

Development of Entrepreneurial Activity Using the Integration of Human Capital and Green Technologies to Optimize the Sustainable Development of the Tourism Sector (A Case Study of the Republic of Kazakhstan)

GULMIRA RAKHIMZHANOVA¹, ZAURESH NURGALIEVA¹,
LILIYA SHAYAKHMETOVA^{1*}, ADIL TOLEPOV²

¹Alikhan Bokeikhan University
Mangilik el, 11, Semey city
REPUBLIC OF KAZAKHSTAN

²Department of Economics and Entrepreneurship
L. N. Gumilyov Eurasian National University
Satpayev Street, 2, Astana
REPUBLIC OF KAZAKHSTAN

**Corresponding Author*

Abstract: - The development of the tourism sector faces serious challenges, which are related to its environmental transformation, digitalization, and integration of new technologies, as well as competitiveness. Tourists' behavior is also changing. The future demand for tourism is likely to be driven by growing environmental awareness, increased use of digital services and new technologies, a shift towards a more personalized travel experience, and ensuring well-being and better engagement with local communities and culture. Meeting the requirements of the modern tourism industry is a problem not only for the Republic of Kazakhstan but also for other countries that strive for sustainable development of the tourism sector.

The purpose of the study is to identify ways to develop entrepreneurial activity by integrating human capital and green technologies to optimize the sustainable development of the tourism sector.

The paper examines the basic theoretical concepts of the essence and forms of sustainable tourism and presents the concept of the integration of human capital and green technologies to achieve the principles of sustainable development. Based on an expert survey, strengths, weaknesses, opportunities, and threats analysis, and statistical methods, the main ways of promotion and development of sustainable tourism, as well as measures to integrate human capital and green technologies into entrepreneurial activities in the tourism sector in the East Kazakhstan Region, have been identified. The authors have concluded that the introduction of green technologies and the integration of human capital with them provide new standards for the quality of tourist services while preserving the natural resources of the region.

Key-Words: - strengths, weaknesses opportunities, and threats analysis, business, natural resources, ecology, benefits, real estate.

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1 Introduction

Problem of the study. The idea of sustainable tourism has developed in parallel with the sustainable development strategy. In the documents of the World Conference in Rio de Janeiro in 1992, tourism was defined as an economic sector with significant potential for implementing the principles of sustainable development. According to the United Nations World Tourism Organization

(UNWTO), tourism comprises "the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes not related to the exercise of an activity remunerated from within the place visited, or a form of outdoor activity outside their place of permanent residence" [1].

Modern tourism as a concept simultaneously describes many theoretically

mutually exclusive terms. This is a global phenomenon, but it has the greatest impact on local communities [2, 3]. It has both a mass nature and a niche character [4]. The preamble to the Charter of Sustainable Tourism [5] states: "Tourism, as a worldwide phenomenon, touches the highest and deepest aspirations of all people and it is also an important element of socio-economic and political development in many countries".

The integration of human capital and green technologies into tourism activities through the development of green jobs and the introduction of green technologies is a global trend that can become a response to problems associated with environmental degradation, that is, a consequence of expansive human actions [6, 7]. However, every global action echoes field actions [8]. The intensification and coordination of initiatives with the specifics of a particular tourist market begins at this level [9]. The task is so difficult that often the characteristics of the local tourism market deviate from general assumptions.

The task is to create solutions that will not remain just a concept but will be used in practice. Moreover, one region is a set of domestic local markets, each of which has different needs and requirements and is at different stages of the development and implementation of sustainable tourism. Practice shows that local actions and initiatives determine the shape and nature of global trends.

Based on the focus of our study, we chose the East Kazakhstan Region (EKR) as a territory potentially interesting for the integration of human capital and green technologies into tourism activities.

Thus, the relevance of the paper and the formulation of the problem are justified by the possibility of optimizing the sustainable development of the tourism sector of the Republic of Kazakhstan through the integration of human capital and green technologies into entrepreneurial activity.

The novelty of our work is in the description of the possibility of applying the concept of the integration of human capital and green technologies as a methodological mechanism for sustainable tourism development.

The purpose of the paper is to identify ways to develop entrepreneurial activity by integrating human capital and green technologies to optimize the sustainable development of the tourism sector.

In this paper, we tried to answer the following research questions: (1) What are the

strengths and weaknesses, as well as the main ways for the promotion and development of sustainable tourism in the EKR? and (2) What are the strengths and weaknesses, as well as the main measures to integrate human capital and green technologies into business activities in tourism in the EKR?

To answer these research questions, the study uses a qualitative and quantitative approach based on the results of expert surveys and subsequent ranking of their generalized results.

The conclusions show the potential of integrating human capital and green technologies as a methodological mechanism for sustainable tourism development, which complements existing research on this issue.

The rest of the paper is organized as follows. In the next section, we review the literature on sustainable tourism, as well as integrating human capital and green technologies as one of the ways of sustainable tourism development. Further, the research method and the results of the study are presented and discussed. The conclusion of the paper defines the theoretical and practical conclusions and limitations of the study.

2 Theoretical Basis

2.1. Tourism concepts in the context of sustainable development

According to researchers, sustainable development in tourism is expressed in the protection of the natural, historical, cultural, and social environment. This protection is understood as preventing and countering degradation, as well as conserving, protecting, and prioritizing quality over the number of services offered, striving to provide a sense of security for both tourists during their stay and for local communities [10]. Table 1 shows the different concepts of tourism in the context of sustainable development.

Table 1. Tourism in the context of the concept of sustainable development

Socio-cultural dimension of sustainable development	
Tourism as a psychological phenomenon	- participation in tourism is a consequence of meeting the needs that affect the motives and methods of travel (the need for self-realization, development, education, belonging, withdrawal from everyday life); - achieving this goal (satisfaction of

	needs) is associated with value and experience; - the object of the analysis is the individual
Tourism as a social phenomenon	- during the journey, the individual n changes their social environment, finds themselves in new social roles, establishes new relationships; - it can be a means of checking stereotypes, but also of perpetuating them; - the individual enters into a relationship with the community of the place of residence, is influenced by it, and influences it
Tourism as a cultural phenomenon	- tourism in this approach is an element of modern life: it has moved from a luxury item (value) to a more obvious, necessary, lower level; - the level of social culture determines the purpose of trips, motivation, as well as the way of traveling and interacting with the local community; - tourism is a carrier of cultural values and behaviors; - it is both an element of culture and its bearer
Natural dimension of sustainable development	
Tourism as a spatial phenomenon	- destination territories for tourism development transform due to the emerging infrastructure (depending on the level of spatial planning, this may have a positive, neutral, or negative impact); - the tourist flow also affects the travel space of tourists; - the use of tourist space, depending on the intensity of the tourist flow and available resources, can affect the environment to varying degrees
Economic dimension of sustainable development	
Tourism as an economic phenomenon	- tourism is a branch of the economy, a sector that generates significant revenues to gross domestic product (GDP) on a global, national, and regional scale (the level depends, among other things, on the degree of development of the tourism function and the stage of development of tourism in the destination); - it contributes to the development of infrastructure, the creation of new services and products, as well as jobs

Source: [11-13]

2.2 Integrating human capital and green technologies

According to the research results, integrating human capital and green technologies means integrating intellectual capital and environmental problems at the organizational level or at the individual level, which includes all types of assets that are considered intangible, such as competence, knowledge, and interaction [14, 15]. It is considered as the sum of all knowledge that an organization can use in the process of environmental management to obtain competitive advantages [16, 17]; as the integration of environmental sources and sources of knowledge about the environment and knowledge of the potential of companies to increase the competitive advantages of green entrepreneurs, firms, and enterprises [18]; as a set of knowledge, skills, capabilities, experience, attitudes, creativity, and obligations of employees regarding environmental protection or green innovations that were introduced specifically by employees of green business entities [19].

The integration of human capital and green technologies allows an organization to recognize its intangible assets (knowledge, skills, and capabilities) and helps to implement green strategies in a dynamic competitive environment and achieve better results and green goals [20, 21].

The positive results of the integration of human capital and green technologies are environmental protection [22], increased labor productivity, positive financial consequences, and the well-being and health of employees. [23] The integration of human capital and green technologies has significant chances to add value to the environmental development of the company and attract an important tool for motivating, inspiring, and stimulating employees to implement green practices, leading to an improvement in the sustainability indicators of the personnel management organization, and is fully consistent with environmental goals [24, 25].

The joint action for the integration of human capital and green technologies is a cohesive set of human resources that have a combined impact on the overall effectiveness of the organization by 1) selecting ideal employees who are sufficiently familiar with the aspects of green technologies, which is called the conditions of green hiring [26], 2) providing environmental training for members of the organization to participate in environmental activities to increase environmental awareness, i.e., green training and

participation [27], 3) offering non-monetary and monetary compensation to members of the organization based on environmental achievements [28]. Green hiring involves the practice of attracting environmentally conscious and environmentally oriented innovations, green technologies, environmental knowledge, etc. for employees of the organization [29]. Green hiring, green training and development, and environmental compensation have a positive relationship with the environmental performance of an organization [30].

3 Methods

3.1. Research approach

Using the outlined approaches to the features of sustainable development of the tourism sector in Kazakhstan through the integration of human capital and green technologies into entrepreneurial activity, a qualitative and quantitative approach to the study was chosen.

To develop an effective joint mechanism for integrating human capital and green technologies into entrepreneurial activities in tourism to develop sustainable tourism, a region of Kazakhstan was selected, namely, the EKR, which, despite its pronounced industrial specialization, has significant potential for sustainable tourism development.

3.2 Empirical context

The EKR has a wide range of natural and recreational resources (Lake Alakol, Sibinsk Lakes, Bukhtarma coast, Katon-Karagai Nature Reserve) and is attractive to tourists from Kazakhstan, Russia, Commonwealth of Independent States (CIS) countries, and the rest of the world. The unique natural potential, well-preserved historical monuments, as well as the geographical location of the EKR determine the availability of a competitive regional tourism product, which includes such types of sustainable tourism as ecotourism, sports tourism (mountain skiing, cross-country skiing, etc.); medical and wellness tourism; cultural and educational tourism.

The EKR has a significant potential for the development of sustainable tourism due to the presence of recreational tourism, represented by health resorts and sports and wellness tourism organizations [39]. Significant opportunities to increase the sustainability of recreational tourism are due to the stable demand of the EKR population, as well as the favorable geographical location of ski resorts and sports bases to attract not

only Kazakh tourists but also tourists from neighboring countries. The historical, cultural, and natural potential of the EKR, combined with the growing interest in the historical heritage, traditions, and culture of Kazakhstan, contribute to the sustainable development of historical and cultural tourism [31, 32].

Sports tourism has a significant potential for sustainable development (especially winter tourism), which requires special sports infrastructure (ski slopes, ice rinks, trampolines, etc.) since the natural and climatic conditions of the EKR (long and snowy winters, dry and hot summers) and landscape features contribute to the sustainable development of sports tourism in this region.

3.3 Data collection

Following the purpose of the study, we selected scientific sources using the Russian Science Citation Index (RSCI) database, as well as the international Web of Science and Scopus databases for the keywords "sustainable tourism", "human capital", "green technologies", and "green human resources" in English and Russian, with the publication date limit of 15 years.

The data was collected between October 10, 2023, and February 10, 2024, by analyzing the scientific literature on the research problem, selecting an expert pool, performing an expert survey by e-mail, and processing and analyzing the survey results.

The analysis of the data obtained during the desk study was carried out using a strength, weaknesses, opportunities, and threats (SWOT) analysis of the promotion and development of sustainable tourism in the EKR.

The expert pool consisted of two aggregates: the first group included employees of tourism enterprises of the EKR and the second one consisted of heads of tourism enterprises (entrepreneurs). Thus, the main ways of sustainable tourism development through the integration of human capital and green technologies into entrepreneurial activity were formulated from the point of view of employees working in the tourism industry and entrepreneurs who, based on a certain market demand, will carry out this integration. Therefore, the ways of sustainable tourism development through the integration of human capital and green technologies form a logical whole and represent an algorithm of action.

Emails with an invitation to participate in the survey were sent to 63 respondents (46 employees of travel agencies and 17 entrepreneurs,

heads of travel agencies) from Kazakhstan. 55 people (40 employees of travel agencies and 15 entrepreneurs) agreed to participate in the survey, after which they were sent emails with questions that aroused our interest after completing the analysis of scientific literature. In the emails, they were asked to elaborate on the answers in a free form. All survey participants had been warned about the purpose of the survey and that the organizers of the study were planning to publish its results in a generalized form.

After receiving expert answers, a second email was sent to the respondents, where they were offered to arrange on a scale certain ways of promotion and development of sustainable tourism and measures to integrate human capital and green technologies into entrepreneurial activities in tourism recorded during the study, assigning points depending on the level of their importance. After that, the rank of each of the ways and activities was determined, according to the scores given by the experts.

The final analysis of the data obtained during the expert survey was carried out using a SWOT analysis of integrating human capital and green technologies into entrepreneurial activities in the tourism sector.

3.4 Data analysis

For a more objective analysis of the data obtained during the expert survey, the degree of consistency of expert opinions with mathematical processing of the results was measured using the Kendall concordance coefficient (W): $W = 12S/n^2(m^3-m)$, where S is the sum of the squares of the deviations of all estimates of the ranks of each of the items from the average value; n is the number of experts; and m is the number of evaluated items.

Further, the information obtained during the expert survey was processed to determine the weights of the obtained parameters with the construction of a rank transformation matrix and subsequent calculation of the arithmetic mean of the individual weights for each of the parameters. The final values of the weights determine the significance of a particular parameter from the experts' point of view.

In the process of data analysis, the triangulation method was used for the validity and reliability of the results of the empirical study. The triangulation was performed through the triangulation of researchers when several researchers participated in the project, each of whom participated in the processing of

information. After that, a discussion was held on each topic, and information that had been run by all participants of the study was entered into the report. The triangulation process made it possible to increase the reliability of the expert survey data and improve the quality of the information received. All results obtained from the study were recorded in the study report.

4 Results

Based on the results of the desk study using SWOT analysis, we performed an analysis of the strengths and weaknesses of the promotion and development of sustainable tourism in the EKR (Table 2).

Table 2. SWOT analysis of the promotion and development of sustainable tourism in the EKR

Strengths	Weaknesses
<ul style="list-style-type: none"> - attractive natural conditions and landscape, - a rich and strong tradition of individual farms, - the tradition of national (nomadic) cuisine, - the tradition of producing canned food based on unique local products (regional products such as honey, qurut, cold cuts of maral deer and roe deer meat, etc.), - the growing interest of tourists in recreation in the region (not only in summer but also in winter, for example, in the Altai Alps, when ski lifts and cross-country ski trails are open), - dynamically growing interest and fashion for a healthy lifestyle, for example, organic products, and wellness procedures 	<ul style="list-style-type: none"> - lack of cooperation between organic producers, - lack of a brand for local products, - lack of demand for regional products, - lack of promotion of regional products and sales and distribution networks, - lack of small local associations

When we started work on the main ways for the development of sustainable tourism and the integration of human capital and green technologies

into entrepreneurial activities in tourism in the EKR, we assumed that the survey participants would develop separate proposals for solutions. In the course of the work, the developed proposals on the ways of development and integration were adapted to the specific needs of each of the districts, considering the characteristics of the entire EKR. The experts showed great awareness of the needs in their areas and indicated specific ways for the promotion and development of sustainable tourism where human capital and green technologies should be integrated into business activities in the tourism sector.

The main ways of promotion and development of sustainable tourism in the EKR are presented in Table 3.

Table 3. The main ways of promotion and development of sustainable tourism in the EKR

Main ways of promotion and development of sustainable tourism	Rank	Weight
Creating a tourist brand in the region and supporting existing regional brands, for example, Altai Alps, Lake Zaisan, Lake Alakol, Rakhmanov Springs, Katon-Karagai (National Park), Berel Mounds, etc.	1	0.24
Development of tourist activity centers based on landscape qualities (for example, a winter sports center with ski lifts, cross-country ski trails in the Altai Alps, and wellness procedures in Rakhmanov Springs)	2	0.20
Popularization of the unique natural and cultural conditions of the region	3	0.16
Promotion of culinary routes based on local culture and cuisine	4	0.12
Production, distribution, and promotion of regional products with the creation of a network of points of sale and catering, including those outside the region	5	0.09
Creation, promotion, and support of regional product brands	6	0.07
Promotion of family and weekend tourism among the residents of the region	7	0.05
Agreement on joint promotion of tourism products and services with the creation of tourism	8	0.04

clusters as entities uniting homeowners and travel agencies		
Support for participation in exhibitions and other national and international events	9	0.03

Note: compiled based on the expert survey; the value of the concordance coefficient $W = 0.71$ ($p < 0.01$), which indicates a strong consistency of expert opinions

Further, based on the results of the expert survey, we identified the main ways of integrating human capital and green technologies into entrepreneurial activities in tourism in the EKR (Table 4).

Table 4. The main steps for the integration of human capital and green technologies into entrepreneurial activities in tourism in the EKR

Main ways of human capital and green technology integration	Rank	Weight
Financial support (financial instruments, grants) for investments in support of the integration of human capital and green technologies into tourism activities (creation of green jobs)	1	0.25
A quick way to register for green travel companies, tax benefits from the state budget	2	0.20
Preferential treatment of tourism companies integrating green technologies by municipalities	3	0.16
Creation of new professions, for example, eco-cooks (for people engaged in catering in campsites, campsite canteens, hotels)	4	0.13
Specialized training in tourism services: organizer/guide of thematic excursions related to the geological history of the region; presenter, trainer, and organizer of courses on traditional crafts; organizer of environmental tours or events; green animator for thematic events and situational games (for example, archery tournaments)	5	0.10
Spread of knowledge on green technologies, green jobs, and environmental activities among entrepreneurs and travel companies that create such jobs	6	0.08
Training of local producers, for example, on old recipes, product	7	0.05

registration rules, and regulatory and sanitary requirements that allow them to sell in retail chains and outside the region		
Ecological breeding and cultivation of vegetables, fruits, and grains, ecological breeding of poultry and cattle (for the supply of tourist enterprises)	8	0.03

Note: compiled based on the expert survey; the value of the concordance coefficient $W = 0.73$ ($p < 0.01$), which indicates a strong consistency of expert opinions

Based on the results of an expert survey (Tables 3 and 4), using SWOT analysis, we evaluated the strengths and weaknesses of integrating human capital and green technologies into entrepreneurial activities in the tourism sector in the EKR (Table 5).

Table 5. SWOT analysis of the integration of human capital and green technologies into entrepreneurial activities in tourism

Strengths	Weaknesses
stable employment: employees using green technologies are valuable human capital, a wide range of training on the market, improving the competitiveness of travel companies through the use of green technologies and an appropriate image, increasing the ability to scale up activities by expanding the tourist offer, high growth rates of demand for a tourist product, awareness of a significant number of tour operators about the need to introduce green technologies	a small proportion of employees using green technologies in the structure of a travel company, a small proportion of employees using green technologies and having higher education, low awareness of the need for integration of human capital and green technologies, low ability to increase the scale of activities due to the expansion of the tourist offer, low level of implementation of green technologies, lack of prospects for the introduction of green technologies

5 Discussion

As the results of the study showed, the possibility of increasing the integration of human capital and green technologies in the tourism sector is

considered in the development of sustainable tourism.

The main proposals of experts on the promotion and development of entrepreneurship in tourism in the EKR through the integration of human capital and green technologies concerned the following:

1. further work to expand the offer for tourists, especially in the case of family, weekend, and medical rehabilitation tourism;
2. the need to develop the tourist sector and its infrastructure, while the key measures should be to work on the brand of the region and support existing and existing brands from the EKR;
3. the development of organic agriculture and animal husbandry related to the tourism sector, and, consequently, the production, promotion, and distribution of local products on regional and national markets.
4. increasing environmental awareness of consumers of tourism services.

The experts noted that some organizations and small and medium-sized enterprises in the EKR were looking for methods of subsidizing their activities in the introduction of environmental solutions, for example, in the form of cheaper investment loans or government subsidies [33]. This is not a distinctive feature for business development, especially in the tourism sector [34]. The need to make new decisions on the integration of human capital and green technologies into entrepreneurial activity is also imposed by the changing legislation of Kazakhstan in environmental protection [35]. All this is a sufficient reason for travel companies to implement these solutions. However, based on the results of the study, we cannot answer the question of whether businesses are striving to develop this approach or waiting for further assistance from the state, without taking active initiative. We believe that to change the situation, state and municipal policy in this area should be more focused on offering solutions such as tax incentives for real estate, which will be able to create new jobs and objects for the tourism industry.

The change in the real estate situation, as confirmed by experts, will help to change the current trend (which is typical for both the EKR and Kazakhstan) represented by excessive concentration of tourist flow and tourist accommodation facilities. Besides, the lack of tourist culture and education in this area leads to the degradation of the natural environment, which is also noted in the study [36, 37].

Other negative consequences, as noted, for example, by an expert (head of company, Altai district), include the following: "The problems of our district are the seizure of land and water, as well as the presence of industrial infrastructure that uses large tracts of land. Therefore, we increasingly have to deal with the impoverishment of the landscape and cluttering" [38, 39]. This is confirmed by the results of the data and the results of other researchers [40-42]. Water pollution and wastewater generation by tourism organizers (hotels, restaurants) are consistent with the data in [31, 44]. It is also noted in [40] that tourists engaged in skiing and hiking in the EKR make a negative contribution to the environment due to soil degradation [42] or subsidence of slopes and destruction of vegetation or fragmentation caused by skiing. To solve these problems, it is necessary to actively promote integrating human capital and green technologies to achieve the principles of sustainable development [45, 46]. This promotion should start from the lowest level, using public events, conferences, seminars, and examples of best practices. Such events may be organized by tourism enterprises supported by local authorities which will begin to implement best practices in the districts of the EKR.

6 Conclusions

This paper answers the following research questions: (1) What are the strengths and weaknesses, as well as the main ways for the promotion and development of sustainable tourism in the EKR? and (2) What are the strengths and weaknesses, as well as the main measures to integrate human capital and green technologies into business activities in tourism in the EKR?

The introduction of green technologies in the concept of the integration of human capital with them provides new standards for the quality of tourist services while preserving the natural resources of the region. This implies the creation of a comprehensive strategy for sustainable tourism development in integrating human capital and green technologies with systemic state and regional approaches.

Despite the theoretical and practical contributions, this study is partially limited by the size of the expert pool and therefore does not allow generalizations. We are aware of the need to conduct parallel research on this issue. The general results of several studies distributed throughout Kazakhstan will allow us to create a more generalized picture of optimizing the sustainable development of the tourism sector in Kazakhstan

through the integration of human capital and green technologies into entrepreneurial activity.

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