

**SUSTAINABLE ECONOMIC DEVELOPMENT OF AGRITOURISM BASED
ON THE EXAMPLE OF THE NORTH KAZAKHSTAN REGION**

**СОЛТҮСТІК ҚАЗАҚСТАН ОБЛЫСЫ МЫСАЛЫНДА АГРОТУРИЗМ
ЭКОНОМИКАСЫНЫҢ ТҰРАҚТЫ ДАМУЫ**

**УСТОЙЧИВОЕ РАЗВИТИЕ ЭКОНОМИКИ АГРОТУРИЗМА
НА ПРИМЕРЕ СЕВЕРО-КАЗАХСТАНСКОЙ ОБЛАСТИ**

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Abstract. As the *goal of the study*, one of the relevant modern problems of rural areas of the Republic of Kazakhstan is noted - ensuring sustainable economic development of agritourism, which should become one of the key drivers of the regional economy. *Objectives* – to study aspects of sustainable agricultural tourism based on the example of the North Kazakhstan region. *Results* – the scientific points of view of Kazakhstani and foreign authors, offering solutions to issues related to the efficiency and feasibility of agritourism ecosystem are presented; key indicators and methodological approaches to assess the promotion of agritourism are identified; a matrix of the main directions for further expansion of the tourism industry in North Kazakhstan was developed; econometric dependences reflecting the dynamics of the number of agrotourists in the region in 2016-2020 are shown. Based on the calculation of autocorrelation coefficient of the residuals and the average approximation error, a conclusion was made about the optimal use of the constructed dependencies in the economy in order to ensure the sustainable development of agricultural tourism sector in the region. The research methodology is associated with the analysis that characterizes the introduction and acquaintance with the peculiarities of rural life, the activities of peasant farms. In the opinion of the authors, the conclusions will largely help to achieve the stated goals and objectives. *Researchers* are convinced that particularly rural tourism business that should become one of the main imperatives for the development of a modern village in the republic, contributing to a sustainable increase in the quality and standard of living of the population living in rural areas, raising the balance of payments and total exports, and increasing employment of rural residents, ensures food security of the country.

cal skills in caring for animals, farming lessons, including planting, growing, harvesting, etc.

The demand for these tourist products may be dictated by the desire to learn about the culture and way of life of people, combining this with the development of gastronomic, ethnographic, historical and archaeological knowledge that can be obtained during an agritourism tour. On the other hand, the development of agritourism should provide a socio-economic effect aimed at its popularizing, creating new jobs in rural areas and, accordingly, increasing the incomes of peasants.

A number of scientific works reflect various theoretical and methodological approaches to the study of the economy of agritourism and the implementation of its forms in the regions of our country. Some authors identify the main patterns of the formation of ethno-villages, which are the driving forces of sustainable economic development of tourist destinations in Kazakhstan [1].

Other researchers consider the applied aspects of the development of agritourism from the position of increasing the income and cultural level of the local population, the development of markets and infrastructure of the territory [2].

We can agree with the point of view of researchers who are engaged in substantiating the importance of using the mechanism of public-private partnership in the development of non-agricultural sectors of the rural economy based on the functioning of the tourism industry, which in this case acts as a diversifying economic driver [3].

Noteworthy is the theoretical analysis of the world experience in the development of rural tourism on the example of a number of such highly developed countries as the USA, Australia, Canada and England [4].

Materials and methods of research. In the scientific literature, there are a number of approaches to the study of the methodology of sustainable economic development of agritourism from the position of studying and analyzing its main types and directions.

For example, a number of authors, guided by the main preferences of consumers, distinguish the following groups of agritourism: rural (village) tourism; ecological tourism; ethnographic tourism; gastronomic (culinary) tourism; abiotic tourism; nature-based tourism (geotourism); out-of-town tourism [5].

In the methodology of researching agritourism, such symbiotic areas as agrarian medical tourism can also be distinguished; agrarian historical tourism; agrarian ecological tourism (green tourism); agricultural sports

tourism; agrarian educational tourism; agricultural tourism; folklore agrarian tourism; agrarian international tourism [6].

With regard to our country, the Kazakhstan Association of Agro and Rural Tourism notes that the ecosystem of agritourism in our country began to develop relatively recently.

For example, near the city of Almaty, in the village of Aymen, there is a farm "Fauna", which grows ostriches. Tourist excursions around the farm are organized, dishes from ostrich meat and ostrich eggs are offered, ostrich feathers are sold as souvenirs. In the Zhambyl region, the "Shaushen" peasant farm in the Ryskulovskiy region is engaged in kumis therapy. Here tourists can take part in the milking of mares and the production of kumis, and then purchase the products. In the Akmola region, near the village of Konstantinovka, agritourists can visit an apiary, where they are given a master class on caring for beehives, extracting honey, lighting a samovar on cones and brewing tea with berries and herbs [7].

In general, the authors of the article are convinced that most types of agrotourism activities can be successfully implemented in the so-called developing ethno-villages. Its number grows every year on the territory of Kazakhstan. Among them are "Nauryz", "Huns", "Kogez", "Zhailau", "Alash", "Nur-Sultan Ethno Fest" and others. They hold demonstrations of rituals, master classes on crafts and cooking of the national dishes, theatrical performances.

Results and their discussion. At the same time, within the framework of the methodology for researching sustainable economic development of agritourism, an important aspect is the assessment of strategic investments based on forecasting the gross regional product, its growth rates, the share of tourism in the regional economy, the dynamics of the volume of tourist services, the return on assets of tourist organizations [8].

Based on the application of the methodology of factor analysis of tourism entrepreneurship in Kazakhstan, a number of researchers identify the most significant factors affecting the level of development of business activity in the tourism sector of Kazakhstan [9].

Agreeing with these scientific positions, the authors of the article believe that when analyzing the provision of sustainable economic development in the sphere of agritourism for any region of the Republic of Kazakhstan, an appropriate matrix of the main directions of agritourism should be developed.

For the North Kazakhstan region, this developed author's matrix is shown in table 1.

Table 1 – Matrix of the main directions of sustainable development of agritourism in the North Kazakhstan region

The direction of the development of agritourism in Kazakhstan	Agritourism objects in Kazakhstan
Agritourism based on the proximity of the countryside to the city	Villages of the North Kazakhstan region, close to the city of Petropavlovsk (Beskol, Peterfeld, etc.)
Agritourism based on natural landscape zones	Resort and sanatorium zones (in the villages of Imantau and Andreevka: Menkeser Island, etc.)
Agritourism based on the development of rural agriindustry	Agritourism on a dairy farm or horse farm (LLP "Mambetov and K", PF "Arkalyk")
Agritourism based on historical and archaeological sites	The development of agritourism in the vicinity of the archaeological excavations of the Botay culture, the settlement of Ak-Iriy, Kyzyl oba and the village of Madeniet with the memorial complex "Karasai and Agyntai Batyrs"
Agritourism based on the ethnocultural development of the village	Development of agritourism in the style of ethno-auls (in the villages of Aiyrtau, Kishkenekol, etc.)
Agritourism based on the development of scientific and technological progress	Agritourism based on specialized scientific and technical parks (LLP "Zenchenko and K")
Agritourism based on medical and wellness procedures	Agritourism based on treatment with mare's milk and kumis

The practical use of this matrix is supplemented by a methodology for calculating indicators characterizing the development of the agritourism sphere, which can be the

number of accommodations served by visitors for travel purposes.

Table 2 provides information on the dynamics of this indicator in the districts of the North Kazakhstan region in 2016-2020.

Table 2 – Visitors served by places of accommodation by purpose of travel in the districts of the North Kazakhstan region in 2016-2020

Region	2016	2017	2018	2019	2020
North-Kazakhstan region	91 016	120 847	126 740	144 456	102 632
Petropavlovsk city	54 503	89 170	85 195	88 923	61 795
Aiyrtau	4 952	5 934	10 049	18764	22 911
Akzhar	2 425	2 041	2 783	2 224	1 764
M. Zhumabayev	463	857	1 161	1 099	476
Esil	3 266	2 280	2 337	2 314	1 235
Zhambyl	1 212	1 302	1273	1 226	819
Kyzylzhar	14 009	9 032	11945	16409	4 973
Mamlyut	949	1 055	945	794	17
Shal Akyn	1 969	1 864	2 449	2 233	1 545
Akkain	674	808	450	802	15
Tayinsha	2 616	1 604	1 023	1 247	1 409
Timiryazev	720	666	771	697	801
Ualikhanov	656	851	1 624	2 103	785
G. Musrepov	2 602	3 383	4 735	5 621	4 087

Source: [10]

As can be seen from table 2, the value of the indicator in 2020 was 102 632 people, which is 41 824 people (or 28,95%) less than in 2019 and 24 108 people (or 19,02%) less than in 2018 year.

The decrease in the number of visitors served by accommodations for travel purposes by area in 2020 arose in connection with the development of the COVID-19 pandemic.

According to the authors' selective survey, about 9% of the North Kazakhstanis noted that they participated in events related to the field of rural tourism and attributed by the authors to the events of the agritourism sphere.

Thus, the dynamic row for the analysis and forecasting of the indicator under consideration is presented in table 3.

Table 3 – The number of agritourists in the North Kazakhstan region in 2016-2020

Region	2016	2017	2018	2019	2020
North-Kazakhstan region	8 191	10 876	11 406	13 001	9 237

Let's construct statistical equations describing the time series. As functions, the authors have chosen a linear, parabolic, exponential function, and a logarithmic parabola.

We will also select the best trend equation based on the determination of the statistical autocorrelation coefficients of the residuals (r, proposed by M. Ezekiel and K. Fox) and MAPE – the middle average approximation error. The smaller the values of these coefficients, the better the equation of the corresponding trend describes the dynamics of the studied indicator and, thus, the development of the described process is more stable and suitable for economic analysis and modeling.

The autocorrelation coefficient of the residuals (r) is determined as follows:

$$r = \frac{\sum l_x \cdot l_{x-1}}{\sum (l_x)^2} \quad (1)$$

where $l_x = y_x - \hat{y}_x$. In this case, y_x – the actual values of the considered indicator;

\hat{y}_x – values of the function in the forecast period.

The values of this coefficient must be within the following limits: $-1 \leq r \leq +1$. The smaller its absolute value, the better the equation describes the given sample. That is, the smaller the autocorrelation coefficient of the residuals, the more the trend equation is suitable for statistical analysis and modeling.

MAPE is determined by the following formula:

$$MAPE = \frac{1}{n} \cdot \sum \left| \frac{y_x - \hat{y}_x}{y_x} \right| \cdot 100 \quad (2)$$

The smaller the value of this coefficient, the better the corresponding equation describes the considered sample.

The final calculations to determine the parameters of offered models, as well as the coefficients r and MAPE, are shown in table 4.

According to the calculations, the most optimal function describing the sustainable development of the number of agritourists in the regional economy is the logarithmic parabola, since the values of the coefficients r and MAPE are the smallest in comparison with other functions.

Table 4 - Optimal analytical descriptive functions and their statistical characteristics for the dynamics of the number of agritourists

№	Optimal analytical descriptive function		Statistical characteristics	
	General form	Actual view	R	MAPE
1	$y = a+b \cdot x$	$y = 421,7 \cdot x + 9 277,1$	-0,64	14,37
3	$y = a+b \cdot x+c \cdot x^2$	$y = 3 360 + 5 492,99 \cdot x - 845,21 \cdot x^2$	-0,63	4,89
4	$y = a \cdot b^x$	$y = 9177,43 \cdot 1,043^x$	-0,69	14,58
8	$y = a \cdot b^x \cdot c^{x^2}$	$y = 5119,6 \cdot 1,72^x \cdot 0,92^{x^2}$	-0,63	4,43

Conclusions

The article discusses various theoretical and methodological approaches of Kazakhstani and foreign authors to the study of the economy of agritourism and the implementation of its forms in the regions of our country.

Classification of services provided in the field of agritourism has been formulated and given, which, on the one hand, can include recreation in order to improve and satisfy the cognitive interests of the agritourist, and, on the other hand, the possibility of observing production processes and participating in farming activities.

Based on the study of scientific and methodological literature, the author's matrix of the main directions of sustainable development of agritourism in the North Kazakhstan region is presented.

The dynamics of the number of visitors served by the places of accommodation according to the purposes of travel in the context of districts was analyzed and the share of agritourists was determined on the basis of the survey.

Statistical models describing the sustainable development of the number of agritour-

ists in the economy of the North Kazakhstan region have been determined.

In general, the authors note that the obtained theoretical and methodological results of the study may be taken into account by the public administration of the tourism sector in the development and implementation of programs for sustainable economic development aimed at improving the level and quality of life of people living in rural areas.

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