



Regional Diversification of Rural Territories with Limited Spatial Location of Green Tourism Objects

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Abstract

The relevance of research is that the process of diversification of rural entrepreneurship has its own specific conditions and features. The aim of paper is to substantiate methodological approaches to the assessment and forecasting of regional diversification of rural areas with limited spatial location of green tourism objects. Article deals with the process of regional diversification of rural territories with limited spatial placement of green tourism objects. It is proved that entrepreneurship in field of green tourism is a specific type of tourism activity, has a social, environmental and economic impact on the development of rural territories of the region.

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1 Introduction

The development of the agrarian sector of the Ukrainian economy is accompanied by the formation of new market segments and types of entrepreneurial activity in the countryside. However, the process of diversification of rural entrepreneurship has its own specific conditions and features. It concerns the structure and location of natural resource potential, employment of rural residents, availability of objects of infrastructure of agricultural

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activity, including green tourism. Identifying the competitive advantages of green tourism requires standardizing the quality of tourism services for small businesses, clustering their locations in individual regions.

Expansion of economic activities and strengthening of local self-government functions in the process of effective diversification of business activities in the field of green tourism remains extremely difficult, since the transformation of the regional tourism system, which leads to the accumulation of financial resources on the meso-level with the maximum use of the natural resource capacity, requires increasing the level of profitability of services, overcoming the dependence of small businesses on the impact of negative effects of the institutional environment.

The use of existing potential (in particular, capital in the form of houses) in the field of green tourism should encourage rural residents to obtain economic benefits, and the need for innovative products – the creation of qualitatively new human capital, improving the competitiveness of small businesses with limited spatial location of objects of tourism activities in rural areas to ensure demographic stability and address socio-economic problems in the village. In other words, the removal of institutional barriers may release the productive function of this capital and extend incentives for entrepreneurship in the field of green tourism.

Problems and prospects of the development of entrepreneurial activity in the field of green tourism were discussed in the works of O. Faryon, O. Korchynskyy (2013), M. Zaharia, S. Ghiță (2014), V. Vasylyev, P. Gorishevskiy, Yu. Zinko (2014), V. Bondar, Ya. Ganzha (2012), D. Hall (2000); formation of potential of economic growth of agrarian sphere at the expense of diversified production – in the works of M. Baranovskiy (2008), V. Isayenko, K. Babikova (2013), I. Kryukova (2015), C. Goeldner, J. Brent Ritchie (2002), S. Izmalkov, K. Sonin, M. Yudkevich (2008), L. Turner, S. Witt (2001), A. Guliyeva, I. Britchenko, U. Rzayeva (2018); development of scientific and theoretical provisions on the implementation of the process of diversification of agricultural production through the development of green tourism – in the works of M. Barke (2004), S. Nordin (2013), A. Kulik (2012), Y. Zavalnyuk (2014); transformation of entrepreneurship in the tourism industry and its impact on rural development, employment, regional economy – in the works of K. Kilinska, N. Anipko, N. Andrusyak (2010), V. Tereshhenko, N. Morozuk, O. Zamora (2013), I. Lytvyn, M. Nek (2013), M. Ilyina (2014), I. Zasada, M. Reuttera, A. Piorra (2015), S. Zoto, E. Qirici, E. Polena (2013), B. Weisbrod (1998), G. Saxena, B. Ilbery (2008).

Despite the value of the research findings, it is necessary to substantiate methodological approaches to the assessment and forecasting of regional diversification of rural areas with limited spatial location of green tourism objects and to develop economic measures to guarantee the reproduction and preservation of the standardization of the provision of tourist services by green estates for the future.

2 Materials and methods

The methodological basis for justifying the territorial affiliation of rural areas involves conducting their regional diversification with determining the economic and ecological status of accommodation objects (for example, depressed, degraded) to stimulate the development and equalization of socio-economic status, to receive significant funding from institutions and funds. The complexity of this process is the significant difference between the geographical and economic conditions for the functioning of these territories, as well as the management practices, given the spatial polarization of the regions and the measures of the Common Agricultural Policy (Rural Development... , 2013).

Different demographic and economic indicators are used to refer territories to rural areas, first of all population density (one of the key factors of differentiation of territories into rural areas) and the current territorial-administrative division, as well as availability of agricultural lands and lands of forest fund, agriculture as the main type of economic activity, employment and income of the local population (Rural Europe... , 2007). Thus, in the European Union, about 45% of the territory belongs to agricultural land, 35% to forest land, with a significant predominance of these indicators for rural areas and significant differences between countries. At the same time, the share of employed in the rural economy of the EU countries varies by region (from 2% to 30%). At

the same time, rural territories are not only a place of work, but also a place of residence for those who work in neighboring cities, employment and income are much lower than in the city, and the remoteness of the territories from cities and other settlements significantly affects the development of the territories (Ilyina, 2014).

It should be noted that entrepreneurship in the field of green tourism is a specific type of tourism activity, which accumulates and implements various forms of organization of the tourism industry, exerts socio-ecological and economic impact on the development of rural territories of the region through the rational use of available natural resources and human potential. Accordingly, the positive impact of green tourism on the definition of socio-ecological and economic status of rural territories is complex, systematic in nature, as it contributes to the expansion of employment of rural population, stimulates the well-being of rural territories (Ilyina, 2016). In addition, ensuring the infrastructural development of rural territories, taking into account the qualitative and quantitative criteria of tourist services in the region, allows to determine the level of resource intensity of the green tourism sector, in the context of cultural traditions of the environment, to create incentives for entrepreneurship and new jobs (Tereshhenko et al., 2013; Almeida et al., 2019).

It should be noted that the platform for methodological study of rural diversification is a methodological approach, which includes logical and mathematical models for predicting the infrastructure of accommodation of green tourism objects (green estates) in the regions in order to evaluate their socio-economic efficiency in the medium and long term.

The stages of the basic and target scenario-forecasting of the location of green tourism objects in the regions of the country according to the indicators of tourist migration of population are proposed, taking into account the degree of probable gravitational interaction of tourist flows and objects of green estates. The distribution of tourists for the purpose of visiting the green estates of rural areas consists of the volume of travelers for official, business or educational purposes and the number of persons traveling for leisure and recreation.

Step 1. Basic scenario-forecast. Using the two actual baselines (for holidaymakers in green tourism and for the distribution of tourists to visit green estates in rural areas), the type of trend that best reflects the trends in green tourism development and which will be further forecasted is selected separately. To describe the trends of changes in the studied indicators, a logarithmic trend is selected, reflecting its rapid change (decrease or increase) at the beginning of the period and gradual stabilization - in the following period (Eq. 1):

$$y = -1281.3 \ln(x) + 6080.1. \quad (1)$$

The determination coefficient for this type of trend will be 0.76.

The peculiarities of the distribution of the number of tourists in order to visit the green estates of rural areas for business purposes best reflects the exponential trend, according to which the exponential curve shows a rapid decline in actual indicators (Eq. 2):

$$y = 867.1 \times e^{-0.07x} \quad (2)$$

for the rest of tourists in the green estates of rural areas, on the contrary, growth (Eq. 3):

$$y = 896.1 \times e^{0.061x}. \quad (3)$$

The coefficients of determination of indicators will be respectively 0.78 and 0.70. The long-term downward trend in business tourism in the rural countryside is explained not only by the decline of the rural economy in the regions as a result of the recession, but also by the de-actualization of business travel due to changes in the development of telecommunications technologies in rural areas. Considering that business tourism is not sufficiently stimulated by the organizational mechanisms of the state tourism policy, it is therefore advisable to direct the development of entrepreneurship in the field of green tourism in rural areas to rest and leisure. The proposed trend models may be subject to t-Student test, which may confirm the null hypothesis of a slight deviation of the calculated (trend) data from the actual ones.

Step 2. Target scenario-forecast. An optimistic forecast for the diversification of rural areas, limited by the spatial distribution of green estates in the regions, makes it possible to gradually increase the level of tourist

satisfaction with their services to a fraction higher than the current one and preceding the crisis period. When determining absolute indicators of the number of tourists who rest in the green estates of rural areas in the medium and long term, it is necessary to take into account the demographic trends and the projected decrease of the existing population in rural areas by region. In this case, the target scenario-forecast allows determining the average value of the regional distribution of their visits during the retrospective period, taking into account foreign tourists, by the formula (Eq. 4):

$$y = i + g \times N_t \quad (4)$$

where y —total number of visits to green estates of rural territories of Ukraine; t —time period (mid-to long-term forecast); i —the average annual number of foreigners who visited the green estates of rural areas in the regions during the retrospective period; g —target share of visits to green estates by Ukrainian citizens (is a constant and will be 0.0567); N —total projected number of green estates in rural areas in the t -th year.

Targets for the total number of visits to green estates in the regions in the long term are justified according to the trend retrospective, and the total amount of rest is made by the formula (Eq. 5):

$$y = N \times l \times S \quad (5)$$

where y —the total number of tourists in the regions of the country traveling for the purpose of leisure and rest in the green country estates; N —total estimated number of green estates in the regions of the country for the long term; l —the average annual share of green estates in rural areas in the regions for leisure activities in their overall structure of tourist services during the last 8 years ($l = 0.65$); S —target indicator – the proportion of tourists who spend leisure time in the green estates of rural areas of a particular region among the total population of the country ($S = 0.26$).

The development of green tourism as a sphere of rural economy depends on many factors, in particular: recreational attractiveness of objects, settlements (availability of high quality and various natural resources, development of infrastructure, proper material and living conditions), as well as cost of leisure (prices for accommodation services, food, excursions, use of natural resources and tourist attractions). At the same time, the demand for green tourism services depends on the general economic situation in the country, the geographical features of the location of rural areas, the characteristics of the settlement from which the tourist originates (distance from tourist centers, length of travel, number and economic capacity of the population, availability of own recreational and tourist resources). Taking these factors into account in a single system (for example, mathematical equation) is necessary to build an adequate model of tourist migration, which with the appropriate degree of probability allows to predict the volumes of tourist flows to a particular rural territory of regions (Fig. 1).

Gravity models (Kaukin and Idrisov, 2013) are widely used for mathematical analysis of tourist flows and spatial modeling of tourist demand for green tourism objects. The idea of using a gravity model to analyze migration flows in the field of green tourism is based on the assumption that the amount of tourist migration from rural areas depends directly on the number of its inhabitants and inversely – on the distance between these rural territories and the destination. Increasing the distance between settlements means an increase in the length and cost of the trip, which will negatively affect the number of tourists. The mathematical model of the probable gravitational interaction of tourist flows and objects of green tourism in rural areas will be (Eq. 6):

$$V_{ij} = k \times \frac{(P_i \times A_j)^b}{D_{ij}^d} \quad (6)$$

where V_{ij} – is the number of visitors to the j -th green tourism object who came from the i -th rural area; P – the number of rural areas where green tourism objects are located; A – attractiveness of the j -th green tourism object of rural territory; D – distance between the points of the i -th rural area and the j -th green tourism object of the rural territory; k, b, d – empirical coefficients.

Another variant of the gravity model of tourist migration from rural areas is (Eq. 7):

$$V_{ij} = k \times \frac{P_i^p \times A_j^\alpha}{D_{ij}^d} \quad (7)$$

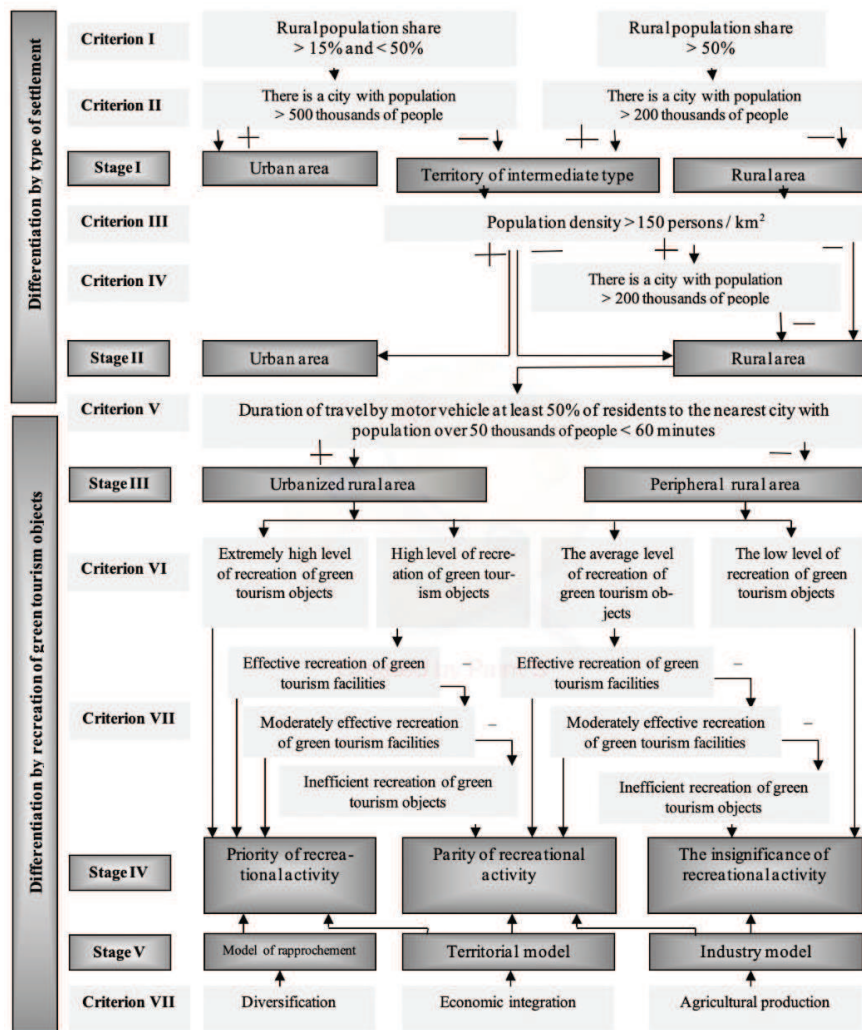


Fig. 1 Adequate model of tourist migration of the population by the degree of probable gravitational interaction of tourist flows and the location of green tourism objects in rural areas. *Source: authors' own research.*

where: p, α – the empirical coefficients.

The coefficients contained in the model show the sensitivity of tourist migration volumes from rural areas to changes in the season of accommodation in green tourism objects, climatic fluctuations, economic conditions, socio-political situation, environmental security, as well as factors inherent in the tourist market (in the first turn, changing supply and demand). A mathematical model using large arrays of empirical data can show a significant variation in the calculated coefficients in the case of analysis of tourist migration into rural areas by different groups of tourists where green tourism objects are located.

Considering the above, the initial equation of tourist migration to rural areas where green tourism objects are located will be (Eq. 8):

$$V_{ij} = k \times \frac{P_i^p}{D_{ij}^d} \times e \tag{8}$$

where V_{ij} – the number of tourists in the j -th green tourism object who came from the i -th rural territory; P – the number of inhabitants of the rural village where the green tourism object is located; D – distance between points of the i -th rural area and the j -th green tourism object; p, d – empirical coefficients; e – a normally distributed error.

The model is leveled by applying logarithms to its right and left parts (Eq. 9):

$$\ln V_{ij} = \ln \left(k \times \frac{P_i^p}{D_{ij}^d} \right) = \ln k \times \ln \frac{P_i^p}{D_{ij}^d} + U_{ij} = \ln k + \ln P_i^p - \ln D_{ij}^d + U_{ij}, \quad (9)$$

$$\ln V_{ij} = \ln k + p \ln P_i - d \ln D_{ij} + U_{ij}.$$

Thus, model forecasting of diversification of rural territories, which are limited by the spatial location of green tourism objects in the medium and long term, is one of the important directions of the targeted use of natural resource and human potential with the prospect of developing entrepreneurial activity in this field, enhancing its social, economic efficiency. Forecasting allows differentiation and grouping of green tourism objects in a specific rural area and any region, to make decisions on optimization of anthropogenic load on tourist resources, to develop tourist flows of travel and quality rest of visitors to green estates and development of tourist infrastructure in the country.

3 Results and discussion

Tourism and culture are integral components of the social and humanitarian sphere, which regulates the functioning of human communities in terms of improving the quality and reproduction of human potential (Sukhova et al., 2018). This is especially true in rural areas, where human capital degradation processes lead to such adverse effects as unemployment, population decline through aging and migration, increased social tension and deep economic depression. In view of this, the modernization of the rural development security system, the intensification of economic activities alternative to agricultural production, the enhancement of the cultural and educational level of the rural population, are the process of spatial polarization of the natural resource environment and the viability of economic entities in the field of green tourism (Guliyeva et al., 2018; Ilyina, 2014). That is why the effectiveness of the development of green tourism and its accommodation facilities in rural areas depends on the cultural and educational level, vocational training, skills, motivation, desire and ability to work and manage.

We analyze the spatial infrastructure of the location of green tourism objects in the rural territories of the EU countries (GTrt). Thus, in 2018 there are more than 13 million bed-places in the rural territories of the EU countries, the amount of services provided for temporary accommodation of tourists for rest and visiting green estates – 923 million sleepovers (Fig. 2).

Close to 90% the servant GTrt produced services are provided in the Member States (EU-15), and only 8-10% in the countries that have acquired membership (EU-12). Indicators of green tourism infrastructure in rural areas (number of nights spent by tourists in places of temporary rest and visit, and beds for tourists based on the population of the country), in the EU-15 countries compared with the EU-12 countries are higher at 2.2-2.5 times. At the same time, the ratio of GDP per capita between these subgroups reaches 3:1, which indicates the higher level of the developed infrastructure of this segment of the tourist market.

Sweden, the Czech Republic, France, Finland, Slovakia, Luxembourg, Austria, Greece, Denmark and Slovenia show the highest number of total overnight stays of tourists and bed-places in the GTrt compared with the average in EU-27 countries (the last four countries have the higher level than EU-12 countries by more than 50%). Despite the favorable legislation in the EU-12 for the development of green tourism in rural areas, the EU Member States remain leaders in this field, with a higher level of prosperity.

During 2011-2018, the European Agricultural Fund for Rural Development (EAFRD) allocated 96 bln. EUR for the implementation of the relevant measures (Fig. 3).

Almost a third (32%) of these funds was used for convergence (increased funding for individual countries to raise their indicators to the EU average). EU-27 Member States received 61% of total funding, EU-12 – 39%, Poland (14%), Italy and Germany (9%) received the most. At the same time, the volume of technical assistance to the EU countries is different: Estonia, Latvia, Lithuania, Malta, Hungary, received maximum funding – 3.9%

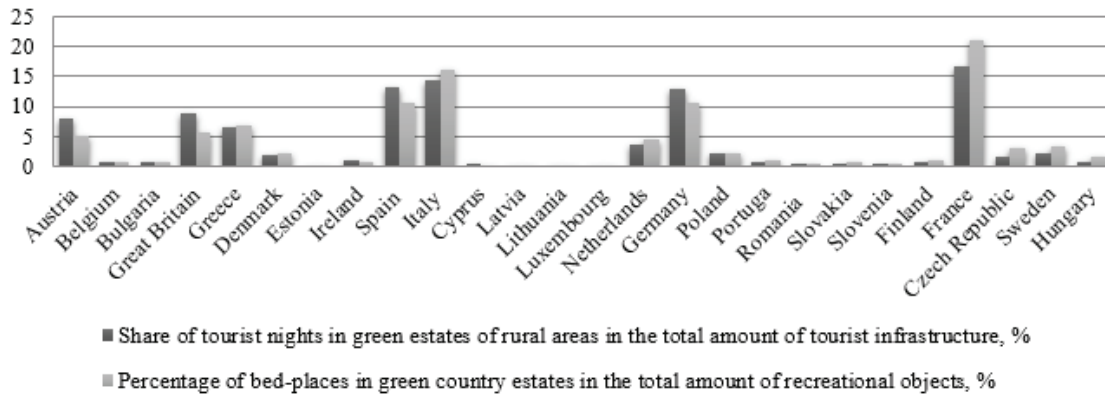


Fig. 2 Diversification of the infrastructure of recreational green tourism objects in rural areas in the EU Member States, 2018. Source: developed by authors according to data (The UNWTO Tourism Dashboard...).

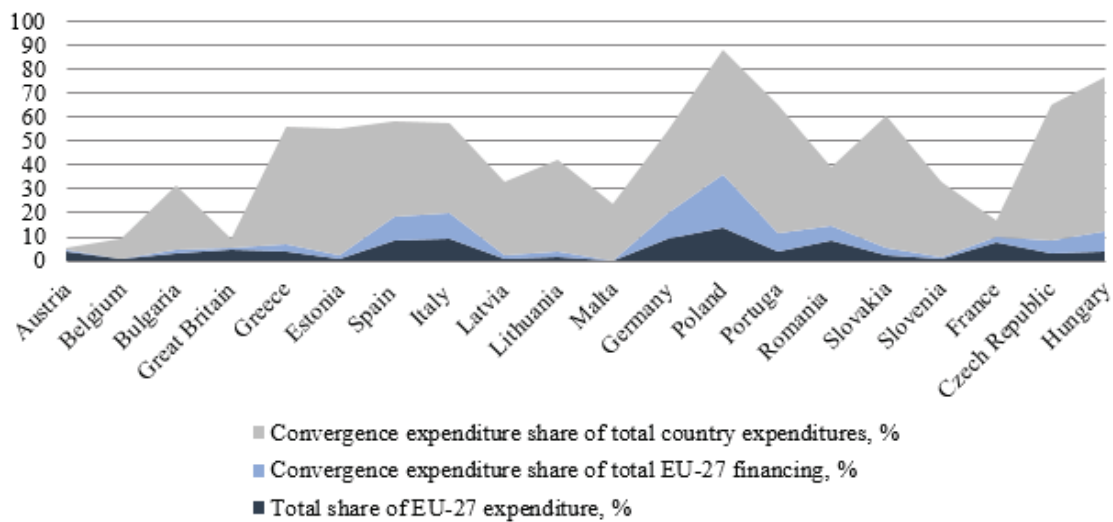


Fig. 3 Financing the rural development programs of EU Member States at the expense of the EAFRD, 2011-2018. Source: developed by authors according to data (The UNWTO Tourism Dashboard...).

of the total EAFRD funds each; others – less than 1% (France – 0.8%, United Kingdom – 0.6%, Netherlands and Czech Republic – on 0.5%, Ireland – 0.1%), Luxembourg did not receive funds at all (Rural Europe... , 2007).

In total, the EAFRD gave the most to agro-environmental measures (24%), modernization of farms (12%), support to farmers working in adverse mountainous (6.9%) and non-mountainous areas (7.7%). The rest of the funds are distributed as follows: increase in value added products (5.8%), development of farm infrastructure (5.0%), local rural development strategies (4.3%), meeting the basic needs of rural residents (3.8%), rural regeneration and development (3.5%), support for young farmers (3.0%), reduction in retirement age (2.6%), primary afforestation of agricultural land (1.8%). For the period 2019-2020, the strategic objectives of the EU’s rural development policy are to further strengthen the competitiveness of agriculture, ensure sustainable use of natural resources and control over climate change, achieve balanced territorial development of the rural economy and the community, including the creation of new jobs and support for jobs (Rural Europe... , 2007).

In Ukraine, given the average capacity of one green estate (13.5 bed-places), the total number of bed-places for tourists in 2018 was 3.1 thousand sleepovers in places of temporary residence – 29.6 million (in green tourism in rural areas – 93 thousand units). Comparing the indicators of green tourism infrastructure (number of tourist

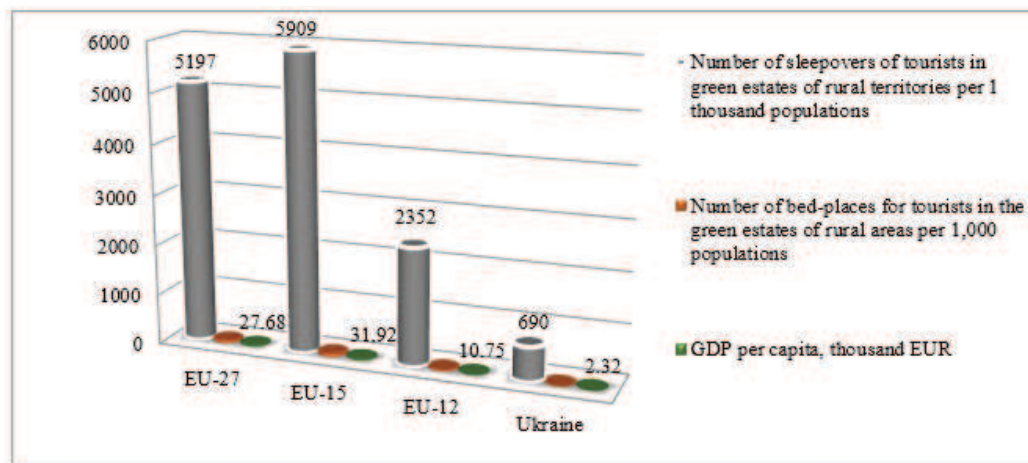


Fig. 4 Green tourism infrastructure of rural territories of EU Member States and Ukraine, 2018. *Source: calculated by the authors according to the data (The UNWTO Tourism Dashboard...; Statistical publication of the Regions of Ukraine... 2018).*

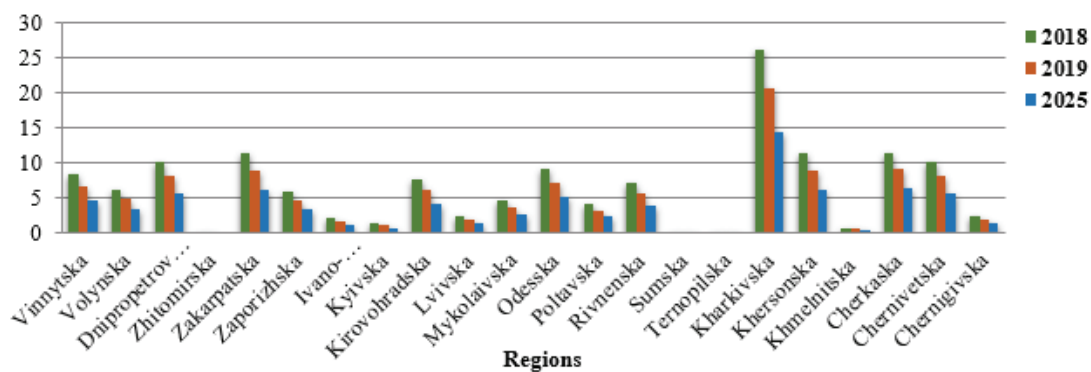


Fig. 5 Forecast of tourist migration of the population of Ukraine by the degree of probable gravitational interaction of tourist flows and accommodation of green tourism objects in rural areas (purpose – business trip), on average for 2019–2025, thousand people. *Source: calculated by the authors.*

sleepovers and bed-places per 1 thousand population), as well as the specific GDP per capita, we can conclude that in the EU-12 these figures exceed Ukrainian in 3–4 times (Fig. 4).

According to the methodological approach, which includes logical and mathematical models of basic and target forecasting of the infrastructure for regional accommodation of green tourism objects of rural territories (green estates) in order to assess their socio-economic efficiency in the medium and long term, it is determined that during the period (2019–2025) the number of tourists visiting recreational objects for business purposes will be reduced annually by 6.8%; the annual increase in tourist migration of the population to green estates for the purpose of leisure and recreation will be 6.3% (Figs. 5–6).

Forecasting the formed component typology (Table 1) requires the development of a single integrated indicator (gross regional product per 1 thousand population), which combines the whole set of small indicators and characterizes the level of diversification of rural areas with limited spatial areas of green tourism. Through clustering of regions and the methodology of multidimensional (taxonomic) forecasting, synthetic quantities are aggregated, which form an integrated level of rural diversification, by constructing a matrix of observations.

Elements of this matrix are quantitative values of the whole set of selected indicators (x_1-x_4 , x_5-x_7 , x_8-x_{12} , $x_{13}-x_{14}$, $x_{15}-x_{17}$, $x_{18}-x_{19}$, $x_{20}-x_{21}$, $x_{22}-x_{23}$, $x_{24}-x_{26}$, $x_{27}-x_{28}$, $x_{29}-x_{30}$), which are heterogeneous in quantitative

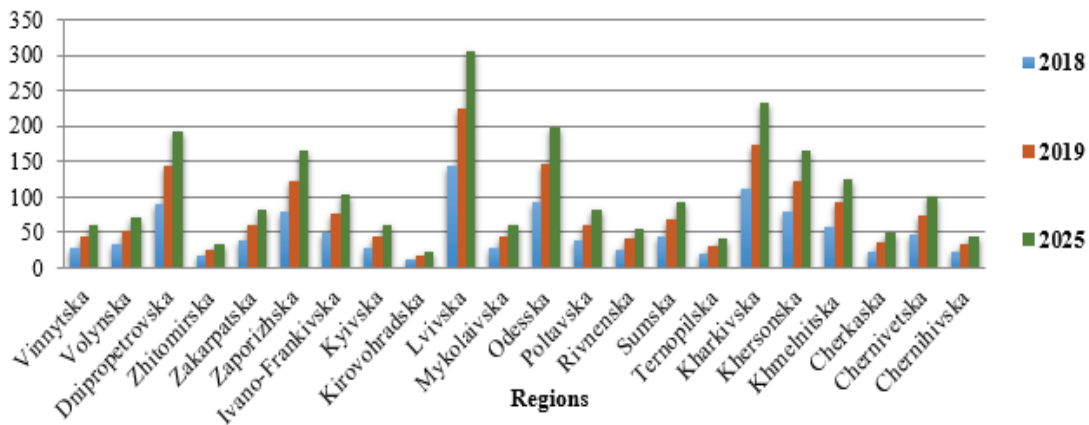


Fig. 6 Forecast of tourist migration of the population of Ukraine by the degree of probable gravitational interaction of tourist flows and objects of green tourism in rural areas (trips for leisure and recreation), on average for 2019-2025, thousand people. Source: calculated by the authors.

value and in units of measurement.

We convert formulas to standardized form (Eq. 10):

$$D_{ik} = \frac{(x_{ik} - \bar{x}_k)}{R_k} \tag{10}$$

where, i – the number of recreational green tourism objects in rural areas in the region; k – indicators of the level of rural diversification in the region; \bar{x}_k – the arithmetic mean of the indicator.

We divide the indicators into stimulants and stimulators to determine the standard presented R_{et} , with the coordinates $k_{01}, k_{02}, \dots, k_{0n}$, (Eq. 11):

$$\begin{aligned} D_{ik} &= \max_i X_{ik}, \text{ if } i \in R_{et} \\ D_{ik} &= \min_i X_{ik}, \text{ if } i \notin R_{et} \end{aligned} \tag{11}$$

where, D_{ik} – the estimated coordinates of the indicator sample R_{et} by a separate component of regional diversification of rural territories in the region; X_{ik} – standardized indicator value x for one.

The complex integrated indicator of regional diversification of rural areas with limited spatial placement of green tourism objects will be (Eq. 12):

$$I_i = 1 - \frac{D_{ik}}{R_{et}}. \tag{12}$$

The predicted interpretation of the calculated integrated indicator is as follows: a single region has a higher level of rural diversification by hosting green tourism objects, when its share in gross regional product per 1.000 people is closest to one (Table 2).

Thus, in 2019, a high level of diversification of rural territories (on average 1934-3485 thousand EUR of gross regional product per 1 thousand people of the region) will be made up of Cluster IV – Ivano-Frankiv'ska, Lviv'ska, Kharkiv'ska, Odessa and Dnipropetrovska regions; according to the target forecast 2025 – an average 5741-7062 thousand EUR (Indicators of Sustainable Development... , 2004).

Cluster III (Kherson'ska, Zaporizh'ska, Khmel'nitska and Chernivetska regions) will belong to the rural area with a higher average probability of gravitational interaction of tourist flows and accommodation of green tourism objects – the level of diversification of rural areas in 2019 will be 101-1663 thousand EUR of gross regional product per 1 thousand people, in 2025 – 3119-5426 thousand EUR.

The average level of rural diversification will be formed by Cluster II (Poltavska, Kyiv'ska, Vinnitska, Mykolaiv'ska, Rivnenska, Ternopil'ska regions). In 2019, the gross regional product per 1.000 people will be 41.3-93.2 thousand EUR; according to the target forecast of 2025 it will be 120.4-238.6 thousand EUR.

Table 1 Components of complex integrated indicator of regional diversification of rural areas with limited spatial location of green tourism objects.

Components	Indicator
Impact of green tourism on the life of the local community	x_1 – the ratio of tourists to locals (average and peak season); x_2 – share of local residents who positively appreciate the contribution of green tourism to life; x_3 – communities, expanding access to new services, building green tourism infrastructure; x_4 – the amount of tourism services that the local community receives through green tourism;
Tourists' satisfaction	x_5 – satisfaction of tourists with rest in green estates in general; x_6 – tourists' satisfaction with the price-quality ratio of green estate tourist services; x_7 – share of tourists who come back to green estates;
Seasonality of the activities of green estates in rural areas	x_8 – number of tourists monthly / quarterly (dynamics of tourist flow volumes during the year) spending leisure time and resting in green tourism objects in rural areas; x_9 – the percentage of officially employed in the rural tourism industry on a monthly basis during the year, or a minimum against the maximum; x_{10} – share of employed in the green tourism industry in rural areas during peak season (month or quarter); x_{11} – share of new green tourism in rural areas opened during the year; x_{12} – the number and proportion of persons permanently employed in green tourism in rural areas as compared to those temporarily employed;
Economic efficiency of the green tourism industry in rural areas	x_{13} – the number of local residents and the ratio of men and women involved in green tourism in rural areas (share of green tourism employed in rural areas in the total employment structure); x_{14} – income from tourism activities of rural green estates and its share in the total income structure of the local community;
Management in the industry of energy in rural areas	x_{15} – consumption of different types of energy per capita (in general and in the field of green tourism in rural areas, person / day); x_{16} – the proportion of green tourism in rural areas that implement energy efficiency programs or use energy-saving technologies; x_{17} – the share of renewable energy sources of green tourism in rural areas;
Access to water resources, water conservation of rural areas	x_{18} – consumption of the rural water territories by green tourism objects: in general and by tourists on average, liters / day; x_{19} – preservation of the rural water territories by green tourism objects: dynamics of reduction of volumes of used water, return and treated waters;
Quality of drinking water in rural areas	x_{20} – proportion of temporary accommodation for tourists in the green countryside of rural areas meeting international drinking water quality standards; x_{21} – frequency of illnesses arising from the consumption of poor drinking water: the number and proportion of tourists who have fallen ill for this reason in green estates;
Wastewater treatment in rural areas	x_{22} – share of untreated sewage; x_{23} – the share of green tourism objects in rural areas with treatment equipment
Processing of solid waste from rural areas	x_{24} – volume of waste produced by recreational green tourism objects in rural areas, t / month; x_{25} – share of recycled waste in the total volume of waste, m ³ ; x_{26} – the amount of garbage disposed in public places in rural areas, units;
Rural development planning	x_{27} – availability of a rural economy development plan, including the green tourism industry; x_{28} – the part of the rural territory where the intensity of the activities of green estates (density of tourist flows, location of green tourism objects) is monitored;
Monitoring the intensity of green tourism development	x_{29} – total number of tourists (average, monthly, in peak season); x_{30} – number of tourists per 1 m ² of green tourism recreational object, per 1 m ² of rural area (average and peak season)

Source: systematized by the authors

Table 2 Clustering of Ukrainian regions and forecasting the level of rural diversification territories in the gravitational interaction of tourist flows and the placement of green tourism objects for 2019 and 2025, thousand EUR.

Cluster type	Gross regional product per thousand people, thousand EUR	Number of regions	Cluster share by level of rural diversification, %	The composition of the cluster
Basic forecast (2019)				
I	23.3-33.3	7	6.5-5.2	Volynska, Zakarpatska, Zhitomirska, Kirovohradska, Sumska, Chernihivska, Cherkaska
II	41.3-93.2	6	11.5-14.5	Poltavska, Kyivska, Vinnytska, Mykolaivska, Rivnenska, Ternopilska
III	101.1-166.3	4	28.2-25.9	Khersonska, Zaporizhska, Khmel'nitska, Chernivetska
IV	193.4-348.5	5	53.8-54.4	Ivano-Frankivska, Lvivska, Kharkivska, Odesska, Dnipropetrovska
Target forecast (2025)				
I	44.2-100.8	7	4.2-6.4	Volynska, Zakarpatska, Zhitomirska, Kirovohradska, Sumska, Chernihivska, Cherkaska
II	120.4-238.6	6	11.5-15.0	Poltavska, Kyivska, Vinnytska, Mykolaivska, Rivnenska, Ternopilska
III	311.9-542.6	4	29.6-34.1	Khersonska, Zaporizhska, Khmel'nitska, Chernivetska
IV	574.1-706.2	5	54.7-44.5	Ivano-Frankivska, Lvivska, Kharkivska, Odesska, Dnipropetrovska

Source: systematized by the authors

Below the average level of rural diversification (in 2019 will amount to 23.3-33.3 thousand EUR of gross regional product per thousand people) is Cluster I, which is formed by Volynska, Zakarpatska, Zhitomirska, Kirovohradska, Sumska, Chernihivska and Cherkaska regions. According to the target forecast for 2025, the volume of gross regional product per 1 thousand people will be equal to the value of approximately 44.2-100.8 thousand EUR. A large part of the regions belonging to the latter group has sufficient natural resources and human potential to increase the tourist migration of the population and significantly increase the objects of green tourism.

4 Conclusions

Thus, the diversification of rural areas necessitates the harmonization of positions on the development of standards for the provision of services in the field of green tourism, the development of the rural economy, the creation of competitive tourism products in rural areas, on the conditions of clear differentiation of their types and adaptation to the requirements and expectations of consumers.

Ensuring efficient and integrated (economic, social and environmental) use of available natural resource and human potential will solve the problem of recreational use and protection of the environment (Rabinskiy and Tushavina 2019), improve the territorial location of green tourism objects, improve their material and household provision through the use of cluster facilities models and public-private partnerships.

In order to restore the intensity of tourist migration in rural areas attractive to tourists, it is necessary to create cross-sectoral coordination and inter-regional cooperation, which would ensure the rational use of recreational resources and increase the efficiency of spending regional and local budgets on environmental goals. At the

same time, the use of financial and economic levers will simultaneously adhere to the principles of sustainable development of rural areas and guarantee the volume of investment in green tourism, while direct economic assistance will allow business entities to introduce preferential rates of taxation, provide subsidies and loans on preferential terms, get grants from international organizations and non-governmental trust funds for the financial recovery of rural business.

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