attended by middle-aged men. An examination of the role of religious buildings and the distance to be covered in our study could be a missing element.

## CONCLUSION

The results of the study show that demographics only show significant gender differences at urban religious events, with women averaging higher than men in all aspects. This supported the previous findings of Amaro et al. (2018). There is a significant difference between people living in cities and villages regarding religious events in the city (Győr and Pannonhalma), with city dwellers more likely to visit the cathedral in Győr and the Benedictine Abbey in Pannonhalma than people living in villages. In age groups, only Győr Cathedral visits differ significantly, with the highest average for the elderly (3.05), the middle-aged (2.77) and the young (2.38). The research focused on urban churches as built landmarks and examined the demographic and visitor context from an architectural and religious perspective. Respondents would travel longer distances, up to 50 km, to visit major attractions such as the Benedictine Abbey of Pannonhalma. This finding confirms the difference in attractiveness and visitation of World Heritage sites as religious attractions compared to other urban religious attractions. At the same time, other urban religious sites in the region are well connected to the Pannonhalma centre through their content and proximity.

The age-specific correlation with religious events was tested at the Győr Festival of the Five Churches. This event will offer 5 denominations of religiously oriented recreation in one place. At this point, a significant correlation can be found between people's older age and their willingness to participate in the event. The Premonstratensian Abbey of Csorna, a small urban religious attraction, and Győr's largest cathedral are also of most interest to the older age group. This significant correlation is also found between the increase in educational attainment and the willingness to participate in 5 church festivals. However, in order to preserve the traditional values of religious diversity, while maintaining the interest of the older population, efforts should be made to gradually sensitise younger age groups to the attractions.

The aforementioned festival is also considered more attractive to women and highly qualified people, which should be taken into account in marketing communications. At this point, it is worth mentioning the correlation between pilgrimages and education (Amaro et al., 2018), which shows that participation is completely independent of education. Sacerdote and Glaeser, 2001; Voas and Mcandrew, 2012 also highlighted that the role of higher education is not important for pilgrimage participation. However, as exclusivity increases - Roman Catholic, Jewish, Reformed, Evangelical, Greek Eastern religious attractions all in one place at one event - the role of education will become more important in the context of increased participation. The research provides new findings on broadening the marketing of centres with World Heritage and religious functions. In the positioning of religious tourism, the offer of major churches in the vicinity of World Heritage Centres can be included in the marketing, in particular with regard to their exclusive programmes and their specific territorial concentration. The research does not include factor and cluster analysis due to the small number of dependent variables.

**Limitations**

A limitation of the research was that it did not include an international comparative questionnaire survey and specificities of pilgrimage tourism. Although data collection encompassed the entirety of Hungary, the scope of this study was restricted to participants residing within Győr-Moson-Sopron County. Consequently, due to the lack of sample representativeness, certain pertinent stakeholders may not have been included in the data collection process. Another limitation of the research is the sample size of respondents. The next step of the research will be to assess the attitude of religious tourists towards other artefacts, frescoes, sculptures, cultural content, in addition to architectural objects, and the possibilities of clustering.

**Author Contributions:** Conceptualization, F.D. and CS.K.; methodology, K.Ç. and A.M.L.; software, CS.K.; validation, CS.K. and K.Ç.; formal analysis, F.D. and A.M.L.; investigation, CS.K., and F.D.; data curation, A.M.L., CS.K., K.Ç. and A.M.L.; writing - original draft preparation, F.D. and CS.K.; writing - review and editing, F.D., CS.K., K.TÇ. and A.M.L. visualization, K.Ç. and A.M.L.; supervision, F.D; project administration, CS.K., and F.D. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 09.09.2024 Revised: 06.11.2024 Accepted: 10.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2123-2132
DOI 10.30892/gtg.574 spl26-1379

# DEVELOPMENT STRATEGY TOWARDS A SELF-SUSTAINING VILLAGE BASED ON SDGs THROUGH THE TOURISM POTENTIAL OF SAMAR VILLAGE, PAGERWOJO DISTRICT

**Moh PEBRIANTO***
Brawijaya University, Faculty of Agriculture, Sociology Department, Malang, Indonesia, e-mail: mohpebrianto@student.ub.ac.id

**Yayuk YULIATI**
Brawijaya University, Faculty of Agriculture, Sociology Department, Malang, Indonesia, e-mail: yayuk.yyl@gmail.com

**Asihing KUSTANTI**
Brawijaya University, Faculty of Agriculture, Sociology Department, Malang, Indonesia, e-mail: kustanti@ub.ac.id

**Keppi SUKESI**
Brawijaya University, Faculty of Agriculture, Sociology Department, Malang, Indonesia, e-mail: keppi.fp@ub.ac.id

**Kliwon HIDAYAT**
Brawijaya University, Faculty of Agriculture, Sociology Department, Malang, Indonesia, e-mail: k.hidayat@ub.ac.id

**Elya KURNIAWATI**
Malang State University, Faculty of Social Sciences, Sociology Department, Malang, Indonesia, e-mail: elya.kurniawati.fis@um.ac.id

**Citation:** Pebrianto, M., Yuliati, Y., Kustanti, A., Sukesi, K., Hidayat, K., & Kurniawati, E. (2024). DEVELOPMENT STRATEGY TOWARDS A SELF-SUSTAINING VILLAGE BASED ON SDGs THROUGH THE TOURISM POTENTIAL OF SAMAR VILLAGE, PAGERWOJO DISTRICT. *Geojournal of Tourism and Geosites*, 57(4spl), 2123–2132. https://doi.org/10.30892/gtg.574spl26-1379

**Abstract:** Sustainable Development (Sustainable Development Goals or SDGs) is a development concept that aims to meet current needs without reducing the ability of future generations to meet their needs. One effort to implement the SDGs program is through the independent village program in Samar Village, Pagerwojo District, Tulungagung Regency. Samar Village has economic potential in the fields of plantations, agriculture, animal husbandry, and tourism. The aim of this research is to analyze the sustainability of development towards independent villages based on sustainable development goals (SDGs) by optimizing tourism potential in Samar Village. The research method used was exploratory qualitative, applying Talcott Parson's AGIL theory. The results of this research show that the Samar Village community has balanced potential and challenges. The synergy between society, institutions, and government is needed to design sustainable development strategies, including collaboration with non-governmental organizations, university partners, and the central government to optimize village potential.

**Keywords:** SDGs, Samar Village, independent village toward a self-sustaining village, tourism potential

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## INTRODUCTION

The empowerment of Samar Village as a tourist destination needs to be aligned with its existing potential, with the introduction of the village taking place through both digital and conventional media. The implementation of edu-tourism represents a pivotal strategy for the advancement of the village's potential, offering structured educational and training opportunities for both the local community and visitors (Faridah, 2021). The involvement of diverse stakeholders, including village-owned enterprises, family empowerment and welfare programs, community empowerment organizations, village officials, and residents, is crucial as they possess a deeper understanding of the village's unique capabilities.

This edu-tourism empowerment strives to foster a self-reliant village through sustainable development based on SDGs. In light of the aforementioned, sustainable development or SDGs are aligned with the solutions to the issues in Samar Village. It aims to establish a self-reliant village by optimally utilizing the existing potential for the benefit of the community and to facilitate enhanced village development. A self-reliant village is a concept in the management and empowerment of Samar Village, with the aim of improving the welfare of its residents by optimizing the village's potential (Badung et al., 2024). Recently, Samar Village has been confronted with a number of obstacles, such as a lack of branding through social media, limited human resources to manage the village's potential, insufficient lodging facilities, and ineffective monitoring of educational programs for the residents. In the absence of suitable solutions, these challenges may impede the village's development. Therefore, the implementation of appropriate and structured strategies, including an SDG-based sustainability analysis, is essential to support Samar Village in becoming a competitive and self-reliant community. One potential solution to address these issues is to conduct a sustainability analysis based on the Sustainable

* Corresponding author

Development Goals (SDGs) with a focus on self-reliance in Samar Village, with a particular emphasis on the village's tourism potential. Previous studies have identified various challenges in village development. For example, (Kodir, 2018) demonstrated that investments in Batu City exceeded Regional Medium-Term Development Plan targets, with economic growth reaching 8.3%. However, the impact of tourism, including extensive land acquisitions and spatial planning dependent on investors, has affected the cultural values and mindset of Batu residents (Vijulie et al., 2018) observed low accessibility in the Murgu area due to poor road networks. Their analysis indicated that the tourism potential in the area had not been fully realized, in part due to a lack of vision from the local authorities, which concentrated solely on watermill complexes and overlooked other attractions.

Further (Ramadhani et al., 2022) described that the realization of SDGs is often ineffective due to poor management and weak budget strategies, which hindered the success of SDGs in Desa Bringala (Damayanti Asikin and Titisari, 2024). Underscored the significance of branding strategies in enhancing the potential of developing villages, as exemplified by Desa Pela. Ramadhani and Prihantoro, 2020 underscored the necessity of testing diverse strategies to ascertain the optimal approach for implementing SDGs in Bojonegoro Regency. Untari et al., 2023 emphasized the advancement of agrotourism in Desa Benteng by confronting the challenges, capitalizing on the opportunities, and assessing the impacts of SDGs while fostering collaboration with various stakeholders to bolster village development.

The subsequent studies, such as by (Sartika, 2023), identified challenges associated with land conversion and economic shifts, suggesting the need for agrotourism development based on local potential. Rohmah et al., 2024 concentrated on ecoprint education as a means of encouraging entrepreneurial activity within local communities. In a similar vein, (Wiralestari et al., 2024) highlighted the importance of improving village officials’ performance to enhance governance and sustainable village development. Hasan, 2023 emphasized the significance of digital platforms, particularly websites and YouTube, in facilitating village branding in the context of globalization. Sudirman et al., 2022 concluded that the implementation of e-planning was effective in Kendari's regional development, reducing poverty and boosting the local economy (Purmiyati and Rahmawati, 2024). Underscored the significance of local batik as a pivotal tourism draw in Desa Tampaksiring, whereas (Riswandha, 2021) explored the integration of natural resources as a tourist attraction in support of SDGs. (Rahmayani et al., 2022) Illuminated the function of green economy education in Desa Gedangan, exemplifying the efficacy of collaboration in sustainable development. Pranoto et al., 2023 the study identified potential for development in Desa Berjo. However, concerns were raised regarding corruption among village officials and tourism managers. It is imperative that stakeholders collaborate to prevent these issues and reduce unemployment. (Mustoip, 2022) underscored the importance of promoting local products from Rumah Amal in Desa Bodesari, while (Hasanuddin et al., 2023) focused on encouraging entrepreneurship in Kecamatan Walea Besar. Abdillah and Sholihah, 2023 underscored the significance of digital marketing education in fostering awareness of small and medium enterprise opportunities in Desa Plosokerep. In light of these studies and the challenges in Samar Village, a phased and structured edu-tourism empowerment program aligned with SDGs is put forth as a potential solution to achieve a self-reliant village, with the aim of enhancing community welfare by capitalizing on the strengths of Samar Village, as elucidated through Talcott Parsons' AGIL theory.

## LITERATURE

Sustainable development in villages based on SDGs is an effort to achieve sustainable village development by referring to the Sustainable Development Goals (SDGs) (Amruddin et al., 2024). The SDGs emphasize universal, integrated, and inclusive principles. Thus, it is expected that all community layers can benefit from the development carried out. One of the village potentials that can be developed in Samar Village is the tourism sector. Rural tourism differs from urban tourism in terms of objects, locations, functions, characters, and scales (Linderová et al., 2021). Figure 1 shows the geographical location of Samar Village, situated in Tulungagung Regency, East Java, along with its proximity to other potential tourist destinations.

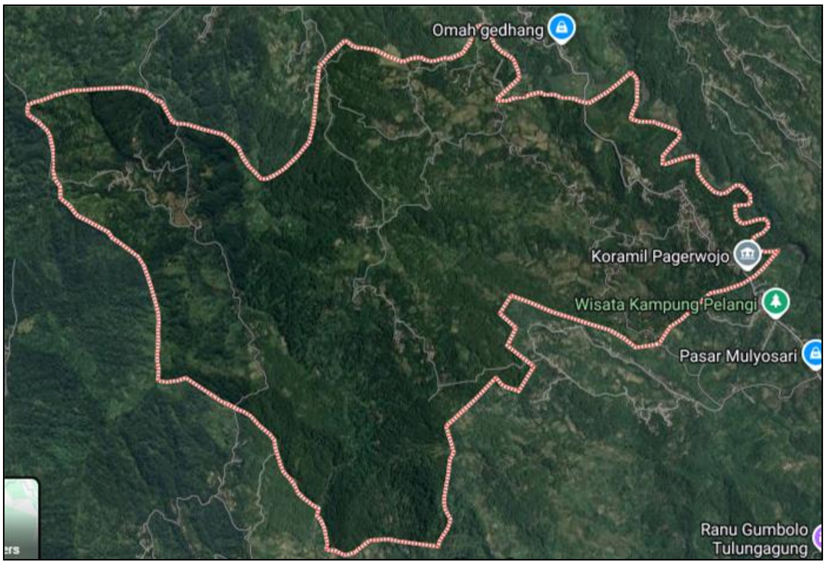


Figure 1. The Location of Samar Village (Source: Google Earth)

The availability of facilities and unique attractions in Samar Village deserves attention so that existing potentials can be continuously developed. Tourism development analysis using the AGIL theory is considered highly significant for post-COVID-19 recovery. The AGIL theory, introduced by Talcott Parsons, encompasses Adaptation, Goal Attainment, Integration, and Latent Pattern Maintenance (AGIL), describing the social functions that must be fulfilled by a society to maintain a stable social life (Pritania and Sandora, 2024).

First, is adaptation. The system must be able to adapt to needs that come from outside. The Samar Village Government, together with the entire community, must be able to adapt to the changes that occur. Tourism development requires synergy from all parties to create changes for the implementation of sustainable development goals through optimizing the tourism sector. Adaptation needs to be carried out by the government, at the community level, in terms of physical development, and by regional regulations that support the tourism sector.

Second, is goal achievement. A system must be able to provide a definition of goals and achieve its goals. The ability of a system to define a goal will make it easier to mobilize the resources needed to achieve that goal. Efforts to formulate strategies and determine policy direction can help optimize government performance, especially in carrying out bureaucratic transformation and reform. Apart from that, formulating strategies and determining policy direction can also help the government in improving the performance and capacity of regional governments.

Third, is integration. The integration function provides control over each component. SDGs-based sustainable village development focuses on tourism development. Tourism development in Samar Village is integrated through the creation of policy directions that focus on tourism development, which is implemented through synergistic and sustainable village development. Fourth, maintenance of latent patterns. The system must complement, maintain, and renew the motivation that individuals have and form cultural patterns to be able to maintain this motivation. Research regarding the development of tourist areas was previously carried out by (Chamidah, 2024) in Cirebon Regency.

The realization of area-based tourism through the AGIL Theory is realized by:

1. Community adaptation towards a tourism community, adaptation to tourism amenities, as well as adaptation to government regulations that can support tourism; 2). Achievement of tourism development goals which are realized in developing the tourism vision and mission of (Cirebon Regency; 3). Integration between sectors of tourism development actors; 4). Development of latent patterns through applicable values, norms and laws. The AGIL concept in community empowerment is also applied to the management of the Harlem Beach tourist attraction carried out by the Jayapura Regency Culture and Tourism Office (Mulyana and Siby, 2020). Efforts made include building facilities, providing skills training and promotions. However, there are still problems with customary rights, limited facilities, lack of capital, lack of BUMKAM, poor community thinking patterns and infrastructure. So it is considered not optimal.

Determining a development strategy towards a sustainable village requires the active involvement of the government, local communities and local resources (Rainanto et al., 2023). There are strengths and opportunities that can be utilized to minimize weaknesses and threats to increase community participation in realizing Village SDGs (Ekawati and Rahmawati, 2023). The development of tourist villages needs to be planned well in order to create harmony and balance in the village environment through sustainable tourism (Demolinggo et al., 2020). Sustainable tourism development can improve the welfare of local communities and preserve cultural heritage. Based on research conducted by (Hariyadi et al., 2024) the main strategy that can be implemented for sustainable tourism development is through community empowerment, the government playing an active role as a facilitator, infrastructure development, and collaboration between the government, private sector and NGOs that can support village tourism.

## MATERIALS AND METHODS

This study employed an exploratory qualitative method conducted in Samar Village, Pagerwojo Sub-district. This location was selected as it aligned with the research focus and objectives, which sought to analyze sustainability toward a self-reliant village based on SDGs through the tourism potential in Samar Village. The rationale for employing an exploratory qualitative method was to gain an in-depth understanding of phenomena or problems. The study also aimed to analyze sustainable development toward a self-reliant village based on the Sustainable Development Goals (SDGs) by optimizing the tourism potential in Samar Village. The data collection process encompassed observation, interviews, documentation, and a comprehensive literature review pertinent to the subject matter.

The research was conducted over approximately 5–6 months (January - June 2024) until the point of data saturation was reached. The data collection was divided into two categories, namely primary and secondary data. Primary data was garnered directly from the research site through interviews, documentation, and voice recordings (Yin, 2017). The rationale for employing primary data was to guarantee the veracity of the information and to establish a basis for analysis of sustainability in a self-reliant village based on SDGs through the lens of tourism in Samar Village. In contrast, secondary data was sourced from reliable media outlets, including websites, articles, journals, reports, and books (Connor, 2020). The utilization of secondary data is tailored to align with the specific research objectives and focus.

The research subjects were selected using purposive sampling to ensure that the data was complete and representative. These subjects included the village head, youth organization (Karang Taruna), village council (BPD), residents, and livestock farmers. These respondents were selected because they align with the research focus on Samar Village, as summarized in Table 1, with some also serving as managers, stakeholders, and active participants in daily activities as native residents of Samar Village. Therefore, it can be concluded that the respondents are appropriate for the purposes of supporting the data required for the study. The data analysis was performed following the technique described by (Matthew et al., 2014).

Table 1. List of Informants (Source: Researcher Documentation, 2024

| | |
|---|---|
| The Head of Samar Village:<br>1. Possesses knowledge and experience related to the village's vision, mission, objectives, village programs, and the background of Samar Village.<br>2. Understands the planning and potential of the village for sustainable development.<br>3. Ensures effective governance and management of the village for the people of Samar, including aspects of service, administration, and village development.<br>4. Can provide strategic information on initial challenges, strategies used, impacts, and issues faced by Samar Village. | BPD (Village Consultative Body):<br>1. Ensures that village governance operates according to democratic principles, transparency, and community participation.<br>2. Responsible for drafting and establishing village regulations, accommodating and channeling community aspirations, supervising the performance of the village government, and discussing and approving the village budget (APBDes).<br>3. Ensures transparency and accountability in village governance, provides input on village development priorities, conducts village deliberations, and participates in the selection of the village head. |
| *Karang Taruna* (Youth Organization):<br>1. Actively involved in the village government planning.<br>2. Has insight related to youth to mobilize and motivate young people to actively participate in village development.<br>3. Can provide strategic information on initial challenges, strategies used, impacts, and issues faced by Samar Village. | Farmers in Samar Village:<br>1. Possess knowledge related to animal husbandry.<br>2. Understand future opportunities as well as various challenges in farming.<br>Can provide strategic information about initial challenges, strategies used, impacts, and issues occurring in Samar Village. |
| Residents of Samar Village:<br>1. Native to the village; Understand daily life activities.<br>2. Familiar with and knowledgeable about the village's potential. | |

This technique comprised five key steps, including data collection, data sorting, data reduction, data display, and conclusion drawing. The primary objective of data analysis in this research was to gain a comprehensive and reliable understanding of the phenomenon under study. This was achieved through the identification of patterns, relationships, and meanings within the collected data, which were further employed to test hypotheses, formulate findings, and potentially develop new theories when necessary. The overarching goal of this data analysis was to make a substantial contribution to the research objective of analyzing sustainability towards an independent village based on SDGs through the tourism potential in Desa Samar. This study adopted Talcott Parsons' AGIL Theory, which posits a conceptual framework for understanding the functioning and survival of social systems in society. The theory delineates four fundamental functions through which social systems operate: adaptation to the environment, achievement of common goals, integration of diverse societal components, and maintenance of values and norms across generations. The rationale for employing this theory was to gain insight into the intricacies of social interactions and the nuances of change in Samar Village. This included identifying potential avenues for growth, challenges, and optimal solutions, which can inform strategies for sustainable development and an independent Samar Village.

## RESULTS AND DISCUSSION

### Mapping of Samar Village Potential

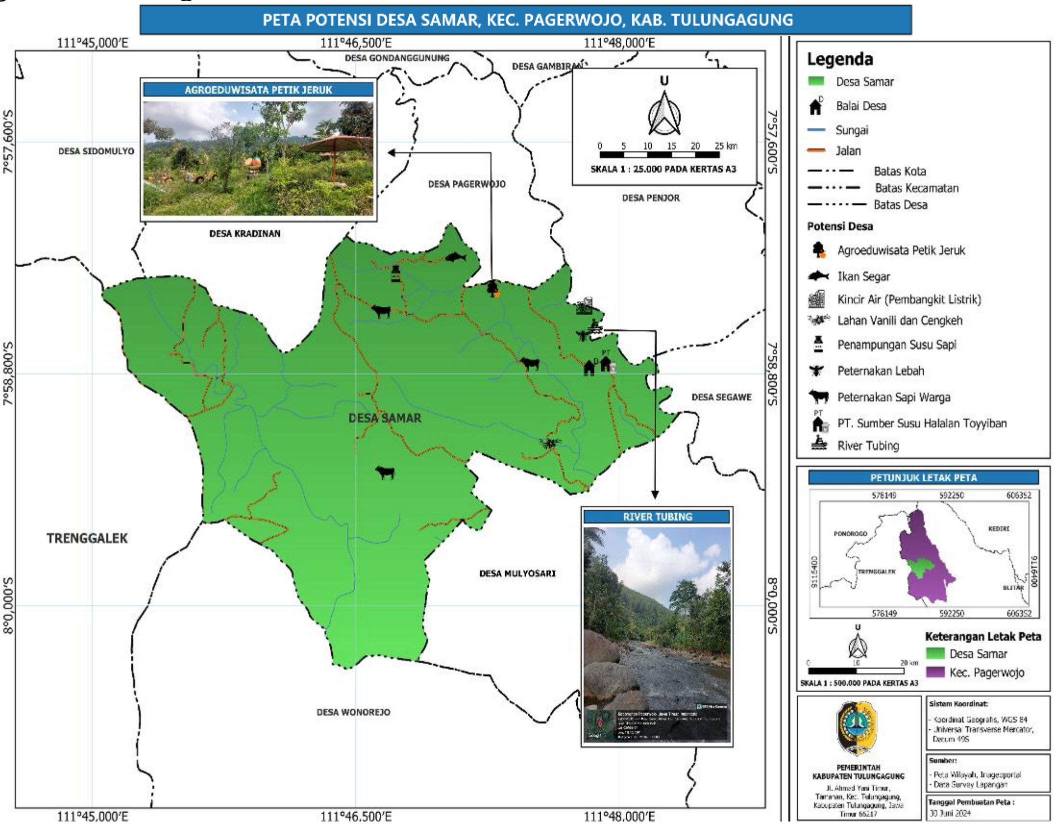


Figure 2. Village Potential Map (Source: Researcher, 2024)

The Samar Village potential map (Figure 2) presents detailed information on various sectors such as agriculture, livestock, tourism, and energy, using distinctive icons and designs for easy understanding. Each sector is marked with unique colors and images that serve as visual markers and branding tools. The map also features a compass and road symbols to improve navigation. With this map, stakeholders can accurately identify areas of potential, formulate policies, and make more effective resource allocations. The goal is to increase the effectiveness of development programs and ensure proper attention to each sector in Samar Village.

**Agricultural Sector Potential**

Samar village has high potential for the cultivation of plantation crops such as vanilla and cloves, but the number of farmers involved is declining and market opportunities are not being fully utilized. Nine members of this village are members of the Forest Farmers Group, implementing a polybag planting system for various crops and showing interest in using organic liquid fertilizer from cow urine. Although the geographical conditions favor the cultivation of vanilla, cloves and mushrooms, many farmers sell vanilla in its raw form, which has a lower price than dried vanilla. By harvesting vanilla at optimal dryness, farmers can increase profitability. Therefore, the application of organic fertilizers, efficient cultivation techniques, and improving farmers' knowledge and skills in crop management and marketing strategies are essential to optimize agricultural yields in Samar Village.

**Livestock Sector Potential**

Approximately 60% of Samar villagers are involved in dairy farming, providing great opportunities for milk production. However, this potential has not been fully utilized as many dairy products are sold in an unprocessed state, due to a lack of processing knowledge. Innovations in dairy processing and more effective task distribution are needed. For example, Dyah Rini's milk cracker mixer and cutter can be modeled. Good brand guidelines have also significantly improved dairy management and marketing (Ec and Rini, 2018).

In addition, the beekeeping sector offers high-value products such as honey, royal jelly and propolis. Although honey is in demand by a wide range of people, challenges in obtaining pure honey remain. Extension on beekeeping increased people's awareness of its benefits, as evidenced by the tripling of honey yields after the implementation of the community partnership program, which had a positive impact on the income of farmer groups (Sabariyah and Jufri, 2022).

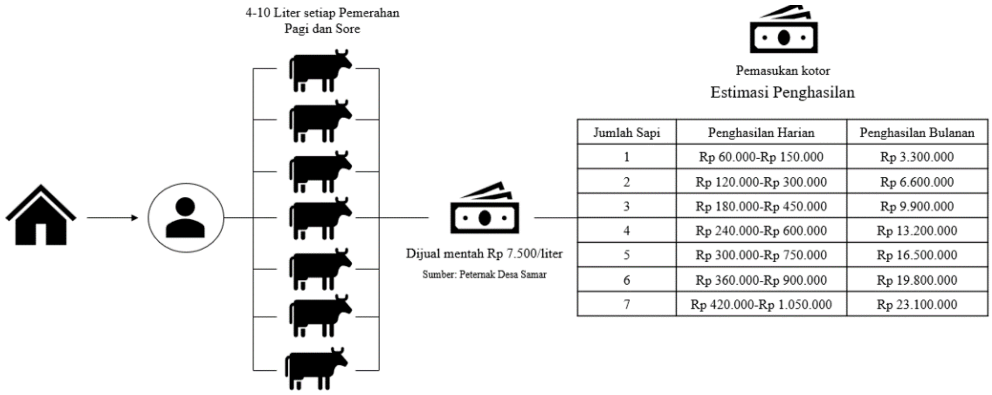


Figure 3. Income from Dairy Cattle Farming (Source: Researcher 2024)

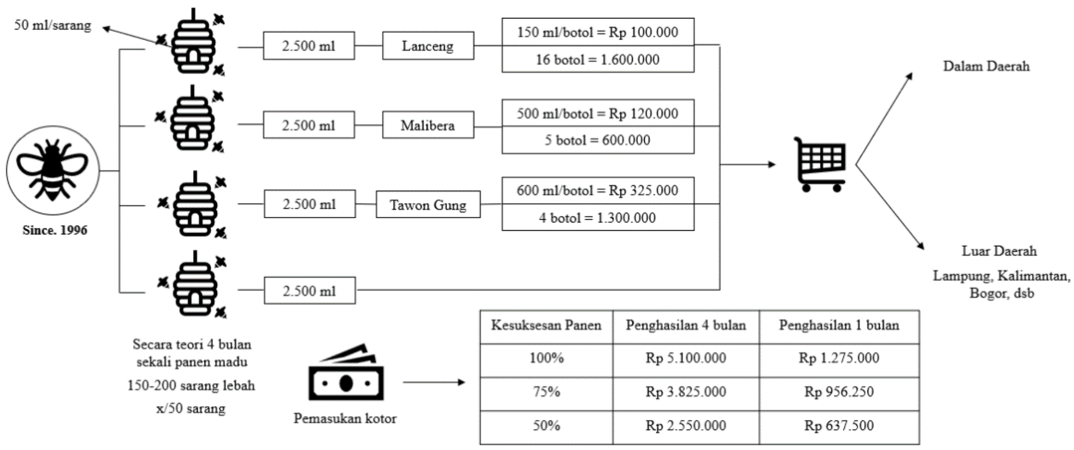


Figure 4. Honey Livestock Sector Income (Source: Researcher, 2024)

Interviews in the livestock sector revealed that Samar Village, located in the Pagerwojo sub-district, is a major producer of fresh cow's milk, with nearly 60% of the population involved in dairy farming. The average cow produces 4-10 liters of milk per day, sold at IDR 7,500 per liter. Although there is potential to process the milk into value-added products, most of the milk is still sold raw. The SWOT analysis shows that the community tends to be conservative, as income from fresh milk sales reaches IDR 3,300,000 per month, as seen in Figure 3. To optimize this potential, it is recommended to focus on task-sharing in product development. Samar Village also shows potential in beekeeping with the production of three types of honey: Malibera, Tawon Gung, and Lancing, harvested every four months, with sales revenue reaching IDR 1,275,000 per month. During the pandemic, the demand for honey increased, creating opportunities for developing marketing and branding strategies. Figure 4 illustrates the income from the honey livestock sector. The assistance plan will focus on publicizing and promoting honey products to expand the market, with continuous evaluation to optimize the marketing strategy.

**Tourism Sector Potential**

Tourism development in Samar Village has great potential to improve the economy, in accordance with Law No. 10/2009, which states that the development of tourism objects can increase regional income and community welfare (Kurnianto and Kurnianto, 2021). One of the main potentials is Citrus Agroedutourism, driven by the village's green environment and community involvement in planning and management. However, a major challenge is the lack of human resources to manage the area (Apriadi et al., 2023). Citrus Agroedutourism in Dusun Gading, with approximately 200 citrus trees, was negatively affected by the lockdown policy during the pandemic. Researchers plan to assist with revitalization by cleaning and updating facilities. SWOT analysis shows operational facilities such as the café are adequate, but need to be updated. The renovation of the access road that has been carried out is expected to increase visitor comfort and have a positive impact on the village economy.

**Energy Sector Potential**

The strength of the energy sector in Samar Village lies in the use of waterwheels as micro-hydro power plants for lighting the rice fields. With the increasing demand for electricity, micro-hydro offers a sustainable solution by harnessing energy from the flow of water. The waterwheel fulfills the need for lighting the rice fields and serves as an important element in the village's energy resource management, where the greater the flow capacity and altitude, the more energy is generated. The waterwheel also serves as a cultural landmark and contributes to the ecological balance of the village. Surrounded by beautiful natural surroundings, the waterwheel offers a tranquil experience for visitors. Maintenance of the waterwheel is the responsibility of the village, with maintenance and repairs carried out at regular intervals.

**Analysis of Samar Village's Potential Towards Self-Sufficient Village**

Samar Village is located in Pagerwojo District, in a highland area with significant potential for cultivating horticultural crops, plantations, rice fields, and farms. This study aims to implement the concept of sustainable development (SDGs) to make Samar Village a self-sufficient village. The research involves an analysis based on the four pillars of the SDGs, which include people, planet, prosperity, and partnership, as shown in Table 2.

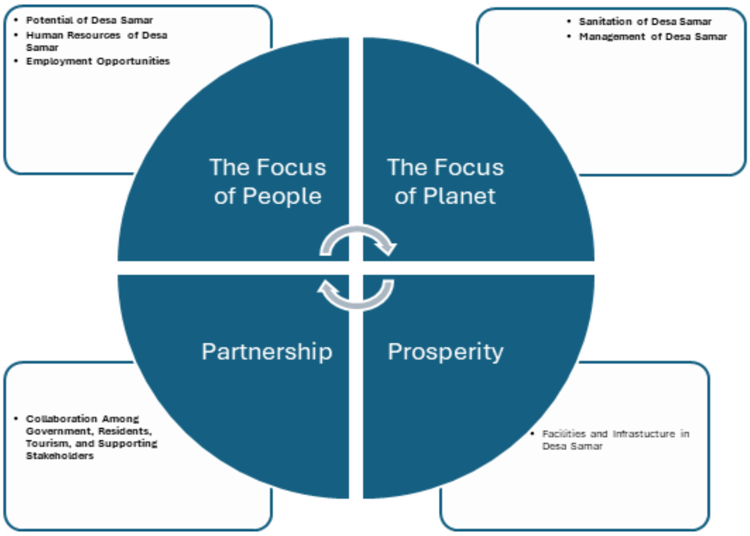


Table 2. Analysis of the 4 Main Pillars of SDGs (Source: Researcher Documentation, 2024)

**THE FOCUS OF PEOPLE**

**Tourism Potential of Village Samar**

Samar village in East Java is one of the largest cow's milk producing areas in Indonesia, with a population of 1,049 residents who are mostly involved in agriculture. Although the cow's milk is sold to middlemen without processing, the village is also known for its production of Klanceng honey, which is used for educational tourism. Agricultural potential includes coffee, coconut, pine wood, rubber, cloves and vanilla, but these commodities are sold without further processing. In addition, water tourism such as rafting and cafes and products from crushed stone also exist. However, the potential of citrus agroedutourism has not been fully utilized due to the impact of the pandemic and poor citrus yields, resulting in a lack of branding, facilities and funding.

Figure 5. Central part of Jeruk-Orange Tourism


Figure 6. Orange Tourism Icon

Figure 7. Visitor Rest Area

Figure 8. Samar Village River

Figure 9. River Tubing Activities

Figure 10. River Tubing Activities

Figure 11. Orange Tourist Appearance (Source: Researcher, 2024)

In an effort to develop tourism based on local potential, Samar Village has developed various tourism sectors, such as citrus agroedutourism and river tourism. For instance, the citrus tourism located in the central part of the village (see Figure 5) features a unique icon that attracts visitors to learn more about local agricultural products (Figure 6). A resting area for visitors is also provided for their comfort (Figure 7), while river tourism offers exciting activities such as river tubing, shown in Figures 8 and 9. Figure 10 depicts the river tubing activities that have become increasingly popular among tourists. With these activities, Samar Village has the potential to become a leading tourist destination that combines nature and education, as seen in the growing attraction of tourists to the village (Figure 11).

**Human Resources in Village Samar**

Samar villages face a major challenge in the quality of their human resources (HR), which remain limited and under-skilled. Short-termism often prioritizes instant gratification over long-term prospects. Good quality human resources are important to harness the village's development potential, such as optimizing branding, promotion, and product processing. Although training is often held to harness local potential, the program is less than optimal due to a lack of supervision and motivation. The training program conducted by the village government and students aims to encourage entrepreneurship by utilizing local raw materials. Therefore, more effective HR strategies and planning are essential to support economic growth and productivity in Samar Village.

**Employment Opportunities**

Sustainable development or SDGs aim to enhance the well-being of all social classes, including those in Samar Village, which requires the implementation of sustainable planning strategies, particularly for the expansion and improvement of employment opportunities. According to Central Bureau of Statistics data on livelihoods in Samar Village, the primary sources of employment are in agriculture (1,052), processing industry (24), construction (77), trade, hotels, and restaurants (47), transportation and communication (9), finance and leasing (13), services (79), and others (36). The total number of workers is 1,328 out of 3,931 residents, with approximately 1,200 being of non-productive age and elderly, and about 2,700 being of productive age with an estimated 1,372 unemployed. Therefore, the implementation of an appropriate and optimal stage of sustainable development is necessary in the form of a well-designed strategy to reduce unemployment and prevent an increase in poverty, especially in Samar Village.

**The Focus of Planet Sanitation in Desa Samar**

Samar Village, situated in Kecamatan Pagerwojo, has successfully achieved the objective of equal distribution of water from a regional drinking water company to all its residents. The provision of clean water from this company to each household in the village has resulted in an improvement in the quality of life for residents, who are now able to meet their daily needs with greater ease, including cooking, washing, and sanitation. The regional drinking water company infrastructure in Samar Village has been well-developed and maintained, ensuring consistent availability of clean water without disruptions. This effort also supports the local agriculture sector as farmers now have better access to water sources for irrigation, thereby increasing agricultural productivity and the village's economic well-being. This success is the result of close cooperation between the village government, regional drinking water company, and local residents, who are all committed to improving access to clean water and supporting sustainable development in Desa Samar.

**Management in Desa Samar**

Waste management in Desa Samar is conducted in an exemplary manner, with each household being charged a fee of IDR 10,000-15,000. The implementation of a fee system for the collection and management of household waste ensures the regular maintenance of cleanliness and public health within the village. Waste is collected at regular intervals by designated personnel and transported to the final disposal site or subjected to further processing in accordance with its classification. The active participation and support of all village residents in paying these fees demonstrates their awareness and commitment to effective waste management for a clean and healthy environment. Furthermore, the fees are utilized to support additional cleanliness programs, such as the provision of trash bins in strategic locations and the dissemination of information regarding waste segregation. The success of this system enhances environmental quality and also elevates community awareness about the significance of maintaining a clean and healthy environment.

**Facilities and Infrastructure in Samar Village**

The development of the village as a tourist destination also necessitates the creation of supporting facilities in Samar Village. Currently, the village lacks accommodation, which presents a significant inconvenience to tourists, and road facilities that require improvement to avoid unpaved conditions. The planning for adequate and supportive facilities is essential for developing a self-sustaining village. In addition to improving existing facilities, the creation of tourism packages and organizing annual festivals tailored to the village's potential can further enhance its attractiveness.

**Partnership (Collaboration between Government, Residents, Tourism, and Other Supporting Parties)**

A significant challenge in Samar Village is the lack of effective government collaboration with various stakeholders and the monitoring of educational initiatives to support sustainable development toward an independent village. Therefore, collaboration and supervision from a variety of stakeholders is required. It would be beneficial for the village government to facilitate collaboration with other village apparatus with the aim of developing existing institutions, including LPM (Village Community Institution), PKK (Family Welfare Program), Bumdes (Village-Owned Enterprises), and Karang Taruna (Youth Organization). It is also recommended that partnerships with higher education institutions and the central government be established to create strategic plans and regular activity schedules with evaluations tailored to the community's potential and needs. This approach aims to foster the necessary cooperation for sustainable village development. Planning for sustainable development requires both effective strategies and capable human resources from the community, village government, and honest managers working synergistically to ensure that the SDGs-based development towards an independent Desa Samar is effectively realized and targeted.

Figure 12. Analysis of AGIL Theory in Research Focus (Source: Researcher Documentation, 2024)

**Analysis of AGIL Theory with a Research Focus on Sustainability Towards an Independent Village Based on SDGs through the Tourism Potential of Desa Samar, Pagerwojo, Indonesia**

**Adaptation:** In the adaptation phase of this research, researchers must adjust to the local residents' way of life. This is intended to enable researchers to become acquainted with the environment in Samar Village and to establish a rapport with the local community, thus facilitating the collection of necessary data. Therefore, it is essential to obtain the support of a number of stakeholders, including institutions, community members, and government officials.

**Goal Attainment:** For Goal Attainment, its objective is to analyze sustainability towards an independent village based on SDGs through the tourism potential of Samar Village. It seeks to provide solutions to enhance the welfare of the local community by leveraging the potential of Samar Village.

**Integration:** In the integration phase, the realization of sustainable development in line with the research goals requires collaboration from various supporting parties. This ensures that the research outcomes can serve as a reference for developing strategic plans for the sustainable development of an independent Desa Samar.

**Latency:** In the latency phase, the maintenance and enhancement of the collaboration among stakeholders involves ongoing and sustainable efforts. The improvement process entails a comprehensive evaluation of the potential, opportunities, issues, and solutions provided in order to ascertain their alignment with the needs of the Desa Samar community.

## CONCLUSION

Samar Village, located in Pagerwojo District, Indonesia, is situated in a highland area with high suitability for a variety of agricultural activities, including horticulture, plantations, rice fields, and farms. The village has significant economic potential in agriculture, livestock, and tourism, including the utilization of its natural beauty and the promotion of local culture. The analysis of sustainable development (SDGs) focuses on four main pillars: People, Planet, Prosperity, and Partnership. The majority of the residents of Samar Village derive their livelihood from agricultural and livestock activities. The dairy farming industry in this village is managed by middlemen due to the absence of a local factory. Consequently, the packaging and branding of dairy products are conducted at a factory in Mulyosari Village.

Additionally, the region engages in apiculture, specifically the production of Klanceng honey, which serves as an edutourism attraction. Other activities include goat farming, and oyster mushroom cultivation, as well as plantations of coffee, coconut, pine wood, rubber, cloves, and vanilla. The challenges faced by the village include limitations in human resources, a lack of skills, and a demand for instant results without consideration of long-term potential. Additionally, there is a deficiency in government collaboration and oversight of educational programs. In order to achieve sustainable development, it is necessary to implement a robust strategy and collaboration between the community, local government, and managers. This will enable Desa Samar to become an independent village and effectively meet SDG goals.

**Author Contributions:** Conceptualization, M.P. and Y.Y. and A.K.; methodology, M.P. and K.S.; software, K.H. and E.K.; validation, M.P. and Y.Y.; formal analysis, M.P. and Y.Y. and A.K.; investigation, K.S. and K.H. and E.K.; data curation, M.P. and Y.Y. and A.K.; writing - original draft preparation, K.H. and E.K.; writing - review and editing, K.S; visualization, M.P..; supervision, Y.Y. and A.K.; project administration, E.K All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** Thank you is given to the Research Institutions and Community Service (LPPM) of Universitas Negeri Malang for funding this research. Thank you is also given to the community around the Samar Village for supporting this research. This research has no intention toward individuals or organizations.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 18.09.2024 Revised: 06.11.2024 Accepted: 10.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2133-2142
DOI 10.30892/gtg.574spl27-1380

# GO-GREEN GASTRONOMY DELIVERY: THE ROLE OF GREEN-PACKAGE DESIGN ENHANCING QUALITY AND VALUE CREATION ON BANG SAEN'S TOURIST DESTINATION

**Parinya NAKPATHOM**
Burapha University, International College, Chonburi, Thailand, e-mail: parinyan@go.buu.ac.th

**Kannapat KANKAEW***
Burapha University, International College, Chonburi, Thailand, e-mail: kannapat.ka@go.buu.ac.th

**Charlton BRUTON**
Burapha University, International College, Chonburi, Thailand, e-mail: charltonthomas@go.buu.ac.th

**Ali Mohsin Salim Ba AWAIN**
University of Technology and Applied Science, Department of Business Administration, Salalah, Oman, e-mail: ali.baawain@utas.edu.om

**Ali Said JABOOB**
Dhofar University, College of Law, Dhofar, Oman, e-mail: ajaboob@du.edu.om

**Hyewon JANG**
Andong National University, Graduate School of Creative Industry, Andong, South Korea, e-mail: hwjang@anu.ac.kr

**Chee Keng LEE**
National University of Singapore, NUS College, Singapore, Singapore, e-mail: ckenglee@nus.edu.sg

**Citation:** Nakpathom, P., Kankaew, K., Bruton, C., Awain, A.M.S.B., Jaboob, A.S., Jang, H., & Lee, C.K. (2024). GO-GREEN GASTRONOMY DELIVERY: THE ROLE OF GREEN-PACKAGE DESIGN ENHANCING QUALITY AND VALUE CREATION ON BANG SAEN'S TOURIST DESTINATION. *Geojournal of Tourism and Geosites*, 57(4spl), 2133–2142. https://doi.org/10.30892/gtg.574spl27-1380

**Abstract:** Gastronomic tourism is a key tourism type that significantly impacts Thailand economy. This study aims to underline the correlation between green package design and the quality of food delivery service, perceived value, and customer satisfaction of green gastronomy of the tourist destination Bang Saen. It expounds on how the norm activation model and the theory of planned behavior enhance both pro-social behavior and rational decision-making. Ultimately, it examines the government campaign on "Go Ea(s)t and Go Green" on the east coast of Thailand. The study focused on Bang Saen area along the east coast of Thailand. The sample groups were tourists experiencing green gastronomy services during their stays. The questionnaire was administered for data collection both onsite and online. The direct and indirect effects were examined by Partial Least Square-Structural Equation Modelling (PLS-SEM). There were 408 respondents of whom 71 percent are generation Z. It is recognized that the green packaging has a high direct impact on the quality of green food delivery service and customer perceived value. This study thoroughly investigates the psychological aspect of seeing through bare eyes on forming a perception to attitude, and personal norms to behavior preference. We locate that ecological awareness, personal health consciousness, and societal influences are critical in customer decisions. It endows a better understanding of the inherent motivations behind green consumption and, allows gastronomic business to modify their tactics to fit with these driving forces.

**Keywords:** norm activation model, green package design, gastronomy, theory of planned behavior, green food delivery service

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## INTRODUCTION

Thai gastronomy has a significance position in the global food industry. As an attractive tourism destination, Thailand has also been known as "the kitchen of the world." The recognition and importance of the Thai food are mainly due to ample natural resources, a competent workforce, and continuous research and development (Ramingwong et al., 2019; Thailand Board of Investment, 2023). The food industry is also known as the most developed in Southeast Asia. In economic value, the Thai food industry was worth 141 billion baht in 2022, which is 14 percent up from the year 2021. Furthermore, the food industry, as the third largest sector of the country, contributes 21 percent to the Gross Domestic Product (GDP) (Food Export, 2024). Considering the potential and worldwide recognition, Thailand also ranked as the seventh-highest nation in the food and agricultural product processing-related industries (Tantayanubutr and Panjakajornsak, 2017). The significant and natural reason for the immense growth in the food industry was the strong backward linkage with the country's agriculture sector, which is also called the backbone of the Thai economy. Research shows that more than 80 percent of food raw materials are sourced from the agricultural sector (Ramingwong et al., 2019).

* Corresponding author

According to the estimates, more than 54,000 food processing factories are established, which employ more than one million workers accounting for 19.7% of total industrial sector employment (Development Insights, 2023). To provide optimum food service to customers, the HRI sector in Thailand, which comprises hotels, restaurants, and institutional food service, is characterized by intense competition. The sectors comprise of more than 150,000 establishments, encompassing 100,000 eateries and more than 5,000 hotels and resorts. Notably, the expansion of Thailand's food service sector has been propelled mainly by the robust growth of the country's tourism sector (Pongsakornrungsilp and Pongsakornrungsilp, 2023).

From the consumer perspective, the COVID-19 pandemic has accelerated and changed the landscape of the Thai food industry. The change is mainly associated with the rising consumer consciousness for health and environment substainability. In relation to the environmental crises Lahiri et al. (2022) indicated that globalization and food safety scandals prompted consumers to be concerned about the quality of food, safety, and environmental responsiveness. Consequently, consumers become more conscious about their food choices and its possible impact, which in turn encourages green purchasing behavior. The concerned consumers also consider green consumption patterns as an opportunity to guard against the calamitous crises of global warming (Suki et al., 2022) thereby increasing their consciousness toward the environment (Chen et al., 2023; Hao and Chenyue, 2021).

In addition to the environment, consumers in Thailand are seen reevaluating their food choices to adopt healthier lifestyles. Consumers are now more likely to seek products that ensure their psychological and physiological health. They prefer to purchase high-quality food for a better life. As part of this change, there is a rapid increase in demand for quality food, such as green or organic products (Xiao et al., 2023). Consequently, there is an increase in consumption and market value of plant-based food compared to processed food. Estimates by Euromonitor and Allies companies shown an average growth of 10 percent, translating into a rise of market value from 845 million USD in 2019 to 1.5 million USD in the year 2024. Notable international chain restaurants such as McDonald's, Starbucks, etc. started to offer plant-based products in 2021 in Thailand (Foreign Agriculture Service, 2022). Verisimilitude, these alterations in consumers' perspectives have resulted significantly in the production and purchasing of green products for producers and consumers, respectively, in Thailand (Udomphoch and Pormsila, 2023).

In addition, the advancement of information technology has also enlarging people's knowledge and awareness of sustainable practices. As the study of Khan et al. (2020) found, a greater understanding of sustainability among people in Thailand and Malaysia has a significant impact on consumer attitudes, leading to green behavior. Relatively, scholars Hengboriboon et al. (2022) highlighted green marketing as a tool to elevate the green consciousness of Thais, leading to higher green consumption. Addedly, Wongsaichia et al. (2022) emphasized that Thais' self-realization related to the environment positively impacts their attitudes and green purchase intentions. Simultaneously, this group of researchers also found that social norms on green gastronomy consumption affect non-green consumers' mindset toward green food consumption. These researches witnessed that green gastronomy consumption is on the rise, and the current market size of organic products is at 15.6 million USD, which is the 43rd largest organic product market in the world (Food Export, 2024). Furthermore, there is rapid economic growth in Thailand following the COVID-19 pandemic, increasing consumers' household income. In this context, a 3.7 percent growth rate was recorded in 2023 due to recovering tourism that brings confidence in the economy (Thailand Board of Investment, 2023).

Food-delivery services in Thailand are anticipated to benefit from the country's generally high household food expenditures from the perspective of the food market. Monthly expenditures by the average household on food and beverages amounted to 7,039 baht ($224). The proportion of overall household spending, roughly 33 percent or one-third, has remained consistently high over the past ten years (Teerakowitkajorn and Tularak, 2020). As Janmaimool et al. (2024) stated, food delivery in the country is predictably reaching USD 2.3 billion with a 4.5 percent growth rate in 2023. Yet, it has become common especially in urban areas where people adopt using food delivery services. Consequently, due to a significant surge in economic expansion, income levels, and awareness about health, Thailand is transforming into a major global market for high-quality food consumption (Kantamaturapoj and Marshall, 2020).

While intending to buy green products, the research shows customer perceived value (PCV) and customer satisfaction (STF) play a critical role in actual buying behavior. One of the important drivers is Package Design (PKD). López-Mas et al. (2022) and Zafar et al. (2022) support the idea that the quality of packaging design plays a direct and influential role in shaping consumers' perceptions of the delivered food. Because the package protects food from contamination by pathogens (Thapliyal et al., 2024; Varzinskas and Markeviciute, 2020), green package design not only positively influences customers' perception of food delivery service quality but also maintains food temperature, presentation, and taste (Harahap et al., 2020). Becoming particularly pertinent in the context of green food delivery services, where the visual appeal of eco-friendly packaging not only elevates the overall customer experience but also serves as a tangible expression of the provider's commitment to sustainability (Chitturi et al., 2022). It is noteworthy that 76% of Thai buyers have gained knowledge about products that have eco-friendly packaging. This figure serves as an indication of one's social and environmental awareness, as it reflects a certain level of desire for environmentally friendly items. Green items are environmentally friendly products (García-Granero et al., 2018). However, the research also shows that many consumers fear being cheated when buying products with green claims (Nuttavuthisit and Thogersen, 2017; Pudaruth et al., 2015; Shah et al., 2023), particularly when a higher price is asked. Additionally, packaging can also denote green and organic food (Maschio et al., 2023). Nevertheless, a recent literature assessment has determined that there has been a lack of research focus on the correlation between consumer trust, organic food packaging, and purchasing decisions for environmentally friendly items (Udomphoch and Pormsila, 2023). More precisely, there is a dearth of studies on the specific green characteristics that impact consumer decision-making and behavior in this context.

Analogously, the quality of green food delivery service is also a key factor in developing PCV and STF. In this context, several researchers indicated that green food service is an essential aspect of online purchasing (Srisathan et al., 2023). Following the COVID-19 pandemic, home delivery has become a necessity rather than a luxury. For example, the revenue generated from the food delivery businesses has increased rapidly, with a 150 percent growth rate recorded during the first half of 2020. Likewise, the order rate has reached 66-68 million transactions with a 78–84% growth rate, and the transaction amount has increased by 50 to 400 percent (Tantayanubutr and Panjakajornsak, 2017; Weiler and Gilitwala, 2024). Considering the growing consumer concerns about the environment, climate change, and health, green consumption has been extensively studied, particularly in developed markets (Chen et al., 2017; Chen et al., 2023; Srisathan et al., 2023). However, this concept remains relatively unexplored in emerging Asian markets, where the understanding of green products and their processes is still developing (Joshi and Rahman, 2016). Furthermore, many of the existing studies have focused primarily on the inclination of customers toward green products. While literature is abundant on the attributes of green products, there is relatively little research on the change in attitude among green customers (Srisathan et al., 2023).

Currently in Thailand, Chaigasem and Kumboon (2024) found that gastronomy components have an impact on cultural identities narrative in Phuket's old town area. Chaigasem and Thongom (2024) underlined the importance of improving local sausages in terms of packaging and distribution for the ultimate aim of gastronomy tourism. In contrast, the east coast region of Thailand, as exemplified by Bang Saen, has received less attention in terms of gastronomy and green delivery studies. To restate, the study of the correlation among green packages to quality, value, and end customer satisfaction is still limited. Additionally, the Thai government has launched the campaign "Go East & Go Green" promoting the east coast cities for green tourism, attracting ecotourists. For this reason, the center of gastronomic tourism development should logically be Bangkok and its surrounding provinces (Phalitnonkiat et al., 2024). Specifically, the eastern region is the country's second-largest contributor to gastronomic tourism (Thongkaw et al., 2024). The "Go East & Go Green" campaign aligns with the UN's efforts to reduce food waste, promoting the use of green and digital technologies to minimize consumer food waste and encourage more sustainable consumption patterns. Cities worldwide, both developed and developing, should capitalize on the new opportunities arising from these technologies (UNEP DTU Partnership and United Nations Environment Programme, 2021). Moreover, the gastronomic value of Thai cuisine acts as powerful magnets for tourists due to its unique qualities (Hsu et al., 2022; Zhu et al., 2024; Thio et al., 2024).

To support the government campaign "Go East and Eat Green," cooperation from tourism entrepreneurs and tourists is essential for promoting green practices. Gastronomy entrepreneurs could objectively create attractive and communicative packaging to drive consumers' behavior. This research investigates the influence of green package design (PKD) on the quality of green food delivery service (GFDS), perceived value (PCV), and satisfaction (STF). Additionally, it examines the reverse influence of GFDS on PCV and STF, as well as the mediating effect of GFDS in its relationship between PKD, STF, and PCV among Thai consumers. From a theoretical standpoint, this study is guided by the Norm Activation Model (NAM) and Theory of Planned Behavior (TPB), which provide a framework for evaluating key dimensions such as PKD, GFDS, PCV, and STF. A positive perception of these factors will ultimately lead to purchase intentions. This research contextualized the norm activation model (NAM) and theory of planned behavior (TPB). The NAM and TPB serve as a guiding lens for evaluating key dimensions such as PKD, the quality of green food delivery service, PCV, and STF. Irrevocably, the positive discernment would culminate in intention consumption. We conceptualized the study model as shown in Figure 1.

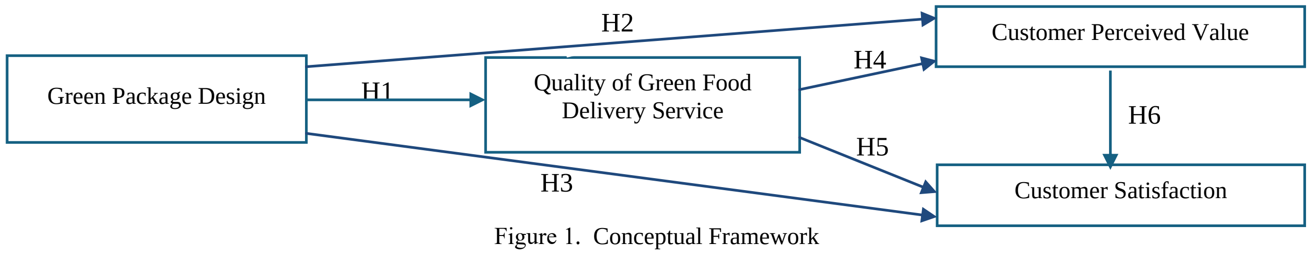


Figure 1. Conceptual Framework

## UNDERPINNING THEORY

### Norm activation model theory and theory of planned behavior

The Norm Activation Model (NAM), initiated by Schwartz (1977), is a framework used to predict beneficial and pro-social behaviors. The NAM consists of three key components: ascription of responsibility (AR), awareness of consequences (AC), and personal norm (PN). AC refers to the recognition of the environmental consequences of specific acts. AR entails accepting personal responsibility for the negative consequences of such activities. While PN represents the moral imperative to act or refrain, which predicts behavior intentions (BI) and behaviors (Tian et al., 2024; Zhang et al., 2024). Prosocial behavior is strongly predicted by PN, with individuals with high levels of PN being more likely to engage (Li et al., 2024).

The Theory of Planned Behavior (TPB) (Ajzen, 1991) has been widely used to examine individuals' intentions to purchase (Nguyen, 2024). The TPB suggests that individuals' behavior is rational, planned, and motivated by changes in their environment, intentions, and actions, depending on their perceptions (Mosca et al., 2024). Furthermore, the TPB emphasizes the effects of a person's attitudes, which are based on their beliefs about three factors: (1) subjective norms, as the perception of social pressure to engage in behavior; (2) the individual's belief in their ability to behave and its outcomes or attitude; (3) perceived behavioral control, which refers to a person's perception of their own ability to perform behavior

(Muthukumari et al., 2024). Bazhan et al. (2024) confirmed that the TPB can effectively explain purchase intentions in organic food. As confirmed by Tacardon et al. (2023), the TPB has been widely applied to study human behavior related to gastronomy, such as organic food and sustainable food. Moreover, Sia et al. (2024) highlighted that consumers' intention to reuse food delivery is positively influenced by perceived behavioral control and attitude. In contemporary society, people and businesses are increasingly adopting sustainable practices. A study by Orea-Giner and Fuste-Forne (2023) found a surge in consumption of organic products, especially among Generation Z. This generation is known for its keen interest in green and sustainable initiatives. It is worth noting that their attitudes often lead to behavioral practices.

## HYPOTHESES DEVELOPMENT

### 1. Green package design, quality of green food delivery service, customer perceived value and customer satisfaction

Packaging acts as a concrete means of communication with consumers. Marketers may use package design as a strategy to create competitive edges and keep consumers retained on the existing product (Tseng et al., 2022), informative and convenient (Pocas and Selbourne, 2023), and improving customer experience (Markeviciute and Varzinskas, 2022). Yet, green package design is essential for ensuring the sustainability of a product, particularly in the green market (Udomphoch and Pormsila, 2023). In the realm of contemporary food delivery services, the role of packaging design in shaping consumers' attitude has garnered significant attention. The attractive eco-friendly, and state-of-the-art material influences purchasing decisions (Zafar et al., 2022). The quality of packaging design plays a direct and influential role in crafting consumers' perceptions of the quality delivered food, supported by (López-Mas et al., 2022; Harahap et al., 2020). The recent study by Chitturi et al. (2022) revealed that green food delivery services ultimately expressed that food packaging material should be eco-friendly ensuring delivered food as per the requirement of the consumer. Some of the studies found that traditional packaging is the cause of environmental distortion (Liu et al., 2020; Teerakowikajorn and Tularak, 2020). Udomphoch and Pormsila (2023) found that green food delivery service has a thorough process that emphasizes and ensures green transportation. It alleviates the emission of unnecessary waste. Based on the above literature, the present study hypothesizes proper utilization of green package design significantly enhances the overall quality of green food delivery services in the Thai market:

**H1:** Green package design (PKD) will enhance the Quality of Green Food Delivery Service (GFDS).

Green packaging is a significant factor in influencing consumers to buy a product (Liu et al., 2020). Riva et al. (2022) indicated that green packaging positively enhances the eco-friendly image of the product, influencing customer perception. Moreover, Kwok and Lin (2024) scientifically examined how customer perceptions change as the shape and packaging of the product change. According to Ghorbani et al. (2023), consumer-perceived value can be assessed by comparing the benefits received by the customer in relation to the cost. Additionally, package design could promote trust, environmentally friendly foods, freshness, and convenience (Pocas and Selbourne, 2023). Furthermore, green packaging helps maintain food quality during shipment, which is crucial for food delivery services quality (Harahap et al., 2020). It also offers sustainable and health-related advantages to customers. Besides environmental preservation, informative, and hygienic value (Thapliyal et al., 2024), the package also reflects social value and operationalization (Santi et al., 2022). Green packaging can shape consumers' personal beliefs on environmental protection, quality of food, social justice, positive attitudes, and behavioral control (Hasan et al., 2023). This suggests that green packaging can influence both social norms and personal norms, ultimately leading to behavioral intention. In particular, the personal norm has an immense impact on individuals' ethical and moral obligation (Janmaimool et al., 2024).

**H2:** Green package design (PKD) will enhance the Customer's Perceived Value (PCV).

Customer satisfaction is crucial for retaining existing customers, encouraging repurchase intentions, and attracting new ones (Nunkoo et al., 2020). Chen et al. (2017) noted that restaurants implement green practices to improve consumer perceptions of quality and satisfaction with their environmental expectations. Moreover, to gain customer trust, restaurants should introduce green practices that cover all aspects of the service, including serving, packaging, delivery, and environmental impact (Pocas and Selbourne, 2023). The direct impact of package design on customer satisfaction has been extensively explored within the marketing and consumer behavior domains. Chitturi et al. (2022) highlighted that the visual aesthetics of packaging significantly contribute to customer satisfaction by influencing perceptions of product or service quality. In green food delivery services, understanding how package design directly influences customer satisfaction is essential for service providers aiming to meet the expectations of environmentally conscious consumers.

**H3:** Green package design (PKD) will enhance the Customer Satisfaction (STF)

### 2. Quality of green food delivery service, customer perceived value and customer satisfaction

The quality of green food delivery service, including factors such as timely delivery and eco-friendly procedures, is a direct driver of customer perceived value (Itani et al., 2019; Uzir et al., 2021). Recent studies by Ratasuk and Gajesanand (2022) and Román-Augusto et al. (2023) explored how the environmental sustainability of green food delivery procedures enhances customer perceived value. Therefore, the quality of green food delivery service can significantly influence customer satisfaction, especially in the expanding market for sustainable and green food delivery in Thailand, particularly for organic food delivery services.

**H4:** Quality of Green Food Delivery Service (GFDS) will enhance the Customer Perceived Value (PCV)

Environmentally concerned consumers who preferred organic food (Mathew et al., 2021) have made the quality of green food delivery services a key consideration for customer satisfaction (Román-Augusto et al., 2023). Service quality significantly influences customer satisfaction and lays the groundwork for subsequent customer loyalty (Kartikasari and

Albari, 2019; Paulose and Shakeel, 2022). In the specific context of green food delivery services, where timely and eco-friendly service is dominant, unraveling this direct relationship becomes essential for businesses determined to foster positive and long-term customer experiences. Moreover, in the specific context of green food delivery, eco-friendly food has become a lesser reason for carbon emissions and has been associated with heightened consumer satisfaction (Abid et al., 2020; Chen et al., 2023). Based on the existing literature, this study hypothesizes that customer satisfaction is achieved when the entire food delivery process is based on organic and green systems.

**H5:** Quality of Green Food Delivery Service (GFDS) will enhance Customer Satisfaction (STF)

**3. Customer perceived value on customer satisfaction:**

The concept of customer value is central to relationship marketing (Nadeem et al., 2020). Companies must understand that knowledgeable customers seek exceptional value and satisfaction (Hult et al., 2019). Zeithaml (1988) defined customer perceived value as the consumer's evaluation of a product's utility in terms of what they receive versus what they give. Numerous studies have explored the relationship between customer perceived value and customer satisfaction in the field of consumer behavior (Uzir et al., 2021). In the tourism sector, gastronomy plays a significant role in shaping tourists' experiences and their intention to return (Zhu et al., 2024; Thio et al., 2024). Local food consumption is often seen as an essential part of experiencing a destination's culture and traditions. Therefore, customer perceived value, which includes factors such as the quality of green food delivery services, can significantly influence customer satisfaction.

**H6:** Customer Perceived Value (PCV) will enhance Customer Satisfaction (STF)

**4. Mediating Relationships**

**Quality of green food delivery service mediates between green package design and customer perceived value**

Previous research has shown that service quality plays a pivotal mediating role in the correlation between various service attributes, including brand image, customer loyalty, perceived value, and customer satisfaction (Ozkan et al., 2020). Ahmad and Zhang (2020) explored the mediating impact of the quality of the delivery service on customer green psychology and purchase intention. Jalu et al. (2024) highlighted the role of service quality in their literature, supporting the investigation of the mediating effect of the quality of green food delivery service in the relationship between the five P's (product, price, place, promotion, and people) and customer perceived value. Recent research has explored the relationship between packaging and purchase intentions among customers of green food, ultimately leading to customer satisfaction (Román-Augusto et al., 2023). Thus, the present study hypothesized that:

**H7:** Quality of Green Food Delivery Service (GFDS) mediates the relationship between Green Package Design (PKD) and Customer Satisfaction (STF).

**H8:** Quality of Green Food Delivery Service (GFDS) mediates the relationship between Green Package Design (PKD) and Customer Perceived Value (PCV).

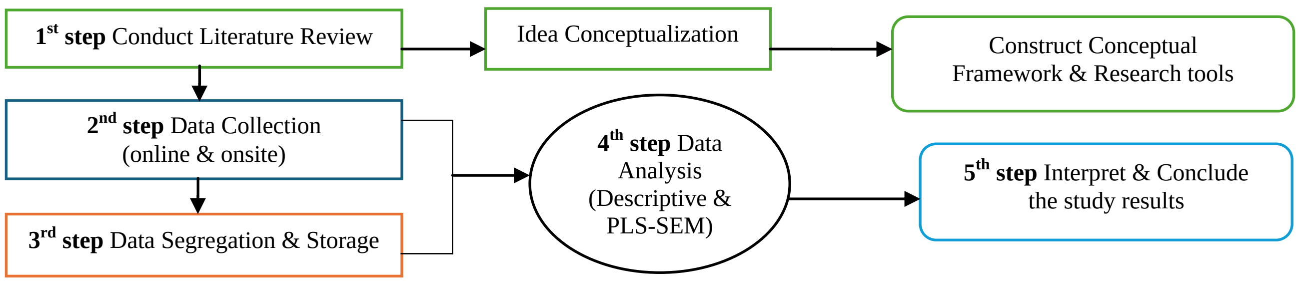


Figure 2. Study flow chart

## MATERIALS AND METHODS

The flowchart in Figure 2 outlines the research methodology. The study began with a review of relevant domestic and international literature. Subsequently, we developed the conceptual framework, research tools, and conducted reliability and validity tests. Data collection was administered online through social media and on-site in Bang Saen, the designated study area. The collected data was then segregated and stored for further statistical analysis using descriptive and inferential statistics. Finally, the results were interpreted, concluded, and reported.

This research is gleaned from the NAM assumption on pro-social behavior where people act upon the awareness of environmental consequences, responsibility, and personal belief steering to behavior. Whilst, the TPB premises individuals act logically with the plan and intentions relating to environment, perception and attitude, and intention. This study implies these notions assessing the individuals on perception of gastronomy green package influence the product quality, value, satisfaction, and finally the repurchase intention. Hence, the correlational research was designed in this study. The linear related of green package design (PKD), customer perceived value (CPV), and the customer satisfaction were investigated. While, the quality of green food service delivery was served as a mediator role for package design. In this research the Theoretical Framework is grounded in the Norm Activation Model (NAM) and Theory of Planned Behavior (TPB). The NAM assumes that individuals act based on their awareness of environmental consequences, responsibility, and personal beliefs.

The TPB suggests that individuals' behavior is rational, planned, and influenced by their environment, intentions, and perceptions. For the Research Design, this study employed a correlational design to investigate the relationships among green package design, customer perceived value, and customer satisfaction. The quality of green food delivery service was considered as a mediating factor. The Sampling and Data Collection took place in Bang Saen, located on the east coast of Thailand, which was the designated study area. The target population was Thai tourists who had consumed green food and experienced ordering green food delivery services in Bang Saen. Online questionnaires were distributed via social media and on-site to collect data. A total of 408 respondents participated. Subsequently, the data analysis was performed using Structural Equation Modeling-Partial Least Squares (SEM-PLS).

The measurement model was assessed through Cronbach's Alpha and composite reliability. The results in Table 1 indicated that all constructs had values between 0.85 and 1.00, exceeding the threshold of 0.70. The Average Variance Extracted (AVE) was also tested to determine the convergent validity of the model, and the results were greater than 0.50. Demographically, the majority of respondents were female (57%), followed by male (33%) and LGBTQ+ (10%).

Table 1. Construct Reliability and Validity

| | **Cronbach's Alpha (>0.7)** | **Composite reliability rho_a (>0.7)** | **Composite Reliability rho_c (>0.8)** | **Average Variance Extracted (AVE)** (>0.6) |
|---|---|---|---|---|
| Green food delivery service-GFDS | 0.875 | 0.881 | 0.914 | 0.726 |
| Customer Perceived value-PCV | 0.914 | 0.917 | 0.940 | 0.796 |
| Package design-PKD | 0.922 | 0.922 | 0.945 | 0.810 |
| Customer Satisfaction-STF | 1.000 | 1.000 | 1.000 | 1.000 |

Figure 3 shows that 71 percent of the respondents were 21-30 years old, followed by 20 years old and younger (16%) and 31-40 years old (8.3%). More than 58 percent were students, 26 percent worked in private organizations, and around 7 percent ran their own businesses or worked for the government. The highest percentage of respondents held a bachelor's degree (56%), followed by a master's degree (39%) and lower (5%).

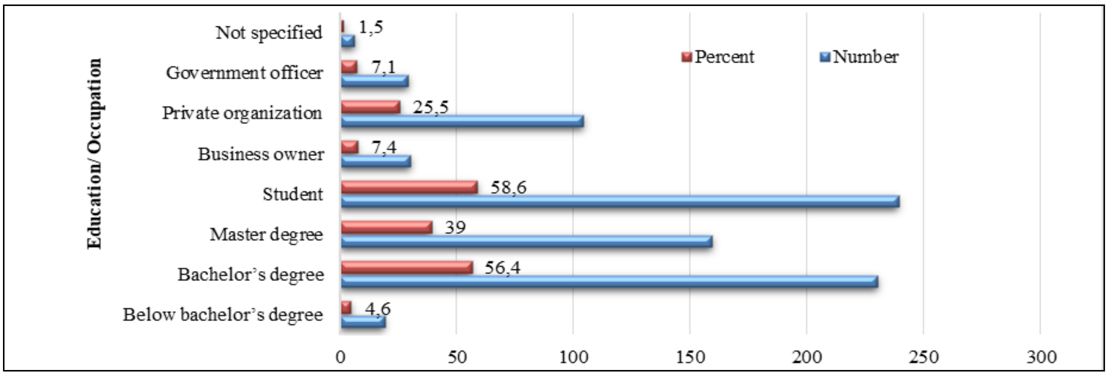


Figure 3. Respondents' Demographic

## RESULTS AND DISCUSSION

To assess discriminant validity, we compared the correlations between variables with the square root of AVE. The results are presented in Table 2. We ensured that the constructs were distinct and represented by HTMT. Similarly, the discriminant validity was demonstrated by using Fornell-Lacker Criterion analysis shown in Table 3. This analysis provided additional insights into the validity of the model.

Table 2. Heterotrait-monotrait ratio (HTMT)

| | **GFDS** | **PCV** | **PKD** | **STF** |
|---|---|---|---|---|
| Green food delivery service-GFDS | | | | |
| Customer Perceived value-PCV | 0.862 | | | |
| Green Package design-PKD | 0.834 | 0.834 | | |
| Customer Satisfaction-STF | 0.811 | 0.760 | 0.782 | |

Table 3. Fornell-Lacker Criterion

| | **GFDS** | **PCV** | **PKD** | **STF** |
|---|---|---|---|---|
| Green food delivery service-GFDS | 0.852 | | | |
| Customer Perceived value-PCV | 0.784 | 0.892 | | |
| Package design-PKD | 0.846 | 0.858 | 0.900 | |
| Customer Satisfaction-STF | 0.765 | 0.719 | 0.751 | 1.00 |

Table 4. R-Square

| | R-Square | R-Square Adjusted |
|---|---|---|
| GFDS | 0.729 | 0.727 |
| PCV | 0.737 | 0.736 |
| STF | 0.633 | 0.630 |

Table 4 shows the effect of PKD on GFDS, PCV, and STF. Notably, PKD explains 74% of PCV, followed by GFDS and STF at 73% and 63% respectively. The total effect analysis in Table 5 determined the causal effects of the variables in the conceptual model. The most significant correlation was observed between PKD and PCV, PKD and GFDS, and GFDS and STF, all of which were significant at the 0.000 level, supporting Hypotheses 1 to 6. Further analysis revealed that PKD has the greatest impact on PCV (86%) and GFDS (66%). While GFDS has a moderate influence on STF (42%), the impact of PKD on STF is relatively weak at 23% and 19%. Figure 4 visually represents the effects of the independent variables on the dependent variables.

Table 5. Total Effects (Significant level at 0.05 *, 0.01**, 0.001***)

| | β | STDEV | T-Statistics | p-values | Sig. | Interpret |
|---|---|---|---|---|---|---|
| GFDS -> STF [*H5*] | 0.419 | 0.075 | 5.596 | 0.000 | *** | Supported |
| PCV-> GFDS [*H4*] | 0.222 | 0.056 | 3.937 | 0.000 | *** | Supported |
| PCV -> STF [*H6*] | 0.283 | 0.075 | 3.755 | 0.000 | *** | Supported |
| PKD->GFDS [*H1*] | 0.846 | 0.016 | 52.386 | 0.000 | *** | Supported |
| PKD -> PCV [*H2*] | 0.858 | 0.014 | 62.280 | 0.000 | *** | Supported |
| PKD -> STF [*H3*] | 0.751 | 0.028 | 26.920 | 0.000 | *** | Supported |

Table 6. Mediations Effect (Significant level at 0.05 *, 0.01**, 0.001***)

| Hypotheses | β | STDEV | T-Statistics | p-values | Interpret |
|---|---|---|---|---|---|
| PKD->GFDS->STF [*H7*] | 0.518 | 0.084 | 6.193 | 0.000 | Supported |
| PKD->GFDS->PCV [*H8*] | 0.093 | 0.028 | 3.274 | 0.001 | Supported |

Figure 4 shows the indirect effects of PKD on STF through PCV and GFDS. PKD has a significant indirect effect on STF through PCV (0.16) and through GFDS (0.27). The total indirect effect of PKD on STF is 0.079. The total effects in table 6 presents three highest significant effects were: PKD on PCV (β = 0.858), PKD on GFDS (β = 0.846), and PKD on STF (β = 0.751). All of these causal relationships were significant at the 0.000 level. And as shown in Table 6, Hypotheses 7 and 8 were not rejected. However, the degree of effects varied. The mediating role of GFDS between PKD and STF (Hypothesis 7) and between PKD and PCV (Hypothesis 8) were significant at p-values of 0.000 and 0.001, respectively.

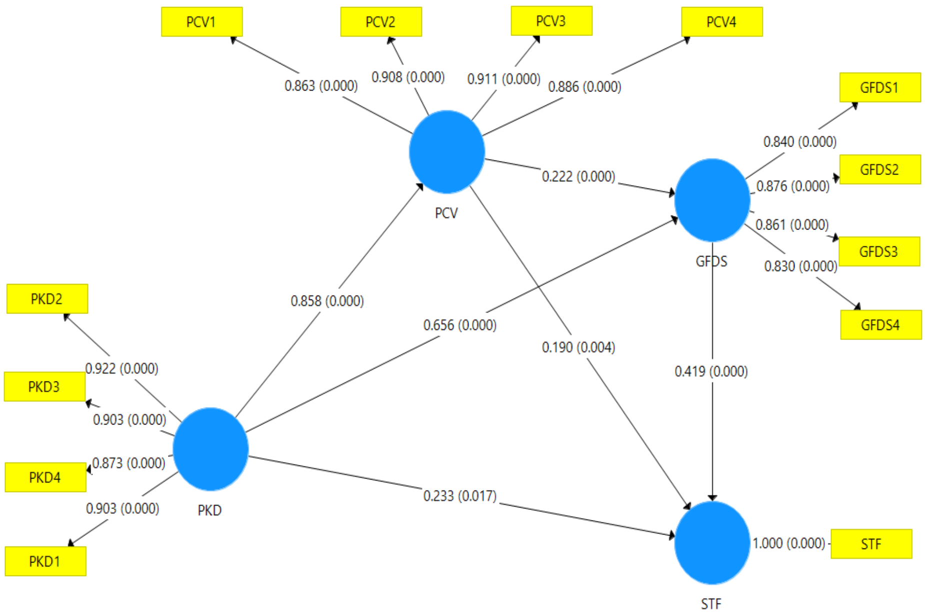


Figure 4. The effect of PKD, PCV, and GFDS on Satisfaction

## CONCLUSION

This study examined the factors influencing consumers' green behavior in Thailand, focusing on green package design, the quality of green food delivery service, customer perceived value, and customer satisfaction. The results indicate that green package design has a strong direct influence on all three variables. However, the relationships between customer perceived value, customer satisfaction, and green food delivery service are relatively weaker. This suggests that while green package design is a significant factor, the quality of green food delivery service also plays a crucial role in shaping customer perceptions and satisfaction. It is important for businesses to integrate all of these elements to create a positive and memorable customer experience. Previous studies have shown that green package design can positively influence consumers' perceptions of eco-friendliness, experience, sustainability, and food quality (López-Mas et al., 2022; Chitturi et al., 2022). This, in turn, can influence their attitudes and decision-making behavior (Udomphoch and Pormsila, 2023). Remarkably, Generation Z, known for their eco-friendly mindset and sustainable activism (Orea-Giner and Fuste-Forne, 2023), is particularly receptive to green initiatives. Batooli et al. (2022) highlight the positive influence of mindset on intention behavior, which aligns with the NAM and TPB. Therefore, businesses should prioritize providing high-quality green food delivery services that incorporate prompt delivery, eco-friendly practices, taste, menu selection, and cleanliness. By creating positive and memorable experiences, both tangible and intangible, businesses can strengthen customer satisfaction and build long-term relationships.

### Implication

This study highlights the significant influence of sustainable package design on Thai consumers' perceived value of the product. To promote sustainability in the Thai market, adopting eco-friendly package design is recommended. This can enhance the perception of the firm's sustainability practices, as well as the product's cleanliness, organic nature, and reduced carbon footprint. Moreover, consider using edible, plant-based, or biodegradable materials like bamboo, seaweed, or cornstarch for packaging. Implementing industry-standard environmentally friendly logos can further reinforce consumer trust in the product's quality and the firm's legitimacy. From a policy perspective, reducing carbon taxes can encourage businesses to adopt greener practices and promote green consumption. This would benefit consumers, vendors, and the environment as a whole. Nevertheless, we should be reminded of the cultural considerations, being reminded that the Thai socio-economic context is deeply influenced by Buddhist beliefs in living harmoniously with nature. This cultural perspective aligns with the pursuit of sustainability (Browaeys and Price, 2019). In addition, concerning consumer behavior, this study emphasizes the importance of visualization in influencing Thai consumers. Firms should effectively communicate their environmental commitment through green package design to attract and positively influence Thai consumers. Package design can reflect the organic and healthy nature of the food, aligning with the growing trend for sustainable products.

**Key Findings**

This study provides valuable insights into the psychological factors influencing consumer preferences for environmentally friendly and organic products. Ecological awareness, personal health consciousness, and societal influences are critical in shaping consumer decisions. These findings can help firms tailor their strategies to effectively engage with environmentally conscious consumers.

**Author Contributions:** Conceptualization, P.N. and K.K.; methodology, P.N. and K.K.; software, A.M.S.B.A. and A.S.J.; validation, P.N., C.B. and K.K.; formal analysis, P.N. and K.K. and A.M.S.B.A. and A.S.J.; investigation, P.N. and K.K. and A.M.S.B.A. and A.S.J.; data curation, P.N. and K.K. and A.M.S.B.A. and A.S.J.; writing - original draft preparation, A.M.S.B.A., K.K. and A.S.J.; writing - review and editing, C.B., C.K.L. and K.K.; visualization, P.N. and K.K. and A.M.S.B.A. and A.S.J.; supervision, H.J., C.K.L. and K.K.; project administration, A.M.S.B.A., and A.S.J.. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgments:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 18.09.2024 Revised: 07.11.2024 Accepted: 11.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2143-2151
DOI 10.30892/gtg.574spl28-1381

# CAN ORGANIC FARMING CONTRIBUTE ON SUSTAINABLE WOMEN ENTREPRENEURSHIP IN RURAL TOURISM? AN NACIONAL PARK EVIDENCE

**Aleksandra VUJKO***
University of Singidunum, Faculty for Tourism and Hotel Management, Belgrade, Serbia, e-mail: avujko@singidunum.ac.rs

**Radmila BOJOVIĆ**
Independent researcher, Belgrade, Serbia, e-mail: radmilab@yahoo.com

**Dragan NEDELJKOVIĆ**
Institute of Agricultural Economics, Volgina, Belgrade, Serbia, e-mail: draganedeljkovic62@gmail.com

**Mirjana Delić JOVIĆ**
University for Business Studies, Faculty of Tourism and Hotel Management, Banja Luka, Bosnia and Hercegovina, e-mail: mdelicjovic@yahoo.com

**Marijana Jovanović TODOROVIĆ**
Institute of Agricultural Economics, Volgina, Belgrade, Serbia, e-mail: marijana_j@iep.bg.ac.rs

**Citation:** Vujko, A., Bojović, R., Nedeljković, D., Jović, M.D., & Todorović, M.J. (2024). CAN ORGANIC FARMING CONTRIBUTE ON SUSTAINABLE WOMEN ENTREPRENEURSHIP IN RURAL TOURISM? AN NACIONAL PARK EVIDENCE. *Geojournal of Tourism and Geosites*, 57(4spl), 2143–2151. https://doi.org/10.30892/gtg.574spl28-1381

**Abstract:** The research actually represents two very important topics: female entrepreneurship in rural areas and organic production, with the hypothesis (H) that organic production forms the base of sustainable female entrepreneurship. Phase one used the interview technique with women entrepreneurs from the area of the National Park Fruška Gora (Serbia). Phase II of the study constituted a survey of organic product consumers in order to determine the motivational and attitudinal factors underlying their consumption patterns. Results showed that women are very successful concerning rural tourism and entrepreneurship with the motive of producing organic products stands for good practice in how women in the villages can be empowered and become economically independent. On the other hand, the results on organic product consumers indicate that the biggest motivation and attitude groups' factors regarding motives and attitudes of organic product consumers circle around health, emotions, environmental concern, and trend. It can be concluded that organic production has great potential when it comes to rural tourism as a desirable, sustainable way of empowering women.

**Keywords:** organic farming, sustainability, women entrepreneurship, motives and attitudes, Fruška Gora National Park

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## INTRODUCTION

One of the basic human rights is to live in a healthy environment. 'Healthy' means a balance between feeding around 8 billion people on Earth and ecological needs for a healthy environment (Regmi et al., 2023). In other words, free from unhealthy food and pollution (Bergstrand, 2022). According to Pelaracci et al. (2024) food production of goods marks the beginning of a process of development which conserves the environment, protects all resources ensured to future generations, is economically viable and socially just (Tao et al., 2015; Barbosa et al., 2018). Living in a period which is full of tensions, stress has marked itself, people are always on the run to find new ways to reboot and get back to themselves and nature (Arsić et al., 2024; Han et al., 2024). This self-perception of people and the environment (Bojović et al., 2024) results in the dimensions that rural tourism can have at present and that are expected in the future, given the economic materialization of the society (Xu et al., 2024). It is also a force that grows with an attitude towards healthy living and consuming healthy food, without too many toxic chemicals in food (Akther et al., 2024). Healthy living also includes relaxation and entertainment - rural tourism offers that, as well (Addai et al., 2024; Moliterni et al., 2025).

According to Zeng et al. (2024) ecological production process includes Best Ecologic Practice in a way to preserve and protect natural resources and at the same time take all the necessary actions to meet the needs and expectations of consumers by using only natural - degradable ingredients without risk to human and animal health (Macueia et al., 2024). Organic production must ensure a well-preserved and healthy environment— the production of healthy and safe food for people (Fust´e-Forn´e and Jamal, 2020; Deb et al., 2024). The organic production prohibits the use of synthetic and another kind of chemicals; if they use in this process, then only recommended biodegradable, friendly to environment chemicals (Sharma et al., 2019). At the same time, this production shows the regime of sustainable agriculture and fully respects the use of exclusively necessary natural resources, renewable energy sources, and a unique emphasis place on the preservation

* Corresponding author

of a clean assortment, safety of biological diversity (Wang et al., 2009; Alhemimah et al., 2024). The main mainstream farming is having the priority in big yield with the problem of putting profit in the foreground (Anjos et al., 2020). Organic farming, on the other hand, tries to find balance between land, plant, animal and human and that means mainstream farming would also include environmental protection (Antoniewicz et al., 2021). Indeed, there are more and more people from all over the world paying attention to the matter of serving health-safe food while preserving natural environment (Schianetz, 2007).

Natural resource management addresses management in relation between how people should interact with natural landscapes (Meybeck et al., 2024). It enables and includes aspects of natural heritage management, land-use planning, water management, bio-diversity conservation in the future sustainability for industries (including agriculture, mining, tourism, fisheries) and forestry (Matthies, 2016). All food systems do require natural resources but the fact is that increasing population growth added wealth-related dietary changes are placing resource systems under tremendous pressure (Li et al., 2024). Changing our food systems will be needed if the resources are to meet future demands (Strippoli et al., 2024).

An increasing number of food items are produced through ecologically sustainable processes without the involvement of hormones, heavy metals, synthetic pesticides, and herbicides (Baker et al., 2002). This path gained immense popularity because of obvious, multiple benefits for the human organism (Bhogal et al., 2016). Nonetheless, such benefits from organic production are still unachieved in Serbia since only 14,360 hectares are covered by agricultural production in this country (Stanojević et al., 2022). The following work attempts to discursively present the potential of organic farming in initiating rural development. Rural tourism meets healthy food, identified with organic production, which gives quality and the gastronomic supply to the tourist is totally determined as “healthy” (Schianetz and Kavanagh, 2008; Getz et al., 2014; Gao and Wu, 2017; Marinello et al., 2019; Firstianto et al., 2024). Women carry the development of tourist influx in rural areas because people come to the village, which is a place of healthy food to consume, and besides, it is also related to rural tourism development (Martínez et al., 2019). Their empowerment is a story for it being highly relevant in this decade. We will have to show the positive aspects of women's entrepreneurial development, and for sure the empowerment (Vujko et al., 2019). We want to present the development of rural tourism in a basic, affirmative context that underlines the problem of organic production - the role of organic production in terms of female entrepreneurship and rural development.

The ultimate aim of the paper is to influence the empowerment of women and make known to the latter the pluses of organic production. First and foremost, the consideration is addressed directly to women, particularly vulnerable women in rural areas. Evidently, it is of the utmost essence to make a difference and expose ways to best make use of available scarce resources towards turning them into tourism products that ensure positive incomes. As for those women who have succeeded in expanding and making their businesses in rural areas more productive, they exemplify the best ones. Additionally, this paper is intended to prove interest in the consumption of organic products by tourists, the latter being guests of a female entrepreneurship that provides food products coming from an environmentally friendly grown and immediate women-related area and that belongs to a Women's Association. The paper's authors believe that it can happen in many other ways, and training and showing examples of best practices with specifics and answers on how and in what way to start one's production are very important. It is also necessary for women to present to women what they can do when it comes to organic products, why it is good for women to "take matters into their own hands", what advantages rural tourism brings them and how they can connect with rural tourism households and restaurants of traditional cuisine. The paper begins by taking an initial hypothesis H: "that organic production represents the basis of sustainable female entrepreneurship". The research was conducted in the territory of the National Park Fruška Gora, situated in Vojvodina, the northern province of Serbia. That is in two directions, an interview with women entrepreneurs but also guests of a restaurant on Fruška Gora that makes homemade healthy food according to the principles of 'slow food' from organic ingredients. Furthermore, with the Women's Association synergy meeting 'Banstolka' agricultural farm focuses on multiplication and synergy between women who produce about 20 different kinds of homemade products from organic ingredients in the way that the material for these products they collect from the observed area which is actually a national park. The oldest national park in Serbia (Bojović et al., 2024).

The potential of the organic sector in Serbia can give a significant contribution to increased employment of the rural population and narrowing the gap that exists at present between the living standards in the cities and villages and securing long-run sustainability to the population of these areas. Results stated that women engaged in producing organic products were very satisfied with their work. In the first place, this proves that they can make a decent living producing these materials. They are ready to share their examples with other women, and members of their association, or other similar associations. On the other hand, results obtained from the motives and attitudes of organic consumers-tourists-are grouped around four factors regarding health, emotion, and environmental concern, including trend.

### „Green Revolution” Movement

Movement for organic cultivation known as “Green Revolution” began during the 1940s as a response to agriculture industrialization (Huang, 2024). It was an interest group opposed to the industrial lobby that was initiating revolutionary changes in the practices of agriculture (Lucas and Kebreab, 2021). This is because, according to the powerful lobbies, an alternative means of production cannot possibly cater to the increasing contributors to the population all over the world. On the contrary, only organic food production can actually meet the growing needs of humanity since it is more resistant to droughts and does not even pollute the natural ambiance as opposed to industrial land treatment (Costantini et al., 2021; Šambronská et al., 2024). They have adopted a holistic view that national health is based on good agriculture, which is based in turn on long-term soil fertility. It was thought that soil health and strength are based on humus, its surface layer (Davies, 2003; Wang et al., 2007). On this concept, there emerged a land management system known as "humus farming" since its sustainability in agriculture production depended on how well soil fertility was conserved (Wan et al., 2021).

The development of the organic movement over the last seventy years can be schematized in three principal stages: phase of emergence (1924-1970), phase of expansion (1970-1990) and phase of growth (post-1990) (Lucas and Kebreab, 2021). In the 1920s, modern organic agriculture started developing in Europe and immediately collided with a powerful chemical lobby (Davies, 2003). During this time, organic agriculture was predominantly termed as biodynamic farming. As such, at its development, it encountered various challenges. The period before World War II Germany has been underlined as a very favorable country for the development of biodynamic farming (Lucas and Kebreab, 2021).

Phase of expansion was during the 1970s and 1980s when the major principles and indications of organic agriculture were developed (Davies, 2003). Increasing consumer awareness as well as a surge in retail outlets offering organic products characterized the final two decades of the twentieth century, as agricultural products in new brave west countries achieved a persistent surplus (Lucas and Kebreab, 2021). Out of the blue concern for the welfare of the earth led to a greater appreciation for organic production. The market relationship between supply and demand is positive for organic products and this has made it possible to increase hectares under certified organic production. After an expansion phase for the infrastructure of organic agriculture, there came a growth phase of this production. In this stage, total areas in organic agriculture kept growing, which further increased the market value of organic products (Davies, 2003).

According to data published by Eurostat (Nourallah et al., 2024), the area used for organic agricultural production in the European Union kept on increasing and reached 16.9 million hectares in 2022, up from 15.9 million in 2021 and 14.7 million hectares in 2020. It was in 2022 that the area used for organic agriculture represented up to 10.5 percent of the total UAA in the EU. Data of Eurostat prove that between 2012 and 2022, almost in all the EU countries, the area used for organic agriculture was expanding. The highest rates of growth in this period were recorded in Croatia (+306%), Portugal (278%), and Bulgaria (182%). The highest share of areas for organic farming in total UAA was recorded in Austria (27 %), Estonia (23 %) and Sweden (20 %). While in 2022 the share of organic farming was under five percent in five EU countries, with the smallest share registered in Malta — under one percent, Bulgaria and Ireland sharing two percent. In the other countries, the share ranges from eight percent to 18 percent.

## MATERIALS AND METHODS

In the field research using the techniques of the interview and survey research, we started from the initial hypothesis H: "that organic production represents the basis of sustainable female entrepreneurship". The research was carried out continuously between January 2022 and August 2024. Two surveys were conducted with women producers of organic products (honey, wine, brandy and Sremac dishes manufactured according to the prescriptions of traditional cuisine and cosmetics and teas made from organic raw materials) and with tourist consumers of these products. The first, exploratory research, was carried out by an interview to examining the motives and satisfaction on one hand, and on the other, the "examples of good practice" for setting the basics of the future projects of women's empowerment in the villages. Within the area of the Fruška Gora National Park, women entrepreneurs produce and market organic products. They were part of the interview. These women are also members of women's associations. In this way, they share their experiences with other members. Both their own and other women's associations come from the area of the National Park Fruška Fora (Serbia).

To verify this initial hypothesis, it was decided to survey users/tourists of such products. U istraživanju je učestvovalo 448 ispitanika, gosta restorana “Banstolka” na Banstolu (Fruška Gora). Gosti su, pored gostiju iz Srbije, bili iz još 7 evropskih država I iz Irana. For this purpose, a questionnaire was constructed, including 26 attitudes/variables, which the respondents evaluated on a five-point Likert’s scale, from total disagreement to total agreement with the statement. Then a factor analysis was made, which separated 4 characteristic factors. The goal of this research was to find the answer to the question, “For what reasons do tourists choose to use organic products?” This question is the basis for formulating 4 sub-hypotheses:

- h1 reason for using organic products is health;
- h2 this reason for using organic products has a personal, emotional meaning for consumers;
- h3 reason for using organic products is environmental protection;
- h4 the reason for using organic products is poultry farming.

The initial factor analysis yielded a model that comprised four factors which categorized the respondents' responses into 4 dimensions:

**Factor 1. Health:** H1 I feel more energetic and that my immunity is better since I use organic products, H2 My skin is cleaner and I don’t feel bloated from organic food

**Factor 2. Emotions:** E1 Organic products are made traditionally and it reminds me of my childhood, E2 I feel what I consume is made with love and meant just for me.

**Factor 3. Environmental protection:** EP1 Participating in environmental protection in that what I consume is ecologically acceptable and sustainable, EP2 Products are friendly and take care of animals.

**Factor 4. Trend:** G1 It's something that everyone talks about and it's very trendy nowadays, that's why I use organic products, G2 I want to be trendy, that's why I choose organic products

The effects of the single factors were evaluated through Structural Equation Modeling. SEM (Structural Equation Modeling) is a multivariate method used for building a structural model of relationships among variables, indicating causality. It shows the relationship to dependent data via path coefficients which indicates the strength of these relationships. Being a powerful technique SEM can solve the problem of multicollinearity, which occurs in the case when more than two variables have high correlation. Models are developed and revised based on theory. One common misuse in Structural Equation Modeling is trivial: one simply standardizes the data for an adequate SEM and then expands his/her theory completely from the results of analysis.

**Fruška Gora National Park**

The Fruška Gora National Park is located in Vojvodina, Serbia, near Novi Sad town (Figure 1). Its peaks are Red Cot (538 m), Orlovac (512 m) and Iriški Venac (490 m), the mountain resort. It stretches alongside the right bank of the 80 km long and 15 km wide River Danube. The status of National Park was awarded to Fruška-Gora back in 1960. It includes parts of the territory belonging to the city of Novi Sad - the municipality of Petrovaradin, the city of Sremska Mitrovica, the municipalities of Bačka Palanka, Beočin, Inđija, Irig, Sremski Karlovci, and Šid, within a total of 45 cadastral municipalities. The National Park Directorate is based in Sremska Kamenica. The park covers a total area of 26.672 ha, with 19.308 ha being state-owned, while the remaining 7.364 ha are privately and otherwise publicly owned. The first level of protection covers 3% of the total area, the second level of protection 67%, and the third level of protection 30% (Bojović et al., 2024).


Figure 1. Restaurant Banstolka inside the National Park Fruška Gora (Source: www.google.com)

## RESULTS AND DISCUSSION

**Orgaic farming at National Park Fruška Gora**

The very favorable geographical position of lush mountainous Fruška Gora National Park, great meadow and forest vegetation, as well as the land structure that is favorable to viticulture and cultivation of other fruit species create a number of opportunities for those who would like to deal with a certain agricultural activity (Šarac et al., 2024). From former island in the Pannonian sea, to national park today, Fruška gora counts over 1,500 plant species, 220 bird species, 60 mammal species and 23 amphibian and reptile species Among them, tertiary relicts are designated as relict species: *Laurel Daphne (Daphne laureola), Kitaibelia vitifolia, Campanula lingulata, Cheilanthes marantae chaff.* The Pannonian endemics and subendemics are also relicts from xerothermic communities compared with species of the steppe origin and relicts of steppescented in some parts: *Crambe tataria, Pulsatilla vulgaris subsp* (Mikić et al., 2011). These include *Adonis vernalis, Anemone vitiana, Scilla drunensis,* which, in terms of physiognomy and phytosociological factors, are related to the forests and flowery grasslands of the protected area (Jovanović, 2012). The special feature of the flora is completed by over 30 species of *Orchidacea orchids*, of which 18 are of international importance. Since 2005, Fruška gora has been included in the IPA - Important Plant Areas of Central and Eastern Europe (Mikić et al., 2011).

Acorus calamus is without doubt one of the most valuable species of Fruška Gora. This aromatic meadown plant blooms from May to August and reaches a height of up to 1 meter. The inflorescence is lateral, elongated-cylindrical, rather dense and yellow-green. The rootstock is oblique, with a long main horizontal bulging lateral root, which is much branched, with long lanceolate leaves at the end. Traditional healers recommend taking the root in case of general weakness of the body, stomach and intestinal flatulence, and spasms. It also acts as a purgative for a sluggish stomach and intestines and in glandular diseases and gout. For slow metabolism, anemia, kidney diseases, it was also recommended. Idirot tea should also be drunk by extremely emaciated persons because it excites appetite and is also an excellent means for cleansing the body. Because of its aroma, which reminds of cinnamon, Acorus calamus is used to make an expensive essential oil for cosmetics and perfumes. Powder prepared with ijirot and strong grape brandy is used for various ulcers, gout and colic pain. Speaking of flora, it can praise the highest concentration of lime trees in Europe, which opened the door to developed apiculture. The Fruška Gora lime-tree honey contains more than 60% of lime-tree sag, hence no wonder the geographical origin of this product is protected. Fruška gora is good to keep bees for a couple of reasons.

This mountain range is very appropriate to apiculturists because it is located very near the two biggest Serbian cities—Belgrade and Novi Sad. Also, Fruška Gora is ideally situated with the Danube River passing along its entire length, therefore, there is a diverse and rich vegetation source that can provide blooms in early spring and again in late summer and acts positively on the development of bee colonies. Furthermore, plants provide pollens, the resin of the plants which bees may collect in the forest and thus produce high-quality propolis. Apart from rich flora and fauna, the mountain of Fruška Gora can also boast of a rich world of mushrooms -there are registered over 1,400 species of mushrooms, over 200 of which are medicinal, edible, or conditionally edible. Furthermore, it is also suitable for growing vines and producing wines due to numerous sunny days and high terrains. Since the land composition is extremely favorable, only on this mountain do all varieties of white vines grow. Wines from Fruška gora have long been known for their quality, due to the favorable conditions that this mountain offers to winegrowers (Vuković et al., 2020).

**Female Organic Entrepreneurship at Fruška Gora National Park**

Having in mind all the mentioned above it is no wonder that some women decided to deal with organic production. The first part of the research is the research of the field, using an interview technique with women who are engaged in collecting, production, and selling organic products. For some, it started as a hobby and then turned into the main source of income.Some are included in the production of soaps, creams and shampoos made from medicinal herbs from Fruška Gora. One of the participants in the research is the owner of the company "Freshka gora". She herself picks all the ingredients for her organic products on the mountain. As he says, this kind of production is very profitable.

Another young woman is one to like experiment and to offer a new product to the market. Namely, at the recent events throughout Serbia she introduced her new program of spreads based on the rapeeseed honey, in four flavors: cream honey with cranberry, chokeberry, raisins and chocolate honey which in a very short period was created a real hit among the little ones. They are tasty and do not contain artificial additives and are an ideal substitution for similar creams which can be found in markets all over the country. She is the inventor of a strong refreshing drink made of honey, brandy with the addition of lime - Medolin, quite tasty in combination with schweps. All products are first tested by family, then by friends, and only after their judgment is passed, the product is ready for the market. She is a member of Beehive Cooperative "Košnica", Grabovo (Beočin), the first cooperative at the honey Fruška Gora (largest linden forest concentration in Europe) which described 17 members, founded among other things for more easily accessing and placing the product on the market.

The sustainable development of apiculture this lady said is an efficient method of initiating successful honey production. Beekeeping is a vocation that can be quickly learned; investments are relatively low and quickly returned. It can be practiced by people without an age limit and disabled persons, of different levels of knowledge, of both sexes, within their household. One group of respondents collects mushrooms. They said that edible mushrooms are frequently used in food. Since we can’t always have fresh mushrooms, they are dried, blanched, then frozen, marinated, cooked with mushrooms so they can be eaten all year round. Namely, an increasing number of women decide to deal with wine production at Fruška Gora. One of these is the Vrkatić sisters' cellar. According to the entrepreneurs, their cellar has a short but very interesting portfolio, in which Istrian Malvasia is a great place- a total curiosity from one, and only vineyard on Fruška Gora with that variety. The autochthonous white pea, from which the Vrkatić sisters make authentic white wine, stands out. Practically ideal for their peas white fish, large seashells, asparagus, or delicate pasta with white sauces are in the 2019 vintage; this is juicy and vibrant, extremely fresh, expressing aromas of melon, citrus, and small white flowers.

In Serbia Tanja Đuričić is a well-known name among oenologists. She signs the series of successful wines and is the flag bearer of several cellars. Years ago, at Erdevik winery, she managed to make a streak of great wines, some of which are now world acclaims. One of them happens to be the 2016 Shiraz “Stifler's Mom,” opulent in every way, bearing flavor and character-just like the character of Stifler's mom in the movie „American Pie” that the wine is equated to. Fleshy, liqueur-like, literally bursting with sweet fruit notes and an accentuated character of smoke, tar, licorice and a little vanilla: Stifler's Mom 2016 is this. A full-bodied breed heavyweight, the right wine for an aged rump steak from the grill or just a cube of very good dark chocolate. Mirjana Hemun is the owner of rural tourist household Banstolka. He resides and works in Banstol. Mirjana is the president of the Women's Association "Banstolka" and the Association "Czech Sermon of Srem". She is engaged in the preservation of cultural and spiritual heritage in Banstol and Fruška Gora, as well as rural surroundings.

Mirjana Hemun is recognized for a very specific product "Fruškogorski skočko", which was awarded several medals and recognitions, of which we can especially emphasize the large gold medal at the International Agricultural Fair in Novi Sad. It is honey with stone fruit and dried fruit as an aphrodisiac. Among other products of Mirjana Hemun, white cherry sweet won 1 prize at the Ethno food and drink fair in Belgrade in the fruit products category, while plum brandy won the first prize in commodity group One. Rural tourist household "Banstolka" and Banstolka Women's Association as of January 23, 2020. are the holders of the first HALAL certificate in Serbia. The winner of many prizes for product quality, Mirjana can often be seen with her products at various events in the country. Women's Association "Banstolka" is a very good cooperation with the local self-government and, most frequently, the products from the association and from Mirjana Hemu's rural household are part of the official gift of the Municipality of Inđija, designed as the “Sweet Basket” from Banstol. All of the products coming from this association have the prescribed documentation that they are healthy and safe products, and they can be bought by those who wish at the association's headquarters in Banstol or in the "Our Heritage" Gallery in Novi Sad. This woman also has her own restaurant in which she greets people from all over the world traditionally. Only home-made traditional food cooked with love is served here. The kitchen is full of home-made-production, and they offer to the guests six sorts of brandy: honey brandy, apricot brandy, peach brandy, pear brandy, plum brandy, and walnut brandy. Distil pure homemade, without any additives. She stated that this Women's Association had organized a series of trainings in the field of agricultural production, certification with special emphasis given to organic food production.

**Motives and attitudes of organic products users/tourists**

The second part of the research was survey research. There were 448 respondents who were guests of the restaurant "Banstolka." In the respect of the gender of the respondents, 200 were male respondents while 248 were female respondents. Out of the total respondents, 374 of them claimed that they were from cities and the remaining were from villages— most of them were guests from Serbia (259), others from other countries also being nearly equal in number: Sweden (30), Portugal (26), the Czech Republic (26), Spain (25), North Macedonia (23), Norway (21), Iran (20), and Ukraine (18).

Table 1. Total Variance Explained (Extraction Method: Maximum Likelihood)

| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | **3.167** | 26.392 | 26.392 | 2.881 | 24.011 | 24.011 | 2.358 | 19.653 | 19.653 |
| 2 | **2.211** | 18.425 | 44.817 | 1.739 | 14.489 | 38.500 | 2.145 | 17.876 | 37.528 |
| 3 | **1.605** | 13.376 | 58.193 | 1.254 | 10.448 | 48.948 | 1.335 | 11.126 | 48.654 |
| 4 | **1.276** | 10.637 | 68.830 | .963 | 8.024 | 56.972 | .998 | 8.317 | 56.972 |
| 5 | .929 | 7.740 | 76.570 | | | | | | |
| 6 | .866 | 7.213 | 83.783 | | | | | | |
| 7 | .563 | 4.694 | 88.477 | | | | | | |
| 8 | .500 | 4.169 | 92.646 | | | | | | |
| 9 | .391 | 3.256 | 95.902 | | | | | | |
| 10 | .369 | 3.078 | 98.980 | | | | | | |
| 11 | .070 | .581 | 99.561 | | | | | | |
| 12 | .053 | .439 | 100 | | | | | | |

Table 2. Factor Matrix[a]

| | Factor | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| v1 | .894 | -.399 | -.005 | -.015 |
| v2 | .886 | -.367 | .063 | .044 |
| v3 | .659 | .083 | -.201 | .133 |
| v4 | .590 | .774 | -.026 | -.020 |
| v5 | .538 | .783 | .008 | .009 |
| v6 | .251 | .288 | .288 | .402 |
| v7 | -.048 | .144 | .728 | .114 |
| v8 | -.017 | .263 | .285 | .060 |
| v9 | -.145 | .115 | .669 | -.057 |
| v10 | -.288 | .130 | .148 | .015 |
| v11 | -.037 | .138 | -.168 | .570 |
| v12 | -.233 | -.064 | -.129 | .660 |

Tables 1 and 2 present the results of the factor analysis. In this manner, a model was obtained that groups the variables into four factors explaining a total of 68.830% of the variance. They are named as follows:

**Factor 1. Health:** In most cases, organics contain more antioxidants, vitamins, and minerals. For example, since organic fruits and vegetables contain considerably higher levels of vitamin C and other antioxidants, they can support the immune response and have anti-disease effects. The most fundamental concept in organic production is to cautiously reduce or fully avoid applicability of synthetic pesticides, herbicides, and inorganic fertilizers that directly affect risks of chemicals generally imposed in conventional agriculture to consumers. Several researchers have reported that risks associated with exposure to pesticide residues could be linked with the development of various health complications such as cancer; disorders within the endocrine systems, and neurological diseases. By providing an alternative with its products, organic agriculture contributes to a reduction of this risk, which is especially important with children and during pregnancy, wherein organisms are generally more sensitive to toxic substances. Hence, most responses from the respondents were clustered around the factor "health." People mind what they feed into their bodies. It makes them feel better, more energetic; their skin becomes pretty and bright, and they do not feel bloated. In the overall view, the health factor recorded the highest factor loading among the respondents, and it happened to be the most motive of all.

**Factor 2. Emotions:** This factor was combinated with answers that referred to different evoked memories. The respondents associated organic food with love, happiness, good memories of childhood, and food that was served in the villages, at the grandmother's house. Others chose organic products because of a feeling of intimacy with the product itself, that it was something meant only for them. Emotions are a great motivation. Nostalgic memories can be related to so many ways, from food prepared with love, such as foods made for special pizzas, to the herb picking for the homemade jams and compotes, which reminded users of some dishes, up to the production of soaps or creams with medicinal herbs. The smells, the taste, and the view of the product awaken the consumers' memories of how they decide to buy the products. The second most mentioned factor was emotions.

**Factor 3. Environmental protection:** Organic production involves not only the effort to ensure a more nutritious and healthy diet for individuals but also to ensure harm to the environment is minimal. Long term sustainable management of agricultural lands leads to the maintenance and enhancement of soil fertility, enhanced bio-diversity, and rather minimized all forms pollution. Organic production is the entire farming and food production management system which enables the adoption of best ecological practices, combined with high ever levels of biological diversity and conservation of natural resources, and also provides the highest standards of animal welfare. The aim of the production is to comply with the desire of a particular consumer to buy products that are produced according to nature which is reached on the basis of natural processes. A growing number of people understand the issues of sustainability and all the principles of sustainable development. Sustainability is one of the main complicatedly essential issues in the business area for future developments. The site of preservation of the environment is also reflected in those respondents choosing organic products specifically because of the preservation of the environment. This factor is the third largest in the sample.

**Factor 4. Trend:** To a much lesser extent, compared to the other three, but still present among the respondents, there was a factor that grouped motives and attitudes related to the trend. The trend in the world is to be trendy. Today more than ever we talk about health, healthy food, healthy lifestyle. Individuals following the trends they see on the Internet and social networks probably unknowingly become consumers of organic products.

Structural Equation Modeling (SEM), as illustrated by the representative graph (Figure 2), reveals the interdependence of the identified factors, both in relation to one another and with distinct isolated attitudes. The results in Table 3 show that certain variables influence motives and attitudes toward consumers of organic products. Specifically, trend, as a motive for consuming organic products, inflicts, in fact, ultimate long-term negativity on the choice in organic products. This is because a trend is prone to change and, hence, those consumers motivated by the trend do not etch motivators for the consumption of organic products on their stone. Motivator "environmental protection" for consuming organic products also indicates some negativity and goes with consumers' decision to place themselves in the green establishment. Since attitudes are apt to change, such motives do not exhibit permanence. More concretely, the non-uniformity in responses also depicts the background of where the consumers are from. This is assumed to be the reason that people in the city have definitely higher exposure to stress and other such health-related problems; therefore, awareness comes automatically for healthy as well as organic food and products. Contrary to this, people in the village section basically live healthy and consume organic products, so they do not even think about such products. In the case of buying organic products, gender does not influence the choice in any way. Finally, it can be concluded that both males and females understand healthy food to an equal extent.

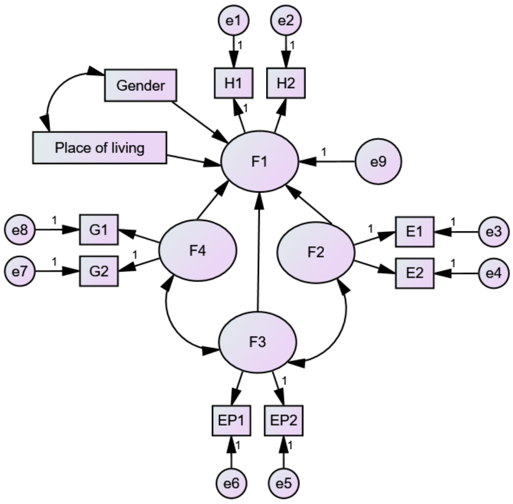


Figure 2. Structural Equation Modeling (SEM)(Source:Authors, 2024)

Table 3. Standardized Regression Weights: (Group number 1 - Default model)

| | | | Estimate |
|---|---|---|---|
| F1 | <--- | F4 | -.065 |
| F1 | <--- | F2 | .235 |
| F1 | <--- | F3 | -.033 |
| F1 | <--- | Gender | .184 |
| F1 | <--- | Place | -.056 |
| H1 | <--- | F1 | .960 |
| H2 | <--- | F1 | .977 |
| E1 | <--- | F2 | 1.075 |
| E2 | <--- | F2 | .859 |
| EP1 | <--- | F3 | 2.927 |
| EP2 | <--- | F3 | .167 |
| G1 | <--- | F4 | .344 |
| G2 | <--- | F4 | 1.169 |

**CONCLUSION**

The share of organic agriculture in Vojvodina (Serbia) is continuously growing, although it is still rather scant—in the total volume of agricultural output, this figure currently accounts for just 1%. In Vojvodina, the best-developed agrarian region of the country, organic production is increasing. A study conducted several years ago proved that as much as 60% of the overall production is aligned with organic (Grujić et al., 2021). Such figures are, however, not pivotal. Interest in this field is ever-expanding from both the production and consumption sides in Serbia and Vojvodina. Several initiatives, education campaigns and public support in terms of subsidies to induce producers into applying organic production methods certainly fuel this expansion. There is, moreover, a growing number of consumers who are aware of the benefits of these products for their health and the environment; thus the offer cannot satisfy the demand. There have been identified some essential factors owing to which interest in organic agriculture keeps on (Knežević et al., 2024).

Support from the government and other forms of financial aid highly feasible for those willing to switch to organic production. Further, consumer education as well as technological guidance and skills is also part of the setting. At this point, apart from these levels of education to the consumers, there are increasing education campaigns through media, as well as social networks that trigger the demand further from organic products. This automatically takes the demand for organic produce to another level; with health trends, going green, and sustainable development, the market base is maintained. Meanwhile, most modern producers today specialize in organic production, which fulfills all the conditions of modernity and sustainability in terms of environmental health. Aside from that, organic agriculture is environmentally friendly since the sector deters the use of various chemical substances, including synthetic pesticides and inorganic fertilizers. It also aims at conserving the biodiversity of soil and enhancing soil quality. Modern-day producers love this because it resonates with their principles. Organic agriculture accounts for a relatively small share, though the trends are of steady growth and increasing interest. If the support and promotion are continued, then organic agriculture has every reason to advance and develop in the next few years, enhancing the health, sustainability and economic well-being of agricultural communities in Serbia and Vojvodina. This research has shown that consumers' motives and attitudes play a significant role, from Serbia or around the world, in determining that ‘‘the motive of health” is the most significant one when choosing healthy, organic food. All the other factors are much less represented. Health is the most important motive and the most current need of mankind. Organic food is a condition of healthy nutrition. In the same way, the empowerment of women is a condition of healthy society development. Therefore, the interconnection of the aforementioned preconditions creates a supportive environment for sustainable women entrepreneurship through Rural Tourism.

The results confirmed hypothesis H: "that organic production represents the basis of sustainable female entrepreneurship.". We saw that organic production and organic food are needed. We have also seen that this is a good development opportunity in rural areas. Women saw this and started to notice their potential. And one more thing—the biggest limit is the problem women face every day. A patriarchal society in which male-domination wants to limit as many women as they can to forbear from making the decision to engage in entrepreneurship within the sphere of organic production. Research generally should liberate even more women. Economic independence brings emancipation, and from all points of view, organic production is the best development chance for both women and rural areas; therefore it's a great win in this light.

**Limitations and future research directions**

The research depicted two brighter sides of organic production in rural areas-firstly, a strong demand for consuming organic products and, secondly, ample potential for women to undertake organic production. Despite certain constraining factors, it is quite evident that women in patriarchal societies, such as Vojvodina (Serbia), still live under the shadows of their fathers and husbands. Living in shadow is a condition for the extremely sensitive and unprotected category of village women. These women are very sensitive and vulnerable sections. Most of them are actually quite clever and hard-working, brimming with ideas and a lot of pent-up energy in trying to assert themselves and show what they are capable of doing. But what they lack is support, which is the single most important thing for success. It is like everybody needs the push-up effect, and support can be from many sides. The authors feel that the Women's Association is extremely important, and such agencies can help a lot in empowering women. Especially the workshops and educations that can be organized.

Much research, projects, and empowerment have to be done to reach them and be aware that they are important, that they are valuable and form a pillar of any successful society. A strong empowered woman is a happy woman and a happy woman is a driving force that if properly directed and used can do wonders and contribute significantly to national economies building up. There are quite a few Women's Associations but it is not enough yet. Still, there exist women who are ignorant about the possibilities and potentials of the rural destinations where they live. Thus, in our opinion, research of that kind should be the one initiated and financed by decision-makers at the very highest levels. But the very first steps have been taken. Only continuity and stubbornly moving forward give a guarantee of success.

**Author Contributions:** Conceptualization, A.V. and R.B.; methodology, A.V. and D.N.; software, M.D.J.; validation, M.J.T. and A.V. and R.B..; formal analysis, A.V.; investigation, D.N. and M.J.T. and M.D.J.; data curation, M.D.J.; writing - original draft preparation, R.B. and A.V.; writing - review and editing, A.V.; visualization, A.V.; supervision, M.D.J. and M.J.T. and A.V.; project administration, D.N. and R.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research is part of research funded by the MSTDI RS, agreed in decision no. 451-03-66/2024-03/200009 from 5th February 2024; This research was supported by The Science Fund of the Republic of Serbia, GRANT No. 7739076, Tourism Destination Competitiveness - Evaluation Model for Serbia -TOURCOMSERBIA.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 22.09.2024 Revised: 07.11.2024 Accepted: 11.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2152-2163
DOI 10.30892/gtg.574spl29-1382

# MUSEUMS' POPULARITY IN BOSNIA AND HERZEGOVINA, WITH ITS CAPITAL (SARAJEVO) AS THE LEADING MUSEUM DESTINATION

**Lejla ŽUNIĆ***

University of Sarajevo, Faculty of Science, Department of Geography, Sarajevo, Bosnia and Herzegovina, e-mail: lejla.zunic@pmf.unsa.ba

**Citation:** Žunić, L. (2024). MUSEUMS' POPULARITY IN BOSNIA AND HERZEGOVINA, WITH ITS CAPITAL (SARAJEVO) AS THE LEADING MUSEUM DESTINATION. *Geojournal of Tourism and Geosites*, 57(4spl), 2152–2163. https://doi.org/10.30892/gtg.574spl29-1382

**Abstract:** Museum development in Bosnia and Herzegovina, especially in the capital (Sarajevo), is an accompanying phenomenon of the overall tourism development. The paper aims to identify and valorise top museums in Bosnia and Herzegovina in order to comprehend tourism and museums growth features, including the tourist perceptions, which are important for sustainable museum and tourism planning. Tourism and museum expansion were investigated concurrently, with over 30,000 visitor reviews. The top museums were identified by analysing and evaluating reviews on popular travel information websites, taking into account the highest frequency and rating, and relying on the GIS mapping for their spatial visualisation. Statistical analysis and cartographic demonstration were conducted to determine the trends in museum and tourism development. The popularity of museums provides understanding visitors' interests since reviews are a vital component of destination marketing and planning for long-term development. Bosnia and Herzegovina, particularly its capital Sarajevo, exemplifies the cohesion of tourism and cultural (museum) evolution. Key attributes of popular national museums enhance comprehension of the cultural dimensions of tourism development. The National Museum of Bosnia and Herzegovina and war museums (Tunnel of Hope and Gallery 11/07/95) account for 50-90% of total excellent reviews, making them top museums in the country. Dark history (1992–1995) has a significant impact on museum settings, contributing to the building and preservation of the country's cultural identity while also promoting Sarajevo as a famous European city under the former longest siege in modern European history and today's leading tourism and museum destination.

**Keywords:** museums, tourism, cohesion, identification, valorisation, reviews, popularity, dark history, planning, promotion

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## INTRODUCTION

Museum development in Bosnia and Herzegovina has been intensified in the last two to three decades, along with the country's steady tourism development, which is particularly prominent in the area of Sarajevo (capital), leading in terms of its share in the museum sector. Museums are the most representative and touristically visited cultural, educational, and scientific institutions and one of the key elements of the tourist infrastructure primarily in urban areas. The identification and evaluation of top museums provide comprehension of the characteristics of museum growth and their contribution in the cultural and tourism development of the country, thus clarifying trends for further museum planning and destination culture promotion. „Museums are one of the most important socio-cultural benefits of tourism because they preserve and present heritage, improve science, education, and cultural profiling, encourage employment and visitation, provide a better stay, generate income, and contribute to environmental urbanization and higher living standards“ (Žunić et al., 2023:131). "A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Museums foster diversity and sustainability. They offering varied experiences for education, enjoyment, reflection and knowledge sharing" (ICOM, 2022). Mitrică et al. (2021) highlighted museums as an important component of anthropogenic sustainable tourist resources. In Bosnia and Herzegovina, where tourism is the fastest-growing strategic branch of the economy, the positive tourism impact on museum development has been recognised. "In 2019, Bosnia and Herzegovina had the third-highest tourism growth rate in the world, and tourism contributed more than $456 million to the economy" (USAID Fact Sheet, 2019). Based on the state tourism data analysis, Sarajevo is the most visited destination in Bosnia and Herzegovina, accounting for nearly 42% of total tourist arrivals in 2023 (Bosnia and Herzegovina: 1.733.071; Sarajevo: 716.293), as seen in the Fig.5. Museums, as the basic component of cultural and tourism infrastructure, particularly in urban destinations, are among the most popular attractions in the country. Mitrică et al. (2018) presented emphasised urban areas as the most popular for museum visits. Accompanied by the tourism growth during the last three decades, „approximately thirty museums of a predominantly thematic character have been established, particularly in the country's most visited destination (Sarajevo)“ (Žunić et al., 2023, p.131). Tourist impressions are among the essential promotional aspects of tourist sites, and evaluating tourist experiences and satisfaction is a key principle and a required component of the sustainable monitoring of a tourist destination. The WTO's key goals for sustainable tourism include evaluating the quality of tourist products, services and experiences, or tourist satisfaction, that are critical in order to improve the tourist offer and promote sustainable tourism development. „Tourist satisfaction measures the subjective impressions of tourists. Asking tourists whether they are satisfied can be very helpful when identifying lacks of quality and possibilities of

* Corresponding author

improvement" (UNESCO, 2009). Therefore, tourist satisfaction can be understood through the visitors' feedback on particular tourist products, e.g., museums. „Feedback on tourism products provided by tourists in structured and unstructured ways, e.g. in the form of customer ratings, comments or product reviews" (Höpken et al., 2018). For the purpose of this paper, Bosnian museums' reviews were observed to identify the top museums in the country. Sarajevo, the capital and a well-known „European Jerusalem" (home to Muslims, Orthodox and Catholic Christians, Jews, and other ethnicities), as the most popular Bosnian destination, leads in terms of museum density and museum popularity as well. The most numerous and highest internet ratings (e.g., Tripadvisor, and other platforms reviews observed in the paper) are not only a tool to promote a museum, but they are also a draw factor for tourism destinations, as they encourage new arrivals and increase museum attendance.

## METHODOLOGY

The paper aims to identify and promote Sarajevo as a leading museum destination in Bosnia and Herzegovina. The role of the country's capital in promoting tourism and utilising museums as the most significant cultural and educational tourist sites will be determined by analysing museum development in the country and evaluating their tourist popularity. Phases of the research are as follows: I. spatial development of museums in Bosnia and Herzegovina, with Sarajevo as the most prominent area; II. tourism valorisation of the most popular museums in Bosnia and Herzegovina, including the capital (Sarajevo) as the leading museum destination; III. cultural and tourism-geographical identification of Sarajevo's top museums along with their cartographic extension. The methods of the research include: a) the spatial, tourism and attributive museums' identification and valorisation; b) statistical analysis of official data on culture and art at national level, along with their Excel processing and graphics presentation; c) fieldwork accross the country, but mostly based in the capital (observations, interviews); e) spatial and cartographic analysis based on Google Earth Maps, which represents an important tool for the geographical objects (museums) identification by orthophoto images; f) data archiving and GIS mapping along with the creation of thematic museum maps for Bosnia and Herzegovina, and for Sarajevo Canton, as the leading tourism and museum destination in the country. Statistical national and the capital tourism & cultural (museum) data partially relies on the results from the previous study of museum development in Bosnia and Herzegovina (Žunić et al., 2023), as well as on the updated field observations and findings from the interview with museum' workers (5), including a massive data collected on the internet related to the Bosnia and Herzegovina museums' promotion; together they were analysed to identify the museums' development. The reviews of 33,348 visitors, which are transparent on famous travel and cartographic portals (Tripadvisor, Top-Rated.online, Safarway, Things to Do- Sarajevo Navigator, Google My Maps, Google Earth Maps, and Google reviews), were analysed for the tourism valorisation of the popularity of museums in Bosnia and Herzegovina. For the threshold of leading popularity, the reference of an average rating of 4.5–5 stars and a contingent of 1000+ reviews by BiH museum visitors from across the world at the level of summarised reviews is established, while 500+ per individual sample (due to the uneven number of reviews on different portals). Based on the evaluation model established in this way, the most important museums in Bosnia and Herzegovina have been ranked and selected, and the Sarajevo museums have been placed at the top of the list, marketing the capital as the leading museum destination in the country. Since the selected museums have been identified for their international significance, they are explored more closely in the paper, guided by the attributive tourist-geographical identification of cultural attractions and supplemented with thematic and orthophoto maps. The research will determine the top museums in Bosnia and Herzegovina according to tourist impressions, but will also explore the key role of Sarajevo museums in the country. Tourism and museum statistical and spatial analysis at the national and capital city levels will highlight the cohesion of tourism and museum development, as well as the major cultural and tourism functions of Sarajevo as a leading destination in the country. The paper will also promote top Bosnian and Sarajevo museums, including their attributive features; thus, it will help to understand the impact of tourist impressions on the museums and destination popularity as well, but it will also highlight the role of national history in its cultural image formation.

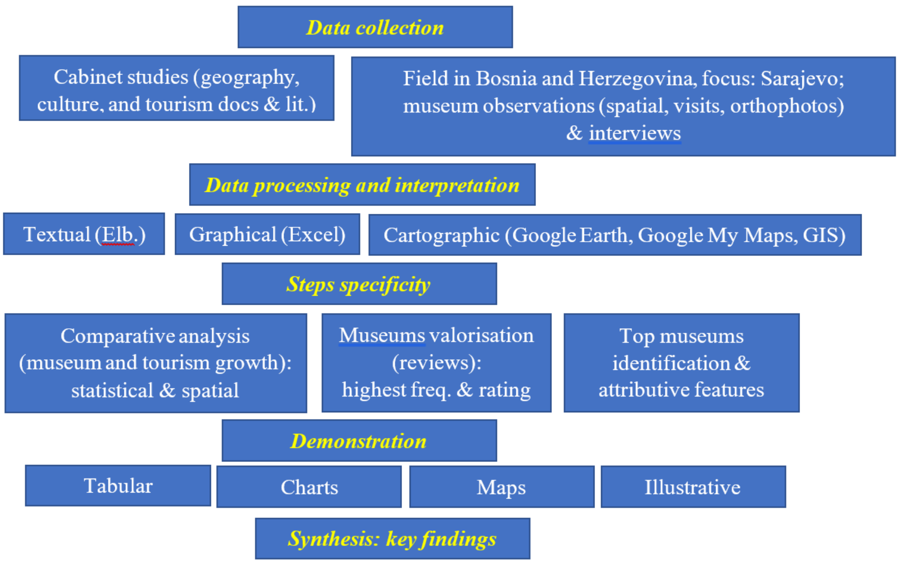


Figure 1. Methodology flowchart (Source: Author, 2024)

The flowchart of methodology is presented in Figure 1, demonstrating the phases of the research and the methods applied in the paper: data collection, data processing and interpretation, specificity of steps, demonstration, and synthesis. Data collection included both cabinet and fieldwork. Data processing implemented textual, graphical, and cartographic interpretations. Steps specificity relies on the comparative analysis of museums and tourism growth and museums identification and valorisation. Demonstration of the results appears as tabular, charts, maps, and real object photo illustrations. Synthesis reflects in key findings that Sarajevo is the largest home to the most popular museums in the country and the Bosnian leading museum destination.

**RESULTS AND DISCUSSION**

**1. Spatial development of museums in Bosnia and Herzegovina, focusing on Sarajevo as the most prominent area of museum blooming**

Bosnia and Herzegovina is the western Balkan country with a total population of 3.531.159 and a multiethnic composition (Bosniaks 50.1%; Serbs 30.8%; Croats 15.4%; others 3.7%: Jewish, Romi, Albanians, etc.).

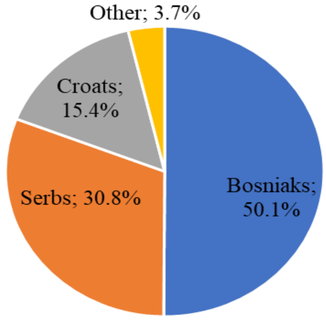


Figure 2. Ethnic composition of Bosnia and Herzegovina according to Census 2013 (Source: Author, adopted data from Federal Bureau of Statistics of Bosnia and Herzegovina)

Figure 2 illustrates the ethnic composition of Bosnia and Herzegovina based on the 2013 Census, representing the three major constituent ethnic groups: Bosniaks (Muslims), Serbs (Orthodox Christians), and Croats (Catholics), making up 96.3 percent of the total population. It's a developing region with tourism as one of its strategic activities. Sarajevo (capital) is popular as "the European Jerusalem", as well as the most visited area in the country- it's a leading tourism destination. Museum development of Bosnia and Herzegovina has begun during 19.ct. with the first (National) museum established in 1888 in its capital (Sarajevo) during Austrian-Hungarian occupation. "The Museum of National Liberation of Bosnia and Herzegovina (1945), the Art Gallery of Bosnia and Herzegovina (1946), and the Museum of Sarajevo (1949) were among the first museums in the country, followed by numerous other museums, resulting in a relatively large and extensive network of museums in the country. The museum's progress was halted by the war (1992–1995). Bosnia and Herzegovina has recorded a positive trend of establishing new museums, primarily thematic ones, in the past three decades (since independence in 1992); Sarajevo, the capital and the country's most important cultural and tourist destination, leads in terms of total number" (Žunić et al., 2023). "Tourism development in Bosnia and Herzegovina encouraged the establishment and building of numerous cultural and educational institutions, particularly museums of various themes, which remain an important part of the tourism supply" (Žunić, 2022).

According to Žunić et al. (2023), the period of 2009–2019 has been recognised as the "golden" decade of museums and tourism blossoming in Bosnia and Herzegovina, while their highest density is in the area of Sarajevo. The study explored the identification table of new museums in Bosnia and Herzegovina established during the mentioned decade; according to the table, at least 60% of all museums developed during this stage. According to the World Tourism Organisation (2021), there has been a continuous rise in the global tourism from 2009 to 2019, which includes Bosnia and Herzegovina. In terms of total tourism and museum development, Sarajevo leads the nation in museum expansion. The study by Žunić et al. (2023) examined the relationship between tourism and cultural cohesiveness, given the significance of museums in the tourism industry. Figure 3 represents an exponential growth of tourist arrivals in Bosnia and Herzegovina over nearly the last two to three decades, or precisely from 1998 to 2023 year. Figure 4 shows continuous growth in visitor arrivals in Sarajevo, accompanying a positive trend in the country.

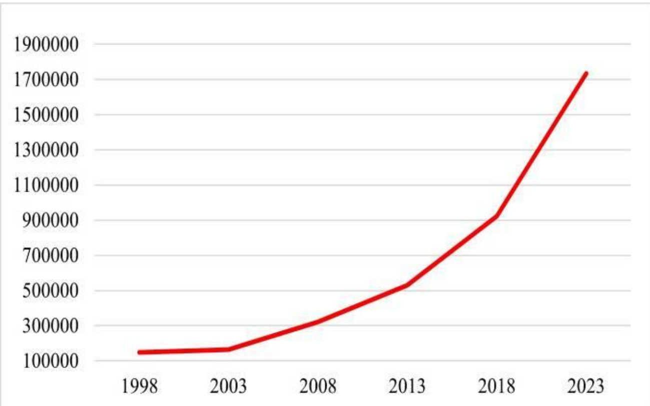


Figure 3. Growth of total tourist arrivals in Bosnia and Herzegovina during 1998–2023 (Source: Author, adopted data from Republic of Croatia Ministry of Foreign and European Affairs and The European Commission Platform of „Worlddata.info")

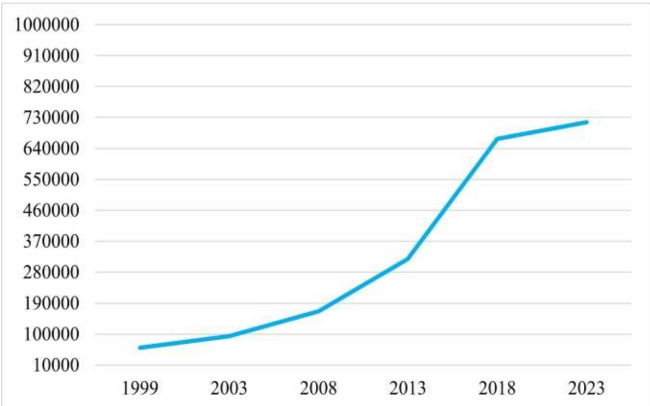


Figure 4. Growth of total tourist arrivals in Sarajevo Canton during 1999–2023 (Source: Author, adopted data from Development Planning Institute of the Sarajevo Canton and Institute for Informatics and Statistics of Sarajevo Canton0

Figure 5 demonstrates Sarajevo's predominant proportion of Bosnia and Herzegovina's total arrivals, accounting for 41.33 percent. The national and its capital tourism blooming has stimulated museum development. Figure 6 demonstrates a positive trend in the number of museums in Bosnia and Herzegovina for the past decade.

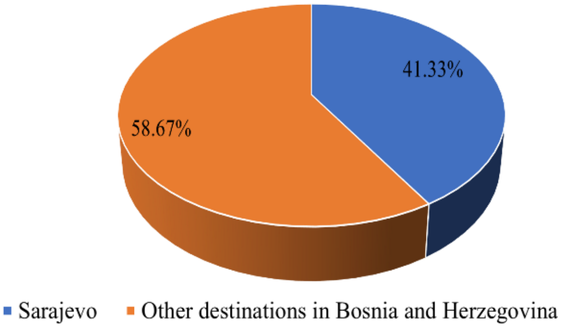


Figure 5. Sarajevo's proportion to Bosnia and Herzegovina's total arrivals in 2023. (Author, based on the statistical data from Institute for Informatics and Statistics of Sarajevo Canton and Ministry of Foreign and European Affairs of the Republic of Croatia)

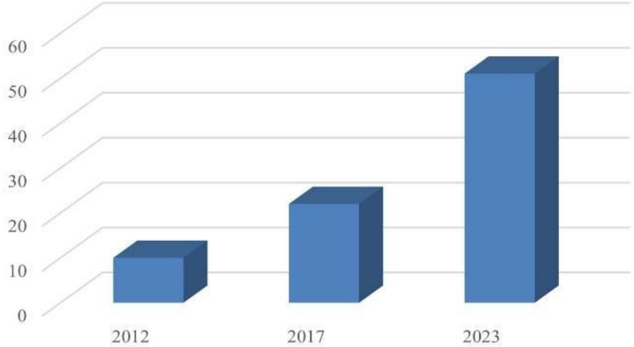


Figure 6. Growth in the number of Bosnia and Herzegovina's museums from 2012 to 2023 (Source: Author, adopted values from statistical bulletins “Culture & Art” of Federal Statistical Office and Republic Institute of Statistics, and supplemented by own field and internet research data)

According to Figure 6, two stages in the museum development can be classified within the observed decade from 2012 to 2023: a) moderate but continuous increase (2012–2017), and b) exponential growth (2017–2023). The moderate stage demonstrates lower investment in museum activity development, which was confirmed in an interview with several museum employees in Sarajevo, as well as in the results of the study by Žunić et al. (2023). Namely, the key problems of museum development in Bosnia and Herzegovina are: small size and poor facilities; a lack of experts; divergent political interests; financial obstacles; property negotiations between entities and districts; the museum's name reorganisation; low salary; poor statistical monitoring; etc. This stage, however, still indicates efforts to improve the museum network due to the growing tourism in the country, as museums are an important part of the tourism industry and "some of tourists’ favourite choices" (FMI, 2023). The stage of exponential growth is a relevant indicator of rising awareness and more effective efforts to improve the cultural (museum) image of the country, particularly because museums provide controlled entry and significant fees, which contribute to the total tourism revenues. This stage could also be recognised as the battle to revitalise national tourism after COVID-19, including more significant investing in museums to enhance tourism supply.

Figure 7 shows museum spatial distribution across the country, with the densest concentration in the focal point of Sarajevo. The light red polygon on the map indicates that the majority of Bosnia and Herzegovina's museums are located in the country's capital. Consequently, the cartographic extract on the right represents the most important museums in Sarajevo. The majority of these museums were established in the years that followed the war, and their main focus has been on specific themes, the war memorials for example, and others.

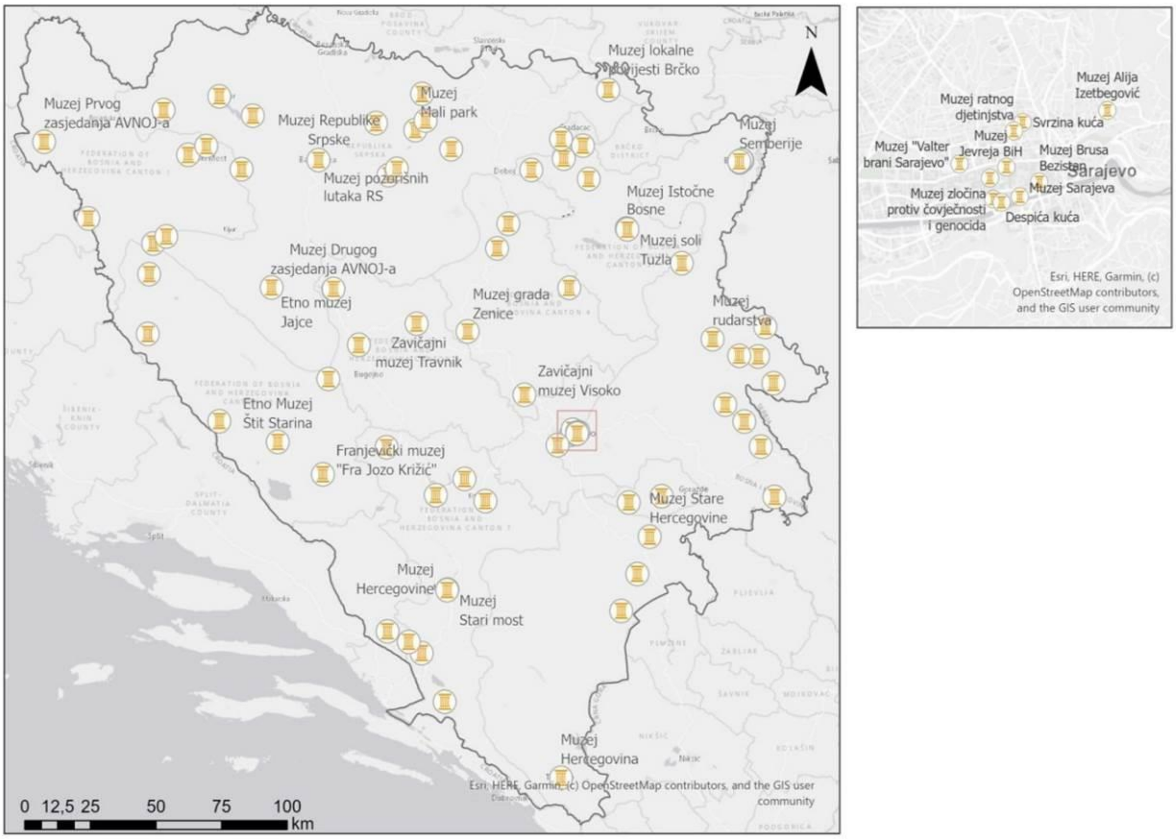


Figure 7. Spatial dispersion of Bosnia and Herzegovina’s museums (Source: Žunić et al., 2023)

Figure 8 demonstrates that Sarajevo is home to the majority of the country's museums, accounting for 60% of the total. Comparing the data from the terrain observations and the museum data from official statistics, it's evident that the number of museums in the country is actually higher than in the statistical books, particularly in the area of Sarajevo.

This was discussed in one of the previous studies (Žunić et al., 2023), while the main reasons for this situation are: grouping museums, statistical errors, and the desintegrity of data on the national level due to the country's complicated governmental structure (two entities and one district). However, Sarajevo is steadily expanding its network of museums, as evidenced not only by the percentage of the city's museums in the total country's museums, but also by the fact that any traveller may observe the museums' notable presence in the area. According to the most recent observation period (2012–2022), the national museum collections had been expanding at an average annual rate of 2.02% (author's calculation based on the data from both Institutes of Statistics in the Federation of Bosnia and Herzegovina and the Republic of Srpska), suggesting a modest but encouraging improvement in this area. The museum collections are diverse despite museum institutions being generally small in size; many of the youngest museums in Bosnia and Herzegovina, particularly in the capital, evoke dark memories of the country's recent war, siege, and sad childhood. According to Figure 9, four categories comprise nearly two-thirds (71%) of the national museum collection in Bosnia and Herzegovina.

These categories are ethnological, archaeological, natural, and historical. Collections from historical and archaeological museums comprise a vast array of artefacts from dark history, evidence from excavations, and materials related to war; these kinds of collections are constantly enhancing connections with recently discovered mass graves, new war traces, and other noteworthy war artefacts. Observing the data from 2021 at the Agency for Statistics of Bosnia and Herzegovina (2022), the country's national museum's national heritage comprises more than 3.1 million artefacts. The natural museum collection is the richest with artefacts, with about 2.5 million pieces, accounting for approximately 81% of all museum items. The literary collection comes in second with over 360 thousand artefacts, while the combined or gathered historical, archaeological, and ethnological collections account for 250 thousand artefacts, etc.

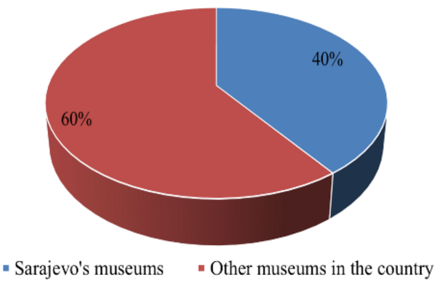


Figure 8. Share of Sarajevo's museums in the total number of BiH museums in 2023

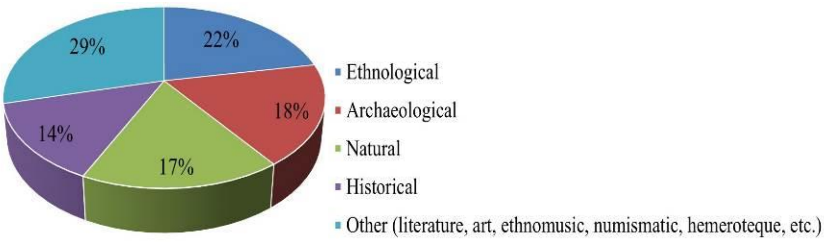


Figure 9. Museum collections' structure in Bosnia and Herzegovina
(Source: Author, adopted data from
Agency for Statistics of Bosnia and Herzegovina data)

**2. Tourism valorisation of the Bosnia and Herzegovina museums: Sarajevo museums are leading in terms of their touristic popularity in the country**

Under the category of "Best museums in Bosnia and Herzegovina," an online search conducted through the readily available tourist and information portals (Trip Advisor, Google Reviews, Google My Maps and Google Earth Maps, Top-Rated.online, Things to Do- Sarajevo Navigator, Safar Way) revealed that Sarajevo is promoted as the leading museum tourist destination in the country. The reason for this is that all the top-ranked and most frequently reviewed museums in the country are located in Sarajevo (Federation of BiH, Bosnia and Herzegovina). However, as the required 500 reviews were not received by all museums in the country, those in the Brčko District and the region of a smaller entity (RS, Bosnia and Herzegovina), for example, did not even meet the requirements for short selection.

Table 1 identifies the museums in Bosnia and Herzegovina with the highest and most numerous reviews, as determined by the work methodology (1000+ reviews with a rating of 4.5–5 per museum at the level of summarised evaluations from multiple portals, i.e., 500+ per individual evaluation source). Since every one of the chosen museums is housed in Bosnia and Herzegovina's capital, Sarajevo museums have the highest level of popularity among visitors to the country.

Table 1. Growth in tourism flows in Bosnia and Herzegovina for the 2017-2022 period
(Source: Author own research - based on summarised internet reviews of Bosnia and Herzegovina museums)

| Museum | Source/ Portal | AM 4.5-5* | Reviews 1000+ |
|---|---|---|---|
| Gallery 11/07/95 | Tripadvisor, Google & Maps, Top-Rated.online, Things to Do- Sarajevo Navigator | 4.8 | 4.662 |
| Museum of Crimes Against Humanity and Genocide (MCHG) | Tripadvisor, Google & Maps, Top-Rated.online | 4.8 | 3.253 |
| War Childhood Museum (WCM) | Tripadvisor, Google & Maps, Top-Rated.online | 4.8 | 2.388 |
| Sarajevo Tunnel of Hope (STH) | Tripadvisor, Safarway | 4.7 | 8.639 |
| The National Museum of BiH (NM BiH) | Google & Maps, Top-Rated.online | 4.7 | 6.841 |
| Sarajevo City Hall (SCH) | Top-Rated.online | 4.7 | 4.500 |
| Museum of Optical Illusions (MOI) | Google & Maps, Top-Rated.online | 4.7 | 1.965 |
| Sevdah Art House (SAH) | Top-Rated.online | 4.7 | 1.100 |
| **Total Reviews:** | | | **33.348** |
| **AM:** | | **4.74** | |

According to Figure 10, the most well-represented museums in the overall structure of reviews are: Sarajevo Tunnel of Hope (STH), the National Museum of Bosnia and Herzegovina (NM BiH), and Gallery (11/07/95), etc. The share of the aforementioned museums in the total reviews by const. grade 5 is about 50–90%. The reasons for the tourist popularity of the selected museums are: the highest number of visitors; location in the capital; the capital as the leading tourist destination in the country; museum accessibility; the most powerful propaganda (which is also growing in popularity thanks to positive reviews on the Internet); theme and content of the museum (for example, two of the first three museums are war-themed: the Sarajevo Tunnel and the Gallery, while one is of a general type and is the oldest - the first founded museum in the country: National); the visitors' most profound impressions - a more potent experience prompted by the arousal of intense emotions like sorrow, agony, and compassion—that emerge, for example, when visiting a museum with a wartime subject.

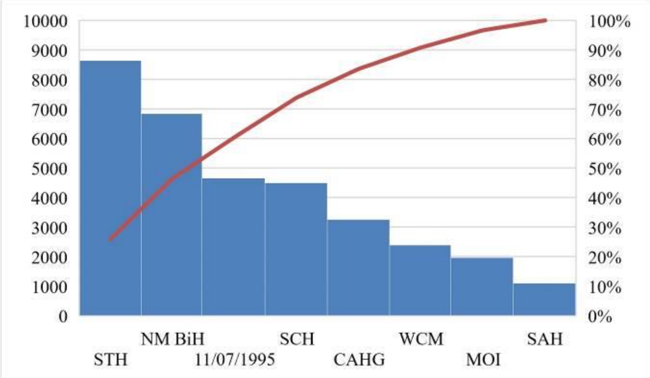

Figure 10. Top-museums in Bosnia and Herzegovina (const. 5*) according to the number of reviews. Abbreviations for the museum's name correspond to its full name, shown in Table 1 (Source: Author's own research)

Table 2.[1] Top Bosnia and Herzegovina's museums - all located in Sarajevo destination - typological and tourism overview (Source: Author)

| Museum | Birth | Area (sq m) | Location | Accomodation | Visitors |
|---|---|---|---|---|---|
| Gallery 11/07/95 | 2012 | 300 | Sarajevo downtown (Old town) (E-NE) | Adapted section in the Austro-Hungarian residential building | ND |
| Museum of Crimes Against Humanity and Genocide | 2016 | ND | Sarajevo downtown (Old town) (E-NE) | Adapted section in the Austro-Hungarian residential building | 300.000 (2016-2023) |
| War Childhood Museum | 2017 | ND | Old town (NE) | Ground-floor object from 1960s of the last century (former Logavina cultural centre "Home of Culture") | 20.000 (annual average) |
| Memorial Complex with Tunnel of Hope | 1993 | 52.000 | In the common area of two municipalities: Novi Grad & Ilidza (SW) | Authentic underground object beneath the International Sarajevo Airport | 160.000 (2023) |
| The National Museum of Bosnia and Herzegovina | 1888 | 27.922 | Sarajevo City centre (E) | Renaissance-style Austro-Hungarian building complex with four pavilions | 100.000 (2022) |
| Sarajevo City Hall | 1896, 1995, 2014 | ND | Old town (E) | Authentic Pseudo-Moorish building with the museum in its basement | ND |
| Museum of Optical Illusions | 2020 | 300 | Sarajevo City centre (E-SE) | | |
| Sevdah Art House (Big Daire) | 1776, 2008 | 270 | Bascarsija, Old town (E) | Adapted object from 18.ct. (former merchant warehouse, "Hadžimura-tovic or Hajji-Ibrahim big daire") | ND |

Figure 11 demonstrates the spatial distribution of the leading (top) museums in Bosnia and Herzegovina based on the results of valorisation presented in the paper—all of them are situated in its capital of Sarajevo, with the densest concentration in downtown (mostly in the historic core of the Old Town—Stari Grad).

### 3. Tourism-geographical and cultural identification of the country's (Sarajevo) top museums

*Memorial complex tunnel D-B* (total area of 52.000 sq m), the Sarajevo War Tunnel of Hope (length: 720 m, width: 50 m, height: 1.5-2 m) was established during Bosnia and Herzegovina's war (1992–1995), thus it represents an authentic war and memorial site related to Sarajevo's contemporary dark history. The underground tunnel beneath Sarajevo Airport was built in 1993 under challenging war conditions and constant shelling, and it was used to transfer people and goods (food, weapons, medicine, and wounded), first on the back and hands, and later on a narrow railway and small waggons, but also to establish a telephone connection between Sarajevo and the free territory.

The museum's international tourist significance is ascending due to „its strong emotional impact and high tourist experience" (Žunić, 2022), best propaganda (the largest representation on tourist information portals), and highest value according to tourist impressions, as indicated by the largest number of reviews that are continuously growing with a constant of excellent rating (currently close to 9,000). A visit to the museum elicits the most profound human emotions: sorrow and compassion, but also pride in human strength and the struggle for survival. "The symbolic tunnel museum, which represents the true story of Sarajevo's siege not long ago, evokes strong emotions and produces the deepest impression on visitors. The fact that war accounts for 60–70% of the overall image of the Sarajevo destination arouses great interest in visiting this location" (Žunić, 2018). According to FENA, the Tunnel of Hope is among the most interesting and mostly popular museum sites in Sarajevo and Bosnia and Herzegovina, with an estimated over 160,000 visitors in 2023. The preserved part of the tunnel, as well as the exhibits in the accompanying museum, preserve the memory of the Sarajevo residents' courage and their struggle for survival in besieged Sarajevo (1992–1955).

[1] No national bulletin for the visitors' museum statistics; data presented in the last column are collected from first or from second-hand sources (interviews with museum representatives: author own research, or media releases)

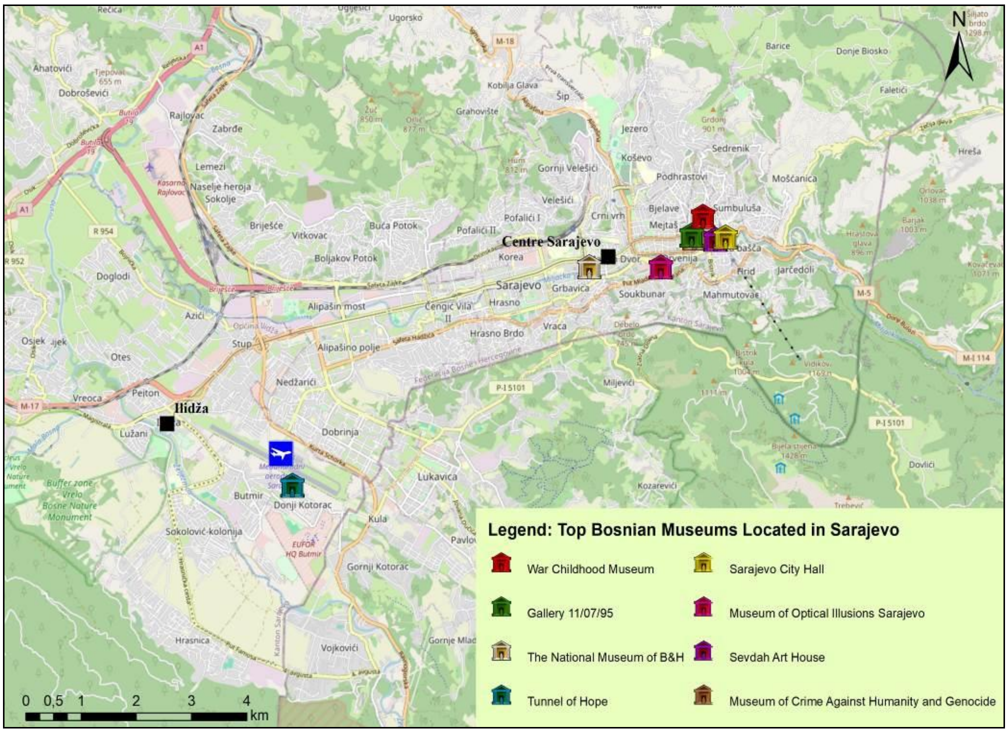


Figure 11. Spatial distribution of the top museums in Bosnia and Herzegovina (Source: Author, supported by GIS)

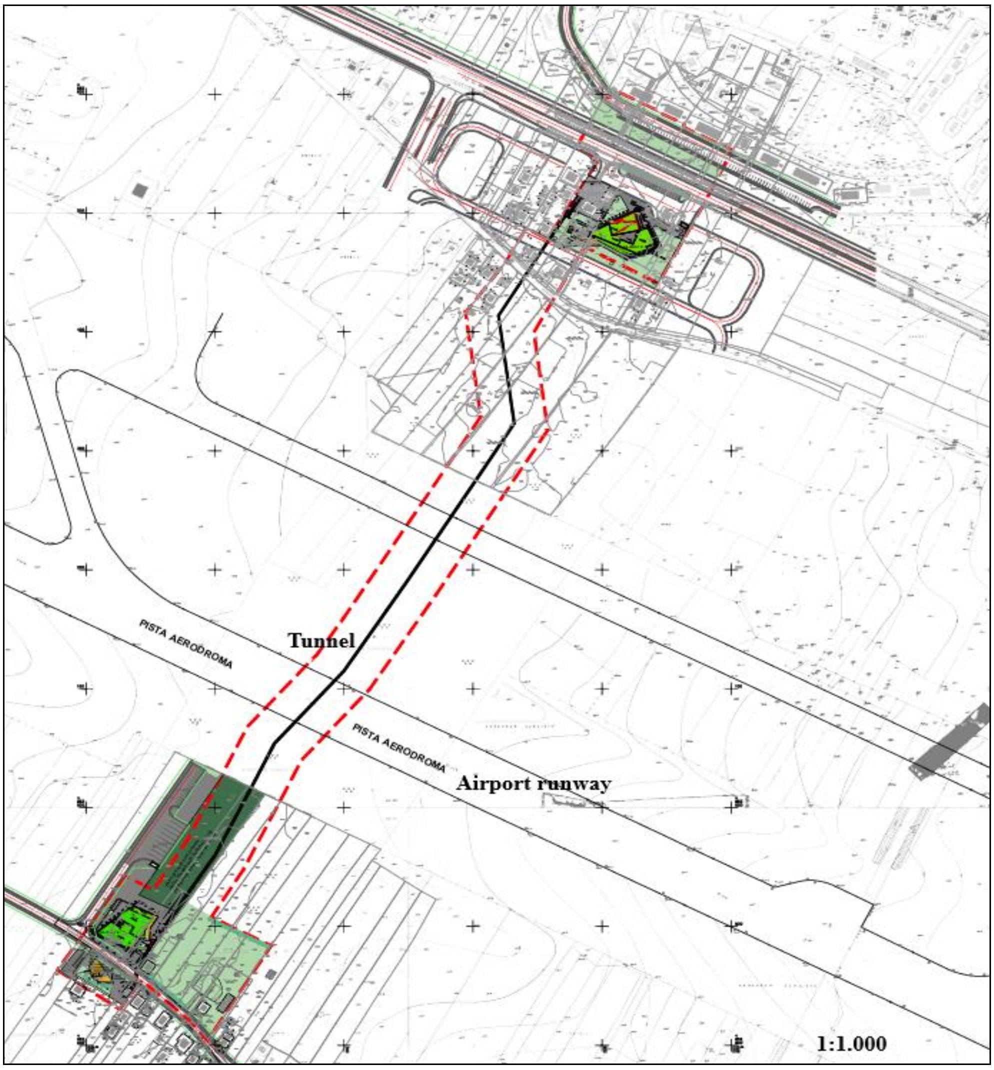


Figure 12. Urbanistic plan of the Memorial Complex Tunnel D-B (Tunnel of Hope)
(Source: Development Planning Institute of the Sarajevo Canton, 2018b)

The museum testifies to the hazardous war conditions, the strength of the Bosnian spirit, and the creativity of the Bosnian man to survive like underground moles, establishing existential connections (telecommunications and transport, exchange of goods and people) under the Sarajevo airport. The tunnel played one of the key roles in the defence of Bosnia and Herzegovina and its capital. According to the Commission to Preserve of National Monuments of Bosnia and Herzegovina, it is part of the list of petitions for national monuments of Bosnia and Herzegovina (2003), and "since 2015, it's been a protected heritage asset of the category II in Sarajevo Canton" (Development Planning Institute of the Sarajevo Canton, 2018b).

Figure 12 illustrates the urbanistic composition of the Memorial Complex Tunnel D-B (Tunnel of Hope) in Sarajevo with its topographic and museum environment, green areas, and airport runway with an underground tunnel built during the war conditions (1992-1995). The complex is made of two connected zones of Ilidža and Dobrinja, and its tourist exploitation will increase with the improvement of the contents shown in the Urbanistic plan.

Figure 13 represents the Sarajevo War Tunnel of Hope, with its 120 m long tunnel, as the unique dark memorial site with international tourism representativeness. *The National Museum of Bosnia and Herzegovina* (27.922 square metres) was founded in Sarajevo in 1888 as the country's oldest cultural and scientific research institution. The museum's first director was Kosta Hörmann, a high official of the Austro-Hungarian government; his residence in Sarajevo currently serves as the headquarters for the Directorate of Sarajevo Museums and the Commission for the Preservation of Bosnia and Herzegovina National Monuments. In Figure 4 is the villa of Kosta Hörmann residence in Sarajevo, known as the headquarters for the Directorate of Sarajevo Museums, as well as for the Commission for the Preservation of Bosnia and Herzegovina National Monuments, among other institutions located in its building.

The museum's nowdays appearance dates back to 1913 and was designed by the famous Austro-Hungarian architect Karl Paržik in the Renaissance style; the museum complex of buildings contains four pavilions (archaeology, ethnology, nature, and a library with management). The National Museum represents the national monument of Bosnia and Herzegovina, which is home to "nearly four million exhibits that are preserved, scientifically processed, and presented to the public“ (Leka, 2017). The "Bulletin of the National Museum of Bosnia and Herzegovina" is the oldest scientific publication in the country, having been published continuously since 1889; it disseminates the most recent findings from scientific investigations conducted in the natural and social sciences, history, archaeology, ethnology, etc. According to FENA (2024), the National Museum received approximately 100,000 visits in 2022.

Figure 13. Sarajevo War Tunnel of Hope (Source: Author)

Figure 14. Villa of Kosta Hörmann in Sarajevo (Source: Author)

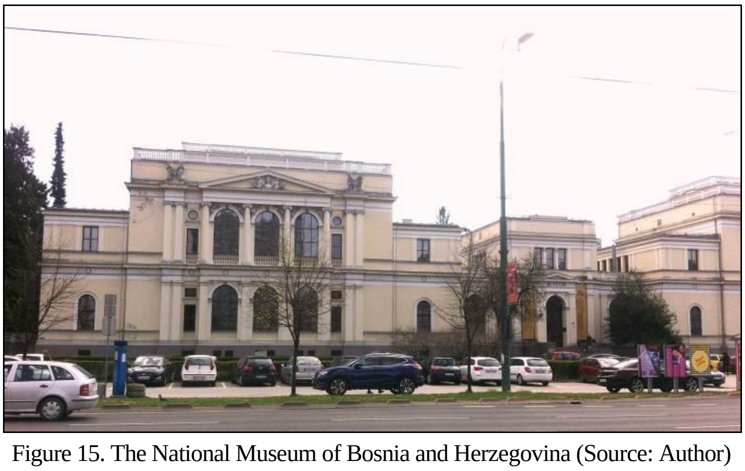

Figure 15. The National Museum of Bosnia and Herzegovina (Source: Author)


Figure 16. Gallery 11/07/95 in Sarajevo (Source: Author)

In Figure 15 is the the National Museum of Bosnia and Herzegovina in its neo-renaissance style with classicist elements. *Gallery 11/07/95* (area of 300 sq m) is Bosnia and Herzegovina's first memorial gallery-museum (2012), located in the heart of Sarajevo in an adapted part of an Austro-Hungarian residential building. „The exhibition space aims to preserve the memory of the Srebrenica tragedy and the 8372 persons who perished in the massacres. The permanent exhibition provides documentary scenes of what was left of Srebrenica in the wake of this genocide. Through a wide range of multimedia content – images, maps, audio and video materials, the Gallery offers documentary and artistic interpretation of the events that took place in this small town in Eastern Bosnia during the month of July 1995" (Gallery 11/07/95 Official Portal). The interpretations asks visitors „that they not be simply passive observers of the items on display, but living witnesses to the horror and injustice" (Sarajevo Navigator Foundation, 2024a). The gallery aspires to be part of the collective memory – both as a testimony and a condemnation of the aggression.

Figure 16 shows the Gallery of 11/07/95 situated in the Austria-Hungary building located in central Fra Grge Martić Square in the old town of Sarajevo. *The Museum of Crimes Against Humanity and Genocide 1992-1995* is a history museum (founded in 2016) with rich archival material and a multidisciplinary approach to the research of crimes committed in the territory of Bosnia and Herzegovina during the war (1992-1995); it preserves the memory of all war victims. The museum archive contains more than 8,000 exhibits and stories. Its unique concept is built on personal belongings and stories, testimonies, letters, pieces of art, simulations, authentic photo and video materials, and so on. The museum investigates all aspects of war crimes, crimes against humanity, and genocide (crimes against children and women, torture, concentration camps, enforced disappearances and mass graves, missing persons, etc.). In order to make the visit more authentic and realistic, the museum presents simulations of a mass grave and solitary confinement.

In Figure 17 is the Sarajevo Museum of Crimes Against Humanity and Genocide 1992-1995 situated in the Austro-Hungarian residential-commercial building in the old town of Sarajevo. Figure 18 represents the Sarajevo Museum of Crimes Humanity & Genocide permanent exhibition with the sniper warning ("Pazi snajper") and map of the Siege of Sarajevo (from April 5, 1992, to February 29, 1996), accounted for "the longest siege in modern European history" (Swift, 2024).


Figure 17. The Sarajevo Museum of Crimes Against Humanity and Genocide 1992-1995


Figure 18. The permanent exhibition of the *Siege of Sarajevo* in the Sarajevo Museum of Crimes Against Humanity and Genocide (Source: Author)

*The War Childhood Museum* (2017) has a permanent exhibition of the personal stories of the participants, i.e., a collection of personal items (e.g. clothe, toys, wooden rifle), stories, audio and video testimonies, photographs, letters, drawings, and other documents that evoke the unique experience of growing up in the war. The importance of the museum is "not only for permanent preservation of memories of war childhood, but also because it documents the experience of those who played no role in the start of the war, and still suffered multiple consequences" (War Childhood Museum, 2024). The exhibition features 50 personal stories which reveal the meaning and sentimental value of the exhibited personal items. As the museum represents "the world's largest archive dedicated to the experience of growing up during the war" (War Childhood Museum, 2024), the 2018 Council of Europe Museum Prize—one of the most prestigious awards in the museum industry—was awarded to the War Childhood Museum as part of the European Museum of the Year Awards.

The Figure 19 represents the War Childhood Museum permanent exhibition of children personal items such as clothe and wooden rifle from the war time in Bosnia (1992-1995). *Sarajevo City Hall* (founded in 1896; reconstructed in 1995; re-opened in 2014) is the most representative part of the Austro-Hungarian cultural heritage, created in a pseudo-Moorish style with a dominant influence of Islamic art from Egypt and Spain. „The basis for this outstandingly fine building was the detailed studies by the late architect Alexandar Wittek, who worked in line with the Sultan Hassan mosque in Cairo and the 15th century tomb mosque of Sultan Qaytbay, also in Cairo" (The Commission to Preserve National Monuments of Bosnia and Herzegovina). It stands out for the unique architectural „fusion" of muslim Oriental "East" and christian central European "West"; thus, it „serves as a symbol of the meeting of world civilizations" (Sarajevo Navigator Foundation, 2024c).

Figure 19. The War Childhood Museum exhibition of children clothe and wooden rifle; Figure 20. Sarajevo City Hall in Sarajevo (Source: Author)

In Figure 20 is presented Sarajevo City Hall, popularly known as the national monument to the multiculturalism of Bosnia and Herzegovina, according to its Austro-Hungarian building made in the pseudo-Moorish style with Cairo motives. As the city hall and the national monument, and even more so as the decades-old seat of the National and University Library of Bosnia and Herzegovina, it has been the focus of all important political and cultural events in Sarajevo and Bosnia and Herzegovina for nearly two centuries. It witnessed the change of several state systems, the Sarajevo assassination, the terrible challenges of the two world wars, the unique rise of the city during the XIV Winter Olympic Games in 1984 and finally, in the form of a National Library, it was exposed to a barbaric attack, burning and destruction; in nights of August 25-26, 1992 during the last war, nearly 90% of the library's collection (or 2 million units) went up in flames and the building became a symbol of the Siege and tragedy of Sarajevo. It has thus become a modern metaphor for urbicide and culturicide. Today, it is used in festive occasions at the state and city level to promote events from culture, art and economy, with constant and occasional museum settings, and regular sessions of the City Council. In the various offer of the City Hall building, several permanent thematic exhibitions have been set up about history of the city and City Hall itself, such as „Portret of Mayors“, „Contemporaries“, „National Day“, „Franz and Sofie“, „Sarajevo 1914-2014“, and „the City Hall- again“.

*The Museum of Optical Illusions* offers a fun excursion into the world of illusion for all generations and provides a sensory and educational experience in addition to the visual. It differs from similar museums in the world in that it nurtures the tradition, history, and culture of Bosnia and Herzegovina through installations provided as part of the museum exhibition. It's the largest museum of its kind in the region, with hundreds of exhibits that also include works by young Sarajevo artists and those that promote national culture and traditions, such as 3D Vučko (the wolfy mascot of the World Olympic Games held in Sarajevo in 1984), the tradition of sipping Bosnian coffee, a 3D walk along the streets of Sarajevo, etc. Some of the museum’s famous illusions were done by foreigner artists, such as A. Kitaoka, a Japanese professor of psychology and a leading illusion maker, or Slovenian designer J. Trobec, etc.

Figure 21 demonstrates the zigzag of the mediaeval queen Katarina and the Ottoman Bosnian “Dragon of Bosnia” (refers to Husein-captain Gradaščević) in the Museum of Optical Illusions in Sarajevo. They represent some of the most remarkable figures in Bosnian history. Queen Katarina reflects the period of the mediaeval Bosnian kingdom (15th century), while the Dragon of Bosnia (Husein-captain Gradaščević, an Ottoman Bosnian military commander and political reformer) reflects the four centuries later Ottoman Empire in Bosnia and Herzegovina (19th century).


Figure 21. The Zig Zag of queen Katarina and Dragon of Bosnia in the Museum of Optical Illusions in Sarajevo

Figure 22. The Sevdah Art House Museum in Sarajevo (Source: Author)

*The Sevdah Art House* is part of the Ottoman architectural ensemble “Velike Daire” or Hadžimuratovića Large Daira (Arabic ”daira”—circle, ring), which is a national monument in Bosnia and Herzegovina, representing a group of twelve storehouses in the old town, of which ten were built in 1776 by Sarajevo merchant Ibrahim Hadžimuratović on land that belonged to the Isa Bey Vakuf (endowment “vakif” and the founder of Sarajevo), and later two storehouses were added, including the Sevdah Art House Museum in the renovated section since 2008. The museum is dedicated to the traditional urban lyrical poem – sevdalinka and famous sevdah performers. The Bosnian-Herzegovinian urban song „sevdalinka“ (turkish, arabic: sevda/h – love) is a poem of extraordinary poetic, musical and historical value, with continuity of performance from the 15th century (Ottoman era in Bosnia) until today and it represents a well established cultural tradition. "Emina," written by Bosnian academic poet A. Šantić in 1903 (during the Austro-Hungarian period in Bosnia), is the country's most popular sevdalinka. The song is about a young man who, despite his love not being returned, longs for the girl the song is named for. The museum space of the former warehouse is arranged as 11 interconnected rooms, displaying exhibits of 36 great performers of sevdalinka, composers, arrangers and songwriters who left an indelible mark and were the greatest promoters of sevdalinka as we know it today. As a traditional urban folk song, sevdalinka is currently nominated for the UNESCO list of intangible cultural heritage of Bosnia and Herzegovina. Figure 22 depicts the Sevdah Art House Museum as one of twelve distinguishable parts of the Ottoman architectural ensemble "Velike Daire" in Sarajevo's old town.

## CONCLUSION

The research findings demonstrated the cohesiveness of tourism and museum development, as well as the key role of capital in the country's tourism and cultural (museum) image. Sarajevo museums are the most popular in Bosnia and Herzegovina, having the most reviews and highest ratings. One of the most effective marketing strategies is the favourable feedback that tourists receive from others (often known as "word of mouth"); in the case of Sarajevo's museums, this feedback is continuously growing. Top museums in Sarajevo and Bosnia are primarily themed, and the war theme has a particularly strong psychological impact on visitors, creating an unforgettable tourist experience and enhancing the museum's popularity and resonance (such as Sarajevo Tunnel of Hope). The museum's war themes are gaining popularity as Sarajevo becomes more aware of its recent dark history, which has greatly influenced its wartime tourism image. This is now being turned into an advantage by establishing unique war museum collections and so on; according to Žunić (2018), the last war in Bosnia contributed to Sarajevo's destination image by 66%. In addition to dark attractions (considering they include museums dedicated to war), the interest and satisfaction of tourists are maintained by museums that unite the national cultural heritage (e.g., the National Museum), then museums with relaxing cultural content in the spirit of traditional music and gastronomy (e.g., Sevdah Art), as well as museums of an entertaining nature (e.g., the Museum of Optical Illusions). The evolution of museums in Bosnia and Herzegovina is challenging to assess exclusively through official statistical data due to the inconsistency of data integration at the state level (resulting from complicated political-administrative disintegration into two entities and one district) and accounting for other statistical errors; according to Žunić et al. (2023), data errors in different bulletin volumes, mismatches between summarised data at the state level and data from, for example, entity bulletins, inconsistent museum classification, a lack of transparency regarding visitors, and a lack of continuous annual monitoring of museum development activity are all examples of how museum statistics don't accurately reflect the real terrain situation. However, field and satellite observations, among other methods, helped to fill in the gaps and provided a better understanding of the evolution of Bosnian museums and their current popularity. As a result, the study findings reveal a considerably more favourable development environment for museum activities than what is portrayed in bulletins, particularly in the case of the country’s capital, as Sarajevo is at the forefront of Bosnia and Herzegovina's tourism and cultural (museum) development and demand.

**Author Contributions:** Conceptualization, L.Ž.; methodology, L.Ž.; software, L.Ž.; validation, L.Ž.; formal analysis, L.Ž.; investigation, L.Ž.; data curation, L.Ž.; writing - original draft preparation, L.Ž.; writing - review and editing, L.Ž.; visualization, L.Ž.; supervision, L.Ž.; project administration, L.Ž. The author has read and agreed to the published version of the manuscript.

**Funding:** This research has been funded by the CA (Žunić, Lejla).

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** This research was supported by the CA: Žunić, Lejla, Assoc. Prof. at University of Sarajevo (UNSA), lejla.zunic@pmf.unsa.ba, pmflejlazunic@unsa.ba

**Conflicts of Interest:** The author declares no conflict of interest.

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Article history: Received: 26.09.2024 Revised: 08.11.2024 Accepted: 12.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2164-2175
DOI 10.30892/gtg.574spl30-1383

# THE POTENTIAL OF TOURISM VILLAGES BASED LEARNSCAPE AS A GEOGRAPHY LEARNING RESOURCE (CASE STUDY IN PANGLIPURAN, BALI)

**Bambang Sigit WIDODO***

Universitas Negeri Surabaya, Department of Geography Education, Faculty of Social and Political Sciences, Surabaya, Indonesia, e-mail: bambangsigit@unesa.ac.id

**Hendri PRASTIYONO**

Universitas Negeri Surabaya, Department of Geography Education, Faculty of Social and Political Sciences, Surabaya, Indonesia, e-mail: hendriprastiyonot@unesa.ac.id

**Wiwik Sri UTAMI**

Universitas Negeri Surabaya, Department of Geography Education, Faculty of Social and Political Sciences, Surabaya, Indonesia, e-mail: wiwikutami@unesa.ac.id

**Indah PRABAWATI**

Universitas Negeri Surabaya, Department of Public Administration, Faculty of Social and Political Sciences, Surabaya, Indonesia, e-mail: indahprabawati@unesa.ac.id

**Jauhar WAHYUNI**

Universitas Negeri Surabaya, Department of Communication Science, Faculty of Social Science and Political Sciences, Surabaya, Indonesia, e-mail: jauharwahyuni@unesa.ac.id

**Carmela S. DIZON**

Angeles University Foundation, College of Arts and Sciences, Angeles City, Philippine, e-mail: dizon@auf.edu.ph

**Citation:** Widodo, B.S., Prastiyono, H., Utami, W.S., Prabawati, I., Wahyuni, J., & Dizon, C.S. (2024). THE POTENTIAL OF TOURISM VILLAGES BASED LEARNSCAPE AS A GEOGRAPHY LEARNING RESOURCE (CASE STUDY IN PANGLIPURAN, BALI). *Geojournal of Tourism and Geosites*, 57(4spl), 2164–2175. https://doi.org/10.30892/gtg.574spl30-1383

**Abstract:** This research aims to assess the potential of tourism village based learnscape (case study in Penglipuran, Bali) as a geography learning resource. To describe the management of cultural tourism based on local wisdom in Panglipuran village as a learning resource, especially cultural, economic, social and tourism geography. Using a qualitative approach, this research involved traditional leaders, religious leaders, and the community in Panglipuran village as key informants and resource persons. Data collection in this study used in-depth interviews, participant observation and documentary studies. While data analysis uses the stages of data collection, data reduction, data presentation, verification and conclusions. The results show that Penglipuran tourist village has great potential as a learnscape that provides a unique and meaningful geography learning experience related to Balinese culture. Learnscape elements such as traditional architecture, traditional ceremonies, and interaction with local communities contribute significantly to tourist satisfaction and intention to return. This research concludes that the development of learnscape-based tourism villages can be an effective strategy as a geography learning resource, increasing the attractiveness of Penglipuran village tourism to be revisited and provide economic benefits to the local community.

**Keywords:** village tourism, learnscape, tourist revisit, Panglipuran, Village SDG's

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## INTRODUCTION

Tourism village management based on culture and local wisdom includes efforts to maintain, preserve, and promote local heritage and values in the context of Sustainable Development Goals 1, 3, 8, 10, and 17 (Hari Kristianto, 2020; Meadows, 2020; Prasiasa et al., 2023). A sustainability approach allows village tourism destinations to integrate aspects of culture and local wisdom into the tourist experience while ensuring the value and well-being of local communities (Biddulph, 2015; Rahmawati et al., 2020). Involving local communities in tourism planning, development, and management is key to early development. Consultation and collaboration with local communities can ensure that their interests and cultural values are respected at the beginning of tourism development (Suranto and Darumurti, 2024).

Tourism managers need to have a deep understanding of local culture and wisdom. Training and education involve staff and tour guides so that they can convey information accurately (Lusianawati et al., 2023; Marey et al., 2022). Creative villages are able to create tourism products and experiences that reflect local culture and wisdom. Village creativity, including cultural tours, traditional art performances, handicraft workshops, or local festivals, becomes an attraction in tourism management (Ghofur and Ismanto, 2022; Pickel-Chevalier and Ketut, 2016).

* Corresponding author

Maintaining cultural authenticity is an important aspect of culture-based tourism management (Journal and Best, 2019). Villages should avoid creations that damage cultural integrity and traditional values. Cultural tourism is very important to maintain the sustainability and authenticity of culture (Adnyani and Purnamawati, 2024). Community participation is needed to maintain the noble values of cultural heritage so that they are not lost due to the influence of the development of technological advances and information. The role of the community is very important in maintaining local cultural values, so community participation in cultural preservation must be implemented (Ruru et al., 2022; Ummah, 2019).

Providing training to the local people in customer service, tourism management and other related skills will increase the involvement of the community and empower them economically (Lawson and Chowdhury, 2022; McTaggart, 1980). It also manages the number of tourists so that the carrying capacity of the destination is not overwhelmed. This can prevent environmental damage, cultural fatigue, and conflict with local communities (Mangku et al., 2021; Seva et al., 2022). Use technology to support tourism management, but use it wisely. For example, digital marketing can help promote destinations without compromising cultural integrity (Chusumastuti et al., 2023; Mahrinasari et al., 2024).

Monitoring the impacts of tourism on local communities and the environment is essential (Luh et al., 2024). This can help identify potential problems and adjust management strategies accordingly. Collaborate with external parties such as government, NGOs, and the private sector to support culture-based tourism management. This support may include funding, training, and promotion (Hsu, 2023; Strieker et al., 2016). Educating tourists about local cultural values and ethics. This can help create tourists who are more aware of and respectful of local culture. Tourism management based on culture and local wisdom requires a holistic approach that considers economic, environmental, and social sustainability (Suhaidi et al., 2017). By paying attention to local values, tourism management can be a positive tool to preserve and respect local cultural wealth. The rapid development of technology and information has an impact on the management of tourism villages (Dzator et al., 2023). Technology, especially the Internet, has increased local communities' access to information. This can enrich their knowledge of local culture, history and traditions. Technology offers new opportunities for learning and teaching methods. The use of educational software, online learning and digital resources can support the preservation and development of local culture (Iriansyah et al., 2023; Parta and Maharani, 2023).

Technological developments also have a significant impact on local culture, both positive and negative. The positive impact is related to the influence of technology, where according to them, the Internet and social media, can enrich cultural interactions and provide wider access to various local cultural expressions (Kou and Xue, 2024; Luh et al., 2024).

Panglipuran Village in Bali, Indonesia is an attractive tourist destination and can be a rich source for tourism geography learning (Astara and Wesna, 2023; Mandaka et al., 2021). Some interesting aspects that can be the focus of tourism geography learning in Panglipuran Village are: 1) 1. Geographical location: Panglipuran Village is located on the slopes of Mt. Batur and offers beautiful natural scenery. Analysis of geographical location can include topography, climate, and the village's relationship with its environment (Sulistyo et al., 2023), 2) Culture and tradition. Panglipuran Village is known for its cultural and traditional preservation. Learning can include aspects of cultural geography, such as language, customs, arts, and local crafts (Jane and Pawitan, 2021), 3) Settlement Structure and Layout. The village is famous for its regular and uniform settlement layout. Geography learning can emphasize spatial analysis, settlement structure, and factors that influence traditional architectural design (Strydom et al., 2019), 4) Looking at how the village manages tourism can be a good case study. This involves analyzing sustainability, culture-based tourism management, and how to involve local communities in the decision-making process (Susanti et al., 2022), 5) The Effect of Tourism on the Local Economy: Investigating the impact of tourism on the local economy, including job creation, income, and profit distribution can open up discussions on economic geography (Gibbons and Fish, 1989), 6) Nature Conservation. Learning can include conservation efforts around Panglipuran village. Natural resource management and environmental protection can be important topics (Wisnumurti et al., 2020), 7) Focus on the role of local communities in tourism management and development. This can include their role in maintaining culture, preserving the environment, and supporting local economic development (Indrianto, 2005), 8) Examine the social impacts of tourism on local communities, including changes in livelihoods, cultural values, and social interactions (Anggraeni, 2019), 9) Examining sustainability initiatives adopted by Panglipuran Village, including efforts to preserve culture and the environment, can incorporate the concept of sustainable geography (Pickel-Chevalier and Ketut, 2016).

There is three similar research recently. Potential in sustainable tourism and local culture (Andari et al., 2020): cultural works, both "tangible" and "intangible," are increasingly at risk of marginalization by their own communities, indicating a lack of appreciation for the nation's cultural heritage. The rapid adoption of global culture threatens to overshadow local traditions, making them vulnerable to extinction, but cultural events like the annual Ruwatan Bumi can serve as a means to preserve these traditions, boost the economy through community involvement, and reduce negative environmental impacts. Cultural heritage and geography (Mudana et al., 2021): tourism plays a significant role in Bali's economy; however, it struggles to sustain the Balinese community, culture, and environment due to inconsistent implementation, weak enforcement, and limited stakeholder understanding. The dominance of foreign-based tourism narratives, weak local regulations, and the government's failure to effectively promote and implement Bali's cultural tourism highlight the need for a robust development model to guide stakeholders and preserve both tourism and Balinese culture. Rural tourism village landscape as a geography (Kou and Xue, 2024): Learning potential strategies to enhance Nangou Village's tourism landscape include leveraging rural historical and cultural resources, promoting the national red culture brand, and developing boutique rural tourism routes. This study highlights the significant positive relationship between landscape perception, tourist satisfaction, and revisit intention, with historical culture and integral routes having the greatest impact, providing theoretical guidance and practical suggestions for rural tourism planning and future development of beautiful villages. Studying tourism geography in Panglipuran Village can provide deep insights into the relationship between people and the environment, the importance of sustainability, and the role of culture in attracting tourists. Case studies such as this can help learners connect geography theory with real-world practice and increase understanding of the complexities of sustainable tourism. Therefore, this research is important because it will be able to specifically explore the cultural values and local wisdom of the tourist village of Panglipuran as a learning resource.

The research highlights Panglipuran Village's potential as a source of tourism geography learning and its role in promoting sustainable tourism through the integration of local culture and wisdom. The study emphasizes the relevance of the village's cultural heritage in achieving SDGs related to poverty, health, economic growth, reduced inequalities, and partnerships. This aim is clearly related to the study of tourism village management, focusing on the preservation and promotion of local heritage and values, and their connection to the Sustainable Development Goals (SDGs).

The research intends to bridge geography theory with real-world practice by investigating the relationship between people, the environment, sustainability, and culture. The study's limitations may include the generalizability of findings to other villages or regions, as the research focuses on a specific location (Panglipuran Village). Furthermore, the emphasis on SDGs and sustainability may not fully address the complexities of local challenges or the varying impacts of tourism on different communities. There might also be a lack of longitudinal data on the long-term effects of tourism on the village's cultural preservation and local wisdom.

## MATERIALS AND METHODS

This research uses a qualitative approach, which is a procedure that produces descriptive data in the form of written or spoken words from the people and actors observed, directed from the individual background as a whole (holistic), without isolating individuals and organizations in variables, but consider them as part of a whole (Rahmawati et al., 2020; Sugiyono, 2015). The approach used in this research is a case study. The case study in this study has the characteristics of an area of research that is unique, interesting, and important to study. Case study research investigates contemporary phenomena in the context of the real world, especially when the boundaries between the context and the phenomena are not clear. Case studies involve an in-depth analysis of a single case or multiple related cases and focus on a deeper understanding of the context and complexity of the phenomenon under study (Carter, 2013; Strydom et al., 2019).

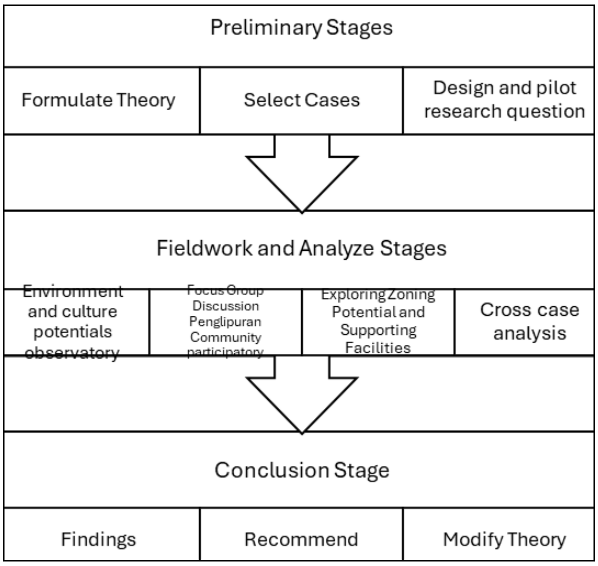


Figure 1. Methodology Flowchart (Source: Original Data from Researchers)

Figure 1 shows the study process, which includes the measurements of the preliminary stages, fieldwork and analyze stage, and the conclusion. The place of this research is Panglipuran Village, Kubu District, Bangli Regency, Bali Province. This research can be cross-sectional or longitudinal, and the choice of time can affect the understanding of the phenomenon under study. The choice of place and time is a strategic decision in qualitative research. This selection can be influenced by research objectives, the nature of the phenomenon under study, and ethical considerations (Setyaningrum et al., 2019; Sugiyono, 2015). In this study, the time designed to collect data in the field until the end of the study which is approximately 8 months, began from February to October 2024.

The source of data in this study is adapted to the type of data collected. In order to obtain clear data and in accordance with the research problem, the researchers visited the research site and obtained data from informants in Panglipuran village, which included: a) the head of the traditional village, b) the head of the government village, c) village traditional leaders, d) village religious leaders, e) traditional village administrators, f) traditional village communities. The secondary data in this study are: a) books relevant to the research title, b) documents and records about the traditional village of Panglipuran, c) photographs of cultural activities and religious ceremonies of the traditional village of Panglipuran. Data collection techniques and procedures are very important steps in research. In the data collection techniques in this study, different techniques were used namely interview, observation and documentation. The three techniques are used to obtain data and information that support and complement each other about community activities in Panglipuran traditional village.

Data validity tests in research emphasize validity and reliability tests. In this study, researchers used techniques to ensure data validity, namely Triangulation and Member Check. Triangulation with sources means comparing and cross-checking the degree of trustworthiness of information obtained through different times and tools through qualitative methods (Wicaksono et al., 2023). On the other hand, the member check technique is carried out by the researcher by showing the same informant the data obtained earlier and re-confirming it (Sugiyono, 2015). Data analysis in qualitative research is carried out before entering the field, during the field, and after completing the field. Activities in qualitative data analysis are carried out interactively and can be carried out continuously until completion, so that the data is saturated.

## RESULTS AND DISCUSSION

Penglipuran Village is located in Bangli District, Bangli Regency, Bali Province. Geographically, the village is located at an altitude of about 600-650 meters above sea level, so it has cool temperatures and fresh air. The village has a hilly topography with fertile soil. This geographical condition supports agricultural activities, especially plantations. Penglipuran Village is surrounded by extensive bamboo forests, small rivers and beautiful natural scenery. The existence of this bamboo forest is very important for environmental sustainability and community life. Penglipuran Village is a traditional village that still upholds the values of Balinese traditions and customs. The village has a village government structure headed by a traditional village head (Astara and Wesna, 2023). Penglipuran village is divided into several banjar (hamlets), each of which has a banjar head. The characteristics of the study area can be seen on the map below (Figure 2).


Figure 2. Map of the Research Area of Penglipuran Traditional Tourism Village (Source: Original Data from Researchers)

Penglipuran Village, Bali, is known as a traditional village with traditional architecture, unique culture, and preserved local wisdom (Mandaka et al., 2021). The potential for cultural tourism in this village is huge, so its management needs to be done carefully so as not to damage the existing traditional values. The main economic sectors in Penglipuran village are tourism, agriculture and handicrafts. Tourism is the mainstay because of the natural beauty and cultural uniqueness of the village. Tourism in Penglipuran Village is based on natural beauty, cultural uniqueness and the hospitality of the community. Tourists can enjoy the beauty of nature, learn about Balinese culture, and stay in homestays. Many Penglipuran villagers still make a living as farmers. The main agricultural products are rice, vegetables and fruits. Handicrafts such as bamboo weaving and wood carving are another source of income for the community. The population of Penglipuran village is relatively stable and mostly indigenous.

The majority of Penglipuran villagers are Hindu and still uphold the values of Balinese customs. This research writing began with observation and documentation studies. The observations were done directly in Penglipuran village in Bali. As for the documentation study, it is done by reviewing previous studies that are relevant to this research. Then the results of the analysis were strengthened by interviews with tourism managers, the community, traditional leaders of Penglipuran Village as informants and visitors as data triangulation specifically selected (purposive sampling).

An overview of the research respondents is useful to provide information about the diversity of research respondents, where later this data can be used to make additional analysis and be taken into consideration in making discussions. An overview of the demographic data of the key and main informants of this research was obtained, including gender, education level, and practitioner experience as part of tourism awareness.

Based on the Table 1 above and Figure 3 below, the gender of the four main informants in the study showed 2 people (50%) are male and 2 people (50%) are female. Based on the level of education, 1 person (25%) has a bachelor's degree and 1 person (25%) has a senior high school qualification, and 2 people (50%) have a junior high school qualification.

Tabel 1. Demographic Data (Source: Primary Data, 2024)

| Gender | Frequent | Percentage (%) |
|---|---|---|
| Male | 2 | 50 % |
| Female | 2 | 50 % |
| Amount | 4 | 100 % |
| Level of education | Frequent | Percentage (%) |
| Junior High School | 2 | 50% |
| Senior High School | 1 | 25% |
| Bachelor/magistra | 1 | 25% |
| Amount | 4 | 100 % |
| Participation in Tourism Awareness Training | Frequent | Percentage (%) |
| Ever | 3 | 75% |
| Never | 1 | 25% |
| Amount | 4 | 100 % |
| Long Experience in Tourism Village | Frequent | Percentage (%) |
| above 30 year | 1 | 25% |
| 16-30 year | 2 | 50% |
| 5-15 year | 1 | 25% |
| below 5 Tahun | 0 | 0% |
| Amount | 4 | 100 % |

Based on participation in tourism awareness training, 3 people (75%) had participated and 1 person (25%) had never participated. Based on the length of time in the tourism village, 1 person (25%) has more than 30 years of experience, 2 people (50%) have 16-30 years of experience, and 1 person (25%) has 5-15 years of experience. To triangulate the data, two respondents were selected purposively (specifically) by considering (1) the duration of visits more than twice and less than twice, (2) understanding of tourism and educational villages, and (3) a minimum educational qualification level of bachelor's degree (S1).

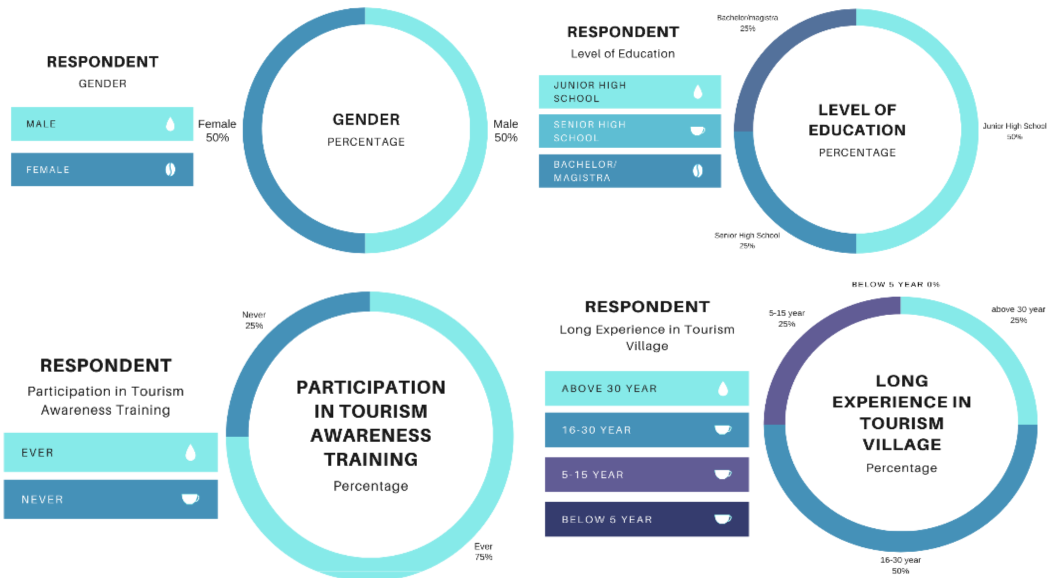


Figure 3. Sample Profile (Source: personal original data)

**Focus Group Discussion with Tourism Managers, Community, and Traditional Leaders of Penglipuran Village**

Research started by conducting a focus group discussion with the research topic "Management of Tourism Objects Based on Culture and Local Wisdom as a Geography Learning Resource: Case Study of Penglipuran Village Cultural Tourism in Bali, Indonesia" with the tourist attraction manager, community and traditional leaders of Penglipuran Village on August 3, 2024 at Bale Adat Penglipuran Village, Bangli Regency - Bali Province. To answer the research problems, collaboration between universities, tourism village managers, communities and traditional leaders will provide answers to the problem formulation. The research will focus on qualitative aspects of several formulations such as (1) description of cultural tourism management in Penglipuran Village as a geography learning resource from the perspective of geographical location, culture and tradition, settlement structure, and nature conservation, (2) description of the role of local communities in maintaining cultural traditions and utilizing them as sustainable local economic development (economic geography learning resource perspective), (3) describing the social impacts of tourism on local communities in Penglipuran Village in terms of social geography learning resources, and (4) describing cultural tourism sustainability initiatives in Penglipuran Village as learning resources for tourism geography and sustainable geography.

Penglipuran Village in Bali is famous for its unique and uniform traditional architecture. Sacred areas (mandalas) are the important concept of the design and architecture of Hindu settlements. Mandalas are geometric patterns used as the basis for designing sacred spaces. The main mandala is the holiest and deepest area within a traditional community settlement. This area usually consists of temples, shrines, or other sacred buildings used for rituals or worship of Gods, as shown below (Figure 4). Madya Mandala is located between Utama Mandala and Nista Mandala. It includes residential areas for the Hindu community, as seen below (Figure 5). Nista Mandala is located in the most outer area of the shrine or settlement. Every traditional house in the village has an almost identical design, from the entrance to the roof. This uniformity creates a harmonious scene and reflects the values of togetherness of the local community. The use of natural materials such as bamboo and wood also enhance the natural and eco-friendly feel of the village architecture (Luh et al., 2024).

Figure 4. Mandala Utama / Ceremonial Place

Figure 5. Pura House of Desa Adat (Source: Author, 2024)

Figure 6. Kitchen Architecture

Figure 7. Bale Adat (Source: Author, 2024)

Traditional architecture in Penglipuran Village is not only a physical building, but also reflects the Balinese philosophy of life, Tri Hita Karana. The concept of balance between man, God, and nature is realized in the layout of the house, the selection of building materials, and the orientation of the building to the surrounding environment like kitchen architecture and bale adat as shown below (Figure 6 and 7). Each architectural element has a deep symbolic meaning and serves to create harmony with the universe (Mudana et al., 2021). Penglipuran Village is a clear example of the application of green architecture long before the term became popular. The traditional houses in this village were designed with digestion in mind, such as the use of biodegradable natural materials, optimized natural ventilation systems, and effective rainwater management. This architecture is not only comfortable for the residents, but also environmentally friendly and sustainable for future generations. In the village of Penglipuran, local wisdom is strongly felt, especially in the performance of traditional ceremonies. Each ceremony, whether religious or life cycle, is performed solemnly and involves the entire community. These ceremonies are not only religious rituals, but also a means of strengthening brotherhood and preserving ancestral values (Al Hazar et al., 2024). Through traditional ceremonies, the Penglipuran people maintain the sustainability of life in harmony with nature and the surrounding environment.

Traditional arts are an inseparable part of the Penglipuran community's life. Sacred dances, gamelan, and various other art forms are not only performed on special occasions, but are also part of everyday life. These arts serve as a medium to convey moral messages, aesthetic values, and knowledge about nature and the cosmos. Through the arts, the younger generation continues to teach about the cultural heritage of the ancestors (Picard, 2012; Verheijen and Darma Putra, 2020).

Manners and social values are highly upheld by the Penglipuran community. Relationships among fellow residents are well maintained and manifest in mutual respect, cooperation, and kinship. These values are taught to the younger generation from an early age through various social activities and traditional ceremonies. Good manners are also reflected in interactions with nature and the environment (Stauropoulou et al., 2023; Suranto and Darumurti, 2024). Despite the growing influence of modernization, the Penglipuran people still strive to preserve their local wisdom. The younger generation is encouraged to actively participate in various traditional and cultural activities. It is hoped that the local wisdom of Penglipuran village can continue to be preserved and become an inspiration for other communities.

One of the characteristics of Penglipuran Village is the clean environment. The people of the village have a high level of awareness about the importance of keeping the environment clean. Every corner of the village is always well maintained, from the streets that are free of garbage to the houses that are neatly arranged. This environmental cleanliness is clear evidence of the community's commitment to preserving nature (Jane and Pawitan, 2021; Putri Anzari et al., 2022). The concept of Tri Hita Karana embraced by the Balinese people is clearly realized in the environmental management of Penglipuran village. The harmonious relationship between man and nature is realized in environmental conservation efforts. The villagers not only use nature to meet the needs of life, but also respect it as part of their lives. Penglipuran Village has made many efforts to preserve the environment. The use of natural materials, good waste management, and forest conservation are some concrete examples of the villagers' efforts to preserve the environment. Thanks to these efforts, Penglipuran Village has managed to maintain its natural beauty and become an example for other villages.

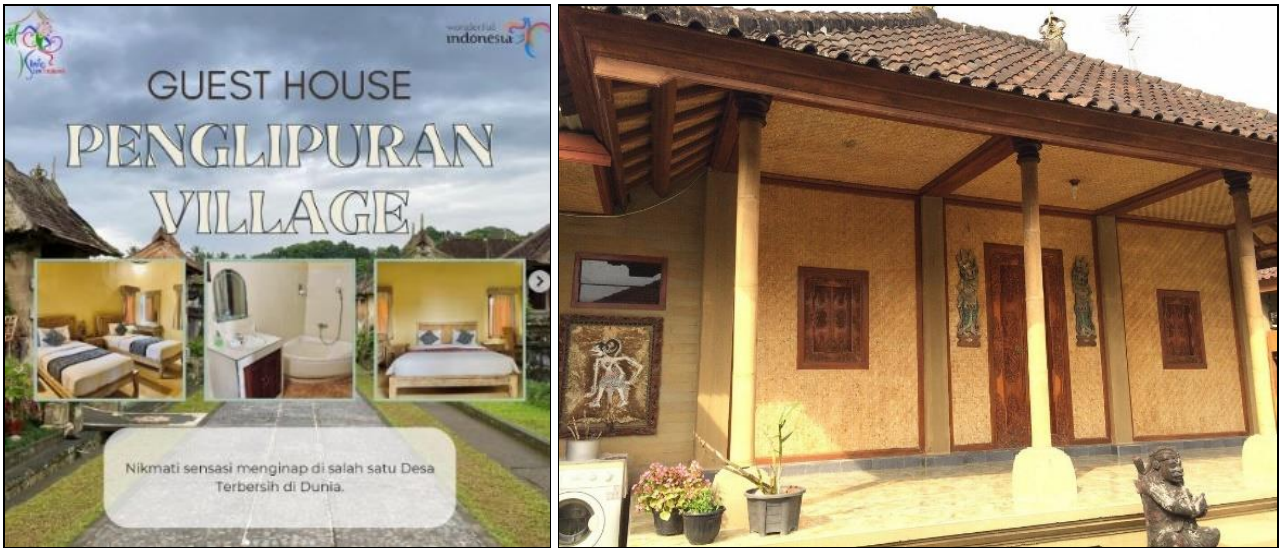


Figure 8. Guest House of Penglipuran Tourism Village (Source: The Office Guest House and Original Photos from Researchers)

The potential for developing culture-based tourism products in Penglipuran Village is enormous. One that stands out is homestay. With its unique traditional architecture and community, homestays in Penglipuran can offer tourists an authentic and immersive stay as shown below (Figure 8). Guests can experience the daily life of the villagers, learn about Balinese culture and traditions, and enjoy local specialties. In addition to homestays, culinary tourism also has great potential in Penglipuran. With a wealth of traditional Balinese cuisine, the village can offer a wide variety of delicious dishes made with fresh and natural ingredients. Travelers can join cooking classes to learn how to prepare Balinese specialties, or enjoy a meal while watching traditional art performances as shown below (Figure 9).


Figure 9. Shops around Mandala Madya Penglipuran Tourism Village (Source: Original Photos from Researchers)

Educational tourism is another potential that can be developed in Penglipuran. The village has many interesting stories and traditional knowledge to learn. Tourists can participate in various educational programs such as learning how to make handicrafts, learning traditional dances, or participating in traditional ceremonies. While the increasing number of tourists in Penglipuran Village brings economic benefits, it also poses a number of challenges. If not managed properly, the increasing number of visitors can threaten the sustainability of the village's environment and culture. Waste that is not properly managed, damage to infrastructure, and loss of cultural authenticity due to commercialization are some of the negative impacts that need to be monitored (Darmawan et al., 2022; Indrianto, 2005). The importance of good tourism management in Penglipuran Village is becoming increasingly urgent.

As the number of tourists continues to grow, systematic efforts are needed to maintain a balance between economic interests and environmental and cultural conservation. Good management will ensure that tourism can provide sustainable benefits to local communities. The role of the Penglipuran village community is very important in tourism management. The community should be actively involved in every stage of planning and implementation of tourism activities (Prasiasa et al., 2023). In this way, the community can have a sense of ownership of the tourism sector and participate in preserving the environment and culture of the village. In order to overcome the challenges faced, it is necessary to make several efforts such as increasing community capacity in tourism management, developing adequate infrastructure, and enforcing strict rules related to waste management and tourist behavior. In addition, it is also necessary to diversify tourism products so that they are not too dependent on one type of tourism alone.

Tourism in Penglipuran Village has brought significant changes in the community's behavior. On the one hand, tourism encourages people to be more open, friendly, and aware of the importance of cleanliness and environmental beauty. However, on the other hand, intense interaction with tourists can also lead to consumptive behavior, changes in traditional values, and social judgments (Anggraeni, 2019; I Wayan Wesna Astara et al., 2023).

One of the most obvious impacts of tourism is the change in traditional values in the Penglipuran community. Interaction with tourists, who bring with them different values and lifestyles, can change local values that have been held for centuries. This can be seen in changes in dress styles, language use, and attitudes towards tradition (Zain, 2023). It is important for the Penglipuran community to maintain a balance between maintaining traditional values and accommodating the demands of tourism. In this way, the community can gain economic benefits from tourism without losing its cultural identity. To overcome the negative impacts of tourism, efforts must be made to educate the community about the importance of maintaining traditional values, developing sustainable tourism products, and actively involving the community in the decision-making process related to tourism development.

The rapid increase in the number of tourists in Penglipuran Village in recent years has exposed a number of deficiencies in the village's infrastructure as shown below (Figure 10). Narrow and unpaved roads, a sub-optimal waste management system, and limited public facilities such as toilets and parking lots are some of the common obstacles. These conditions not only affect the comfort of tourists, but also threaten the sustainability of the village environment.


Figure 10. Visitors of Penglipuran Tourism Village (Source: Original Photos from Researchers)

In order to support sustainable tourism development, Penglipuran Village needs significant infrastructure improvements. The construction of wider and paved roads, the provision of adequate sanitation facilities, and the construction of a larger parking lot are some of the things that need to be done immediately. In addition, the development of other supporting infrastructure, such as a more stable electricity and clean water network, needs to be considered. The lack of adequate infrastructure in Penglipuran Village affects not only tourists, but also the local community. For example, poor road conditions can make it difficult for the community to access health services, education, and markets. In addition, the lack of adequate sanitation facilities can pose a threat to public health.

The development of infrastructure in Penglipuran Village requires careful planning and the involvement of all stakeholders. Infrastructure development must take into account ecosystem aspects, not damage the environment, and be in accordance with the characteristics of the village. It is also necessary to consider the social and cultural impacts of infrastructure development (Astara et al., 2023; Sutianto et al., 2023). In order to overcome the infrastructure problems in Penglipuran village, cooperation between the government, community, and tourism companies is needed. Some solutions that can be done include finding funding sources for infrastructure development, involving the community in planning and development, and applying the principles of sustainable development.

The lack of coordination among stakeholders, especially the small role of the local government, is an obstacle to the development of tourism in Penglipuran Village. There are often contradictions in the planning, implementation, and evaluation of development programs. This results in inefficiencies in the use of resources, overlapping programs, and a lack of synergy in overcoming various problems that arise (Glass et al., 2023; Furtado et al., 2023). The local government has a very strategic role in tourism development in Penglipuran village. In practice, however, the role of local government is often still limited. The lack of initiative and support from the local government in providing infrastructure (Sucupira Furtado et al., 2023), developing tourism products and empowering the community is one of the factors inhibiting the progress of tourism in this village. The lack of coordination also affects community participation in the decision-making process related to tourism development (Wahyuni et al., 2015). Communities often do not feel involved in the planning and implementation of development programs. This leads to a reduced sense of ownership and active community participation in cultural and environmental conservation efforts. To overcome coordination problems, efforts need to be made to strengthen the role of local governments in coordinating the various stakeholders involved in tourism development. In addition, efforts must be made to increase community participation in the decision-making process. The establishment of a communication forum involving government, community, business actors and academics can be a solution to improve coordination and synergy.

**Management Strategy: Community's Capacity Building by Training and Education on Sustainable Tourism, Homestay Management and Creative Tourism Product Development**

Penglipuran Village, with its unique culture and natural beauty, has great potential for tourism development. However, to ensure that tourism provides sustainable benefits to the community and the environment, serious efforts are needed to improve the capacity of the community. One of the most effective efforts is through training and education (Dahmiri et al., 2023). Through training, Penglipuran villagers can gain the knowledge and skills needed to manage homestays, develop creative tourism products, and promote their tourism destination. This training should include not only technical aspects such as financial management and marketing, but also social and cultural aspects. Communities need to understand the importance of protecting the environment, preserving cultural values, and providing friendly services to tourists. Community capacity building is a long-term investment that is critical to the success of sustainable tourism in Penglipuran Village. Through continuous training and education, the community can become the main actors in the management and development of tourism destinations (Susanti et al., 2022). In this way, tourism not only provides economic benefits, but also contributes to environmental and cultural conservation and improved community well-being.

**Institutional Strengthening: Establish and Strengthen Tourism Awareness Groups (Pokdarwis) and Involve the Community in Decision Making**

Individual capacity building alone is not enough to ensure the success of sustainable tourism in Penglipuran Village. A solid and sustainable system is needed, namely institutional strengthening. Strong institutions provide a platform for the community to actively participate in decision making, manage resources together, and ensure that the benefits of tourism are felt by all levels of society. One of the most important forms of institutions in the context of village tourism is the pokdarwis. Pokdarwis serve as a forum for the community to discuss, plan, and implement tourism activities. Through pokdarwis, the community can be actively involved in the management of tourism destinations, from planning the development of tourism products and promotion to monitoring the implementation of tourism activities. Institutional strengthening is a strategic step to achieve sustainable tourism in Penglipuran Village. By actively involving the community in the decision-making and management of tourism destinations, it is expected that tourism can bring greater benefits to the community and the environment.

**Cultural and Environmental Preservation: Cultural Preservation, Waste Management and Environmental Protection Activities**

Penglipuran Village, with its unique culture and natural beauty, has a great responsibility to preserve the heritage that has been maintained for centuries. Cultural and environmental preservation is not just a slogan, but the key to the success of sustainable tourism in this village. Culture is the soul of Penglipuran Village. Traditional ceremonies, traditional dances and traditional house architecture are some examples of the cultural wealth that needs to be preserved. Cultural and environmental preservation are two things that are interrelated and cannot be separated. By preserving the culture and environment, Penglipuran Village can become a sustainable tourist destination and provide benefits to the local community.

**Stakeholder Partnerships: Build Partnerships with Government, Business, Academics and Communities to Collaboratively Develop Sustainable Tourism**

Sustainable tourism development in Penglipuran Village cannot be done by one party alone. It requires a strong synergy and cooperation between different stakeholders. A solid partnership between the government, business actors, academics and the community is the key to success in achieving sustainable tourism. The government has a very important role to play in building partnerships. The government can act as a facilitator, regulator and supporter (Greenland et al., 2023; Suranto and Darumurti, 2024). Policies must be consistent with the principles of sustainable development and provide incentives for companies to engage in responsible business practices. The government can promote cooperation between businesses and local communities. Tourism businesses have a very strategic role in the development of sustainable tourism. Academics have a very important role in providing scientific input and conducting research related to sustainable tourism development. The community is the main subject of tourism development. Communities have the right to determine the direction of tourism development in their village. Communities should be involved in the planning and implementation of tourism development programs. Communities can develop unique and value-added tourism products such as handicrafts, art performances and culinary tours. Community-managed tourism addresses social, economic and environmental aspects and is therefore more sustainable. Partnership is the key to success in developing sustainable tourism in Penglipuran Village. By building strong partnerships between government, business, academics and the community, it is expected that tourism in Penglipuran Village can provide sustainable benefits to the community and the environment.

Tourism management can be used as an excellent learning resource in the context of geography learning. In understanding the impacts and implications of tourism activities on the environment, society and economy, students can develop a deep understanding of the principles of geography and various related concepts and theories (Kusmulyono and Karimah, 2022; Prastiyono et al., 2021). Tourism management can be integrated as a relevant learning resource in the context of geography learning (Wicaksono et al., 2023; Widiastuti, 2017). Here are some aspects of tourism management that can be used as learning resources: 1) Students can study the impact of tourism activities on the physical environment, including changes in land use, damage to ecosystems, and other environmental issues. Natural resource management and environmental mitigation can be the focus of geography lessons. 2) Analyzing the impact of tourism on local communities, cultural changes, and interactions between communities and tourists can open up geographic discussions about culture, identity, and socio-economic diversity. 3) Engaging students in understanding the economic impacts of tourism at local and regional levels, including income distribution, employment opportunities and infrastructure development, helps them to understand the concepts of economic geography. 4) Learning can focus on the role of urban and regional planning in managing the impacts of tourism. This includes analysis of policies, zoning and the impact of tourism on land use patterns. 5) Tourism often involves interactions between different ethnic and cultural groups. Students can study these dynamics to understand more about cultural diversity and ethnic differences in different tourism destinations. 6) In the case of tourism destinations located in areas prone to natural disasters, students can learn about disaster mitigation planning, risk management, and disaster response in these tourism destinations. 7) Learning can include the use of technology such as apps, geographic information systems (GIS), and social media in tourism management. This can enrich students' understanding of the use of technology in the context of geography. 8) Students can develop geographic analysis skills, such as interpreting graphs, mapping data, and drawing conclusions from given information, by using tourism-related data and statistics. Involving students in tourism management as a case study in the context of geography learning can enhance their understanding of the complexity of spatial dynamics and the multidimensional impacts of tourism activities.

## CONCLUSION

This study examines the influence of the learnscape in tourism villages on the intention of tourists to return to the village of Panglipuran, Bali. The results show that the learnscape perspective, which includes elements of cultural learning, local traditions, and the uniqueness of the village layout, has a significant impact on tourists' return visit intention. Tourists appreciate the uniqueness of the Panglipuran village environment, which provides not only aesthetic experiences but also learning about Balinese culture. This element is an added value that differentiates Panglipuran from other destinations. Experiences that enrich tourists' insights directly increase their satisfaction. This encourages the intention to return, both to deepen the experience and to recommend the place to others.

Community-based village management, while preserving local values, plays a key role in creating an engaging learning environment. Educational programs, such as cultural workshops, also support the increased attractiveness of the village. This study recommends that the Panglipuran village management continue to develop the culture-based education aspect, expand collaboration with tourism stakeholders, and increase promotion of the learning environment as a differentiating element to encourage repeat tourist visits in a sustainable way.

**Author Contributions:** Conceptualization, B.S.W and H.P; methodology, B.S.W and W.S.U; software, H.P and J.W; validation, W.S.U and C.S.D; formal analysis, B.S.W and H.P; investigation, B.S.W, H.P and J.W.; data curation, C.S.D and H.T.T.; writing - original draft preparation, H.P and J.W; writing - review and editing, B.S.W; visualization, W.S.U and C.S.D; supervision, B.S.W and W.S.U; project administration, B.S.W and H.P. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** The authors would like to acknowledge the support of research and community service institution University State of Surabaya for funding this research.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 15.09.2024 Revised: 08.11.2024 Accepted: 16.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2176–2183
DOI 10.30892/gtg.574 spl31-1384

# TOURISM CLUSTER LOCATION ANALYSIS IN THE SOUTHERN PART OF PRIMORSKY KRAI

**Tatiana K. MUZYCHENKO**
FSBIS Pacific Geographical Institute FEB RAS, Information and Cartographic Centre, Vladivostok, Russia, e-mail: muzychenko.tk@gmail.com

**Vladimir N. BOCHARNIKOV**
FSBIS Pacific Geographical Institute FEB RAS, Laboratory of Ecology and Wildlife Conservation, Vladivostok, Russia, e-mail: vbocharnikov@mail.ru

**Anna A. MIKHAYLOVA***
Immanuel Kant Baltic Federal University, Center of Geopolitical Research in Baltic Region, Kaliningrad, Russia, e-mail: annatikhonova@kantiana.ru

**Citation:** Muzychenko, T.K., Bocharnikov, V.N., & Mikhaylova, A.A. (2024). TOURISM CLUSTER LOCATION ANALYSIS IN THE SOUTHERN PART OF PRIMORSKY KRAI. *Geojournal of Tourism and Geosites*, 57(4spl), 2176–2183. https://doi.org/10.30892/gtg.574spl31-1384

**Abstract:** Tourism industry operations are affected by many overarching issues, such as maintaining the balance between the under-visited and the over-visited attractions. Tourism is among the most important sources of income in Primorsky Krai regional budget. This study is aimed at proposing a scientific approach to recreational zoning of coastal areas based on the assessment of urbanization, digitalization and availability of touristic infrastructure. Several municipalities located in the southern part of Primorsky Krai have been selected for the analysis. It was found that touristic infrastructure favors heavily urbanized and densely populated areas, usually in close proximity to the shoreline. It was concluded that the results of tourism cluster analysis do not always coincide with the territorial planning documentation. The relationship between the tourism industry operations and the possibility for adoption of information and communication technologies in the study area was assessed using the cellular network coverages. The results presented indicate that the tourism industry potential in Primorsky Krai is unevenly distributed across the study region, thus challenging the balance of overtourism and undertourism. However, the more disadvantaged areas are potentially able to expand upon the existing infrastructure and attract more tourist traffic. Therefore, the tourism sector in the study area indeed has the possibility to create several attractive tourist clusters to evenly distribute the tourist flows.

**Keywords:** touristic infrastructure, cellular network coverage, geographic detector tool, southern Primorsky krai, spatial analysis

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## INTRODUCTION

The tourism industry is considered an essential part of a modern sustainable economy (Serrano-Barquín et al., 2012) that drives the infrastructural and economic development, especially in the rural areas (Wijijayanti et al., 2020). It can be a positive force for the preservation of the local heritage and natural conservation, while creating new jobs with few negative environmental impacts (Anup, 2018). However, tourism industry operations can be affected by many overarching issues – overtourism and undertourism (Barač–Miftarević, 2023; Gowreesunkar and Vo Thanh, 2020). Overtourism is a situation when too many tourists visit the same destination at the same time, in some cases even overwhelming the qualities that originally drew the travelers in. Undertourism implies that the destination receives very little to no attention from tourists. Provided that destinations compete for the same visitors, it can be said that these phenomena are interwoven with each other (Gowreesunkar and Vo-Thanh, 2020). Therefore, decisionmakers must maintain the balance of tourist flows between over-visited and under-visited attractions. Cluster policymaking can alleviate the issue by improving the efficacy of resource allocation and identifying the areas that require more attention than others. However, this planning approach requires a thorough assessment of the existing touristic infrastructure and amenities.

Over recent years, the smartphone and other "smart" devices have become intermediaries in day-to-day activities (Dickinson et al., 2014), increasing the tourism industry's reliance on information and communication technology (ICT) infrastructure, such as cellular network services (Gretzel et al., 2015). Sun et al. (2024) noted the positive impact of ICT growth on the increase in the tourism development index, using data from 130 countries from 1995–2019. Another study by Seetanah and Fauzel (2023), based on the example of island economies, substantiates the direct cause-and-effect relationships between digitalization and tourism development. Therefore, the inclusion of ICT infrastructure was deemed a necessary supplement to the analysis of overtourism and undertourism phenomenon.

Possibly the strongest divergence in the development of tourism is found in coastal areas. Moreover, seaside tourism is a major source of pressure on the coastal and marine ecosystems. Therefore, it is of utmost importance to identify the necessary conditions for ensuring both the sustainability and competitiveness of tourism in seaside areas (Liu et al.,

* Corresponding author

2024). For example, Leka et al. (2022) assert the importance of measuring and monitoring the pressure tourism causes on the coastal areas in the form of the Tourism Carrying Capacity Index. Jurkus et al. (2021) carried out a geoinformational benchmarking of the sustainability and competitiveness of coastal tourism in several South Baltic resorts, identifying existing and potential conflicts, assisting future planning and decision-making.

A study by Mikhaylova et al. (2023) performed a functional delimitation of the coastal zone based on tourism activity. It was found that the most promising areas for tourism extend no further than 10 km from the coastline, with the most attractions concentrated in very close proximity to the coast and favoring urban areas. Studies by Adeola and Evans (2019), Ciacci et al. (2021) demonstrate the positive relationship between the tourism development of coastal areas, social and economic conditions of the area, the infrastructure availability, and the access to information and communication technologies via statistical analysis, thus explaining the concentration of tourist attractions in highly urbanized areas. Therefore, there are numerous factors that have to be considered and measured to identify the exact locations that have to be considered by policymakers when developing tourism development strategies and zoning. Tourism sector accounts for a considerable portion of income in Primorsky Krai, especially in the southern part of the region. In recent years, it has become one of Russia's leading tourist destinations.

Historically, Primorsky Krai has always experienced sufficient tourist attention (Martyshenko, 2011), driving the development of solid touristic infrastructure (Volivok, 2018). The primary focus of this attention has always been directed to southern Primorye – Khasansky, Nadezhdinsky, Partizansky and Shkotovsky districts, as well as Vladivostoksky, Artemovsky, Nakhodkinsky and Partizansky urban districts, which make up our study region.

As a result, the area is able to accommodate ecotourism (Maslovskaia et al., 2020), recreational, cultural, gastronomic (Den and Shemetova, 2020), and many other prominent types of tourism. These developments are further supported by recent government-initiated investments, infrastructure renewal projects, and exploration of tourism exchange opportunities with neighbouring countries, namely North Korea and China. However, the study region faces several challenges, such as harsh restrictions on nature management imposed by conservation lands (specifically IUCN category I and II protected areas) and rugged mountainous terrain (Bocharnikov et al., 2004) that lead to stark land development disparities, negatively affecting the touristic infrastructure development and even distribution of tourist flows.

Expansion of ICT infrastructure networks to remote area significantly improve the quality of data and insights used by the industry to respond to the current needs and better predict future trends. Therefore, widespread adoption of digital tools, along with the cluster policy implementation, will increase the attractiveness of the study area as a tourist destination and significantly improve the efficacy of the industry operations. However, a solid framework is required to integrate the newly acquired analytics and tools into a cohesive product that can be used by the decisionmakers. The aim of this study is to propose a scientifically based approach to recreational zoning in coastal areas by assessing the availability of touristic infrastructure and the accessibility of ICT. To achieve the goals outlined above, the authors have constructed a 3x3 km grid, each cell containing information on several touristic infrastructure types and population estimates. A Geographic Detector statistic has been calculated for each data type, denoting its significance in tourism processes. The grid has been overlaid with cellular network coverage map, to represent the potential for ICT implementation in tourism industry operations.

## MATERIALS AND METHODS

Geospatial analysis has been employed to analyze the suitability of the local touristic infrastructure for cluster formation, having been previously used in tourism-related research (Xia et al., 2018; Gao et al., 2022). Within this approach, cell-based models are commonly used as an abstract representation of the spatial environment. Grid cells act as a uniformly proportioned unit that integrates heterogenous data on a scale finer than the administrative division. As 1:300 000 map scale is suitable for regional planning purposes, a 3x3km grid was proposed by the authors. Additionally, the choice of cell size was made to ensure that every point of interest can be potentially reachable by walking in each cell. Studies have shown that in Europe, the average distance to the nearest daily amenity in metropolitan areas is 3.2 km, or approximately a 45-minute walk (Kompil et al., 2019). Walkability properties of the area play a significant part in driving visitors to the area on a smaller scale (Hall and Ram, 2019), also promoting the creation of sustainable tourism spaces (Bartzokas-Tsiompras and Bakogiannis, 2023). Tourist attractions and accommodations are known to be the defining factors of tourist appeal, determining the image of destination (Sharpley, 2000; Haneef et al., 2019). During the creation of the indicator list for the analysis of touristic infrastructure location impact on the study area, we relied on the findings outlined in previous studies. This has allowed us to justify the selection of indicators used for characterizing various infrastructure types, in accordance to their significance and sufficiency for the current research purposes. The authors understand that the indicators used can be altered to better suit the features of other regions: the list can be shortened or expanded, thus improving the zoning efficacy. However, the authors believe that the list, as described below, can be used as a base for conducting similar research in coastal tourist regions.

To form an arbitrary spatial representation of the touristic infrastructure (such as road networks, accommodation, shops, beaches, and other points of interest) the relevant information on a set of indicators presented in Table 1 has been gathered from several sources. Tourism development is spatially focused on the coastal areas, especially so in the study area (Mikhaylova et al., 2023), which necessitates including the beaches in the analysis. Protected areas and parks play a prominent role in tourism by providing cultural ecosystem services, raising awareness and driving investment in nature conservation (Zhang et al., 2022). Roads are an important component of the tourism package, enabling the tourists to move freely around the destination. A lack of proper transportation connectivity can impede tourism (Odeku, 2020). Shopping is among the most prominent and pervasive tourism activities (Chen, 2013), during which goods are purchased and sometimes taken home by the participants (Jin et al., 2017). Shopping can affect the destination choice for the tourists (Moscardo, 2004), and it can be a major revenue source for destinations (Murphy et al., 2011). Foodservice was also included in the analysis, as it is closely linked with gastronomy tourism, agritourism, and several other types of tourism (Seddighi and Theocharous, 2002). Tourists are intrinsically subject to many risks, such as psychological, social, cultural, temporal and financial (Dayour et al., 2020). It has been proven that potential risk concerns affect tourism participation (Lin et al., 2023). Overall, insurance services bring more comfort and satisfaction to the travel experience (Bentley and Page, 2001), justifying the inclusion of the insurance offices into the analysis. Banks have also been included, as access to banking services for tourism creates investment expansion opportunities and generates local employment (Van Tran et al., 2023). Even though the importance of travel agencies has been significantly diminished by the rapid advent of the digital age (van Rensburg, 2014), they still can provide specialized services. Such establishments are found only in areas where the tourism industry is already highly developed.

The data for touristic infrastructure types has been obtained from OpenStreetMap. To form an arbitrary spatial representation of the touristic infrastructure (such as road networks, accommodation, shops, beaches, and other points of interest) the relevant information on a set of indicators presented in Table 1 has been gathered from several sources.

Table 1. Indicators used for tourism cluster suitability analysis.

| Variable | Parameter |
|---|---|
| Protected Areas | Binary value (0 – not present, 1 – present) |
| Beaches | Binary value (0 – not present, 1 – present) |
| Pedestrian Paths | Total length in a cell (m) |
| Unpaved Roads | Total length in a cell (m) |
| Tourist Attractions | Total count in a cell |
| Population | Total count in a cell |
| Paved Roads | Total length in a cell (m) |
| Shops | Total count in a cell |
| Railroads | Total length in a cell (m) |
| Parks | Binary value (0 – not present, 1 – present) |
| Foodservice | Total count in a cell |
| Banks | Total count in a cell |
| Accomodation | Total count in a cell |
| Insurance Offices | Total count in a cell |
| Travel Agencies | Total count in a cell |

Tourism industry operations require human capital, which usually draws from the local population pool (Baum et al., 2016), to provide goods and services (Li et al., 2022). Thus, population counts for each cell were roughly estimated using the information provided by a LandScan HD dataset. Cellular network coverages and land zoning maps were chosen as ancillary data. Cellular network coverage extent as of 2023 was collected and combined from official sources of four largest Russian telecom operators – MegaFon, Beeline, Tele2, and MTS. The combined extent of cellular network coverage in the study area was divided into two categories: cellular networks of all standards, and 4G cellular networks. Contours of lands zoned for recreation and tourism purposes have been extracted from territorial planning documents obtained via FGIS TP service (https://fgistp.economy.gov.ru). The analysis results were compared to cellular network coverages and land zoning maps available for each district. However, considering different municipalities approach land zoning for recreation differently, a complete match with the analysis results should not be expected.

The authors have used GeogDetector plugin for QGIS with the tourist infrastructure spatial data to determine how meaningful each amenity type would be for the tourism industry in the local context. GeogDetector is grounded on the Power of Determinant (PD), which generates four detectors using the Equation 1 below (Wang et al., 2010b):

$$PD = 1 - \frac{1}{N\sigma^2}\sum_{i=1}^{L} N_i\sigma_i^2 \quad (1),$$

$N$ and $\sigma^2$ denote the area and the variance of phenomena prevalence of the study area respectively. The study area is stratified into L stratums, denoted by i = 1, ..., L (Wang et al., 2010a), according to spatial heterogeneity of a suspected determinant or its proxy of the phenomenon. PD values can range from 1 (if the determinant completely controls the phenomenon) to 0 (if the determinant is completely unrelated to it). Thus, the PD reflects the degree to which a determinant explains the prevalence of the phenomenon, producing the Q value (Wang, 2012). Administrative boundaries play the role of an explainer value in the analysis, as they denote the areas of jurisdictional responsibility (Landres et al., 1998) in accordance to which the tourism industry operates.

## RESULTS AND DISCUSSION

The geographic distribution of tourism infrastructure in Primorsky Krai's municipalities, along with some land zoning data provided by the regional authorities, is reflected in Figure 1. As a result of GeogDetector calculations, each data type has received a corresponding Q-value, denoting their significance in the spatial patterns of tourism industry operations. The Q-value ranking of the indicators is provided in Figure 2. It was established that the most prominent drivers of tourism are protected areas and beaches, with pedestrian roads coming in third place.

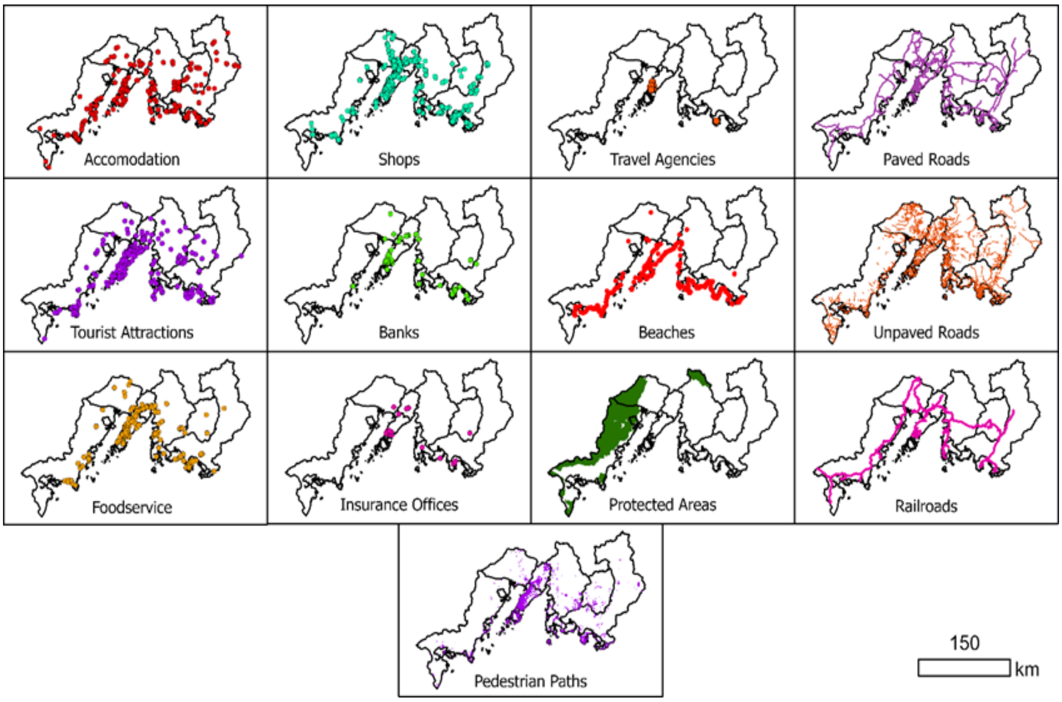


Figure 1. Spatial representation of data types employed in cluster analysis (Source: all data depicted in the figure was sourced from OpenStreetMap)

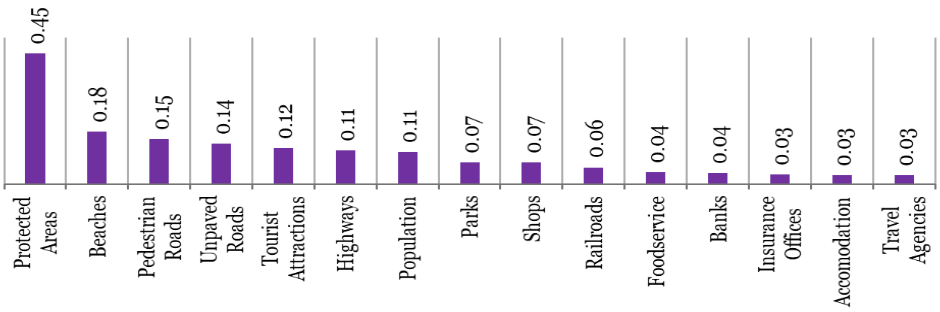


Figure 2. Q-value ranking of variables reviewed in the analysis (p-value is 0 for all parameters)

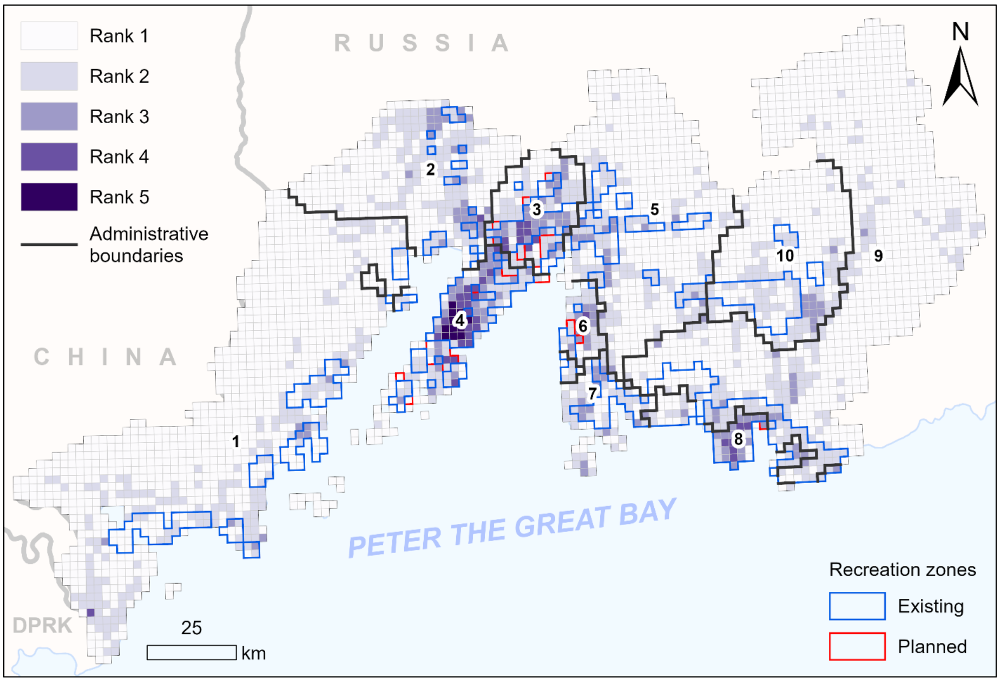


Figure 3. Tourism cluster suitability ranking in juxtaposition to recreation zoning data. 1 – Khasansky District; 2 – Nadezhdinsky District; 3 - Artemovsky Urban District; 4 - Vladivostoksky Urban District; 5 - Shkotovsky District; 6 - Bolshoy Kamen Urban District, 7 – Fokino, 8 - Nakhodkinsky Urban District; 9 – Partizansky District, 10 – Partizansky Urban District. (Source: existing and planned recreational zones are allocated based on the territorial zoning plans developed by the regional and municipal government of Primorsky Krai)

However, the lowest-ranked categories –accommodation, insurance offices and travel agencies – seem to occur only as a result of tourism industry operations. Each cell has been assigned an individual score based on a sum of all indicators multiplied by their respective Q-values, and the total scores were divided into five ranks, as demonstrated in Figure 3.

Ranks 4 to 5, as shown in Figure 3, represent good conditions for tourism cluster development. As a rule, cells of this type congregate in coastal, highly urbanized, and densely populated areas with solid road infrastructure. Inland parts of the study area are less populous on the average, potentially explaining the steep decline in the amount of the infrastructure. The total amount of cells within each rank and administrative division was counted. Based on the prevalence of higher-ranking cells, it was determined that tourism clusters are more likely to occur in Vladivostoksky, Nakhodkinsky, and Artemovsky Urban Districts, the most urbanized and populous divisions of the study area.

To assess how well tourist infrastructure coincides with the land zoning data, the count of cells within two highest ranks in the district was compared to count of cells which contain the recreational zones. It was found that Vladivostoksky and Artemovsky Urban Districts have demonstrated the highest analysis result and recreational zoning compatibility. Technically speaking, Nakhodkinsky Urban District has demonstrated full overlap within the two categories. However, it has been disqualified from the rating due to local land zoning peculiarities. According to the municipal land zoning data, most of the district area is considered recreational land. The lowest overlap percentages between the two categories are observed in Partizansky Urban District and Nadezhdinsky District, with only about 20% of potential recreational lands being zoned as such. On average, only just below 50% of highest-ranking cells appear to be used or considered for tourism purposes.

An assessment of mobile Internet coverage, including the high-speed 4G networks, was conducted for the study area, the results of which are demonstrated in Figures 4a and 4b and juxtaposed with the spatial distribution of tourism infrastructure in Figures 4c and 4d. Cellular networks services a significant part of the study area, excluding the remote areas located at the far west and north. However, high-speed 4G cellular networks are primarily available in the urbanized areas, as well as along the coasts and major highways. Vladivostoksky, Nakhodkinsky and Artemovsky Urban Districts receive the best cellular network coverage in recreational areas thus far. Additionally, high-speed Internet is available in the coastal areas of Khasansky District, which are considered extremely promising tourism zones.

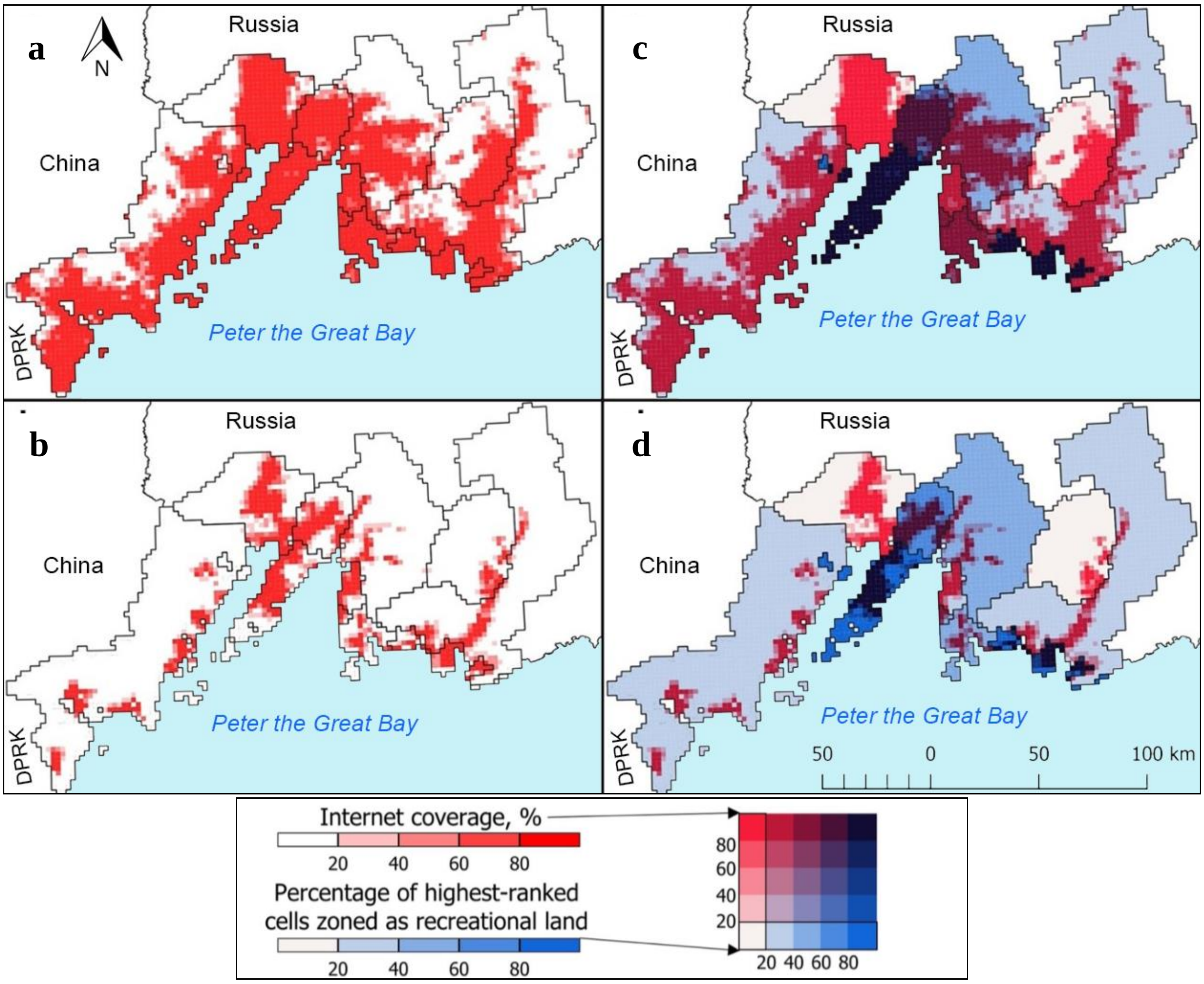


Figure 4. Cellular network coverage in the study area in comparison to the spatial distribution of recreation areas:
a – cellular networks (all standards) from all telecom operators; b – 4G cellular network coverage from all operators;
c – cellular networks (all standards) coverage overlaid with the percentage of recreation areas by municipality;
d – 4G cellular network coverage overlaid with the share of recreation areas by municipality.

The author-proposed index reflects the amount of existing tourist infrastructure in absolute values. Both the existing tourist infrastructure, as well as recreational land zoning patterns, seem to favour highly urbanized and densely populated areas, which are usually located on the coasts. An earlier study by Mikhaylova et al. (2023) supports this. Thus, it was established that Vladivostoksky Urban District, Nakhodkinsky Urban District, Artemovsky Urban District, as well as Khasansky District contain the most tourist amenities, while Partizansky District, Khasansky District, and Shkotovsky District appear to have the least amount of tourist-geared infrastructure out of all study municipalities. A tourist flow assessment, conducted over 2021–2023 by the telecom operator MegaFon, has confirmed that the main point of attraction is indeed Vladivostok and its surrounding areas.

However, the authors do not suggest that lower-rated districts are unsuitable for tourism. Rather, the study is also meant to reflect the yet-unused tourism development potential that these territories possess and the value this potential provides in redirecting the tourists from the over-visited attractions. The authors have found that the presence of tourist infrastructure is not fully coincident with the land zoning data. However, it should be noted that different municipalities in the study area seem to approach recreational land zoning differently. Generally, it appears to not have been based on the presence of already-present tourist infrastructure. The analysis results indicated that the tourism industry in Primorsky Krai indeed has room to grow, which requires further investigation. Ecotourism is considered a promising avenue of tourism development for the study region, as it is home to several prominent protected areas: Land of the Leopard and Call of the Tiger National Parks. The land zoning plans need to ensure the interests of the tourism industry meet nature conservation goals and to sustainability principles, among several other considerations.

## CONCLUSION

This study proposes a scientifically based approach to coastal and seaside area zoning, which can be used for different regions to avoid the negative consequences of overtourism. The study has assessed the impact of urbanization, digitalization potential (in the form of an analysis of the degree of cellular network coverage) and the location of various tourism infrastructure types on the tourist attractiveness of the coastal regions. Locations of existing tourism infrastructure were compared to existing and planned recreational areas, by referencing the land zoning documentation. The spatial distribution of tourism infrastructure has been compared to both existing and planned recreational areas. The use of GIS technologies has made it possible to carry out a more detailed zoning of the territory without being limited by the municipal boundaries. This approach has made it possible to identify potentially attractive tourism zones, which are currently experiencing the effects of undertourism, since they have not yet received institutional support and recognition as a viable tourist destination. This work has contributed towards a theoretical understanding of delimiting and managing the tourist flows in the coastal tourist areas, in a manner that maintains the balance between meeting the environmental sustainability goals and maximizing the economic benefits provided by the industry.

Since the study area encompasses ten municipalities in Primorsky Krai, Russia, it holds practical significance for the regional policymaking toolsets utilized in territorial planning. It was found that the most promising areas for tourism cluster formation are located in Vladivostoksky, Nakhodkinsky and Artemovsky Urban Districts. Coastal settlements in Khasansky District are reported to possess a tremendous recreational potential as well, which was confirmed in an earlier study (Mikhaylova et al., 2023). Based on the cellular network coverage assessment results, it was concluded that high-speed mobile intent is already accessible in the most attractive tourist areas. ICT adoption allows the tourism industry to better address the feedback provided by the customers, thus improving the operations efficacy. It should be noted that telecom operators are working to ensure 4G service at natural tourist attractions, such as remote beaches and mountaintops.

As the study results have demonstrated, tourist sites are primarily concentrated in urban areas. To avoid the negative consequences of over-tourism in these well-established hotspots, recreational potential of the rural sections of the study regions needs to be improved. As ICT tools can assist with managing the customer expectations and responding to feedback in a timely manner, we conclude that expanding the cellular network coverage, as the most accessible form of Internet connection, is paramount to the goals outlined above.

The study is mainly limited by the size of the study area. Further work will focus on expanding the area of interest and implementing comprehensive functional zoning for tourism development in Primorsky Krai. Additionally, further investigation into the topic is required to assess the qualitative properties of tourism infrastructure. Different objects may have different levels of attraction for the tourists, which should be accounted for in the land zoning documentation. Future avenues of research should be focused on expanding the area of interest, and further refining the proposed recreational zones identification approach. Tourist attraction points must be identified, a map of tourist flows made, and a ratio of tourism objects concentration and diversity measured.

**Author Contributions:** Conceptualization, V.N.B.; methodology, T.K.M., V.N.B., and A.A.M.; software, T.K.M. and A.A.M.; validation, T.K.M. and A.A.M.; formal analysis, T.K.M., V.N.B. and A.A.M.; investigation, T.K.M. and A.A.M.; data curation, T.K.M. and A.A.M.; writing – original draft preparation, T.K.M.; writing – review and editing, T.K.M., V.N.B., and A.A.M.; visualization, T.K.M. and A.A.M.; supervision, V.N.B.; project administration, V.N.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** The publication was supported by the Agreement of Ministry of Science and Higher Education and PGI FEB RAS within the «Spatial structures of sustainable transboundary development and green development models in the context of emerging ecological corridors and biodiversity conservation priorities in the south of Russian Far East and the Northeastern China» project (identification number 075-15-2023-584).

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgements:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 19.09.2024 Revised: 11.11.2024 Accepted: 17.12.2024 Available online: 31.12.2024

Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVII, vol. 57, no. 4spl, 2024, p.2184-2191
DOI 10.30892/gtg.574spl32-1385

# SUSTAINABLE MANAGEMENT OF RURAL SOCIAL WORKERS INFLUENCED BY TRAINING QUALITY, RESOURCE AVAILABILITY AND PROFESSIONAL DEVELOPMENT OPPORTUNITIES: MODERATOR ROLE OF COMMUNITY SUPPORT

**Xiaoyi WU**
Universiti Sains Malaysia, Department of Social Work Programme, Minden, Penang, Malaysia, e-mail: wuwuxiaoyi@student.usm.my

**Paramjit Singh Jamir SINGH***
Universiti Sains Malaysia, Department of Social Work Programme, Minden, Penang, Malaysia, e-mail: paramjit@usm.my

**Citation:** Wu, X., & Singh, P.S.J. (2024). SUSTAINABLE MANAGEMENT OF RURAL SOCIAL WORKERS INFLUENCED BY TRAINING QUALITY, RESOURCE AVAILABILITY AND PROFESSIONAL DEVELOPMENT OPPORTUNITIES: MODERATOR ROLE OF COMMUNITY SUPPORT. *Geojournal of Tourism and Geosites*, 57(4spl), 2184–2191. https://doi.org/10.30892/gtg.574spl32-1385

**Abstract:** This study examines the impact of training quality, resource availability, and professional development opportunities on the sustainable management of rural social workers in China and investigates the moderating role of community support. Primary data were gathered from rural social workers using survey questionnaires. The relationships between training quality, resource availability, professional development opportunities, and sustainable management were analyzed through Smart PLS, focusing on community support as a moderating variable. Summarize the main results, indicating positive associations and the monitoring effect of community support. This paper emphasizes the study's contribution by providing insights into the sustainable management of social workers, which can guide policymakers. Highlights the relevance of policymakers, suggesting improvements to training, resource availability, and professional development.

**Keywords:** training quality, resources availability, professional development opportunities, sustainable management of rural social workers, community support

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## INTRODUCTION

The management of rural social workers is one of the most important problems for China, a country that successfully developed the process of urbanization but still has numerous problems in rural areas. Hence, while the nation progresses economically, rural areas continue experiencing poverty, inferior education and healthcare, and restricted social services (Sanders and Scanlon, 2021). Rural social workers are responsible for helping with these disparities, offering services and encouraging development. However, their success and longevity are significantly affected by aspects like training, resources, and professional development. This paper aims to examine these elements' influence on the sustainable management of rural social workers in China by considering community support as a moderator. This study is especially relevant to the social services industry, which comprises many subfields, including social work, community development, and human services. Therefore, the findings of this study are useful to organizations and institutions that operate in rural development, social welfare, and public policies. The quality which is received by the trainees is central to the competence and efficacy of social workers. China also has a disconnection in the training programs that social workers undergo especially in the rural areas (Tu et al., 2022). As Brown and De Neve (2024) say, good training is an all-rounded training that offers knowledge in social education theories, skill training, and exposure to internships and field practice. However, most of the rural training programs are poor in terms of depth and experience and produce a workforce that is ill-equipped to deal with the needs of rural settings. Thus, the assessment of the effectiveness of these training programs, as well as potential outcomes regarding social workers' effectiveness and longevity in rural communities, is crucial. Resource availability is also another important element that defines the sustainability of rural social workers. Some of them, according to Almeshqab and Ustun (2019), are in the form of finances, networks and equipment to enable them to carry out their activities in the most efficient ways possible. Currently, research has shown that many rural areas in China's face serious social work practice challenges, so we found that resource scarcity is a big issue for social workers in numerous rural areas of China. Based on the following reasons, it is clear that scarcity of funds hampers the support of programs and projects developed for needy groups of people. Also, lack of access to some of the basic amenities like means of transport affect the effectiveness and successful accomplishment of tasks delegated to the social workers (Sanders and Scanlon, 2021). This shows that probability has a direct association with the abilities of those practicing social work to provide optimum and efficient consumer services, thus pointing out that the shortages can significantly have an impact on the stability of social work in community areas.

The presented training interventions are important to enhance the rural social workers' motivation and productivity. Through CPD, social workers are able to check on the formal and informal practices and knowledge in social work as well as new ideas (Hudson et al., 2021). It also has the usual benefits related to promotion opportunities, which greatly enhance both the satisfaction and the turnover rates. Thus, professional development is also a critical area of concern for Chinese

* Corresponding author

teachers especially those practicing in rural Chinese schools for reasons as, limited access and availability of such opportunities in rural Chinese schools, inadequate financing, and scant organizational support (Shengnan and Hallinger, 2021). Such limitations can make turnover rates high and result in a high rate of burnout among social workers, eradicating the sustainability of social work endeavors. From the standpoint of examining how a certain type of professional development has affected rural social workers' sustainability, one may uncover ways in which satisfaction may be fostered and the attrition rate decreased. The other aspect in this regard, which acts as a moderating factor, is community support. It can, therefore, be argued that this is one of the ways through which the community can support social workers. The improvement of community support can complement social workers by creating a working relationship that signifies the joint efforts of social workers together with the community people in addressing social issues (Phillips et al., 2019). The degree of community support in rural China is comparatively low in general, while it is quite different, depending on the levels of numerous factors that define the success rates of social work. These roles imply that the people in the community can strengthen the practice of social work through voluntarism and social support for the available local resources and social respect (Ostrander et al., 2021).

More specifically, the purpose of this study is to examine the impact of the quality of training as well as the accessibility of resources and professional development options on the ability to sustain rural social workers in China. Furthermore, it is proposed to investigate the moderating effect of community support in these processes. Thus, the research aims to outline the best practices that can facilitate an improvement in the performance of the employees engaged in social work and increase their job satisfaction levels, as well as to provide recommendations to support their retention in rural workplace environments. It is also noteworthy to indicate that several egregious shortcomings in the present-day literature and practice research are addressed in this investigation. First, it focuses a particular spotlight on the characteristics of training quality affecting rural social workers, which have been ignored greatly by theories of social work. Secondly, it emphasizes the idea of resource availability. This is a factor that impacts a rural social worker greatly, yet seldom is discussed. Thirdly, the study looks at the provision of professional development, which is critical towards career development and hence staff retention, but in the rural context, it is difficult to find. Lastly, it incorporates the community support as a moderator to enable a clear analysis of how locals can improve on the sustainability of social work practices in rural China. In the next section of this study, we will look into the relevant literature review, provide a research methodology, and conduct a full empirical analysis to test the proposed hypotheses.

## LITERATURE REVIEW

A study by Manzoor et al. (2019) shows that an improvement in training quality has a positive relationship with the sustainable management of rural social workers since the social workers are prepared with the skills, knowledge and competencies needed in profit handling the multifaceted problems that are likely to prevail in the rural setting. When the theoretical and practical knowledge provided by well-structured curriculums is learned and applied by social workers, they can provide appropriate intervention techniques concerning the needs of the rural population (Mohapi, 2022). In China, especially for the rural areas with different socio-economic challenges, improved training standard produces qualified social workers to address those challenges, hence resulting in improved service delivery and impacting more on society. Improving the quality of training that is given to social workers also creates more confident and professional members of the workforce, which means less turnover. Furthermore, Alston (2020) points out that the high standard of professional training incorporated with continuing education programs helps social workers to remain current with the practices and developments, thus strengthening their efficiency to continue with their work in troubling rural settings. Thereby, it stresses the hierarchical training to produce high-quality training programs that can effectively sustain and enhance the ultimate practicality of social work in rural China and, in the end, contribute positively to the many facets of social work, such as for the social workers and the communities they serve. Therefore, we propose that.

**H1:** Higher training quality positively influences the sustainable management of rural social workers

More resources promoting the increase in the capacity for the sustainable management of rural social workers is vital for delivering proficient services. Financial necessities, supplies and transportation and other accessories that are useful for performing their duties in an efficient manner provide enough aid to solve the complex issues of the rural areas for social workers (Almeshqab and Ustun, 2019). In China, for instance, the lack of resources is cited as one of the main issues affecting the health facilities in rural areas and, consequently, access to social work services. Resource availability, according to Sanders and Scanlon (2021), therefore, guarantees that the would-be beneficiaries are accessed by the social workers; those who suffer from such social injustices are provided with detailed services that include individual and community development solutions to social problems. It also leads to increased satisfaction with the job and the corresponding reduction of turnover levels in the profession for social workers practicing in facilities with adequate resources. Also, excellent funding activities in schools help in recruiting personnel with the right qualities to practice social work in rural areas (Berg-Weger, 2019). Due to such support and the availability of resources for social workers, the issue of social work interventions in rural areas becomes more sustainable as the practice results in better social outcomes and the well-being of the community. Therefore, we make a hypothesis that.

**H2:** Greater resource availability positively influences the sustainable management of rural social workers

Bascopé et al. (2019) find that a more specific focus on the professional development of the rural social workers leads to more positive impacts on the fourth perspective of sustainable management. The ability to attend workshop sessions, seminars, disaster management, and other training provides one with flowing knowledge and relation to the other practitioners on matters concerning practice, research, and innovation, among others. It also fosters their competency and capacity to resolve the special and emerging dynamic complexities of rural settings. Rural social workers in China report rather similar challenges of professional isolation and limited resources when it comes to practicing social work (Dominelli, 2021). Thus, Berg-Weger (2019) shows that professional development enables them to avoid feelings of impotence and demotivation. They also lead to higher job satisfaction because social workers receive appreciation and recognition from their employing agencies for the pursuit of change and improvement. Also, sustained training empowers the retention of professional social workers in rural facilities and organizations which in turn guarantees effective and quality services by such human resource (Roumpi et al., 2020). Indeed, funding specialization results in rich benefits to rural social work practice; enhancing rural social workers' professional development directly improves their job performance, job satisfaction, and long-term retention in their relatively understaffed regions, and therefore, sustainably improves the quality of social work provided to rural communities. Therefore, we say that.

**H3:** More professional development opportunities positively influence the sustainable management of rural social workers

Community support influences the relationship between training quality and sustainable management of the rural social workers through increased practical application of the competency acquired through training. As highlighted above, Masis et al. (2021) points, when rural social workers get the backing of a great community, the enhancement of high-quality training is greatly boosted. This support entails partnership, availing of local information as well as other core requisites that are relevant in the provision of services. As in the Chinese context, active stakeholder participation fosters the application of social work training since it fosters a culture that is sensitive to social workers' practice (Yuen-Tsang and Wang, 2020). Rose and Palattiyil (2020) Show that support from the community also leads to a feeling of being a team player in tackling problems and thus increases the motivation and morale of the social workers. This synergy guarantees that all the advantages of training are accrued hence positively impacting on the delivery of services and sustainability of social interventions in rural settings. Therefore, community support becomes vital in bridging the gap between quality training and sustainable results that translate to serve the rural social worker and deprived rural communities. Therefore, we propose that

**H4:** Community support moderates the relationship between training quality and sustainable management of rural social workers

Availability of resources has a positive effect on the management of rural social workers with an influence of community support, which increases the efficacy of resources (Hadley and McGrath, 2021). When the officials, local authorities, other individuals and stakeholders within the rural settings support the efforts of the social workers then enhanced results are achieved relative to finances, structures and other essential supplies and commodities. Yu et al. (2021) find that active participation in the community in China assists social workers in optimizing such resources with community partners, knowledge from other social workers, and other volunteers. This support can be some of the informal resources that can complement the formal resources like transport, place for service provision, and local fundraising. Another advantage of community support relates to the improvement of cooperation regarding better resource utilization in the company and innovations in the delivery of services. In this manner, there is the optimization of resource use, which makes social work services more proactive, dependable and of better quality, hence making them better and efficient (Gupta et al., 2022). Therefore, there is a need to encourage community support in an effort to enhance the implementation of resources available in promoting the practice of social work in rural areas to the benefit of the social worker and the society at large. Therefore, we say that.

**H5:** Community support moderates the relationship between resource availability and sustainable management of rural social workers

Community support offsets the correlation between professional development opportunities and the sustainable management of rural social workers by accelerating the relevance and effectiveness of the opportunities. Wu and Sun (2020) say that a lack of competition and good support from the Chinese government as well as from the communities the social workers work in also guarantees that there is good assimilation of the new skills and knowledge gained from the professional development. Members of the community would help in the organization of local workshops and training sessions with peer learning forums, thus promoting learning (Chow et al., 2021). This support assists in offsetting the level of loneliness that social workers from rural areas have to endure, thus supporting the culture of learning together. In addition, the acknowledgement by the community and encouragement helps the social workers' morale and increases their chances of acquiring and reaping from the opportunities of continuing education (Jordan, 2022). Consequently, it can be inferred that the provision of professional development support, together with strong community backing, results in charged and efficiently managed social workers who are equipped to face the problems specific to the county's rural settings. Therefore, we make a hypothesis that.

**H6:** Community support moderates the relationship between professional development opportunities and sustainable management of rural social workers

## RESEARCH METHODS

The study investigates the impact of training quality, resources availability and professional development opportunities on the sustainable management of rural social workers and also investigates the moderating role of community support on the association of training quality, resources availability, professional development opportunities and sustainable management of rural social workers in China. The article gathers the primary data from social workers using survey questionnaires. The items were used to measure the understudy constructs such as training quality is measured with six items (Dhar, 2015), resources availability is measured with four items (Wang et al., 2018), professional development opportunities is measured with five questions (Prenger et al., 2017), community support is measured with four questions (Nunkoo and Ramkissoon, 2011) and sustainable management of rural social workers is measured with five items (Adebanjo et al., 2016). These items are given in

Table 1. The study selected the social workers of the registered social firms in China as the respondents. These social workers are selected based on simple random sampling. The surveys were distributed to the social workers by personal visits.

Table 1. Variables and items

| Items | Statements | Sources |
|---|---|---|
| **Training Quality** | | |
| TQ1 | My manager can be counted on to help me develop the skills emphasized in training programmes. | Dhar, 2015 |
| TQ2 | I can expect my manager to assign me special projects that require me to use the skills and knowledge emphasized in training. | |
| TQ3 | My manager enthusiastically supports my participation in training programmes. | |
| TQ4 | My manager believes advising or training are one of his or her major job responsibilities. | |
| TQ5 | I would not hesitate to tell my manager of a training need I have in a particular area. | |
| TQ6 | My manager makes sure I get the training needed to remain effective in my job. | |
| **Resources Availability** | | |
| RA1 | Our firm owns sufficient human resources to implement environmental management practices. | Wang et al., 2018 |
| RA2 | Our firm owns sufficient financial resources to implement environmental management practices. | |
| RA3 | Our firm owns adequate physical resources to implement environmental management practices. | |
| RA4 | Our firm owns sufficient intangible assets to implement environmental management practices. | |
| **Professional Development Opportunities** | | |
| PDO1 | We work together. | Prenger et al., 2017 |
| PDO2 | People can trust each other. | |
| PDO3 | People keep their word. | |
| PDO4 | People sincerely interested in each other. | |
| PDO5 | We trust completely in each other's capacities when | |
| **Community Support** | | |
| CS1 | Most important industries for my community. | Nunkoo and Ramkissoon, 2011 |
| CS2 | Help my community grow in the right direction. | |
| CS3 | Continue to play an important economic role. | |
| CS4 | Proud that social workers are coming to my community | |
| **Sustainable Management of Rural Social Workers** | | |
| SMRSW1 | Social workers are managed through quality training. | Adebanjo et al., 2016 |
| SMRSW2 | Social Workers are involved in the training. | |
| SMRSW3 | Social Workers have enough resources to manage their work. | |
| SMRSW4 | Social Workers have professional opportunities. | |
| SMRSW5 | Social Workers have community support. | |

A total of 502 surveys were distributed but only 290 valid surveys were received. These valid surveys have 57.77 percent response rate. The article also checks the association among variables using smart-PLS. It is a commonly used tool for the analysis of primary data and give the best results even the researchers used large data sets (Hair Jr et al., 2020). The study used three predictors named training quality (TQ), resources availability (RA) and professional development opportunities (PDO), one moderating variable named community support (CS) and one dependent variable named sustainable management of rural social workers (SMRSW). Figure 1 shows these variables.

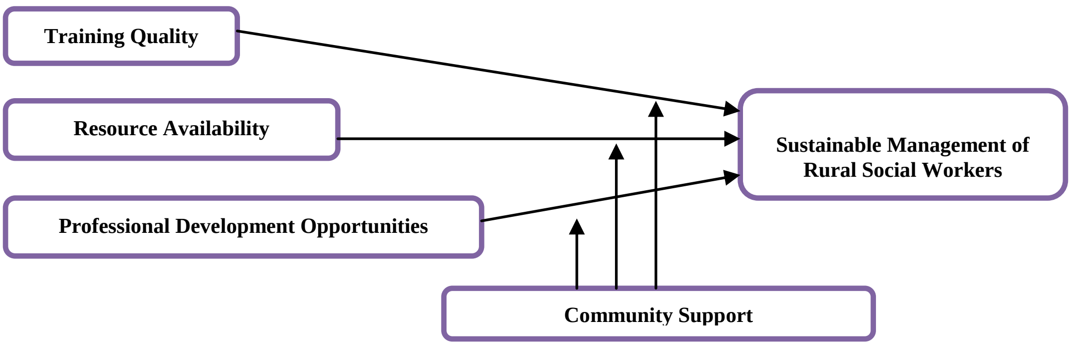


Figure 1. Research model

**Research Findings**

The study checks the convergent validity that shows the correlation between items. The outcomes revealed that the Alpha and composite reliability (CR) values are not less than 0.70. In addition, the outcomes also revealed that the factor loadings and average variance extracted (AVE) values are not less than 0.50. These figures exposed a high correlation between items and valid convergent validity. Table 2 shows these values. The study checks the discriminant validity that shows the correlation between variables. The outcomes revealed that the Heterotrait Monotrait (HTMT) ratio is not larger than 0.85. These figures expose a low correlation among variables and valid discriminant validity. Table 3 shows these values. The outcomes revealed that the training quality, resources availability and professional development opportunities have a positive association with sustainable management of rural social workers in China and accept H1, H2 and H3.

Table 2. Convergent validity

| Constructs | Items | Loadings | Alpha | CR | AVE |
|---|---|---|---|---|---|
| Community Support | CS1 | 0.864 | 0.899 | 0.929 | 0.767 |
| | CS2 | 0.878 | | | |
| | CS3 | 0.883 | | | |
| | CS4 | 0.878 | | | |
| Professional Development Opportunities | PDO1 | 0.796 | 0.852 | 0.891 | 0.621 |
| | PDO2 | 0.792 | | | |
| | PDO3 | 0.738 | | | |
| | PDO4 | 0.790 | | | |
| | PDO5 | 0.821 | | | |
| Resources Availability | RA1 | 0.623 | 0.803 | 0.853 | 0.599 |
| | RA2 | 0.906 | | | |
| | RA3 | 0.891 | | | |
| | RA4 | 0.626 | | | |
| Sustainable Management of Rural Social Workers | SMRSW1 | 0.801 | 0.878 | 0.911 | 0.672 |
| | SMRSW2 | 0.834 | | | |
| | SMRSW3 | 0.852 | | | |
| | SMRSW4 | 0.770 | | | |
| | SMRSW5 | 0.839 | | | |
| Training Quality | TQ1 | 0.852 | 0.903 | 0.925 | 0.674 |
| | TQ2 | 0.810 | | | |
| | TQ3 | 0.810 | | | |
| | TQ4 | 0.783 | | | |
| | TQ5 | 0.857 | | | |
| | TQ6 | 0.811 | | | |

Table 3. Discriminant validity

| | CS | PDO | RA | SMRSW | TQ |
|---|---|---|---|---|---|
| CS | | | | | |
| PDO | 0.123 | | | | |
| RA | 0.768 | 0.155 | | | |
| SMRSW | 0.437 | 0.179 | 0.444 | | |
| TQ | 0.470 | 0.086 | 0.506 | 0.549 | |

Table 4. Path analysis

| Relationships | Beta | Standard deviation | T statistics | P values |
|---|---|---|---|---|
| CS -> SMRSW | 0.213 | 0.068 | 3.124 | 0.002 |
| PDO -> SMRSW | 0.102 | 0.043 | 2.378 | 0.019 |
| RA -> SMRSW | 0.182 | 0.065 | 2.784 | 0.006 |
| TQ -> SMRSW | 0.378 | 0.055 | 6.810 | 0.000 |
| CS x RA -> SMRSW | 0.193 | 0.061 | 3.150 | 0.002 |
| CS x PDO -> SMRSW | 0.096 | 0.043 | 2.264 | 0.026 |
| CS x TQ -> SMRSW | 0.095 | 0.047 | 2.037 | 0.044 |

Finally, the outcomes also exposed that community support significantly moderates the association of training quality, resource availability, professional development opportunities and sustainable management of rural social workers in China and accept H4, H5 and H6. These associations are given in Table 4.

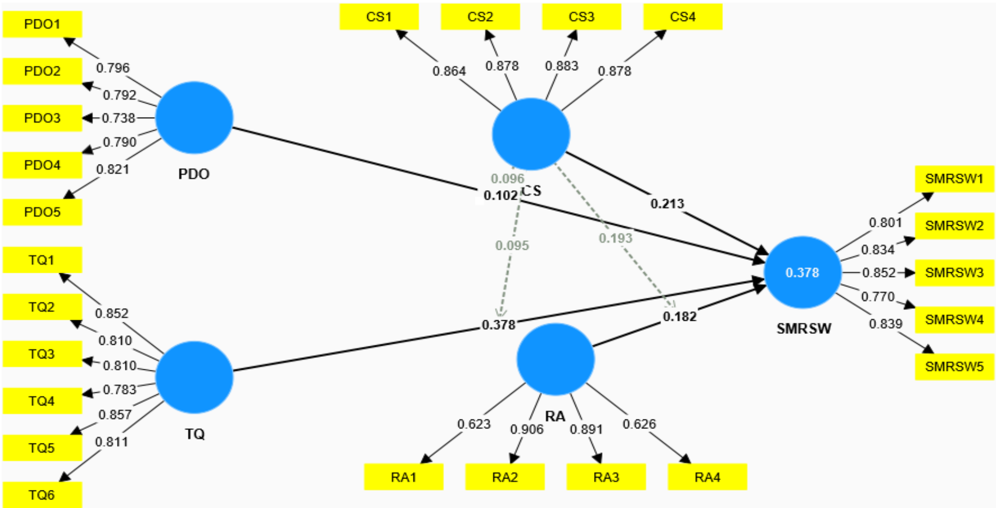


Figure 2. Measurement assessment model

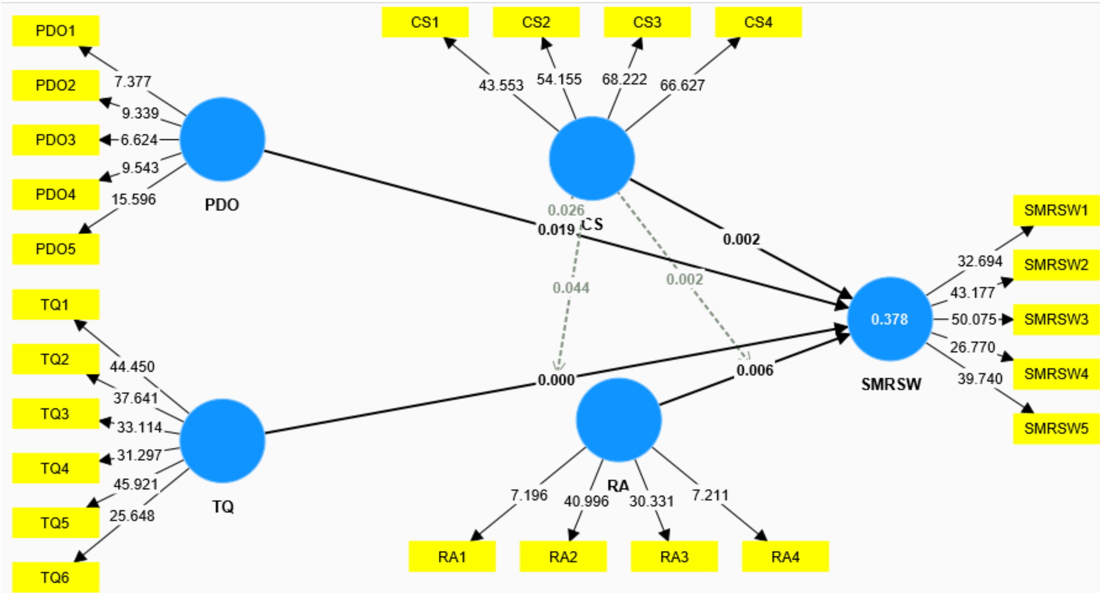

Figure 3. Structural assessment model

**DISCUSSION**

The nature of the retention of rural social workers in China means that there are certain key areas that are deficient and these include training standard, resources and professional development. This paper examines factors that affect the impact and durability of social workers in rural China with an aim to investigate the mediating influence of community support. These results affirm the complex nature of these influences and emphasize the significance of support as a factor that has the greatest moderating effect on the utilization of services in relation to each of the individual variables. The study finds that professional competence is a critical component that influences the quality of training among social workers. This way, high-quality training prepares social workers to meet the competencies, skills and knowledge needed to solve social problems confronted by rural communities (Kangasniemi et al., 2022). It was found by studies like Liang et al. (2020) that in China, the hours spent on training and the training content, particularly in rural areas, differ greatly, which in turn contributes to inconsistencies in terms of social workers' preparedness. Indeed, this research establishes that although excellence in training is required, it is community support that will considerably enhance the training outcomes. Depending on the communities' input of local knowledge, resources and participation in the actual problem solving, the effects of training are magnified (Yet et al., 2022).

This way, the training becomes more relevant to the needs of the population since it is based on the scenario of the given community. On the other hand, Fulton and Doussard (2023) find that even the most resourceful training initiatives can be compromised if there is a lack of community backing since sociologists cannot fully deploy all their skills in supporting the community. The study finds that resource availability is one of the other constructs that affect the sustainability of rural social workers. The input resources consist of cash and other forms of support in addition to facilities, equipment, and supplies required for efficient service provision. Social workers working in rural areas of China have a major problem of lack of resources, which hamper them in their work (Sanders and Scanlon, 2021). This paper shows that having the resources is not enough, adequate support from the community can complement and even increase the use and effectiveness of these resources. Communities that support social workers may also come in and close gaps by offering manpower via volunteering, community raising awareness, as well as utilizing local resources (Oni-Eseleh et al., 2023). For instance, from the community, members can give transport and accommodation to needy clients or another shelter where services can be rendered, hence increasing the support base of social workers. These complementary choices mean that it is possible for social workers to get the most out of scarce resources, which in turn enhances the delivery of standard services. However, in areas that are not well-supported, scarcity is felt in its worst form, which hinders the realization of the social work intervention efforts. Pithouse (2019) Points out that it is necessary to provide professional continuance education for social workers in order to keep them interested and productive. In this way, professional development guarantees updated practices and theories and new ideas in the field of social work. Moreover, it offers promotion prospects, which likewise greatly enhance employee satisfaction and decrease turnover rates.

However, professional development opportunities are scarce, especially in rural China areas where the schools are located far from each other, there is no funding to support professional development, and there is inadequate organizational support. In this case, this research postulates that community support may offer important moderation in the analyzed situation. The society can facilitate the kind of environment that enhances learning and training of social workers can be facilitated by communities that promote the profession (Kuusisto et al., 2024). For instance, community organizations may be used to make available workshop, training, and peer learning. Also, soldiers receive social appreciation and recognition from those around them, which, depending on the context, can motivate people and compensate for the lack of active professional development. Such communal support, according to Jia and Li (2022), ensures that there is retention of social workers practicing in the country's large areas, hence fewer cases of burnout and high turnover. When social workers lack such support, the situation may lead to being isolated and/or not valued, which in turn results in low morale and high turnover. In addition, the study finds that aspects such as the socio-economic and cultural characteristics of rural China make these dynamics rather intricate. With this, accessing and implementing effective social services may be relatively easy for social workers due to the strong adherence to norms and practices by the people in these regions. Castro-Arce and Vanclay (2020) tells those socio-political policies, especially those declared in rural development and social services, can deliver required financial support and facilities. In contrast, the policies that disregard rural areas and social services can worsen existing difficulties. The study also finds that technological development is also a factor that has both prospects and issues in the representation of rural Chinese social workers. Technology tools and solutions can enrich service provision, conduct training and professional development of social workers and other personnel, improve the communication and cooperation between social workers and citizens (Lolich et al., 2019).

**Implications**

The findings presented in this study have significant policy implications for China's policymakers, instructors in social work education programs, and leaders of communities. This emphasizes that resources should be directed towards very effective and sound training of the rural social workers, adequate resource provision and timely professional development for the purpose. This means that policymakers should pay special attention to the development of supportive policies and the raising of funding for such sectors. This paper, therefore, has highlighted the need for training institutions to come up with specific context training curricula to meet the needs of rural social workers. Moreover, enhancing community support plays a vital role because it multiplies both the strength and efficiency of the social work undertaken. When this paper's findings are applied successfully, stakeholders can enhance social service provision, increase social worker retention and job satisfaction, and nurture the growth of rural societies. It means that integrating such a broad approach can level the service gap between the urban environment and the rural one, providing everyone with equal chances for social success and, generally, increasing the quality of their lives. The study guides the regulators in establishing regulations related to enhance the sustainable management of rural social workers using effective training quality, quality resources availability and effective professional development opportunities.

**Limitations**

There is some complexity in the generalization of the findings of this study, and hence, the following limitations of the study can be noted. Firstly, it mainly employs a qualitative approach and, in this case, can be very limited due to the fact that it might not elicit all the factors that define the sustainability of rural social workers. Secondly, it is area-specific research confined to a few areas within China, and as such, the results may not extend to other regions that have different socio-economic and cultural backgrounds. Thirdly, in the present work, issues of temporal dynamics and long-term consequences cannot be clarified due to the cross-sectional research design. Also, it is very probable that some external factors that may affect the study findings have not been captured fully, such as changes in government policies or shifts in economic force. Therefore, future work should include comparative studies with other time points to support and complement the findings of the present research, as well as to increase the geographical generalizability of the rural social work sustainability determinants. This approach may also assist in targeting specific types of rural facilities since the focus is on developing solutions according to the needs of specific rural environments.

**Author Contributions:** Conceptualization, X.W., and P.S.J.S.; methodology, X.W.; software, X.W.; validation, X.W.; formal analysis, X.W.; investigation, X.W., and P.S.J.S.; data curation, X.W.; writing - original draft preparation, X.W., and P.S.J.S.; writing - review and editing, X.W., and P.S.J.S.; visualization, X.W.; supervision, P.S.J.S.; project administration, P.S.J.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study may be obtained on request from the corresponding author.

**Acknowledgments:** The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

**Conflicts of Interest:** The authors declare no conflict of interest.

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Article history: Received: 26.09.2024 Revised: 11.11.2024 Accepted: 17.12.2024 Available online: 31.12.2024

# Geojournal of Tourism and Geosites

Year XVII, no. 4 supplement, vol. 57, 2024

ISSN 2065-1198
E-ISSN 2065-0817