

POSSIBILITIES OF CREATING TOURIST AND RECREATIONAL COMPLEXES BASED ON THE LANDSCAPE CONDITIONS OF THE MOUNTAINOUS DISTRICTS OF THE ALMATY REGION, KAZAKHSTAN

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Abstract: The Almaty region, which is rich in natural landscapes, was established again in 2022. In this regard, the importance of regional spatial planning is taking on new forms. Considering the unique landscape potential, this project aims to create a framework for developing tourist and recreational complexes in the Uygur, Kegen, and Raiymbek regions. Creating a landscape diversity database to classify recreational resources; developing a typology for tourist and recreational complexes, considering the landscape's features and the tourism specializations. The research methods used in this study include field observations and landscape descriptions provided by the authors. A classification method has been developed to divide recreational resources into groups and sub-groups, determining their locations. The process of the developed typology is based on examples of specific types of tourist and recreational activities, as well as existing and potential tourist areas in the Almaty region and the Republic of Kazakhstan. The theoretical and methodological basis for the proposed classification and typology is based on the work of various authors and materials from the National Science Foundation of Kazakhstan. Issues of the possibilities of agricultural enterprises to provide tourists with local, natural food products have been analyzed. Based on these factors, recommendations were formulated for further developing promising tourist and recreational complexes in these areas. All authors have read and agreed to the published version of the manuscript.

Keywords: Uigur, Kegen and Raiymbek districts, landscape conditions, tourist specialization, typology, health tourism

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INTRODUCTION

A comparison with the classic tourism divisions shows that research in the geography of tourism in Kazakhstan has only just begun and many subject areas are waiting for their researchers (Wendt, 2020). The socio-economic development taking place in the country in recent years, contributes to the emergence of new tasks in matters of the spatial organization of tourism in the regions. In this regard, research and further use of recreational landscapes is the most important priority for the regional economy of Kazakhstan. In recent decades, there have been many studies on tourists' intention to return to a destination. Researchers have pointed out that tourists' intention to return is influenced by various factors, including perceived value (Mai, 2017; Juliana et al., 2022); perceived quality (Libre et al., 2022; Font and Lynes, 2017; Shatnawi et al., 2023), national image (Thomas and Wee, 2022). The majority of studies have only focused on demonstrating the relationship between perceived quality and its impact on satisfaction and intention to return to destinations (Tri and Nguyen, 2024); or perceived value and its impact on satisfaction and intention to return to destinations (Meltem et al., 2020).

The issue under consideration is one of the ways to solve these problems and meet the needs of the population in recreational services. Kazakhstan has all the necessary natural resource potential for the development of all types and forms of tourism (Ospanova et al., 2022). But many problems in this area are associated with the weak level of tourism services, with the poor development of tourism infrastructure and accordingly, the search for effective solutions for the placement of tourism and recreation facilities. One of the forms of development of tourist and recreational activities is an integration of the resource base, tourism industry enterprises, and suppliers of tourism services and products. Resources are the "starting point" in

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tourism thus, the multi-sectoral and multi-level structure of the tourist specialization represents the joint use of natural resources, infrastructure enterprises and the geographical and economic position of the territory (Dunets, 2011; Zyryanov, 2018; Dunets et al., 2019; Kuskov, 2005; Krotova, 2003; Kvartalnov, 2001).

The successful development of local tourism is associated with a clear understanding of its importance for the country's economy. The natural landscapes of the regions of Kazakhstan, as well as artificially created objects of a cultural, and environmental nature, serve as a powerful basis for the possible development of tourist and recreational complexes. Tourism has a significant impact on the economy and social development of the region, contributing to the inflow of foreign exchange, the creation of new jobs, the improvement of infrastructure, etc. Tourism can also be a source of income for students, parents, pensioners, and many others, providing a side job. Residents are the most valuable human resource for tourism development (Baiburiev et al., 2018; Dmitriyev et al., 2023; Akbar et al., 2020; Koshim et al., 2020).

The border area of Southeast Kazakhstan is the host region of the population of Central Asia and China, with tourist territories belonging to the perspective and included in the TOP 10 priority objects of national significance. Among them are the mountain cluster of the Almaty region with a potential of 2,5 million tourists per year, and the Sharyn Canyon with a potential of 1 million tourists (Ismagulova et al., 2020). It should be noted that in 2021, a "Visit Center" was built on the territory of the Sharyn Natural Park to provide services to tourists.

Research has uncovered a critical aspect of the complex interaction between economic activity, emissions, and the tourism sector in specific country groupings (Gössling et al., 2015). Tourism can stimulate energy demand, leading to environmental consequences. The relationship between a country's tourism activities and their environmental impact has led to energy consumption being identified as a critical factor. Theoretical and empirical studies have established a clear connection between the increasing scope of tourism-related activities, such as travel, dining, and lodging, and rising energy demand, primarily driven by fossil fuels (Katircioglu, 2014). Several geographic contexts have been explored, including the European Union (EU) by (Xia et al., 2022), Turkey by (Katircioglu, 2014).

Prior research suggests that tourism can serve as an agent of environmental conservation when managed effectively by promoting the adoption of eco-friendly technologies and transportation methods (Ahmad et al., 2022; Koçak et al., 2020; Leal et al., 2023). Tourism is recognized as a significant factor that can influence both the environmental and economic conditions of an economy (Ozturk et al., 2023). It should be noted that the Almaty region of the Republic of Kazakhstan has a rich variety of recreational and agricultural landscapes. For mountainous and foothill regions Uyghur, Kegen and Raiymbek districts of the region which are characterized by a reduced resistance of natural landscapes to anthropogenic loads, and special approaches to territorial planning. The formation of a tourist and recreational complex (TRC) is based on the coordination of recreational landscapes, tourist specialization, infrastructure, and economic factors to develop tourism in a specific area (Dunets, 2011). In this regard, the issues of territorial organization and the further development of the emerging tourist and recreational complexes in these areas are also important problems (Tri and Nguyen, 2024).

Anthropogenic landscapes of the region are represented by agricultural, forestry, water management and road transport landscapes. Industry in the region is represented by small enterprises for the processing of agricultural products. For many centuries, the agro landscapes of the Almaty region have been used as pastures. Livestock landscapes are widespread in the highlands, middle mountains and foothills. Such massifs include the valleys of the Sharyn, Karkara, Kegen rivers and the intermountain plains of Ketmen and Kulyktau. Farming is carried out here for the cultivation of grain crops, vegetables and fruits. Agriculture in the Uyghur, Kegen and Raiymbek districts of the Almaty region consists of small farms that process various products. These settlements with numerous small enterprises are located in the valleys of the Charyn and Kegen rivers, as well as in the foothills of the Ketmen and Kulyktau mountain ranges on the northern slopes.

It should be noted that today the Uyghur region began to widely use deposits of mineral thermal waters (Ivkina et al., 2019; Iminova and Nurkhalykov, 2016). The creation of tourist and recreational complexes has already begun here. Hotel complexes with swimming pools, water parks, low-rise boarding houses, guest houses and other facilities are being intensively built. With the further development of the tourist and recreational complex, which specializes in wellness tourism, it is important to consider optimizing the infrastructure, improving the services, and exploring the picturesque landscapes nearby. It should also be noted that in recent years agro-tourism routes specializing in rural tourism have become in demand here, where natural landscapes are used as pastures for grazing livestock, which contributes to the development of agro-tourism with ethnic villages. In the water management landscapes, the Bestyubinsk reservoir is the largest. In addition, many small reservoirs have been built in the tributary basins, the waters of which are used for local irrigation of agriculture, fishing and water supply to settlements.

Road and transport landscapes in the territory are represented by two types, these are motor roads and dirt roads. The natural landscapes considered in the article, thermal mineral waters, and anthropogenic landscapes with economic objects are powerful factors in the territorial planning of tourist specialization on the landscape conditions. The Systematic Mapping Study (SMS) methodology, a secondary study method that is a component of the Study Literature Review (SLR) strategy, was employed in this investigation (Petersen et al., 2008).

MATERIALS AND METHODS

The recreational landscapes of the mountainous regions of the Almaty region are represented by unique landscapes, the natural potential of which corresponds to the organization of recreation areas and the development of many types of tourism.

To clarify the methodology, I begin the following steps in Figure 1. Firstly due to the physical and geographical position, peculiarities of the geological and geomorphological structure and landscape diversity, the Almaty region of the South-East of Kazakhstan has sufficient natural resource potential for the development of recreation and such types

of tourism as mountain tourism, sports, and recreational, active recreational and health tourism, ecotourism, "green" (agritourism), water tourism and other types (Nigmatova et al., 2021). In Secondly the object of study, a combination of mountain and mountain-valley landscapes belonging to the desert, steppe, forest-steppe, forest and meadow types create the aesthetic appeal of this territory. Forests are confined to river valleys and northern exposures of mountain slopes. Desert and steppe landscapes correspond to the watershed surfaces of the foothills, low mountains and southern slopes of the mountains. Lowland meadows are found in floodplains, alpine meadows are confined to the remnant peaks of middle mountains (Kerimbay et al., 2020 a; Kusainov, 2012; Chronicle of Nature, 2018 a; Medeu et al., 2018).

The third used in this study involved collecting materials and describing the diverse landscapes in the study area to create a classification of recreational landscape resources in the mountainous Uygur, Kegen, and Raiymbek districts of the Almaty region. These materials were obtained from various scientific sources, including field expeditions and observations of landscapes by the authors. They also used relevant cartographic data to study and describe the landscapes (Baimyrzaev et al., 2019; Kerimbay et al., 2021 b; Chronicle of Nature, 2018 a; Chronicle of Nature, 2018 b; The Management Plan, 2015; National Atlas of the Republic of Kazakhstan, 2010).

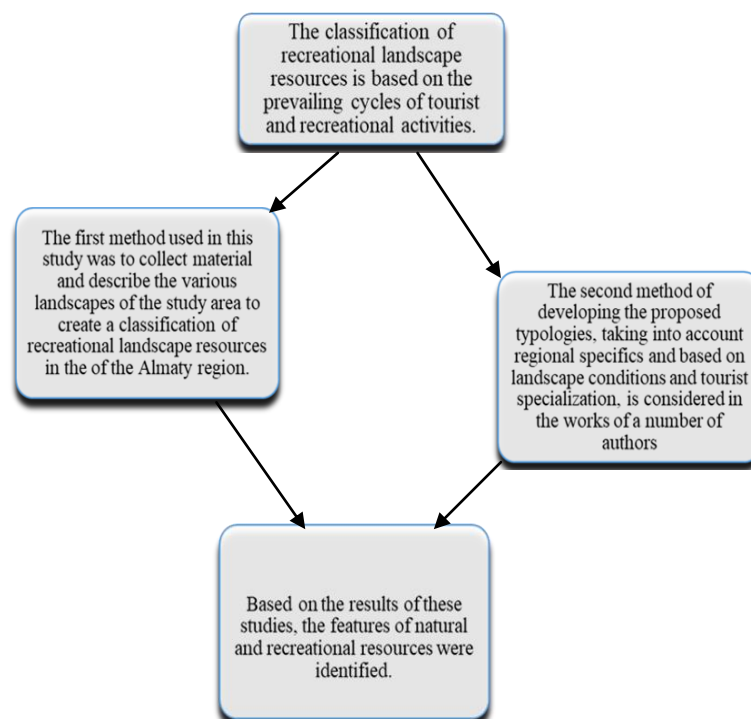


Figure 1. Methodology steps of our scientific research

Fourthly the classification of recreational landscape resources is based on the predominant cycles of tourist and recreational activities. These cycles are a combination of similar groups and subgroups of recreational resources, which are one of the main principles used in planning tourist and leisure facilities (Dunets, 2011; Zyryanov, 2018; Baimyrzaev et al., 2019). The research program included the study of topography, vegetation, and unique landscapes, as well as their descriptions. Based on the results of these studies, features of natural and recreational resources were identified. Since modern tourism is based on the utilization of one or more aspects of the landscape for recreational purposes, it is essential to consider the aesthetic qualities of a given area when assessing its potential for tourism development. In this regard, when evaluating the recreational potential of the Almaty region in Kazakhstan, we took into account not only the natural resources available but also the aesthetic appeal of the local landscape (Krotova, 2003; Kusainov, 2012; Chronicle of Nature, 2018 a; Medeu et al., 2018). The second method for developing the proposed typologies, which takes into account regional specifics and is based on landscape conditions and tourist specializations, is discussed in the works of several authors (Dunets, 2011; Zyryanov, 2018; Dunets et al., 2019; Kuskov, 2005; Krotova, 2003; Kvartalnov, 2001).

The typology method helps to understand unique recreation characteristics regions and potential for tourism development. Key aspects that can be included in such a typology: are landscape conditions, the study of geographical features of areas; tourism specialization, and identification of the main directions of tourism activities. And all this is based on the example of existing and promising TRC in the region. Recreation areas in the mountainous regions of Almaty, which have begun to develop in recent years, rely solely on natural resources for their development. Agriculture, which could provide food for tourists, has lagged in its development in this area. Tourism and agriculture have not been integrated into the development of tourist and recreational complexes. Therefore, we have considered aspects of agriculture as well.

RESULTS AND DISCUSSION

1. Classification of recreational resources in the Uigur, Kegen and Raiymbek districts of the Almaty region

During the field expedition, we carried out a study in the mountainous areas of the Almaty region along the designated

routes. We conducted observations of the topography, climate, and biodiversity of the unique and picturesque mountain landscapes. We made a detailed description and considered the potential of these landscapes for the establishment of a TRC. The recreational possibilities of the landscapes of the considered regions of the Almaty region are due to their location in the high-mountain, mid-mountain, low-mountain and foothill tiers of the northern slope of the Tien Shan. This position of the territory determined the conditions for the preservation of relic elements of landscapes, intermountain plains, river valleys, significant biodiversity, as well as the formation of deposits of thermal mineral waters and balneological properties of the climate. The considered Uigur, Kegen and Raiymbek administrative-territorial regions of the Almaty region are located in the extreme, mountainous south-east of the country (Figure 2).



Figure 2. Map-scheme of administrative-territorial of the Almaty region, location of Kegen (6), Raiymbek (7) and Uyghur (9) districts (Source: compiled by the authors)

One of the main recreational resources in this area is the source of hot thermal waters, which is located on the foothills of the northern slopes of the Ketmen mountain range. There is great potential for tourism in the landscapes of the thermal water outlet zone of the Kerala Massif, particularly in the area around the thermal springs of Arshan. In administrative-territorial terms, this territory is located in the village of Shonzhy, Uigur district, Almaty region. Shonzy Thermal Springs have favorable conditions for the development of an international center for health tourism (Figure 3) (Kusainov, 2012; Ivkina et al., 2019; Iminova and Nurkhalykov, 2016; Kerimbay et al., 2021).



Figure 3. Hotels recreation area Arshan (A), the northern slopes of the Ketmen Mountain (B)

The thermal mineral waters of the district are exceptionally diverse in their composition, degree of mineralization and temperature, as well as the therapeutic effect on the human body. There are many ascending mineral springs, emerging in cirque-shaped depressions, confined to tectonic slopes. Deposits of mineral thermal waters in the Uigur region lie at a depth of 300–600 m. The thickness of individual aquifers is 1–45 m. Water pressure levels are set at a height of 20–70 m above

the surface. The productivity of self-flowing wells ranges from 10–140 dm³/s. The waters are usually fresh (up to 1 g/dm³), and their macrocomponent composition varies from calcium bicarbonate to mixed sodium and calcium. The water temperature in the reservoir ranges from 20°C to 60°C. In the central part of the complex, there are deep wells at depths from 1400 to 2300 m. Water with a mineralization of 0.4–0.9 g/l has a hydrocarbonate-sulfate or chloride-hydrocarbonate-sodium composition with a slightly alkaline reaction (Iminova and Nurkhalykov, 2016; Kerimbay et al., 2021 b). We have revealed that the object of research has all the possibilities for the development of health tourism. The object of the study is to identify the necessary natural prerequisites and conditions for the development of water tourism. The most favorable are the sections of the main channel of the rivers Sharyn, Shalkudysu, Kegen, Orta Merke, Shet Merke, Karkara, Temirlik, lakes Derevyanoe and Tuzkol. The territories of the Kensu, Ortamerke and Shetmerke gorges have the prerequisites for the organization of integrated fishing and hunting farms. The coast of the Ile River, the delta channels of the Sharyna River and Lake Derevyanoe also have the conditions for organizing recreational recreation areas.

The development of agro-tourism is supported by the natural landscapes of the region, which provide pasture for livestock. The valley of the tributaries of the Sharyn River is rich in alpine and subalpine meadows. Rural tourism development helps preserve traditional cultural values, reduce poverty, bring economic benefits, protect the environment, and improve infrastructure and technical facilities. Agritourism serves as a form of environmental and land resource conservation (Son et al., 2023). The development of agrotourism with ethnic villages is facilitated by the region's natural landscapes, which are used as pastures for grazing livestock. Agritourism includes any agricultural operation or activity that brings visitors to a farm or ranch. Contributes to the creation of more sustainable multifunctional rural areas through the diversification of farms, and the conservation of natural and cultural resources (Osanova et al., 2022). The combination of mountain, mountain-valley and steppe landscapes confined to the valleys of the tributaries of the Sharyn River and the northern exposures of the mountain slopes, the watershed surfaces of the foothills, low mountains, the significant biological diversity of lowland, alpine and subalpine meadows contribute to pastures for the successful development of agro-tourism (Figure 4).

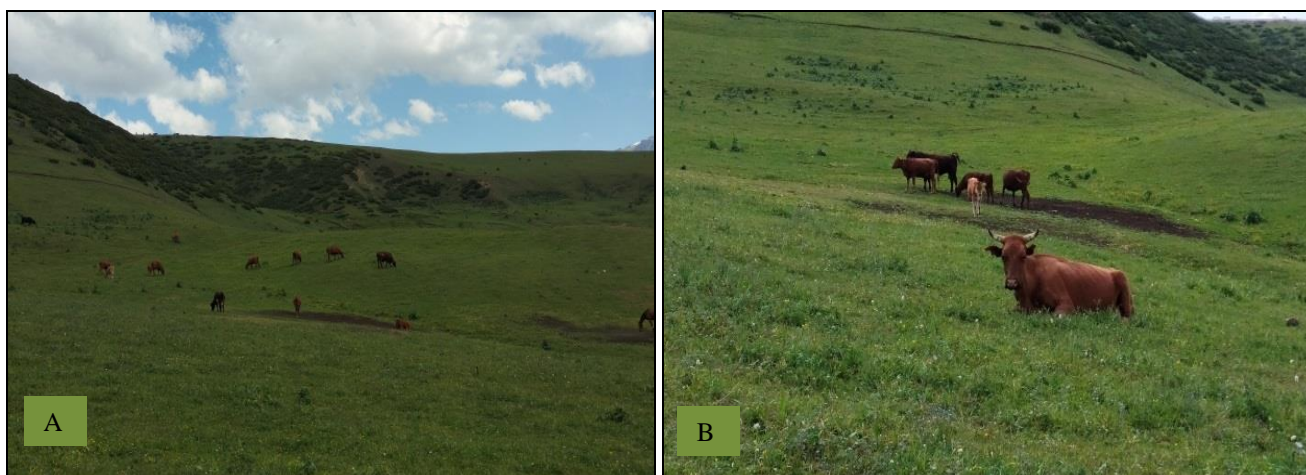


Figure 4. Pastures of mountain-valley landscapes (A), subalpine meadows; (B) Kegen district, Sharyn River basin, Subalpine meadows

On the territory of the Sharyn River basin, 7 km west of the village of Shonzhy is the Sharyn State National Natural Park (SNNP), on the territory of which relict plants and paleontological finds were discovered. In 2018, Sharyn was included in the UNESCO International Network of Biosphere Reserves. Here, significant biological diversity is because the valley of the Sharyn River is a refugium of the Quaternary time. More than 1500 species of plants grow in it, 17 of which are listed in the Red Book of the Republic of Kazakhstan. 62 mammal species, 103 bird species, 25 reptile species. The Biosphere Reserve contains rare species of fauna, including hunting and commercial species, as well as rare avifauna species listed in the Red Book of Kazakhstan. This diversity has a favorable emotional impact on tourists (Kerimbay et al., 2021 b; Meldebekov, 2010).

The Sharyn Biosphere Reserve combines the Sharyn, Temirlik canyons and the relic Sarytugay grove into a single whole. The natural park and the Sharyn Biosphere Reserve have the potential for the development of scientific and educational: geological, biological, ecological and archaeological types of tourism. Sharyn Canyon "Valley of Castles" is a landscape-geomorphological monument of nature, where morpho-sculptures are of interest - sheer rocky slopes of the canyon. In addition, there are cultural and historical objects in the park: paleontological finds, burial grounds and mounds of scientific and educational interest. *Fraxinus sogdiana* has been preserved in the Sarytugay grove since the Paleogene.

The natural prerequisites for the development of mountain and sports and recreational tourism in Uigur, Kegen and Raiymbek districts of the Almaty region are the presence of high and medium mountains, passes of various categories of complexity, glaciers, mountain lakes, forests, and a dissected picturesque relief. All these conditions are present in the Karkara, Ayusay, Kakpak and Kokzhar high-mountain geosystems with alpine and subalpine landforms. Also in the mountain passes of Korymdy, Ken-Su, Tobylgyty, Syntas, Oralma, Kakpak, Tiek, Tuz accessible for crossings.

These highlands and mountain passes are within the Raiymbek region. Altitude-orographic conditions of these landscapes are convenient for mountaineering and traverse movement, for creating ski slopes, mountain hiking and rock climbing. (Kerimbay et al., 2020 a; Chronicle of Nature, 2018 a; Chronicle of Nature, 2018 b; The Management Plan, 2015; National Atlas of the Republic of Kazakhstan, 2010). Natural prerequisites for active health tourism are available in

the picturesque landscapes of the middle mountains: Shalkudysu, Kensu, Ortamerke, Shetmerke, Temirlik, and West Ketmen. These natural objects are located in the Kegen and Uyghur regions. The mild climate and variety of vegetation types create conditions for walking and tourist routes and outdoor recreation. As a result of the study of landscapes, the recreational resources of the Uyghur, Kegen and Raiymbek regions of this region were systematized (Table 1).

Table 1. Classification of recreational resources in the Uigur, Kegen and Raiymbek districts of the Almaty region (on materials Kerimbay et al., 2020 a; Kerimbay et al., 2021 b; Chronicle of Nature, 2018 a; Chronicle of Nature, 2018 b)

№	Resource groups	Location	Resource subgroups
1	Thermal springs	Uigur district	The water-bearing complex of the Karadalinsky massif of the Piedmont plain of the Ketmen ridge
2	Water resources	Raiymbek, Kegen and Uigur districts	The rivers Shalkudysu, Kegen, Orta Merke, Shet Merke, Karkara, Kokzhar, Temirlik, Lake Derevyano, Lake Tuzkol.
3	Alpine and subalpine meadows	Raiymbek, Kegen and Uigur districts	Pastures of alpine and subalpine meadows in the valley of the tributaries of the Sharyn River.
4	Rare species of flora (included in the Red Book of the Republic of Kazakhstan)	Uigur district, Sharyn State National Natural Park	<i>Fraxinus Sogdiana</i>
			<i>Populus pruinosa Schrenk</i>
			<i>Lonicera iliensis Pojark</i>
			<i>T.kolpakovskiana Regel</i>
5	Valuable edible and medicinal plants.	Uigur district, Sharyn State National Natural Park	<i>Atriplex tatarica</i>
			<i>Berberis iliensis M. Pop.</i>
			<i>Hyppophaeaphanoides</i>
6	Rare species of fauna (included in the Red Book of the Republic of Kazakhstan)	Uigur district, Sharyn State National Natural Park	<i>Ferula iliensis Krasn. ex Korov.</i>
			<i>Lynx lynx</i>
			<i>Felis manul</i>
			<i>Lutra lutra</i>
			<i>Rana amurensis</i>
			<i>Gazella subgutturosa</i>
7	Hunting and commercial species.	Kegen and Uigur districts	<i>Bufo danatesis</i>
			<i>Phrynoctophalus versicolor</i>
			<i>Canis lupus</i>
			<i>Vulpes vulpes</i>
			<i>Meles meles</i>
8	Rare species of avifauna (included in the Red Book of the Republic of Kazakhstan)	Uigur district, Sharyn State National Natural Park	<i>Sus scrofa</i>
			<i>Capra sibirica</i>
			<i>Capreolus pygargus</i>
			<i>Chlamydotis undulate</i>
			<i>Pterocles orientalis</i>
9	UNESCO object	Uigur district, Sharyn Biosphere Reserve	<i>Falco cherrug</i>
			<i>Aquila nipalensis</i>
			<i>Haliaeetus albicilla</i>
			<i>Aegyptius monachus</i>
10	Specially protected natural area	Uigur district, Sharyn State National Natural Park	Sharyn Biosphere Reserve
11	Monuments of history and culture	Uigur district, Sharyn State National Natural Park	Burial grounds Mounds II-III centuries BC
			Petroglyphs in the Bolshie Buguty gorges, in the lower part of the canyon
12	High-mountain, mid-mountain landscapes and mountain passes	Raiymbek district	Karkara, Ayusay, Kakpak and Kokzhar highlands with alpine and subalpine landforms
		Raiymbek, Kegen and Uigur districts	Shalkudysu, Kensu, Ortamerke, Shetmerke, Temirlik, West Ketmen midland
		Kegen district	Mountain passes Korymdy, Ken-Su, Tobylgyty, Syntas, Oralma, Kakpak, Tiek, Tuz

Based on these recreational and landscape resources of the study areas, specializations for various types of tourism can be formed. A long warm period, the predominance of clear weather in the summer season, landscape attractiveness, the presence of mountains and water bodies, and significant biodiversity make these territories promising for the organization of mountain, active and health-improving, health-improving, agrotourism, ecological and scientific and educational types of tourism. All these natural sites are available for recreation and treatment and are already attracting tourists. And the main motive for the population of Kazakhstan to travel is currently to receive wellness services. There are opportunities to provide these services in the area, which has deposits of hot thermal waters in the Uyghur region. However, there are some issues of further development into a territorial recreational complex.

2. Results of typologies of possible specializations by the landscape conditions of mountainous areas

Tourist specialization and their functional purpose are distributed based on the considered groups and subgroups of recreational resources. This division maybe because it is based on the prevailing cycles of tourism and recreational activities, an interconnected combination of homogeneous groupings of recreational activities. This is one of the main concepts used in the tourist and recreational model (Kvartalnov, 2001). Taking into account the regional specifics, we

propose a typology of TRC in the Uigur, Kegen and Raiymbek districts of the Almaty region, which is based on the following features: landscape conditions, tourist specialization and on the examples of tourist and recreational activities examples of existing and prospective tourist and recreational complexes in Almaty region and in Kazakhstan (Table 2).

Table 2. Typology of possible specializations according to landscape conditions of the Uyghur, Kegen and Raiymbek districts of the Almaty region (Source: compiled by the authors)

№	Type of tourist specializations	Examples of species options	Examples of tourist and recreational activities	Examples of existing and prospective tourist and recreational complexes in Almaty region and in Kazakhstan
41	health-improving	Examples of species options	baths and pools with mineral radon water	recreation areas at thermal springs Almarasan, Kapalarasan, Kerimagash, Zhetysu region
2	agrotourism	rural	rural lifestyle, getting to know local culture, customs and food	recreation area "Agrotourism" with pastures and Ethno village, Almaty region
3	active - health	walking and tourist routes	outdoor recreation in beautiful and ecologically clean places	the resort areas of Borovoe, Akmola region
4	aqueous	water tour	swimming, water games, sunbathing, boating	tours on mountain lakes Kolsai and Kaindy, Almaty region
5	scientific-cognitive	geological, biological, archaeological	visiting the Museum of the Natural Park, studying morpho-sculptural canyons, Ash Grove, petroglyphs, barrows and burial grounds	Routes along the Sharyn and Temirlik canyons, Sarytugai relic "Ash Grove", Uigur district
		ecological	Participation in eco-educational routes, environmental events	Sharyn SNNP, Biosphere Reserve Kazakhstan – UNESCO, Uigur district
		birdwatching	Observation of rare species of avifauna,	Visitor center "Bird Paradise" in the Kurgaldzhinsky Reserve, Akmola region
6	sports and health-improving	skiing	skiing, mountain hiking, rock climbing	ski resorts Chimbulak on Ile Alatau and Akbulak in Turgen, Almaty region
7	mountain tourism	mountaineering, rock climbing	climbing, moving up the slopes of a mountain	gorges of Malaya Almaty, Bogdanovich glacier, Tuyuk Su peak on Ile Alatau, Almaty region

High-mountain and mid-mountain landscapes of the object of study can be legitimately considered as separate structures of the tourist and recreational space of different hierarchical levels. They are characterized by a significant variety of conditions and factors that determine the formation of tourist and recreational complexes.

We note the need for further optimization of the infrastructure network in the Uyghur region with thermal water deposits, where tourist accommodation facilities are being intensively built. Here, the structural and functional features of the organization are the development of quantitative and qualitative growth, an integrated system for the extraction and use of medical and health resources with the further development of professional medical services. So, of all the considered possibilities of the landscapes of the research object, today the basis of specializations can be medical and health tourism since hot springs make it possible to provide balneological services all year round. Health tourism is considered a combined type of tourism. It includes medical services and sightseeing. Recreants are involved in the sphere of medical and health tourism, without restrictions on health, but also people with certain diseases. From tourist and recreational complexes to medical and health tourism, people benefit from recreation, visiting new and attractive places along walking and tourist routes (Emanuela and Monica, 2014; Lautier, 2014; Muller and Lanz, 2001; Sandberg, 2017). Health tourism is considered as a concept of spiritual and physical recovery, aimed at harmonizing the relationship of a person with the external environment based on a combination of the use of natural and artificial factors, with a predominance of water procedures, healthy nutrition, physical activity (Zyryanov, 2018; Dunets et al., 2019; Baiburiev et al., 2018). For motor activity in the object of study, this is participation in sightseeing and educational routes: visiting a museum, ecological events in a natural park, visiting morpho sculptural canyons, Ash Grove, ethno village, petroglyphs, barrows, burial grounds, etc.

3. Recommendations for the further development of promising tourist and recreational complexes

The combination of several conditions that form the geographical position of the region may cause problems or advantages in the development of tourism. Many problems in the field of tourism development in the Uyghur, Kegen and Raiymbek districts are associated both with the search for effective solutions for the placement of tourism and recreation facilities and with the poor development of infrastructure. The weak infrastructure of these areas includes poor roads, poor communications and internet networks, a completely underdeveloped tourist food network, inaccessible drinking water, and much more. It seems important to do a lot of work to identify structural and functional features, both in the mountainous part of the basin and in the flat areas. To form the TRC of this territory, it is necessary to conduct a comprehensive assessment, as well as formulate recommendations, the implementation of which will ensure sustainable development of tourism. Having studied in detail the recreational landscapes of the research object, we concluded that the best option for the formation of a TRC at the moment is health tourism based on the thermal waters of the Uyghur district.

The organization of the infrastructure of health tourism should consist in the presence of four zones:

1. Recreation and food areas.
2. Zones of health care procedures used for treatment (with the latest medical advances).
3. Pump-room area with conditions for drinking mineral water, connected to the source, where you can drink mineral water of different temperatures.
4. Zone of tourist routes to nearby natural attractions.

The main activity of medical and health tourism is directly related to these four functional areas. We have developed recommendations for the formation and further development for this type of tourism in the Uyghur region (Table 3).

Table 3. Recommendations on the formation for medical and health tourism at the thermal springs of the Uyghur district (Source: compiled by the authors)

№	Recommendations for the formation of the medical and health-improving type of tourism
1	Strengthen the infrastructure, a complex of interconnected service structures and facilities that provide the basis for the functioning of health tourism: the transport system, road construction, telecommunications, Internet speed, etc.
2	Strengthen food-oriented infrastructure, and build a sufficient number of restaurants, cafes, and canteens that fully satisfy the needs of tourists.
3	Introduce medical and sanitary procedures in medical buildings using innovative achievements of modern medicine.
4	Construction of a pump room in recreation areas - special structures arranged above a well of a mineral source, with inscriptions on the water temperature and a scheme for receiving mineral water.
5	Organization of hikes of tourists to the adjacent territories along tourist routes.
6	To develop a technology for the integrated use of waste hot thermal waters for water supply during the heating of a medical and health building.
7	Advertise the hot springs recreation area through foreign travel agencies.

When organizing territorial TRC with specialization in landscape conditions, along with accommodation, food services for tourists form the basis. In this region, one of the problems currently is poorly organized food for tourists. The most important component of tourism development with an increase in the total number of tourists is the creation of a public catering network. Organizations of tourist complexes are characterized by such types of public catering establishments as restaurants, cafes, bars, canteens, kitchen factories, procurement factories, buffets, etc.

These services are divided into complex catering, catering by choice, catering by pre-order, etc. There are all the prerequisites for providing public catering establishments with products for procurement in the Uyghur, Kegen and Raiymbek districts of the Almaty region. These are irrigation arrays, which are the main consumers of water resources: Shalkudysu, Karkara, Kegen, Shonzhy and the Sharyn River delta, developed for crop production.

Now cereals, gardening and horticulture are cultivated here. Animal husbandry with meat-dairy direction is carried out on the pastures of the alpine and subalpine meadows of the mountains. We believe that agricultural enterprises in the Uyghur, Kegen and Raiymbek districts of the Almaty region should engage in entrepreneurship in the field of growing and selling their products to public catering establishments of tourist complexes. These are products such as cereals, vegetables, and fruits, as well as national cuisine with meat and dairy products. However, at present, the possibility of further expansion of agricultural work is limited by unfavorable management conditions due to the transition to market economic conditions. Therefore, the necessary food products for tourists are imported from China.

CONCLUSION

Recreational resources of the Uigur, Kegen and Raiymbek districts of the Almaty region were studied, landscape features were determined, and a classification of groups and subgroups of recreational resources was made. During the review, a typology was created taking into account landscape conditions and tourist specialization. The possibilities of recreational landscapes for various types of tourism are revealed. Of all the considered opportunities within the Uyghur, Kegen and Raiymbek districts of the Almaty region, we have identified the option of health tourism with subsequent optimization of the network of infrastructure and services. It was revealed that the main branch of today's tourism sector of the object under study is health tourism. The structural and functional features of the organization of this variant of specialization include the extraction and use of resources, the further development of the infrastructural development of the territory and tourism services. Currently, mineral thermal water deposits are being exploited here: hotel complexes with swimming pools, water parks, low-rise boarding houses, guest houses and other facilities are being built. Hotels and boarding houses have baths and swimming pools with mineral water. Also, recreation areas such as "Agrotourism" and "Karkara" with ethnic villages are being created in the Kegen and Raiymbek regions.

Improving recreational services and the necessary infrastructure will make it possible to fully explore the tourism potential of these territories. The organization of medical and health tourism involves not only the creation of hotel infrastructure and the use of balneological properties of landscapes but also the development of tourist routes for sightseeing in the territory. In light of the growing emphasis on sustainable tourism and the desire to offer visitors an authentic experience, creating a well-organized food network has become paramount. With tourist and recreational complexes (TRCs) focusing on specific landscape conditions, such as mountainous terrains or coastal regions, there's a need to enhance agricultural production to ensure the availability of local food products within these areas.

Recommendations for the creation of TRCs have been carefully developed, taking into account these factors. Firstly, partnerships between TRCs and local farmers should be fostered to increase agricultural production tailored to the unique landscape characteristics. This supports local economies and ensures the authenticity and freshness of food offerings for tourists. Furthermore, investments in infrastructure and technology are essential to facilitate the transportation and distribution of agricultural products to TRCs efficiently. By improving logistical capabilities, TRCs can maintain a steady supply of local food items, reducing reliance on imported goods and minimizing carbon footprints.

In addition, promoting agro-tourism initiatives can further enhance the connection between visitors and the local food culture. This could involve guided tours of farms, hands-on agricultural experiences, and farm-to-table dining options

within TRCs. By immersing tourists in the agricultural landscape, they gain a deeper appreciation for the region's food heritage while supporting local farmers directly. Overall, creating a well-organized food network within TRCs enriches the visitor experience and contributes to the sustainable development of tourism destinations. By prioritizing local agricultural production and fostering partnerships between TRCs and farmers, we can ensure that tourists enjoy high-quality, locally sourced-cuisine while promoting economic growth and environmental conservation.

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REFERENCES

- Ahmad, N., Youjin, L., & Hdia, M. (2022). The role of innovation and tourism in sustainability: why is environment-friendly tourism necessary for entrepreneurship. *Journal of Cleaner Production*, 379. <https://doi.org/10.1016/j.jclepro.2022.134799>
- Akbar, I., Yang, Z., Mazbayev, O., Seken, A., & Udahogora, M. (2020). Local residents' participation in tourism at a world heritage site and limitations: Aksu-Jabagly state nature reserve, western Tian-Shan, Kazakhstan. *GeoJournal of Tourism and Geosites*, 28(1), 35–51. <https://doi.org/10.30892/gtg.28103-450>
- Baiburiev, R., David, L., Abdreyeva, S., Zhakupova, A., & Artemyev, A. (2018). Impacts of tourism activities on the economy of Kazakhstan. *GeoJournal of Tourism and Geosites*, 22(2), 480–488. <https://doi.org/10.30892/gtg.22217-304>
- Baimyrzaev, K., Tursynbay, G. T., & Kasymbekerbaev, T. K. (2019). *Almaty oblysynyń respýblikalyq óńirlik jáne jergilikti mańyzy bar kieli oryndary [Holy places of republican, regional and local significance of Almaty region]*, Publishing house "Bayanzhurek", Almaty, Kazakhstan, (in Kazakh).
- Chronicle of nature. (2018). § 2, 2006–2018 jıldardaǵy Sharyn MUTP aýmaǵyndaǵy biologialyq keshen elementteriniń jaı-kúii men ózgerý dinamıkasy, ósimdikterdiń surek jáne joılyp bara jatqan túrleri, endemikter men relukter [State and dynamics of change of elements biological complex on the territory of the Sharyn SNNP for 2006-2018, Rare and endangered plant species, endemic and relics], Scientific Department of SHSNNP, Shoongy, Kazakhstan, (in Kazakh).
- Chronicle of nature. (2018). § 1, 2006–2018 jıldardaǵy sharyn MUTP aýmaǵyndaǵy abiotikalıq orta elementteriniń ózgerý jaǵday men dinamıkasy, betiniń relefiniń ózgerýi [The state and dynamics of changes in the elements of the abiotic environment on the territory of the Sharyn SNNP for 2006-2018, Changes in the surface topography], Scientific Department of SHSNNP, Shoongy, Kazakhstan, (in Kazakh).
- Dmitriyev, P. S., Fomin, I. A., Dmitriyeva, I. M., Berdenov, Z. G., Ismagulova, S. M., Smagulov, N. K., & Abdrakhmanov, Y. A. (2023). Assessment of the resource potential of the bitter-salt sulfide lakes of the North Kazakhstan region for the development of ecological and balneological tourism. *GeoJournal of Tourism and Geosites*, 49(3), 866–874. <https://doi.org/10.30892/gtg.49303-1087>
- Dunets, A. N. (2011). *Touristsko-recreationnyye komplexy gornogo regiona [Tourist and recreational complexes of the mountainous region]*, АЛГУ, Barnaul, Russia, (in Russian).
- Dunets, A., Penkova, A., Potekhina, E., Gribkova, O., Nikolaeva, A., & Smimov, D. (2019). Cluster as a form of resort development: organizational and managerial structure. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, 9 (1), 3662-3668.
- Emanuela, M. A., & Monica, P. R. (2014). Healthy tourism - a real need in today's challenging society. *Journal of Medicine and Life*, 7, 38.
- Font, X., & Lyles, J. (2017). Sustainability and tourism marketing: Contexts, paradoxes, approaches, challenges and potential. *Journal of Sustainable Tourism*, 25(7), 869–883. <https://doi.org/10.1080/09669582.2017.1301721>
- Gössling, S., Scott, D., & Hall, C. M. (2015). Inter-market variability in CO₂ emission-intensities in tourism: Implications for destination marketing and carbon management. *Tourism Management*, 46, 203-212. <https://doi.org/10.1016/j.tourman.2014.06.021>
- Iminova, D. E., & Nurkhalıykov, I. A. (2016). *Analysis of the chemical composition of the water of the thermal spring "Arshan" of the Uygur district of the Republic of Kazakhstan*. A young scholar, 29(133), 4-8, (in Russian).
- Ismagulova, S. M., Dmitriyev, P. S., Dunets, A. N., & Janaleyeva, K. M. (2020). Tourist relations Kazakhstan with the countries of the commonwealth of independent states at the modern stage. *GeoJournal of Tourism and Geosites*, 31(3), 1146–1152. <https://doi.org/10.30892/gtg.31328-551>
- Ivkina, N. I., Shenberger, I. V., & Terekhov, A. G. (2019). *Features of the river's water regime Sharyn in modern conditions*. Hydrometeorology and ecology, 3, 59-67, (in Russian).
- Juliana, J., Aditi, B., & Nagoya, R. (2022). Tourist visiting interests: The role of social media marketing and perceived value Julianaa, Bunga Aditib, Rocky Nagoyac. *Wisnalmawatid and Ita Nurcholifah. International Journal of Data and Network Science*, 6, 469–476.
- Katircioglu, S. T. (2014). International tourism, energy consumption, and environmental pollution: The case of Turkey. *Renewable and Sustainable Energy Reviews*, 36, 180-187. <https://doi.org/10.1016/j.rser.2014.04.058>

- Kerimbay, B. S., Janaleyeva, K. M., & Kerimbay, N. N. (2020a). Tourist and recreational potential of landscapes of the specially protected natural area of Sharyn of the Republic of Kazakhstan. *GeoJournal of Tourism and Geosites*, 28(1), 67–79. <https://doi.org/10.30892/gtg.28105-452>
- Kerimbay, B. S., Dunets, A. N., & Baryshnikova, O.N. (2021b). The Natural Potential of the Sharyn River Basin as the Basis for Developing Health Tourism in Kazakhstan. *IOP Conf. Ser.: Earth Environ. Sci.*, 670(1):012021. <https://doi.org/10.1088/1755-1315/670/1/012021>
- Koshim, A. G., Sergeeva, A. M., & Bexeitova, R.T. (2020). The landscape of the Mangystau region in Kazakhstan as a geomorphotourism destination: a geographical review. *GeoJournal of Tourism and Geosites*, 29(2), 385–397. <https://doi.org/10.30892/gtg.29201-476>
- Kusainov, S. A. (2012). *General geomorphology*. Association of Higher Education Institutions of the Republic of Kazakhstan, Almaty. 307 p., (in Kazakh).
- Kuskov, A. S. (2005). *Recreational geography*. Flint MPSI, Moscow, (in Russian).
- Krotova, E. L. (2003). *Recreational and tourist complex of the region: strategic development priorities*. Institute of Economics UrO RAN, Ekaterinburg. -198 p., (in Russian).
- Kvartalnov, V. A. (2001). *Tourism management*. Finance and statistics, Moscow, 312 p., (in Russian).
- Koçak, E., Ulucak, R., & Ulucak, Z. Ş. (2020). The impact of tourism developments on CO2 emissions: An advanced panel data estimation. *Tourism Management Perspectives*, 33, 100611. <https://doi.org/10.1016/j.tmp.2019.100611>
- Lautier, M. (2014). International trade of health services: Global trends and local impact. *Health Policy*, 118(1), 105–113
- Leal, F. W., Ng, A. W., Sharifi, A., Janová, J., Özuyar, P. G., Hemani, C., & Rampasso, I. (2023). Global tourism, climate change and energy sustainability: assessing carbon reduction mitigating measures from the aviation industry. *Sustainability Science*, 18(2), 983–996. <https://doi.org/10.1007/s11625-022-01207-x>
- Libre, A., Manalo, A., & Saktian, L. G. (2022). Factors Influencing Philippines Tourism' Revisit Intention: The Role and Effect of Destination Image, Tourist Experience, Perceived Value, and Tourist Satisfaction. *Article in International Journal of Quantitative Research and Modeling*
- Mai, N. K. (2017). The Effects of Destination Image, Perceived Value and Service Quality on Tourist Return Intention through Destination Satisfaction — A Study in Ho Chi Minh City, Vietnam. *International Journal of Trade, Economics and Finance*, Vol. 8, (5). <https://www.researchgate.net/publication/334367299>
- Medeu, A. R., Blagoveshchenskiy, V. P., & Zhdanov, V. V. (2018). Gravitational Seismodislocations in Mountainous regions of Southeastern Kazakhstan. *Geogr. Nat. Resour.* 39, 79–87. <https://doi.org/10.1134/S1875372818010110>
- Meltem, C., Tahir, A., & Duane, C. (2020). Perceived value and its impact on travel outcomes in youth tourism. *Journal of Outdoor Recreation and Tourism*, v.31, 100327. <https://doi.org/10.1016/j.jort.2020.100327>
- Meldebekov, A. M. (2010). The red date book of the Republic of Kazakhstan, "Izdatelsky dom DPS", Almaty, (in Russian).
- Muller, H., & Lanz, K. E. (2001). Wellness tourism: Market analysis of an exceptional health tourism segment and implications for the hotel industry. *Journal of Vacation Marketing*, 7(1), 5–17
- National Atlas of the Republic of Kazakhstan. Natural conditions and resources (2010). Vol. 1, Institute of Geography, Almaty.
- Nigmatova, S., Zhamangara, A., Bayshashov, B., Abubakirova, N., Akmagambet, S., & Berdenov, Z. (2021). Canyons of the Charyn river (south-east Kazakhstan): geological history and tourism. *GeoJournal of Tourism and Geosites*, 34(1), 102–111. <https://doi.org/10.30892/gtg.34114-625>
- Ospanova, G. S., Saipov, A. A., Sergeeva, A. M., Saparov, K. T., Omirzakova, M. Z., & Nurymova, R. D. (2022). Potential for the development of agritourism in the food supply zone of the Republic of Kazakhstan, Nur-Sultan city. *GeoJournal of Tourism and Geosites*, 44(4), 1253–1259. <https://doi.org/10.30892/gtg.44409-941>
- Ozturk, I., Sharif, A., Godil, D. I., Yousuf, A., & Tahir, I. (2023). The Dynamic Nexus Between International Tourism and Environmental Degradation in Top Twenty Tourist Destinations: New Insights From Quantile-on-Quantile Approach. *Evaluation Review*, 47(3), 532–562. <https://doi.org/10.1177/0193841X221149809>
- Petersen, K., Feldt, R., Mujtaba, Sh., Mattsson, M. (2008). The Systematic Mapping Study (SMS) methodology, a secondary study method that is a component of the Study Literature Review (SLR) strategy, was employed in this investigation. https://www.researchgate.net/publication/228350426_Systematic_Mapping_Studies_in_Software_Engineering
- Sandberg, D. S. (2017). Medical tourism: An emerging global healthcare industry. *International Journal of Healthcare Management*, 10(4), 281–288.
- Shatnawi, H. S., Alawneh, K. A., Alananzeh, O. A., Khasawneh, M., & Masa'Deh, R. (2023). The influence of electronic word-of-mouth, destination image, and tourist satisfaction on unesco world heritage site revisit intention: an empirical study of Petra, Jordan. *GeoJournal of Tourism and Geosites*, 50(4), 1390–1399
- Son, N. T., Nguyen, Q. N., & Hoang, T. H. L. (2023). Factors influencing tourist satisfaction with agritourism in the Mekong delta, Vietnam. *GeoJournal of Tourism and Geosites*, 49(3), 998–1005. <https://doi.org/10.30892/gtg.49315-1099>
- The management plan (2015). *2015-2019 жылдарға арналған "Sharyn мемлекеттік ұлтық табиғи паркі" RMM [Of the RGU "Sharyn State National Natural Park" for 2015-2019]*. Scientific Department of SHSNNP, Shoongy, Kazakhstan, (in Kazakh).
- Thomas, A., & Wee, H. (2022). Educational Tourist Motivations, Destination Image, and Destination Selection Behavior in an Extended S-O-R Model: A Preliminary Analysis. *International Journal of Academic Research in Business and Social Sciences*, 12(10), 2198–2210. <https://doi.org/10.6007/IJARBS/v12-i10/14849>
- Tri, N. G., & Nguyen, Q. N. (2024). Intention to return to national park: the role of perceived quality, perceived value, and tourist satisfaction. *GeoJournal of Tourism and Geosites*, 53(2), 380–387. <https://doi.org/10.30892/gtg.53201-1213>
- Wendt, J. A. (2020). Directions and areas of tourism research in Kazakhstan. *GeoJournal of Tourism and Geosites*, 32(4), 1418–1424. <https://doi.org/10.30892/gtg.32433-589>
- Zyryanov, A. I. (2018). *Geography tourisma: ot theory k praktike [Geography of tourism: from theory to practice]*, Perm State Research University, Perm, (in Russian).
- Xia, W., Doğan, B., Shahzad, U., Xia, W., Doğan, B., Shahzad, U., Adedoyin, F. F., Popoola, A., & Bashir, M. A. (2022). An empirical investigation of tourism-led growth hypothesis in the European countries: evidence from augmented mean group estimator. *Portuguese Economic Journal*, 21, 239–266. <https://doi.org/10.1007/s10258-021-00193-9>