Comparative Analysis of the Tourist and Recreational Potential of Agglomeration Territories (Using the Regions of the European North of the Russian Federation as an Example)

Anna V. Shpengler⬭, Anastasia A. Sozinova⬭, Anton O. Nikitenko⬭, Yana Yu. Bondareva⬭, and Danil A. Rudakov⬭

Abstract

The research discusses the main approaches to assessing the tourist and recreational potential of territories. The authors identified three groups of indicators, which can serve as the basis for conducting a comparative assessment of the tourist and recreational potential. The proposed integrated approach is based on the point-rating principle and expert evaluation. The authors propose three groups of parameters of the potential for recreation and tourism activities of the territory for the purposes of comparative analysis. The research was carried out to assess tourist destinations located in the zone of the European North of Russia (ENR). The research objects are the subjects of the Russian Federation included in the active zone of the ENR, whose territories are subject to agglomeration processes and urbanization. The scientific novelty of this research lies in applying an integrated approach to assess the tourist and recreational potential of the region and urban agglomeration and identify key indicators of its development. The relevance of this research is determined by the significant role of tourism in developing economic sectors in the agglomerated territory and in the subject as a whole.

1   Introduction

The strategic vector of spatial development, characterized by the stability and sustainability of processes, determines the formation of favorable conditions that have the greatest impact on the result based on the principles of economic, social, and environmental sustainability. Sustainable tourism development requires balancing economic, social, and environmental interests. This point is extremely important for preserving the values of the Russian Federation, particularly cultural and historical values, increasing the comfort of life in the territory, developing effective business relationships, and ensuring healthy competition in the tourism industry. The agglomeration process formed within the European North of Russia (ENR) has a unique natural and cultural-historical potential that creates opportunities and prospects for developing various types of tourism (Kondratieva 2022). Of additional importance and value for the economy as a whole and its individual structural elements in particular is the value-added effect, called the multiplier.

The research aims to assess the development parameters of the potential for recreation and tourism activities of the territory of the subjects of Russia, related to the tourist destinations of the ENR. The research objects are the regions of the ENR, covering a certain part of the Arctic territories of Russia, where the processes of urban agglomeration

A. V. Shpengler · A. A. Sozinova (✉)
Vyatka State University, Kirov, Russia
e-mail: aa_sozinova@vyatsu.ru

A. V. Shpengler
e-mail: av_shpengler@vyatsu.ru

A. O. Nikitenko · Y. Y. Bondareva · D. A. Rudakov
Belgorod State National Research University, Belgorod, Russia

Y. Y. Bondareva
e-mail: Bondareva_ya@bsu.edu.ru

have been formed or are developing. The information base includes the works of Russian and international scientists and statistical data from the Federal State Statistics Service of the Russian Federation (Rosstat).

The scientific novelty of this research is the application of an integrated approach to assess the tourist and recreational potential of the region and urban agglomeration and identify key indicators of its development (Palkina et al. 2023; Schmidt et al. 2016; Savelyeva et al. 2023; Voroshilov 2021).

2 Methodology

The prospects for developing Arctic tourism are the subject of research by various leading Russian and international scholars, who identified and studied the elements of the future development of tourism of the ENR (Kharlampyeva 2016; Lukin 2016; Sevastyanov 2017; Zabaznova et al. 2022).

In a stable economic and political environment, tourism can influence the formation of economic and social advantages and the desire for permanent residence in the territories. The correct direction of efforts to develop the tourism potential of the regions and the creation of favorable conditions for tourism significantly influences the country's social and economic development. In the process of increasing the socio-economic sustainability of territorial development, a certain role is assigned to the tourism market, including the following:

1. Economic contribution and tax revenue: The tourism and hospitality industry could become a growth center for the territory's economy. It helps increase government revenue through taxes and fees on the tourism industry. A large flow of tourists brings significant income to budgets of various levels;
2. Job creation: The development of tourism contributes to the creation of new jobs directly in the tourism sector and in related sectors of the economy (e.g., hotels, restaurants, transport services, small businesses, etc.). This is especially important for remote northern territories, where tourism can become a major source of employment;
3. Development of complementary sectors and industries of the economy (health care, health resorts, trade, public catering, agro-industrial complex, manufacturing industry (food production), etc.);
4. Affects the quantitative and qualitative parameters of the infrastructure of the territory (hotel, transport, sports, trade, etc.);
5. Interregional and intercountry relations: Tourism provides opportunities for the region to participate in interregional and international trade and economic relations. The development of tourism makes it possible to attract external investment and develop foreign economic activity in the region;
6. Multiplier effect: The development of tourism contributes to the growth of other sectors of the economy. For example, growth in tourism demand can contribute to increased consumer lending in the banking sector and stimulate the development of small and medium-sized businesses and other industries (Boldyreva 2018).

The analysis of strategic planning documents for the regions of the ENR made it possible to define the following main areas of activity for developing and improving the regional tourism sector:

1. Enhancing the attractiveness of the proposals of regional tour operators will reduce the share of the shadow market and increase revenues to the regional budget;
2. Developing and improving the road network and the work of customs points will make it possible to develop tourist logistics, provide year-round availability of tourism facilities, and develop inbound tourism;
3. Referring to the second point, it is necessary to note the simplification of the regime for the stay of foreign tourists in the border zones of some regions (e.g., in the Republic of Karelia in the case of comforting intercountry relations;
4. Ensuring close cooperation between municipalities and developing an inter-municipal network of tourist routes will create unique routes through the territory of urban agglomerations and increase the attractiveness of little-known and unclaimed objects in tourism;
5. Improving the communal infrastructure will increase the number of accommodation and public catering facilities on the territory of the constituent entities;
6. Maximizing infrastructure facilities and boosting tourism development in the region will help increase the number of tourists and jobs. As a result, the population's quality of life will improve, and the volume of revenues to the regions' budget will increase.

The formation of a model of sustainable growth of the tourism industry in the ENR regions will require consolidation of efforts at the strategy level and joint interaction between government officials and business representatives to achieve long-term development goals for the regions of the ENR. The study of the territorial features of the tourist market formation and development of municipalities is a relevant direction of the regional social and economic policy of the regions and urban agglomerations. The monitoring of the main indicators is carried out on an ongoing basis, as well as the rating of territories according to the

main parameters of tourism development. The latter is one of the most common tools to assess the tourism and recreational sphere of territories, which makes it possible to grade market leaders to outsiders. In general, it is worth noting that the ratings have a certain effect on the formation of tourist interest and their preferences and stimulate the attraction of investors to the regional tourism field. The analysis of the works of Russian scientists allows us to conclude that there are methods generally recognized by the scientific community and proprietary methods. For example, V. N. Myakshin, A. E. Shaparov, and D. V. Tikhanova note the limitations in the expert approach on which the rating is based. Others offer their own approaches to calculating the region's tourism potential (Orlova 2017, 2021).

Based on the methodology of systemic and structural–functional analysis by N. Leiper, a team of scientists proposed an assessment of the tourism potential of the regions of the Arctic zone of Russia (Myakshin et al. 2021). The positions of the tourist rating of the ENR regions are assessed (Kondratieva 2022).

The research objects are the regions of the ENR. The main features of this geographical location are determined by the large front of the water area and the presence of large ports, which explains the favorable economic and geographical position (EGP) of the region. The ENR includes the Republic of Karelia, the Komi Republic, the Arkhangelsk Region, the Yamal-Nenets Autonomous Area, the Vologda Region, and the Murmansk Region.

Based on the considered methods, the authors proposed to assess the potential for recreation and tourism activities of the territory based on the use of a point-rating approach and analysis of the following groups of parameters:

1. Group M—material heritage of the territory, including the following:
   - M1—objects of cultural significance at the federal level, units;
   - M2—objects of cultural significance at the regional level, units;
   - M3—UNESCO cultural sites, units;
   - M4—museums, units;
   - M5—cultural events on site, units.
2. Group N—natural factors of the territory:
   - N1—specially protected natural territories (PAs) of federal significance, units;
   - N2—PAs of regional significance, units;
   - N3—UNESCO sites with the status of natural significance, units;
   - N4—the share of pollutants emitted into the atmosphere from stationary sources;
   - N5—environmental quality.

3. Group Q—qualitative and quantitative indicators of tourism infrastructure:
   - Q1—the number of travel companies, units;
   - Q2—the number of collective accommodation facilities (CAF), units;
   - Q3—the number of places in the CAF, beds;
   - Q4—the quality of the urban environment.

In the process of calculations, absolute values (abs) were used for each parameter of the study.

The methodology was tested in the ENR regions and in the Petrozavodsk urban agglomeration.

3 Results

The stages of the proposed approach to assess the tourist and recreational potential are as follows:

1. In the first stage, groups of criteria for assessing the tourist and recreational potential and their constituent indicators (groups M, N, and Q and the corresponding criteria M1–M5, N1–N5, and Q1–Q4) are determined;
2. In the second stage, absolute indicators ("abs") of tourism development in the territory of the studied regions of the ENR are calculated;
3. In the third stage, the step is calculated to determine the range of indicators. The degree of potential of each region will be examined on a five-point scale. To assign a scoring indicator, it is necessary to calculate the "Range" of the absolute values of each criterion. For this purpose, it is required to determine the "Step." Then, the ratio of the difference and the number of points on the assessment scale is calculated;
4. In the fourth stage, the ranges are found for the indicators M, N, and Q. The range of assigning a scoring value is set as the sum of the smallest "abs" and "Step." Next, the resulting number is summed up with the "Step" for each of the five points. Based on the "abs" indicator, a score is assigned to each criterion in accordance with the rating scale and "Range";
5. In the fifth stage, the weight coefficients are determined ("Wij," where i is a group of evaluation parameters and j is the corresponding criterion), reflecting the importance and advantage of one criterion over others. To assign "v.k.," we will use the method of peer review, which we will present as a survey for experts in the field of tourism. The survey's purpose is to identify the importance of each proposed criterion on a scale from 1 to 10, where 10 is the highest score;
6. In the sixth stage, the final indicator for each group of criteria is determined;

7. In the seventh stage, the total final indicator is calculated as the sum of all final values for each of the criteria groups M, N, and Q;

8. In the eighth stage, the contribution of the agglomeration to the formation of the tourist and recreational potential of the region is assessed.

During the first stage, we defined the groups of assessment parameters: Group M—the material heritage of the territory, including criteria M1–M5; Group N—natural factors of the territory, including criteria N1–N5; and Group Q—qualitative and quantitative indicators of the tourist infrastructure, including criteria Q1–Q4.

Next, during the second stage, the authors systematized and calculated the values of the indicators of each group in the framework of the studied territories based on open data (Table 1).

During the third stage, the authors determined step sizes in the context of all evaluation parameters. Next, switching to the fourth stage, the authors determined the ranges for indicators M, N, and Q.

The calculation results for Stages 3 and 4 are presented in Table 2.

During the fifth stage, the weight coefficients ("Wij") were determined using an expert survey of tourism specialists from different regions and scientists specializing in this field of research. The weight coefficients in the context of criteria groups were as follows:

- Group M: $W_{M1} = 0.2$; $W_{M2} = 0.1$; $W_{M3} = 0.3$; $W_{M4} = 0.2$; $W_{M5} = 0.2$.
- Group N: $W_{N1} = 0.2$; $W_{N2} = 0.1$; $W_{N3} = 0.3$; $W_{N4} = 0.2$; $W_{N5} = 0.2$.
- Group Q: $W_{Q1} = 0.4$; $W_{Q2} = 0.1$; $W_{Q3} = 0.2$; $W_{Q4} = 0.3$.

During the sixth stage, the authors carried out calculations among all presented territorial units for the development of tourism and determined the final indicator for each group of criteria (Fig. 1).

During the seventh stage, the authors counted the overall final indicator as the sum of all final values for each of the criteria groups M, N, and Q. The obtained results are as follows:

- Republic of Karelia—3.9;
- Komi Republic—2.8;
- Arkhangelsk Region—3.7;
- Yamal-Nenets Autonomous area—1.8;
- Murmansk Region—2.6;
- Vologda Region—3.2.

In the final, eighth stage, using the example of the leader of the rating, the Republic of Karelia, the authors consider

Table 1 Summary values of indicators of the potential for recreation and tourism activities of the territory of the ENR

Regions	Values of the parameters of the tourist and recreational potential of the territory				
	Group M—tangible heritage of the territory				
	M1	M2	M3	M4	M5
Republic of Karelia	4200	3451	2	35	11
Komi Republic	337	673	0	49	8
Arkhangelsk Region	4340	1550	1	62	12
Yamal-Nenets Autonomous District	16	198	0	5	0
Murmansk Region	57	366	0	32	8
Vologda Region	716	1720	1	86	10
Regions	Group N—natural factors of the territory				
	N1	N2	N3	N4	N5
Republic of Karelia	10	147	0	113.62	111.32
Komi Republic	7	238	1	450.89	79.03
Arkhangelsk Region	8	100	0	150.93	85.63
Yamal-Nenets Autonomous District	2	12	0	10.,02	123.74
Murmansk Region	12	62	0	242.92	110.99
Vologda Region	4	172	0	428.67	114.81
Regions	Group Q—qualitative and quantitative indicators of tourism infrastructure				
	Q1	Q2	Q3	Q4	–
the Republic of Karelia	11,571	146	293	9	–
Komi Republic	7631	102	136	8	–
Arkhangelsk Region	13,077	141	196	11	–
Yamal-Nenets Autonomous District	287	2	10	10	–
Murmansk Region	9684	108	188	8	–
Vologda Region	14,738	128	265	9	–

Source Compiled by the authors based on Rosstat (2022) and Open Data Portal of the Ministry of Culture of the Russian Federation (2023)

what contribution to the tourist and recreational potential is made by the Petrozavodsk urban agglomeration, which includes three municipal districts (periphery of the agglomeration): Kondopoga, Pryazhinsky, and Prionezhsky districts and the core of the agglomeration—the city of Petrozavodsk. On this basis, the authors analyzed the tourist and recreational potential of these territories (in the context of parameters identified by statistical accounting for municipalities) and determined the share of the agglomeration contribution to the resulting indicator.
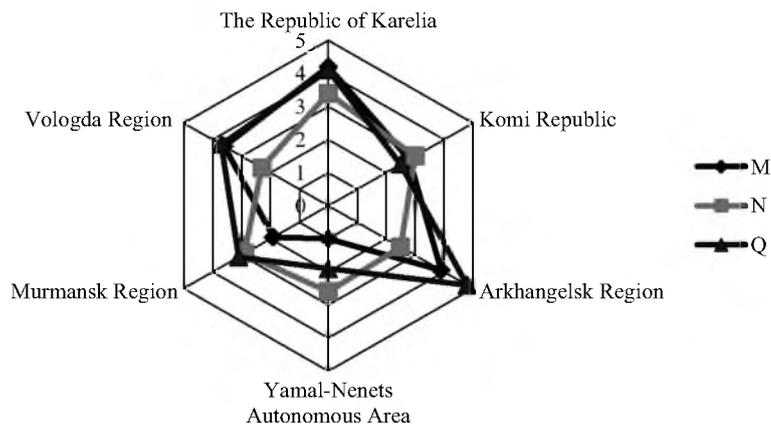
The contribution of the Petrozavodsk urban agglomeration to the absolute indicators of group M was:

Table 2 Determination of the step and range of assessment in terms of M, N, Q

The algorithm for assigning points for each indicator according to the ranges and steps in the group M

M1 Point	Range	Step	M2 Point	Range	Step	M3 Point	Range	Step	M4 Point	Range	Step	M5 Point	Range	Step
1	16–880.8	864.8	1	198–848.6	651	1	0–0.4	0.4	1	5–21.2	16.2	1	0–2.4	2.4
2	880.8–1745.6	864.8	2	848.6–1499.2	651	2	0.4–0.8	0.4	2	21.2–37.4	16.2	2	2.4–4.8	2.4
3	1745.6–2610.4	864.8	3	1499.2–2149.8	651	3	0.8–1.2	0.4	3	37.4–53.6	16.2	3	4.8–7.2	2.4
4	2610.4–3475.2	864.8	4	2149.8–2800.6	651	4	1.2–1.6	0.4	4	53.6–69.8	16.2	4	7.2–9.6	2.4
5	3475.2–4340	864.8	5	2800.4–3451	651	5	1.6–2	0.4	5	69.8–86	16.2	5	9.6–12	2.4

Scoring algorithm for each indicator according to ranges and steps in group N

N1 Point	Range	Step	N2 Point	Range	Step	N3 Point	Range	Step	N4 Point	Range	Step	N5 Point	Range	Step
1	2–4	2	1	12–57.2	45.2	1	0–0.2	0.2	5	100.02–170.194	70.174	1	79.03–87.964	8.934
2	4–6	2	2	57.2–102.4	45.2	2	0.2–0.4	0.2	4	170.194–240.368	70.174	2	87.964–96.898	8.934
3	6–8	2	3	102.4–147.6	45.2	3	0.4–0.6	0.2	3	240.368–310.542	70.174	3	96.898–105.832	8.934
4	8–10	2	4	147.6–192.8	45.2	4	0.6–0.8	0.2	2	310.542–380.716	70.174	4	105.83–114.766	8.934
5	10–12	2	5	192.8–238	45.2	5	0.8–1	0.2	1	380.716–450.89	70.174	5	114.76–123.7	8.934

Algorithm for assigning points for each indicator according to the ranges and steps in group Q

Q1 Point	Range	Step	Q2 Point	Range	Step	Q3 Point	Range	Step	Q4 Point	Range	Step	– Point	–	Step
1	287–3177.2	2890.2	1	2–30.8	28.8	1	10–66.6	56.6	1	8–8.6	0.6	–	–	–
2	3177.2–6067.4	2890.2	2	30.8–59.6	28.8	2	66.6–123.2	56.6	2	8.6–9.2	0.6	–	–	–
3	6067.4–8957.6	2890.2	3	59.6–88.4	28.8	3	123.2–179.8	56.6	3	9.2–9.8	0.6	–	–	–
4	8957.6–11,847.8	2890.2	4	88.4–117.2	28.8	4	179.8–236.4	56.6	4	9.8–10.4	0.6	–	–	–
5	11,847.8–14,738	2890.2	5	117.2–146	28.8	5	236.4–293	56.6	5	10.4–11	0.6	–	–	–

Source Compiled by the authors based on their own calculations

Fig. 1 The results of calculating the summary ratings of potential for recreation and tourism activities of the territory of the ENR regions in the context of indicator's groups. *Source* Compiled by the authors

M1—1.21%, M2—25.3%, M3—0%, M4—43%, and M5 —55%; group N: N1—10%, N2—35%, N3—0. The contribution to N4 and N5 cannot be estimated due to the lack of statistical data (the results of the calculations).

The contribution of the Petrozavodsk urban agglomeration to the indicator for group Q (qualitative and quantitative indicators of the tourist infrastructure) was assessed in accordance with financial indicators for OKVED 55—43.8%. However, the figure fell by 7% in 2020–2022. According to OKVED 77, the contribution of Petrozavodsk urban agglomeration in 2022 is estimated at 33.5% (− 1.8% compared to 2020).

4 Discussion

Based on the results of the analysis of the regional tourist and recreational potential of the ENR, the following conclusions can be drawn:

1. The study of the first group of parameters M (Material heritage) showed that the Republic of Karelia has the greatest absolute benefit, which is explained by the large number of cultural monuments in comparison with other ENR regions and the presence of several UNESCO sites on its territory. The next in the ranking are the neighboring Arkhangelsk and Vologda Regions. They also have a fairly high potential for the material heritage of the territory, which is of particular importance for developing cultural and educational tourism.

2. The study of the second group of parameters N (Natural factors) showed that the leader of the rating in the ENR is the Republic of Karelia, known for its magnificent natural landscape, lakes, mountains, forests, and rivers, which create perfect conditions for developing nature and extreme tourism. The Komi Republic is a region also known for its natural wealth. Additionally, among all studied territories, the Komi Republic is the only region

that can boast of having a UNESCO monument of natural significance. A significant disadvantage is that the share of emissions of air pollutants is very high on the territory of the Komi Republic, even compared to other regions.

3. The study of the third group of parameters Q (Quality and quantity of infrastructure) showed the leading region of the Arkhangelsk Region. Compared to other studied areas of the ENR, it has the highest level of quality of the urban environment. The next in the ranking is the Republic of Karelia, which is confirmed by the largest number of travel companies. Additionally, the Republic of Karelia has a high indicator of the quality of the urban environment.

4. An evaluation of the integrated rating of the tourist and recreational potential of the EN territories showed that the Republic of Karelia has the greatest potential for the development and creation of tourism activities. The top three potential leaders also included the Arkhangelsk and Vologda Regions.

5. The analysis results of contribution indicators of the Petrozavodsk urban agglomeration to the tourist and recreational potential of the region territory allow us to conclude that many values are insignificant.

5 Conclusion

The analysis of the territorial tourist and recreational potential of the ENR confirmed the relevance of the selected parameters that affect the level of tourism development in the region. As the results showed, the score-rating assessment made it possible to define the interaction of various groups of parameters and their contribution to tourism development in the territory. The method proposed by the authors makes it possible to conduct a comparative assessment of the general parameters for which a quantitative assessment and uniformity of measurements are available.

The advantage of this analysis method is its simplicity and availability for use.

The practical significance of this analysis is the ability to consider its results when making decisions by the regional authorities regarding positioning tourist destinations in the eyes of potential tourists. Annual monitoring will provide the ability to track dynamic changes in the rating of territories on a spatial map.

Most notably, the development of agglomeration relations has a small effect on the existing territorial tourist and recreational potential. However, the prospect of forming agglomerated territories provides for constructing competitive markets for services and goods that affect the tourist attractiveness of the territory. Therefore, tracking the dynamics of modifications in the contribution of agglomerations to the indicators of tourism recreational potential is undoubtedly an important area of social and economic analysis of territories.

References

Boldyreva, S. B. (2018). The role of tourism in the factors system of socio-economic development of the region. *Journal of Volgograd State University. Economics*, 20(4), 77-89. https://doi.org/10.15688/jvolsu3.2018.4.8

Federal State Statistics Service of the Russian Federation (Rosstat). (2022). *Regions of Russia: Socio-economic indicators—2022*. Retrieved from https://rosstat.gov.ru/bgd/regl/b21_14p/Main.htm (Accessed 23 January 2023)

Kharlampyeva, N. K. (2016). Theory and methodology of the Arctic tourism development. *Arctic and North*, 23, 124-129. https://doi.org/10.17238/issn2221-2698.2016.23.124

Kondratieva, S. V. (2022). Tourism development in the regions of the European North. *Arctic and North*, 47, 164-187. https://doi.org/10.37482/issn2221-2698.2022.47.164

Lukin, Yu. F. (2016). Arctic tourism: The rating of regions, the opportunities and threats. *Arctic and North*, 23, 96-123. https://doi.org/10.17238/issn2221-2698.2016.23.96

Myakshin, V. N., Shaparov, A. E., & Tikhanova, D. V. (2021). Improving the assessment of the tourism potential of the Russian Arctic. *Economy of Regions*, 17(1), 235-248. https://doi.org/10.17059/ekon.reg.2021-1-18

Open Data Portal of the Ministry of Culture of the Russian Federation. (n.d.). *Information from the Unified State Register of Cultural Heritage Objects*. Retrieved from https://opendata.mkrf.ru/opendata/7705851331-egrkn (Accessed 22 January 2023)

Orlova, V. S. (2017). Arctic tourism is an innovative impetus for the development of the EN. *Intelligence. Innovation. Investments*, 4, 40-43.

Orlova, V. S. (2021). The potential of tourism and recreation in the EN: assessment and directions of development in the conditions of Arctic exploration. Economic and Social Changes: Facts, Trends, forecast, 14(1), 141-153.

Palkina, M. V., Savelyeva, N. K., Kostennikov, A. I., & Ivanova, M. V. (2023). Investment Risks of a Depressed Region in the Context of the Sustainable Development Paradigm. In Smart Green Innovations in Industry 4.0 for Climate Change Risk Management (pp. 95–104). Cham: Springer International Publishing.

Schmidt, A.V., Antonyuk, V. S., & Alberto, F. (2016). Urban agglomerations in regional development: theoretical, methodological and applied aspects. *Economics of the Region*, 12(3), 776-789.

Sevastyanov, D. V. (2017). Arctic tourism and recreational nature management is a new vector of development of the northern territories. *Russia in the Global World*, 10(33), 75-88.

N. K. Savelyeva, A. A. Sozinova, T. V. Makarova [etc.] (2023) Regulatory and legal problems of regulating the creation and activities of agglomerations at the regional level. *Economics, entrepreneurship and law*. V. 13, No. 3., 733-746. https://doi.org/10.18334/epp.13.3.117394. – EDN DITEKR.

Voroshilov, N. V. (2021). Development of urban agglomerations in the European North of Russia. *Federalism*, 26(4), 54-74. https://doi.org/10.21686/2073-1051-2021-4-54-74

Zabaznova, T. A., Akopova, E. S., Sozinova, A. A., & Sofiina, E. V. (2022). The benefits of reconstructive agriculture for food security and rural tourism in present and future: Innovations and sustainable development. In E. G. Popkova, & B. S. Sergi (Eds.), *Sustainable agriculture: Circular to reconstructive* (Volume 2) (pp. 207–213). Singapore: Springer. https://doi.org/10.1007/978-981-19-1125-5_24