Ways of developing tourism logistics in the far north of Russia

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Abstract. The paper describes the current state of national and international tourism in the Karelian Republic. The authors outline the possible ways of further development of tourism in this region, as well as the ways of attracting both national and international tourists to the region, which is important for the national image. The analysis of the current situation shows that at present there is no adequate infrastructure in Karelia that could satisfy the tourists’ needs. The paper discusses the infrastructure of this Arctic region and highlights the main indicators and factors characterizing the touristic field. The authors propose an algorithm and a model for tourism development in Karelia - the subarctic region of the Russian Federation.

1. Introduction

The countries of the Far North are often associated with houses and streets drowning in snow on a polar night, strong cold wind and blizzards. The word “Arctic” brings up the image of endless ice stretches with polar bears stalking along, and the sky illuminated by Aurora Borealis. These territories seem frozen and mysterious to us, like a distant kingdom of the Snow Queen. Perhaps this is why tourism in the northern regions began to develop relatively recently, about fifty years ago. Tourism in such countries as Iceland, Greenland, Sweden, Norway, Finland, was not developed then, and their original culture and traditional lifestyles of indigenous people were almost inaccessible for international tourists.

Today, these countries thrive on the system of well-organized tourism, which contributes not only to the preservation of local culture, but also to its development. The share of domestic tourism in these countries accounts for 80–90% of the tours. Folklore festivals are organized regularly for tourists to enjoy the beauty of local rituals and works of musical and literary art, souvenirs representing traditional life and customs are made, new touristic routes are being developed, and new types of tourism are emerging.

In the Russian Federation, vast territories are located in the Arctic and subarctic regions [1]. The development of these territories is a priority task for our country [2], [3]. Being part of these territories, Karelia attracts tourists with its unique nature: a large number of rumbling waterfalls, rivers and streams, lakes and swamp lakes, and the proximity of Karelia for the residents of the North-West and Central regions of our country.

The main objective of this study is to design an algorithm modeling the development tourism in the subarctic Russian region - Karelia, taking into account the experience of tourism development in circumpolar countries [4].
2. Methods and data

Methods of research: a systematic approach, comparative analysis, synthesis, deduction, the feasibility study of the algorithm for the development of the tourism sector.

The study is based on the statistical data. The qualitative data obtained from expert surveys made it possible to provide quantitative information.

The development of tourism in Karelia has more prospects than in other northern regions of our country, due to a more favorable climate and the proximity of St. Petersburg - the second largest city in the country, which is located only 160 km to the border with Karelia. The proximity of Finland is also an important factor, in terms of an increasing number of tourists from this country.

Having studied a large amount of relevant information during the study, the authors propose an algorithm for the effective development of the tourism sector in Karelia and, consequently, for increasing the revenues from tourism sector. The algorithm is presented as a set of measures which allow us to achieve our goals, and includes the following stages:

1) The development of an integrated reference information system on the natural, historical and cultural landmarks of Karelia. (To do this, it is necessary to use electronic resources so that a tourist could book a bus ticket, a train, an excursion, etc).

2) The development of excursion programs and routes for various categories of tourists. (It is necessary to separate summer and winter types of tourism. In winter, it implies the construction of ski slopes and development of all types of winter and summer fishing for fishermen; sports and water tourism).

3) The development of the infrastructure to provide good service for tourists. (First of all, it implies building new roads (preserving unique pine forests); power supply networks, water supply, waste treatment facilities, quay, etc).

4) Providing high quality service on each touristic route. (It implies creating new jobs, improving the quality of service in all sectors of tourism, training new personnel).

5) The development of a basic strategy to promote the national image of Karelia. (It implies producing national souvenirs, costumes, food, needlework, etc).

6) Ensuring transport accessibility for tourists from other countries and regions (air travel, trains, comfortable buses, water transport).
7) The renovation of existing and construction of new tourist facilities. (It implies ensuring the availability of comfortable hotels; developing leisure and entertainment facilities, catering facilities, etc).

8) The reduction of transport costs (airplane, water, train) and accommodation costs.

9) The establishment of partnerships with the regions, cities, tour operators (educational tourism; tourist exchange).

10) Ensuring revenues to the local budget from well-organized tourism in the region. (The implementation of the model will bring in an increased tax revenues as well as new investment).

However, all these developments should take into account the unique nature of this region, and regulate the scale of touristic activities.

For the development of the tourism sector in Karelia, we propose a generalized model in the form of the system of equations [5]:

\[
\begin{align*}
y^1_t &= f(y^1_{t-1}, y^2_t, x^1_t, x^2_t, x^3_t, x^4_t, x^5_t) \\
y^2_t &= f(y^1_{t-1}, y^2_t, x^3_t, x^4_t, x^6_t) \\
y^3_t &= f(y^3_{t-1}, y^4_t, y^1_t, x^3_t, x^4_t, x^6_t, x^7_t) \\
y^4_t &= f(y^4_{t-1}, y^2_{t-1}, y^3_{t-1}, x^2_t, x^4_t, x^7_t)
\end{align*}
\]

in which endogenous and exogenous factors are the following:

- \(y^1_t\) - share of the tourism sector in the GRP of Karelia in the year \(t\);
- \(y^2_t\) - share of export of the republic tourist services in the total export of tourist services of the Russian Federation in the year \(t\);
- \(y^3_t\) - share of tourist services provided in the region in the total volume of tourist services of the Russian Federation in the year \(t\);
- \(y^4_t\) - number of hotels and catering services in the region;
- \(x^1_t\) - number of employees with higher education in the tourism sector in the region;
- \(x^2_t\) - number of universities in the region;
- \(x^3_t\) - cost of fixed assets in the tourism sector of the region;
- \(x^4_t\) - investment in the tourism sector of the region;
- \(x^5_t\) - electricity costs;
- \(x^6_t\) - income level of the population in the region;
- \(x^7_t\) - level of the population in the country.

3. Results

3.1. Theoretical aspects of the study

New tourist routes are developed every year by thousands of travel agencies around the world. Today, it is difficult to surprise tourists with something new, but there are still some exciting places that make them come there again and again. Therefore, it is important to develop the optimal route there with the minimal costs. Tourism is a very broad concept, and it includes such sectors as transport, catering, housing, recreation, cultural sectors, as well as construction, health, communications, trade, etc [6].

In many countries, tourism is one of the main economic sectors, which rapidly develops and has important social and economic importance [7], due to the following facts: a) it increases local income, creates new jobs, thereby ensuring an increase in the standard of living of the local population; b) it develops all types of activities related to tourist services; c) it develops social and industrial infrastructure in tourist centers; d) it activates the folk craft and develops authentic culture; e) it increases inflow of foreign currency.

About 0.2% of the world population lives in the Arctic. The entire territory of the Arctic land is divided between the seven Arctic countries, i.e. Russia, Canada, Iceland, Norway, Denmark (Greenland), the USA (Alaska), Finland (with its northern territories close to and beyond the Arctic Circle), each of which takes a share in all-arctic production [8, 9].
In Russia, the main negative factor in the development of tourism in the Arctic is the lack of infrastructure. Tourism in the Arctic was not developed in the Soviet times and in modern Russia. There were only polar stations in the Far North, as well as the defense objects. Tourism in the Russian Arctic began with the development of the Russian Arctic Park in 2011 [10, 11,12].

Karelia, and the Russian North as a whole, is a land full of amazing mysteries, a land of forests, lakes and rivers. There are more than 60,000 lakes and 27,000 rivers on the territory of the republic, including two of the largest lakes in Europe - Onega and Ladoga. The capital of Karelia, Petrozavodsk, is a port of five seas [13]. Karelia ranks third in our country in terms of attractiveness for tourists.

Over the past 5-7 years, serious measures have been taken to promote tourism in Karelia: a new highway has been built connecting the large cities St. Petersburg - Sortavala - Petrozavodsk; many monuments of history, architecture, monuments of the war have been renovated. Travel agencies have developed new bus excursions to Lahdenpohja, Sortavala, Ruskeala. This results in the creation of new jobs and restoration of folk crafts, and, consequently, an increasing number of tourists.

Table 1. Number of tourists in the Republic of Karelia according to expert estimates for 2016-2018’

| Indicator                        | 2016 | 2017 | 2018 |
|----------------------------------|------|------|------|
| Number of organized tourists,    |      |      |      |
| thousand people                  | 760  | 780  | 800  |
| Number of independent tourists,  |      |      |      |
| thousand people                  | 456  | 507  | 520  |

Source: Investment portal of the Republic of Karelia [http://kareliainvest.ru/republic-for-investors/projects/turizm/](http://kareliainvest.ru/republic-for-investors/projects/turizm/)

The historical and cultural uniqueness of Karelia is determined by the cultural heritage of four indigenous peoples, i.e. Karelians, Finns, Vepsians and Russians, who created an authentic culture over the centuries of living on these lands [14].

Figure 2 - Rock carvings - petroglyphs in the northern part of the republic
Table 2. Tourist traffic in Karelia (current state and forecast taking into account new construction projects), thousand people

| Toursists                          | 2015 (actual for 2014) | 2016 | 2017 | 2018  | 2019  |
|------------------------------------|------------------------|------|------|-------|-------|
| Excursion tourism (regular excursions) | 420,0                  | 510,0| 630,0| 700,0 | 700,0 |
| Excursion tourism (helicopter excursions) | 5,5                    | 5,5  | 11,0 | 15,0  | 20,0  |
| Ecotourism                         | 105,3                  | 125,0| 210,6| 210,6 | 210,6 |
| Sports tourism                     | 104,2                  | 125,0| 135,5| 203,2 | 450,0 |
| Total                              | 635,0                  | 765,5| 987,1| 1128,8| 1380,6|

A source: [13]

3.2. International experience of generating tourist traffic to the Arctic countries

Each country with its own piece of the Arctic is trying to attract more tourists into it. There are various ways of estimating tourist traffic in different countries. Some countries take into account the number of arrivals at the border. Whatever method is used it is indisputable that the number of tourists in the northern circumpolar region is rapidly increasing.

Some northern countries experienced a real tourist boom from 1980 to 2010, with Denmark being the most popular country then. Early 1990s saw the rapid growth of tourist trips to Greenland, since there one can see one glacial fjords with hundred-meter icebergs, the most amazing landscapes of the planet. In 1987 there were only 3300 tourists [15], in 1990 - 5000 people, in 1995 - 14000 people, and in 2002 - 32000 people.

For the period from 1991 to 2001 the number of tourists in Alaska doubled [16] and has been growing since then. Northern Scandinavia is visited by an average of 500,000 tourists a year [17]. The most rapidly developing country of northern tourism is Iceland, which receives an average of 250,000 tourists a year [According to the Federal State Statistics Service Available from: http://www.gks.ru/bgd/regl/B11_04/Iss www.exe/Stg/d08/3-turizm-tab.htm].

The Arctic territory of Norway includes three provinces - Nordland, Troms and Finnmark on the mainland, and the Svalbard archipelago and the island of Jan Mayen. To estimate a number of tourists there, they take into account guest nights. The number of guest days spent in Norway by foreign tourists in 2013 amounted to 5 million, of which 11% were tourists from Germany, 14% from Sweden, 9% from Denmark. The total number of guest nights amounted to 20 million. It is important to note that in Norway there is a state incentive for the enterprises of tourism sector to develop innovative high-quality products and services that are in demand in the market.

The United States hardly has any government regulation of the tourism industry. About 95% of the enterprises operating in this industry are small businesses, and tourism sector is not taken as seriously by the government as, for example, high-tech industry[18]. Tours to the Arctic regions are not very popular in terms of domestic tourism, and Americans themselves prefer to explore the Arctic in other countries.

In Canada, the situation in tourism is different. The responsibility for tourism is taken by the Canadian Tourism Commission, which was established in 1995 and includes the tourism departments in all provinces (territories). Canada has a widespread system of partnerships in tourism sector between business and local communities with the participation and support of the Canadian Government.
Table 3  International tourism of circumpolar countries (number of arrivals) for 1996-2017.

| The country               | 1996   | 2000    | 2010    | 2015    | 2017    |
|--------------------------|--------|---------|---------|---------|---------|
| Denmark, number of tourists | -      | 3535000 | 9425000 | 10424000 | 11743000 |
| Iceland, number of tourists | 190000 | 265000  | 494000  | 998000  | 2225000 |
| Canada, number of tourists | 16936000 | 19422000 | 15738000 | 16537000 | 20798000 |
| United States, number of tourists | 43318000 | 48518000 | 55261000 | 75010000 | 76941000 |
| Norway, number of tourists | 2880000 | 3200000 | 4350000 | 4855000 | 6252000 |
| Finland, number of tourists | -      | 2456000 | 3430000 | 2622000 | 3180000 |
| Russia, number of tourists | 10456000 | 18900000 | 21369000 | 32421000 | 24390000 |

Source: compiled by the authors according to https://knoema.ru/atlas/topics/%D0%A2%D1%83%D1%80%D0%B8%D0%B7%D0%BC

Tourism significantly contributes to the development of the local economy, raising the social and cultural level of the local population. In Canada, Iceland, Greenland, Norway (Svalbard) tourism has become one of the main sources of income. Since 1998, tourism revenues in the Yukon (Canada) account for 22% (about 164 million Canadian dollars) of the total income; the tourism industry provides 1,900 jobs (11% of the total) annually. In Iceland, tourism brings 13% of external income and provides 5,400 jobs annually. In Greenland, the revenue from tourism is DKK 19 million annually [According to Rosstat Available from: http://www.gks.ru/bgd/regl/B11_04/Iss www.exe/Stg/d08/3-turizm-tab.htm].

4. Discussion

It is obvious that the uncontrolled tourism development, which aims to quickly make a profit, has negative consequences, since it harms the environment, the local community and destroys the sustainable development of the region.

Tourism in Karelia is in high demand in Russia and worldwide. Scientifically based approaches to tourism management, introduction of program-targeted methods in the state regulation of tourism have significantly increased the competitiveness of Karelian tourism sector.

The tourism industry of Karelia has certain investment attractiveness. In recent years, numerous investment projects for the construction of tourism facilities and infrastructure have been implemented.

Obviously, the issues considered in the study are quite relevant. The authors have achieved the following results:

1) the main problems of tourism development in the Arctic territories are highlighted;
2) the analysis of the international experience in the development of active tourism in some circumpolar countries is conducted (with the view of using these prospects in Russia);
3) current trends and prospects for the development of tourism in the Arctic zones of Russia (the Republic of Karelia) are reviewed;
4) the algorithm with a set of measures has been developed to increase the revenues from tourism sector in this region.

It is proven by the international experience that the implementation of the measures indicated in the model can increase the tourist traffic by 15-17%.
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