

UNIVERSITY OF TARTU
Pärnu College
Department of Tourism Studies

Kirill Vasilev

**IMPACT OF SUSTAINABLE DEVELOPMENT
MANAGEMENT ON ATTRACTIVENESS OF TOURISM
DESTINATION: CASE OF RUSSIAN ARCTIC**

Master thesis

Supervisor: Monika Kumm, PhD

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Recommendation for permission to defend thesis

(digitally signed)

Monika Kumm

Permission for public defence

The programme director, Pärnu College of the University of Tartu

(digitally signed)

Tomáš Pavelka

This Master thesis has been compiled independently. All works by other authors used while compiling the thesis as well as principles and data from literary and other sources have been referred to.

(digitally signed)

Kirill Vasilev

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INTRODUCTION

The image of tourism destination is based on cognitive perception of “the attractions to be seen, expected experiences to remember, and to the general environment of the destination” (Arabadzhyan et al., 2021, p. 2). Some of them, such as geographic location, climate, cannot be changed, some of them are regulated, and depend on local stakeholders. As it is impossible to change predetermined factors, regulated factors go to the first side when talking about tourism development. But such development can cause damage to environment (Holden, 2008 p. 113). This can damage the predetermined factors, and decrease attractiveness of the destination. This is the reason why sustainable development in tourism comes to the first side in any destination.

Environmental pollution has become very actual nowadays, and every year more and more attempts are held to minimize the damage to the planet caused by humanity. To realize the size of the problem let’s count that our planet is one year old, then humanity exists for only 37 minutes and in the last 0.2 seconds used 33% of all natural resources of the Earth (The World Counts, n.d.). Hospitality and tourism industry plays a key role in pollution of the planet and overconsumption of resources (Garcés-Ordóñez et al., 2020, p. 7). In this regard, more and more destinations began to refer to the concept of sustainable development with the purpose of applying the principles of stability to minimize destructive effect on the environment (Streimikiene et al., 2021, p. 262).

The importance of environmental approach in tourism has formed the need in sustainable development (or environmental quality management). Testing the effectiveness of such organizational structures show that it positively affects the attractiveness and tourism performance of the destination (Özyurt & Kantarcı, 2017, p. 100). Further, it also has a stabilizing effect during periods of crisis: Cavero-Rubio and Amoros-Martínez (2020, p. 771) showed that at the moment economic crisis sales, financial performance, performance of hotels certified with the sustainability mark

remained at pre-crisis levels, while uncertified hotels' performance fell. Also, regardless of the market conditions, consumers are willing to overpay for sustainable offers and for environmental accommodation: "the higher the environmental consciousness of consumers, the greater their intention to stay, to spread positive word-of-mouth and pay a premium for environmentally certified hotels" (Martínez García de Leaniz et al., 2018, p. 1160). The motivation for overpayment comes first, from customers' environment concern (Gonzalez-Rodriguez et al., 2020, p. 77). And also, from the desire to help preserving natural and cultural heritage of the local community (Pedroso & Kung'u, 2019, pp. 1120–1121).

Despite the fact, that sustainable concept is likely to bring more profit to tourism sector, there are problems with implementation of sustainable practices for the destination. First, tourism sustainability is dependent on destination's local policy in sustainable development, which is not always bended with tourism industry only (Saarinen, 2014, p. 10). Second, it should not be forgotten that tourism is business and all the tourism companies, as well as other ones, aim to get profit, invest, develop their projects and earn money. This does not correlate with the fact that any sustainable development is long term and the profit cannot be predicted and measured very well, due to the lack of criteria (Saarinen, 2014, p. 11). All the sustainable development concept stays as a risk for business companies and investors, and they decide whether it is profitable to develop destination sustainably or not. Streimikiene et al. (2021), also claim that sustainable development is "not implemented completely neither by tourism service suppliers, providers nor by the very tourists" (p. 268). In order to solve the issues in implementation sustainable concept in tourism, all the parties should be educated on its positive effect. Following this, there is a type of studies, which explains how the success of the destination depends on implementation of sustainable development (Cavero-Rubio & Amoros-Martinez, 2020, p. 771; Pedroso & Kung'u, 2019, p. 1107; Özyurt & Kantarcı, 2017, p. 89). This kind is quite important in the aims of increasing stakeholders' motivation to sustainable attitude, as it explains the influence of sustainability on the success of destination. But all the studies concentrate on one specific region, which does not solve the global problem. So Streimikiene et al. (2021), still advice future researches to offer "excellence models of business performance which can provide valuable inputs to sustainable tourism development, properly addressed by

business sectors” (p. 268). Here comes the problem: the actors of tourism industry do not understand the benefits from sustainable development practices, and do not implement them, which results in slowing down of sustainable development goals achievement. Thus, the goal of the thesis is to analyse the impact of sustainable development practices on attractiveness of Russian Arctic, as a tourism destination, and present recommendations to local stakeholders, companies and organizations on developing the tourism in the current region.

The research question is as follows: Which factors of sustainable development affect attractiveness of Russian Arctic as a tourism destination?

Thus, the following tasks should be solved:

- Review the history of the concept of sustainable development and the concept of sustainable tourism.
- Study existing approaches to assessing sustainability of tourist destination and highlighting the most sustainable modern tourist destinations.
- Study approaches of evaluating attractiveness of tourism destination depending on its position in the coordinates of sustainable development.
- Design the research using quantitative case study.
- Collect data from tourists, who visited Arctic region during last year.
- Analyse the effect from the application of the concept of sustainable development on tourism destination, forecasting the indicators for the next perspective.

The thesis consists out of two chapters, introduction, conclusion and reference list. Chapter one is observing the history of sustainable development concept, how it is being implemented in tourism nowadays and particularly in Russian Arctic. Chapter two is aimed to describe the research design, point out the most suitable methods and use them for empirical analysis of collected data by making regression analysis and explaining the results.

1. SUSTAINABLE DEVELOPMENT AND ASPECTS OF ITS INFLUENCE ON TOURISM DESTINATION

1.1. Environment and concept of sustainable development

The term “sustainability” and the concept of sustainable development (SD) originally come from Brundtland report (United Nations, 1987). But even though in the older studies the concept was not pointed out, there were a lot of similar ideas. As an example, Thomas Malthus “Essay on the principle of population” can be described (Malthus, 1798, p. 7). He argued that due to geometrical growth of population and the lack of land available for agricultural needs, appear starvation, which causes depopulation. Because of that he tried to make a theory, that there is an optimal rate for using non-renewable resources on which this use should be based. This could have been the first SD concept, but it did not get any development. The probable reason was the belief, that industrial revolution will solve the problem of non-renewable resources. But by the end of 20th century, scientists got back to the theme of lack of resources. In 1972 Massachusetts Institute of Technology team, leading by Meadows published big research, called “Limits to growth”. This contained discussion about various ecological factors, and they got to a conclusion, that (Meadows et al., 1972, pp. 23–24):

1. The limit of growth will be reached within one hundred years, if the growth trends in world population, industrialization, pollution, food production, and resource depletion are the same. This will result in a sudden depopulation.
2. There is a chance to “establish a condition of ecological and economic stability that is sustainable far into the future” (Meadows et al., 1972, p. 24). “The state of global equilibrium could be designed so that the basic material needs of each person on earth are satisfied and each person has an equal opportunity to realize his individual human potential” (Meadows et al., 1972, p. 24).
3. If people choose the way to reach “the state of global equilibrium”, they should start immediately.

This work by Meadows and his team (1972, pp. 23–24) showed that mankind has been thinking about responsible consumption and the trace left by each person in the course of his life. This was connected with the destructive effect of human activity on the environment, natural and cultural heritage. Thus, the rethinking of values has led humanity to the formation of the concept of sustainable development. The concept of sustainable development was first introduced in 1987 by the United Nations (UN) World Commission on Environment and Development in the report "Our Common Future" (United Nations, 1987). The report had detailed discussion on the need and implementation of SD in different aspects. It defined SD as “development that meets the needs of the present without compromising the ability of future generations to meet their own need” (United Nations, 1987, p. 37). The concept quickly acquired significance for the whole world, and in 1992 the fundamental document “Agenda 21” was adopted at the United Nations conference to achieve universal sustainable development (United Nations, 1992). The main goal of the document was to develop complex approach to implementation of SD (United Nations, 1992, p. 3). The basis was in the connection of development and environment, which should result in “fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future” (United Nations, 1992, p. 3). The success of the implementation was pointed out to be a responsibility of governments. And further discussion on implementation paid a lot of attention on helping the fragile economies of developing countries (United Nations, 1992, pp. 4–5).

Agenda 21 linked sustainable development primarily to environment and ecology. However, two more aspects of SD were added to ecological block during the United Nations World Summit on Sustainable Development in 2002 (United Nations, 2002). Economic sustainability is related to prosperity and effectiveness of economic activity at different levels of society. In other words, it aimed to reduce the gap between rich and poor: developed and developing countries and groups of people (United Nations, 2002, pp. 2–3). Social sustainability means respect for human rights and equal opportunities for all members of society, a fair distribution of benefits with an emphasis on the fight against poverty, the prosperity of local communities and original culture, and the prevention of any form of discrimination and exploitation (United Nations, 2002, pp. 3, 7, 23). Environmental sustainability is associated with the conservation and rational use

of resources. Extra attention is paid to energy and non-renewable resources, minimization of air, land and water pollution, as well as the conservation of biological diversity and natural heritage (United Nations, 2002, pp. 9, 22, 26). In 2015, the United Nations took another global step towards achieving sustainable development. The 2030 Agenda for Sustainable Development is the most modern action plan to put the world on a path of sustainable and resilient development (United Nations, 2015, p. 1), which was adopted by all UN member states. The document includes 17 global goals (see Appendix 1) in the field of sustainable development and 169 tasks that reveal the directions of the activities of states in the implementation of the global goals (United Nations, 2015, pp. 6, 14).

Publication of the Sustainable Development Goals (SDGs) caused a discussion and debate. As the SDG is a set of goals, the main question is about the interlinkages between them. Mensah (2019) argues that the SDGs “have implications for global and national contexts” (p. 12). Normally, by the logic of complex approach to sustainable development, achieving one goal should improve results in achieving another. Some authors find positive interconnections. For instance, Tosun & Leininger (2017, p. 9) get to a conclusion, that the governance of water and climate change have the strongest connection to other SDGs. But nevertheless, there are a lot of interconnections, progress in some SDGs can put limitations to the other ones. The simplest limitation could be seen even from Malthus’ (1798, p. 14) essay: in order to win poverty, people should use more land for agriculture, which can cause deforestation and other environmental issues. This idea finds its confirmation in Mensah & Enu-Kwesi (2019) study of Benya Lagoon in Ghana. The authors examined three main activities in the area: fishing, tourism and salt production. The research showed that SD principles in these activities face limitations, because local community does not have another way to earn money for living (Mensah & Enu-Kwesi, 2019, p. 40). So, the goal to win poverty contradicts the environmental goals. Also, the authors see limitations in educational level of the actors: despite the experts’ views on SD, “local fisher folks, salt producers and other local residents did not really see the effects of environmental sanitation management on these livelihoods” (Mensah & Enu-Kwesi, 2019, p. 40).

Summing up, SD policy is a logical output of human development limitations. The concept has been developed during centuries, and resulted in admission of SDGs in 2015. The goals became recommendation to stakeholders and policy makers of different levels. But the SD concept has limitations, and SDGs could be only achieved if the companies, political leaders and elites and all the other stakeholders consider getting long term profit from such sustainable development. And the most challenging point is education of ordinary actors of the human activity.

1.2. Sustainable development in tourism

The concept of sustainable tourism development is a natural offshoot in the concept of sustainable development. It is quite important offshoot, which is proved by many data on the harm, which tourism can cause to nature, social life and wellbeing of the destinations. Tourism sector is a vivid example of the overconsumption phenomenon (Ritchie et al., 2018). In spite of the fact that the pandemic caused irreparable damage to the tourism industry following the United Nations World Tourism Organization's (UNWTO) scenario in 2023 international tourist arrivals could reach up to 95% of pre-pandemic level (World Tourism Organization, 2023, p. 1). The increase of tourist flows inevitably leads to the growth of the transport services market, where only international aviation produces 2.5% of all CO₂ emissions (Ritchie, 2020). The highest level of emissions is produced in Europe, North America and Australia. This can be explained by the difference in levels of income and possibility to travel. Ritchie (2020) also claims, that only 20% of population has ever used aviation transportation. This means, that all the emissions from aviation is produced by the small share of population.

Talking about research, Destek & Aydın (2022, p. 34515), examined 10 most visited countries on the change in sustainable development level, according to the development of tourism sector. They come to a conclusion, that tourism creates economic growth, but also is very harmful to the ecology (Destek & Aydın, 2022, p. 34524). The generated growth “costs nothing”, taking the harm into account. This show, that significant blow to the world's ecology can be caused by irrational and excessive use of resources both by tourists and producers of tourism services. With the aim to minimize the harm, and

use the gained economic growth, sustainable tourism development policies should be used (Destek & Aydın, 2022, p. 34524).

Sustainable tourism development is based on the principle of balance between economy, society, culture and environment. In 2005 the World Tourism Organization in association with the United Nations Environment Program (UNEP) formulated a definition of sustainable tourism development (United Nations Environment Programme & World Tourism Organization, 2005). Sustainable tourism development is a development with a long-term orientation, aimed to keep the balance between economic, ecological, social and cultural goals; also taking into account the interests of all the stakeholders (tourists and host communities) on the basis of sustainable use of touristic resources and comprehensive partnership (United Nations Environment Programme & World Tourism Organization, 2005, p. 11). UNEP and UNWTO also underlines that the principles of sustainable tourism development “are applicable to all forms of tourism in all types of destinations” (United Nations Environment Programme & World Tourism Organization, 2005, p. 11).

Even though the official definition and guidelines of SD in tourism appeared in 2005, basic principles were developed much earlier – in 1997 with the adoption of the Agenda 21 for the Travel and Tourism Industry. There are 12 guiding principles (see Appendix 2) that were announced (World Travel and Tourism Council et al., 1997, p. 34). Mainly, the principles include respectful attitude to nature and its resources, free and protected economic activities, social respect to local cultures, natural disasters warnings, equal right for labour and environment protection (World Travel and Tourism Council et al., 1997, p. 34). The responsibility for implementation is mainly on governments, but the importance of cooperation with local destination is underlined (World Travel and Tourism Council et al., 1997, p. 33). Private sector stakeholders are not addressed in the guide directly, but are called for taking note (World Travel and Tourism Council et al., 1997, p. 33). Also, governments are responsible for communicating the principles, described in the guide (World Travel and Tourism Council et al., 1997, p. 32).

The most recent document on SD developed by United Nations (2015), 2030 Agenda for Sustainable Development also contains information about tourism. There are three global aims that are directly related to sustainable tourism development:

- “8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products” (United Nations, 2015, p. 20).
- “12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products” (United Nations, 2015, p. 23).
- “14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism” (United Nations, 2015, p. 24).

Inter-relation between SD and sustainable tourism development, thus, is still under discussion. Holden (2008, p. 170) pointed that there are two possible approaches: consider sustainable tourism principles as tools, which help to make destination more sustainable, and consider tourism as an important tool, which helps to achieve global SD. The main difference between SD and sustainable tourism, is based on the fact, that tourism is “product-centric” (Guo et al., 2019, p. 13). This means, that the aims of any tourism destination or organization is economic development, which does not always go along with principles of SD. In addition to that the assessment of tourism progress relation with SDGs is complicated, because the SDGs are not independent from each other. However, Dwyer (2022, p. 3) points out potential contribution to every SDG, which can be caused by the tourism industry (see Appendix 3). He argues, that due to complexity of SD concept, the aggregate indicator of overall progress of SDGs in tourism should be measured in well-being of destination residents (Dwyer, 2022, p. 5). In this regard, the main challenge of sustainable development in tourism lies in between economic, social and environmental aspects: good performance in one can cause problems in another. This makes it important to make the destination development policies people-centred and use residents’ well-being as the primary variable in assessment of destination performance (Dwyer, 2022, p. 16). The author also points out, that using only SDGs in assessment might cause reduce well-being of local community. Other researchers agree on the point and claim, that: “real tourism sustainability is almost impossible to achieve” (Guo et al., 2019, p. 13), but all of them agree on very important role of tourism in achieving sustainable growth in economic and social spheres.

To sum up, sustainable tourism is a way of implementation SD concept, while operating tourism activities. The main topic in sustainable tourism is its social responsibility. It includes promoting local cultures, creating jobs and employing local people, developing local communities etc. This also gets the attention from the scholars: “the role and perception of the local communities are increasingly taken into consideration” (Alonso-Muñoz et al., 2023, p. 470). Second topic is harm to environment, which is caused by tourism. And last, but not least point of the studies is raising awareness about SD, when developing tourism (Alonso-Muñoz et al., 2023, p. 470). The last point is a base for the thesis problem, as it was mentioned in introduction: the lack of awareness results in not implementing SD practices.

1.3. Approaches of evaluating role of sustainable development in tourism

With the development of the concept of SD and its offshoot – the sustainable development of tourism, the problem of assessing the degree of sustainability of tourism industry facilities has appeared. There was no unified official system of indicators, which would include modern principles, goals and objectives of sustainable development. The first system of indicators for assessing the sustainability of a destination was proposed by the World Tourism Organization (WTO) in 2004 (World Tourism Organization, 2004). The system identifies twelve potential issues, which can affect SD and indicators for measurement of every issue (see Appendix 4).

In addition to the main indicator system, WTO has developed eighteen additional thematic indicator systems for various types of tourist destinations: coastal and marine areas, desert areas, mountainous destinations and others (World Tourism Organization, 2004, pp. 247–297). For a long time, researchers used this approach, but in recent years, the number of developed systems of indicators for assessing the sustainability of tourism has increased rapidly. In 2016, the European Commission published its own approach (The European Tourism Indicator System – ETIS) to assessing the sustainability of the region (European Commission, 2016). 43 key indicators were divided into four blocks, which are:

1. Destination management (SD policy and tourist satisfaction);

2. Economic value (tourism flow and destination performance);
3. Socio-cultural impact (sustainable practices within tourism sector workers);
4. Environmental impact (effect of the destination on global environment and usage of sustainable practices) (European Commission, 2016, pp. 21–22).

These key factors are accompanied with supplementary indicators, which can be used to carry out specific measurements of the destination (European Commission, 2016, pp. 23–24). In this case, following the WTO, the European Commission has developed three thematic toolkits to assess the sustainability of maritime tourism, accessible tourism for people with limited mobility and transnational tourism routes. The key indicators are also quite similar, but European Commission added points, which compare tourists and local people. For example, indicator D.3.3: “percentage of total waste recycled per tourist compared to total waste recycled per resident per year” (European Commission, 2016, p. 22).

In addition to official state organizations, private companies are also developing assessment approaches to sustainability of a tourism destination. Global Destination Sustainability Movement is one of such companies. Despite its commercial nature, the organization works in partnership with the United Nations on the basis of the One Planet program for the sustainable development of tourism (Global Destination Sustainability Movement, 2022). They work in partnership with many municipal and regional governments, who provide the data (Global Destination Sustainability Movement, 2022, p. 2). A distinctive feature of the assessment approach is the correlation of all indicators with the global goals of the UN in the field of sustainable development. The survey (The Global Destination Sustainability Index – GDS-Index) includes 70 quantitative and qualitative indicators in four groups:

1. Efficiency of destination management;
2. Environmental indicators;
3. Social indicators;
4. Supply in the tourism market (Global Destination Sustainability Movement, 2022, pp. 4–5).

Based on calculated estimates of destination sustainability GDS-Index compiles the eponymous rating of sustainable cities.

Another private organization involved in assessing the sustainability of a destination is Green Destinations. Published in 2021 Green Destination Standard V2 contains in its own system 84 indicators describing six main directions:

1. Destination Management;
2. Nature & Scenery;
3. Environment & Climate;
4. Culture & Tradition;
5. Social Well-being;
6. Business & Communication (Green Destinations, 2021, p. 4).

Green Destinations also publishes an annual list of sustainable destinations (Green Destinations, 2022). But the rating is based on the scores of participating cities in the evaluation process, unlike the GDS-Index. In this regard, it is not possible to order destinations according to the degree of sustainability. A feature of the approach is the absence of statistical indicators among the indicators; all indicators are qualitative, evaluating the presence or absence of signs in a particular destination.

Another commercial organization EarthCheck takes a slightly different approach. The company evaluates the sustainability of the destination by answering 260 questions on ten key performance indicators:

1. Greenhouse gas emissions;
2. Energy efficiency;
3. Freshwater management;
4. Conservation and management of ecosystems;
5. Socio-cultural management;
6. Air quality protection;
7. Land use planning and management;
8. Wastewater management;
9. Waste management;
10. Environmentally harmful substances (EarthCheck, 2022, p. 3).

As it can be seen from the indicators, EarthCheck approach to assessing sustainability is based mainly on environmental sustainability: only one out of ten blocks characterizes the socio-cultural aspects of the destination. EarthCheck uses benchmarking to evaluate

destinations. They compare the collected data with average performance, based on Agenda 21 (EarthCheck, 2022, p. 58). The document itself looks like a big questionnaire, designed for self-assessment by local organizations, or government structures. The company evaluates the destination in order to issue a quality certificate, which confirms the sustainable development of the region. But some of the questions show, that EarthCheck is commercial organization, and it has aims other than global SD. For example, one of the questions in Communications section is as follows (EarthCheck 2022, p. 52): “Is your organisation able to provide an example of: 1) EarthCheck Logo use in promotional material. 2) EarthCheck Logo use in print advertising. 3) EarthCheck Logo use in other form of media (TV, Film, Social, etc.)?”

The Communications section is aimed to understand, how the evaluated organization communicates its SDGs to internal stakeholders, customers and external actors (EarthCheck 2022, p. 51). But how does usage of EarthCheck logo improve sustainability of the communication? This show undersigned aims of EarthCheck organization, and that researchers should not use the existing assessment systems without double checking it. The problem of certification is also recognized by scholars: “The variety of certifications and linked regulations is generating more confusion than guidance among businesses and tourists” (Alonso-Muñoz et al., 2023, p. 471).

Two organizations (Green Destinations and EarthCheck), whose assessment methodology is observed in previous part are giving certificates of sustainability to local actors. But in order to be able to issue sustainability certificates, organizations must obtain accreditation. Accreditation is issued by a specialized organization – Global Sustainable Tourism Council (GSTC), which accredited, in particular, Green Destinations and EarthCheck. The GSTC approach to assessing the sustainability of a destination identifies 174 indicators in four blocks similar to other systems:

1. Sustainable management;
2. Socio-economic sustainability;
3. Cultural sustainability;
4. Environmental sustainability (Global Sustainable Tourism Council, 2019, p. 3).

Table 1 shows the data on all observed organizations, which assess the sustainability of destination development. Quantitative indicators mean statistical and other numerical

indicators, qualitative indicators include answers to dichotomous questions with “yes” / “no” options (for example, “is the national sustainable development policy of the region correlated with the global goals of the UN?”) and often filled out by local organizations.

Table 1. Comparative table of destinations SD assessment systems

System	Year	Number of indicators	Qualitative	Quantitative	SDG correlation
UNWTO	2004	29		✓	
ETIS	2016	43		✓	
GDS-Index	2022	70	✓	✓	✓
Green Destinations	2021	100	✓		
EarthCheck	2022	260	✓		✓
GSTC	2019	174	✓		✓

Sources: World Tourism Organization, 2004; European Commission, 2016; Global Destination Sustainability Movement, 2022; Green Destinations, 2021; EarthCheck, 2022; Global Sustainable Tourism Council, 2019

For completing the goal of the thesis, certain indication system should be pointed out. Fulfilling this task, this subchapter was aimed to observe existing approaches to destinations’ performance evaluation in the field of sustainable development. As it is seen, the core indicators stay the same from one system to another. The main difference is in number of sub-indicators (questions) and the way of collecting data. Correlation with SDG is also important, when making the system of evaluation.

1.4. Approaches to assessment of impact of sustainable development management on the attractiveness of a tourism destination

Implementation of the sustainable destination concept played a crucial role in the competitiveness in tourism and hospitality industry (Hu & Wall, 2005, pp. 632–633). The tendency has its beginning at the end of the 20th century with the gradual growth of the customers’ awareness of ecology problems (Holden, 2008, p. 18). Also, it was influenced by the appearance of “eco-friendly” offers on the industry markets, which caused the shift towards responsible consumption in customers’ behaviour (Sanchez-Ollero et al., 2011, p. 1841).

Following that, sustainable tourism should become a promising niche, establishing the need among tourist enterprises in implementation of sustainability management units. Testing the effectiveness of certain organizational frameworks showed the significant impact of the results of their activities on the competitiveness and attractiveness of the destinations assigned to them (Nadalipour et al., 2019, p. 330). The research among European countries shows that implementing the SD concept in the tourism organizations' activities has a positive impact on the attractiveness of the destination (Özyurt & Kantarci, 2017, p. 100). Furthermore, Cavero-Rubio & Amoros-Martinez (2020, p. 771) claimed that, during the financial crisis in 2008, economic indicators such as sales, financial performance, and employee productivity of hotels certified with the sustainability mark remained at pre-crisis levels, while non-certified ones were marked by a fall in all directions. Partially it can be explained by the willingness of the customers to stay in sustainable tourism infrastructure and eco-friendly accommodation (Ting et al., 2019, p. 13). News about climate change also can be the reason for more sustainable travel choices (Booking.com, 2022, p. 4). There is also a correlation between environmental concern and a willingness to pay a premium price: some of the customers accept the higher prices to stay in eco-friendly accommodation (González-Rodríguez et al., 2020, p. 72). It has been proven that the most significant impact on the attractiveness of the tourist destination among three sustainable development measures (economics, society and culture, ecology) has the actual ecological situation in the region (Bigné et al., 2020, p. 701). Pollution of the air, seas and oceans, coastal zones, natural landscapes has more significance for the customers rather than financial performance of the accommodation place or respect for gender equality at the structure of the staff.

Nevertheless, presence or absence of significant impact of destination sustainability on its attractiveness is still under discussion. Even though, scholars have proven the influence of tourism on the ecological, economic and social sector of the destination (Musa et al., 2021, p. 53336), the reverse correlation is under discussion. Talking about this issue, it is necessary to note that sustainable development management can influence both inbound and domestic tourism (Mihanyar et al., 2015, p. 120). International and domestic tourism has equally similar impacts on the natural environment (Skanavis & Sakellari, 2011, p. 239). The enhancement of the sustainable

image of the region can boost the interest of nearby region residents. In conjunction with lower travel costs (there are no visa requirements, possibility to choose transport etc.) these both factors are capable of stimulating the increase of domestic tourists and their spending within the country. Besides the positive impact of good performance in SD, there is also a correlation in case the results in SD are bad. Poor results in SD, can create negative effect for the region and potentially could cause tourist market collapse both for inbound and domestic tourism (Deng et al., 2017, p. 778). However, it is worth mentioning that the negative impact is reflected in the decreasing number of tourists that exists only in the long-term period and poorly expressed in a short-run (Tang et al., 2019, p. 603).

To sum up, Researchers use various methods and techniques of econometric modelling to study the impact of sustainable development management on the attractiveness of a tourism destination. It is aimed to test the influence of sustainability destination indicators on the tourism market. Further, in the 2nd chapter suitable research design and indicator system will be observed, based on similar literature and the regional specifics.

1.5. Arctic as a territory and a tourism destination

To start with this topic, it is important to make an overview of the Arctic's definition. As Andrew (2014, p. 14) points out, a common approach to define the Arctic is not something entirely consistent. Meanwhile, there are several approaches to discuss the theme of Arctic based on geography, climate, biology or law (Stewart et al., 2017, p. 67). From the law perspective, there are several international agreements and organizations, which are shaping the scope and approach of the Arctic's definition. For instance, one of the leading organizations concerning this region is the Arctic Council, whose mission is to foster cooperation and development in the region, and support international communication for better decision-making in multiple spheres, including environmental protections and climate change (Kankaanpää & Young, 2012, p. 9). The Council consists of the eight country-members that have interests and closely located to the Arctic shore. Therefore, the government representatives of Canada, Denmark, The USA, Iceland, Finland, Norway, Sweden and Russia are involved into the

organization's work (Chater, 2016, p. 95) Noteworthy that in the period of 2021–2023 the Russian Federation holds a chair in the Arctic Council (Sergunin, 2021, p.1).

During its existence, the Council has adopted multiple agreements, which are standardizing scientific, economic and social activities, according to the region's specifics. For instance, "Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic" (Arctic Council, 2011), "Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic" (Arctic Council, 2013), "Agreement on Enhancing International Arctic Scientific Cooperation" (Arctic Council, 2017). All these documents and the general provisions of the Council presume sustainability as the core concept for further developments and project across the Arctic's territory.

Apart from legal, economic and environmental aspects related to Arctic, there is also a tourism perspective. In a way, this direction of tourism is specific and distinctive from the other directions, due to its preserved natural systems, biodiversity and climate, which are significantly different from the southern territories. All Arctic countries are noticing a stable growth of tourist visitors to the polar territories, which of course creates economic benefits for the regional economies, but at the same time, produces negative environmental impact (Belsoy et al., 2012, p.70). This is emphasized by seasonality problem: only six months are profitable in terms of business activities (Rantala et al., 2019, p. 25). But the dynamics are positive: ten years ago, only three months were profitable, and it is expected, that potentially ten to eleven month will show positive economic result (Rantala et al., 2019, pp. 25–26). Main problems in the Arctic related to under-visitation because of seasonality relate to local community: it suffers from economic activities decrease during low season (e. g. closure of some services), unstable employment and income perspectives, global image of the region is perceived according to the peak season (Rantala et al., 2019, p. 11). But along with problems, seasonality gives Arctic regions certain strength: local communities take a break during low season, which help them keep their identity. The problem of employment also is beneficial in terms of attracting young seasonal workers, who experience local attractions and might develop tourist inflow in future (Rantala et al., 2019, p. 12). But as it was mentioned before, tourism season in Arctic tend to expand,

which means that more and more visitors are coming. They might cause environmental and ecological problems, together with the social benefits for local communities (Belsoy et al., 2012, p.70). This emphasizes the importance of balance between the main pillars of sustainable tourism, which were described in chapter 1.2. and in this regard, the need for sustainable tourist practices increases in popularity in order to save and restore ecology in the Arctic territories.

Moreover, other international actors are insisting that tourist practices in the Arctic must comply with the contemporary sustainability standards. In this regard, the World-Wide Fund for Nature (2001) has prepared “Ten Principles of Arctic Tourism” in the scope of their International Arctic Program. This initiative serves as a guideline or a benchmark for other international organizations, national governments and economic agents involved into activities in Arctic. Thematically, this document highlights a need for careful and responsible planning of journeys, rational use of resource and limited consumption, preservation of nature, respect to local culture, heritage and communities (World Wide Fund for Nature, 2001, p.1).

However, these concepts are explained not enough and therefore might seem vague. Moreover, it is unclear how these factors correspond to the touristic attractiveness of Arctic region. The following sub-chapter utilizes academic sources and data in order to receive a more detailed perspective of sustainable tourism elements and their connection to the popularity among tourists.

1.6. Factors of sustainable development, significant for Arctic region

This paragraph reveals influential factors related to sustainability in their relevance to attractiveness of the Arctic regions possessing them. Generally, there are various international indexes measuring tourist sustainable destinations in order to unify approaches and to set standards of assessing what makes a certain destination more sustainable. The factors affecting sustainability of a destination are grouped in four major categories related to management features, social and cultural impact, economic value, and environmental impact (European Commission, 2016, p. 3).

All these factors are linked to the activity of multiple stakeholders influential for tourism development: the host community, tourism businesses, policymakers, non-governmental organizations, networks and tourists (European Commission, 2016, p. 7). Moreover, it is also possible to refer each of the factor to one of the SDGs, the concept promoted by the United Nations to navigate global partnership for the more resilient future (United Nations, 2022, p. 2). Thus, the following indexes are being observed: The European Tourism Indicator System by the European Commission; Global Destination Sustainability System by the industry experts; Indicators of Sustainable Development for Tourism Destinations by the World Tourism Organization. Overall, this research utilizes intakes of the mentioned above indexes and frameworks to define influential aspects of tourism industry, which are affecting the attractiveness of destinations in Arctic. Academics from multiple knowledge areas define special regional events as a valuable source of growth and development. Alberti & Giusti (2012, p. 262) highlight a perspective that events inherently are the cultural market products determining a degree of regional competitiveness. As regions vary in their historical features and modes of daily life, some of these differences might attract visitors who have never experienced the practices of Arctic regions (Gumede et al., 2022, p. 11). Regional events such as ethnic holidays, reconstructions of preindustrial daily polar life scenes, excursions and tours to villages provide a chance to get familiar with the traditional way of life in a region (Gumede et al., 2022, p. 13). While postindustrial economies have brought lifestyles across different regions to relatively standardized conditions, some Arctic regions might be maintaining an image of exclusive and unique destinations, where special polar celebrations are taking place. In a way, special events are contributing to creation a so-called events portfolio, which enhances a destination's image (Mariani & Giorgio, 2017, p. 6).

Additionally, ethnic events create a pivotal effect able harmonizing seasonal fluctuation of the tourist flow. A balanced tourist flow extended more equally across all the seasons assures stable demand for tourist facilities and infrastructure in a given area, since an imbalanced tourist flow is considered as one of the biggest challenges in tourism industry (Cisneros-Martínez et al., 2018, p. 2). This assumption is especially meaningful for the regions of Far North and Arctic, because inhospitable weather conditions in Autumn and Winter seasons decrease the intensity of tourist flow (Varnajot, 2019, p.

13) Therefore, special events and ethnic celebrations could attract visitors to the region even in adverse periods. Moreover, special events and occasions potentially are attractive for non-ordinary visitors such as journalists, artists, folk-culture groups and performance and even some ethnically-specific civic communities (Gumede et al., 2022, p. 17). Visits of socially active groups and leaders of public opinion might lead to collaboration between them and local performers. Such win-win occasions boost social capital, connections and creativity of a region's population, making special events a factor of economic growth as well as tourist sustainability, shaping the 'business card' of a region (Yanagi, 2022, p. 6).

As for the Arctic regions of Russia, many of them possess a premise of specific ethnic features. Therefore, special regional events created in ethnic tones could possibly boost cultural tourism and attract many new visitors (Zamorshchikova & Khokholova, 2020, p. 587). Perhaps, from the Central Russia, which is traditionally less diversified in terms of ethnic variance. On this ground, the factor of special events and ethnic celebrations is considered as possibly influential on touristic attractiveness of the Russian Arctic regions. Developed sports infrastructure is also one of the most important factors for sustainable tourism. First of all, the presence of sports facilities for practicing various sports can serve as a reason for holding national and international sports events in a given territory, which can potentially popularize the region not only among participants of the competition, but also among the fan groups and supporters of popular international teams (Gozalova et al., 2014, p. 93). In addition, there is a separate type of tourism – sports tourism, which attracts extreme people, regardless of the major sports preferences. To develop sports tourism, regional authorities need to develop infrastructure for extreme sports, which can potentially lead to a large amount of new investment in the regional budgets (Timoshenko, 2020, p. 5).

Given the geographical and climatic features of the Russian Arctic, unique flora and fauna as well as polar days and nights, various winter sports have the greatest prospects within this tourist track (Golubchikov et al., 2019, p. 10). Construction of winter sport facilities is quite capital intensive as ski jumps, snowboarding and skiing tracks, bobsled tracks are technologically advanced modern objects (Voronyanskyi et al., 2020, p. 163). Also, Kirovsk became one of the most popular ski resorts in Russia (Dushkova &

Krasovskaya 2018, p. 10). Nevertheless, once constructed and being in operation, winter sport infrastructure improves conditions for local athletes and sportsmen, whose potential success on championships would increase, due to more accessible and diversified sport facilities (Voronyanskyi et al., 2020, p. 163).

The concept of the “territory brand” or a “place marketing” has been introduced to tourism studies from the well-known marketer Philip Kotler in the late 80s (Eskiev, 2021, p. 531). This approach highlights the importance of competition and cooperation between regions via their images to gain popularity among tourists and investors (Eskiev, 2021, p. 532). In this regard, a developed territory brand for regions is a fortunate sign showing potential development of tourist attractiveness, improving economic and social indicators of the territory (Eskiev, 2021, p. 532). Being ecological, green and non-polluted region is getting more and more valuable features for the territorial brands’ development, because some tourists receive the higher perceived value of travels with the greater ecological standards (Zdravković & Peković, 2020, p. 72). Thus, as Bondarenko et al. (2018, p. 54) notices at least 47% of tourists assess the quality of water when describing destinations. It has a special meaning for Arctic territories, due to their image of places with untouched nature. In connection to that, regional governmental are incentivized with a common trend to insure conditions for waste sorting and recycling, energy security, both on the initiative and executive in various natural zones, as well as alternative energy sources such as wind plants or hydropower plants (Bondarenko et al., 2018, p. 56).

It is also notable that the environmental friendliness of the region might be often manifested through provision of wide access to non-carbonized modes of transport, as well as the presence of a developed infrastructure for “entire usage of eco-transport” (Rudskaia, 2021, p. 8). For instance, municipalities might focus on creating the primary base of infrastructure to improve micromobility of tourists via bicycles with docks or parking lots for them, e-scooters, electric cars or other electric vehicles (Davies et al., 2020, p. 210). Another step is to develop a network of fast and ecological transportation, equipping roads with separate lanes for cyclists and implementation of alternative transport, which are going to be rooted in the city’s planning and policy (Davies et al., 2020, p. 211). The Russian Arctic has amazing initial conditions for the

formation of an international eco-friendly brand in the region, which in turn will become the basis for effective sustainable tourism.

Upon their visit to Arctic regions, tourists are willing to find new unique experiences, which they had no have in their home regions. In this regard, sightseeing, hiking or camping across nature is a powerful source of attraction as its popularity is growing progressively throughout the years globally (Shang & Luo, 2022, p. 1). According to Buckley (2020, p. 1410), outdoors tours and hiking in natural parks strongly correlate with mental and physical health, what is beneficial for attracting more tourists to the regions with variety of such areas. As many Polar Regions in Russia have multiple national parks, they can be used for environmental education, regular tourism and recreation (Dzhandzhugazova, 2019, p. 4913). At the same time, it is necessary to ensure safety for people and preservation of nature in case of intensive tourist flows into these wilder areas. It is worth to consider the case of the Northern Ural region, where the natural parks zones and trails were created ‘in the Urals over a seventy-year period’ (Ziryanov et al., 2016, p. 82). Noteworthy that water sources such as lakes, rivers or coastal sides possess are quite popular destinations for rural tourism, therefore their presence will improve a place’s image for hikers (Akay, 2020, p. 536).

Last but not least, housing is also a big matter for the upcoming tourists. Sustainable practices did also affect the perceptions and expectations of tourists towards accommodation during journeys. In this regard, academics are widely accepting that innovative forms of tourist housing such as a sustainable practice, which possess the values of environmental care, authentic and closer contact with nature (Petruša & Vlahov, 2019, p. 838). Glamping resembles the more traditional camping, often being called a sub-form of camping (Shetty & Alkonda, 2022, p. 2), but at the same time it is more inclusive for tourists demanding comfort and luxury. By this mean, the overall circle of people engaged in sustainable tourism expands.

All the factors of sustainable tourism, which have been observed are existent in Arctic region in Russia. As the factors should improve destination performance in SD, it is important to point out, which Sustainable Development Goal (SDG) benefit from development of the certain factor. The Table 2 summarizes the factors shaping sustainable tourism and links them to one of the international indexes as well as to

thematically relevant SDG. Also, Table 2 presents the relevance of SD factors to one of the international indicators showing sustainability. This is important thing, to link Russian Arctic to the global indexes. According to the table, every factor potentially influencing sustainable tourism practices has links and justification based on the broader international context.

Table 2. Sustainable development factors, existing in Russian Arctic region

Factor of sustainable tourism	Mentioned as an indicator in the One of Sustainable development indexes (overseen in 1.3)	Relevant SDGs
Special events and ethnic celebrations	The European Tourism Indicator System, C.5.2. “Percentage of the destination’s events that are focused on traditional/local culture and heritage” (European Commission, 2016, p. 21)	Goal 11: Sustainable cities and communities (The United Nations, 2023)
Availability of diverse sports infrastructure	Indicators of Sustainable Development for Tourism Destinations, “Sport Events, Fairs, Festivities, Crowd Control” (World Tourism Organization, 2004, p. 193)	Goal 3: Good health and well-being (The United Nations, 2023)
Ecological brand of the territory	Indicators of Sustainable Development for Tourism Destinations, “Branding, Vision, Strategic Marketing” (World Tourism Organization, 2004, p. 236)	Goal 17: Strengthen the means of implementation and revitalize the Global Partnership (The United Nations, 2023)
Availability of Eco-transport	The European Tourism Indicator System, D.1 Reducing transport impact. (European Commission, 2016, p. 22)	Goal 11: Sustainable cities and communities (The United Nations, 2023) Goal 13: Climate action (The United Nations, 2023)
Access to nature and national parks	Indicators of Sustainable Development for Tourism Destinations, “Protection of Valuable Natural Assets” (World Tourism Organization, 2004, p. 147)	Goal 15: Life on land (The United Nations, 2023)
Availability of eco-housing	Indicators of Sustainable Development for Tourism Destinations, “Community Attitudes, Social Benefits, Changes in Lifestyles, Housing, Demographics” (World Tourism Organization, 2004, p. 58)	Goal 11: Sustainable cities and communities (The United Nations, 2023)

Overall, the review of academic literature shows a wide variety of natural, social-economic and cultural factors, which are shaping touristic attractiveness. Some of these factors are referring to sustainable practices, due to neutral or sometimes even positive effects that they produce to nature and local communities. Globally, each of the

articulated factors correspond to the international indices measuring sustainable development and to at least one of the SDGs. This comprehensive context serves well to ensure validity of the mentioned factors in attempt to test their relationship with touristic attractiveness – what is undertaken in the following chapter.

2. EVALUATING SUSTAINABLE DEVELOPMENT IN CASE OF ARCTIC

2.1. Designation of suitable research design

In the sphere of studying touristic attractiveness, it is worth learning from the first-hand experience of tourists who have visited or consider visiting Arctic regions, because the motivation of tourists is centric for the inquiry of such type (Cajiao *et al.*, 2022, p. 2). For this purpose, a case study of the tourism industry in Russia is quite suitable for several reasons. First and most obvious, Russia is one of the leading countries in terms of territories located close to the Arctic zone, being the first one in terms of the square-meters land belonging to polar zone, which is 4 769 508 kilometers² (Smirnov, 2020, p. 230). While many other countries are also benefiting from their northern regions neighboring the Arctic, some authors consider that Russia has at least 11 big territories, which are recognized as Arctic (Smirnov, 2020, p. 230). Namely, the lands of Murmansk, Northern Siberia, Nenets, Novaya Zemlya, and Chukotka are bringing great diversity of history, nature, cities, ethnicities and cultures, affecting touristic attractiveness of the entire Arctic region. Other countries might seem more homogeneous when comparing their polar lands. For instance, the polar areas of Iceland, Norway, Canada, USA or Greenland (Denmark) are less contiguous geographically in longitude than the common image of the Russian Arctic (Snetkov *et al.*, 2019, p. 5).

Another aspect of choosing Russia as a case study is the fact that arctic tourism in this country has emerged just relatively recently, but already became a major trend in the national tourist market (Lukin, 2016, p. 97). This condition is beneficial for the research, because it allows to review reasons why the Russian Arctic became popular among tourists in a short time. Historically, these regions have been developed in terms of infrastructure: airports, railway systems, and marine ports, including the fleet of

icebreakers, but the tourism flow was not that high (Lukin, 2016, p. 98). Potentially, sustainable practices could be one of these factors, shaping the level of regional attractiveness among visitors nowadays. In this regard, defining sustainable factors and their ability to increase popularity and positive perception among tourists looks very important.

Therefore, this research is designed as a quantitative case study of Russian arctic regions, to find SD factors that have positive influence on touristic attractiveness. The quantitative approach fits this research, because the chosen factors of attractiveness refer to the “supply indicators that are quantitative in nature” (Gu et al., 2022, p.5). Measuring and comparison of supply factors quantitatively is easier in terms of numbers and figures as well as the extent to which customers are satisfied with the use of facilities (Ahmad et al., 2018, p. 354). At the same time, the research indicates whether the sustainable development practices affect attractiveness of the regions in the eyes of tourists. In this regard, the most useful and insightful strategy for empirical data analysis would be to collect information in a form of a questionnaire directly from tourists, who have experience of visiting arctic regions, as this approach is the most common in tourism studies (Cunha et al., 2021, p. 3). The questionnaire stands to gather data from the target audience, members of which would agree to provide answers to the set of questions.

The sampling technique is convenience sampling. This type can be used, when the whole population cannot be defined (Etikan et al., 2016, p. 2). Within this type, the most easily-reached sample is used, which helps to overcome limitations for the research (Taherdoost, 2016, p. 22). One of the channels to reach potential respondents to the questionnaire was to send it digitally to the customers of the tourist agency “North for you”, where the author works. Also, the respondents were reached out via social media (Instagram profile of the agency and the guides, thematic Telegram chats) by publications of the links to questionnaires there. The agency has tours to all the regions of the Russian Arctic: Murmansk, Teriberka, Kamchatka, Nenetskiy AO etc. Moreover, the tours are designed for different interest and age groups: active, sightseeing, expeditions, luxury tours and cruises. As the agency tries to reach all groups of tourists, coming to Russian Arctic, it solves the limitations of convenience non-probability

sampling (Andrade, 2021, p. 87) in some way. But still the generalizations with 100% significance can only be made only about the clients of the agency. Generalizations across subpopulations are possible, but more problematic and should be done attentively (Andrade, 2021, p. 88).

According to the Tourists Association of Russia, an inflow reached 280,000 people in 2021 solely in Murmansk region (Тропова, 2022). However, this number does not solidly correspond to the actual picture. Important part of the people's mobility in Arctic regions are the shift workers, who are visiting arctic regions for several weeks. As these people cannot be treated as tourists in current research, they must also be excluded from the sample. Following the data provided by Silin (СИЛИН, 2021), the amount of shift workers solely in Yamalo-Nenets Autonomous Okrug reaches 130,000 people in 2021 (СИЛИН, 2021, p. 10). On this ground, at least the approximation of tourist inflow should be decreased up to 450,000 overall. Due to this, using the Raosoft (n.d.) sample calculator, the sample size is 384 with the set margin 5% error and 95% confidence level. As the primary target group of the research are the Russian tourists, the language and the scope of questionnaire is exclusively Russian.

Google Forms service was chosen as the primary form to be delivered to the respondents and aggregate their responses afterwards. During the period of between 1st and 14th in April of 2023, 384 replies to the questionnaire (see Appendix 5) have been collected, which in its turn contains 22 multiple-choice questions. The questions mainly focus on the tourists' perception and appreciation of sustainability practices in regard to satisfaction after their journeys. Dependent variable of analysis showing the touristic attractiveness is expressed in two questions measuring overall satisfaction and a revisit intention of respondents. In scholarly literature, an extent of tourist happiness is often expressed in revisit intention and the degree of satisfaction after a trip (Pai et al., 2020, p. 2). In the core of these two behavioral intentions lays loyalty of a tourist regarding a given destination (Pai et al., 2020, p. 3).

Meanwhile, independent variables are collected by questions about experiences and impressions of a respondent with a certain sustainable practice. They show if respondents have witnessed a given sustainable practice, and how they assess its possible role in improving the common image of a region. On this ground, this data

could present meaningfulness of sustainable factors for the positive travel experience in perception of the respondents. At the same time, using non-objective data could limit the research's explanatory power, due to a possible bias related to the specific conditions of their travel experience or the process of conducting questionnaire. This specific is addressed as a possible limitation of the selected research design.

This approach explores motivations of tourists to visit or to avoid visiting Russian arctic regions, and the extent to which sustainable practices in these regions would affect the tourists' desire to travel there. The questionnaire has been designed in a form of Likert scale with answers ranging from zero to seven. In this scheme, 0 corresponds to the absence of a certain experience, while a range from 1 to 7 refers to very low and very high. Likert scale seemed as the best form of questions to collect attitudes, the level of agreement or disagreement (Taherdoost, 2019, p. 2) of respondents to the highlighted elements of sustainable tourism. Responses collected in this form are useful to assess numerically, which of the factors are the most influential for the tourist attractiveness.

Table 3 below demonstrates the empirical and theoretical background of every contextual question offered for the respondents in the questionnaire (see Appendix 5). There are sustainable development indicators included as well as references to academic literature highlighting importance of the factor for touristic attractiveness. This table bridges each offered question with the theoretical knowledge, showing why the questions are important. Offering these questions to the respondents allows them to show their familiarity with the sustainable tourism practices and their role in achieving satisfaction from the trip to the Russian Arctic.

Sequentially, data collected via the questionnaire is studied by correlation and regression analyses in R programming software (version 4.2.3) to indicate associations and the extent of relationship between variables (Asuero et al., 2006, p. 41). As answers of the respondents help to assess importance of different sustainability factors, correlation is going to be applied to check mutual dependency of factors and examine if some of them are connected (Schober et al., 2018, p. 1766). Apart from the Spearman's correlation matrix, regression analysis is performed to discover how each of the factors influence touristic attractiveness of Arctic regions (Schober et al., 2018, p. 1766). Overall, these efforts on empirical inquiry allow measuring to what extent sustainable

tourism affect the destination’s image and answering the research question concerning the relationship between the factors of sustainable development and popularity of Arctic areas.

Table 3. Explanation of the questions included into the questionnaire

Question	Related International Indicator	Relevant Literature
7.	The European Tourism Indicator System, C.5.2. “Percentage of the destination’s events that are focused on traditional/local culture and heritage” (European Commission, 2016, p. 21)	Gumede et al, 2022 Zamorshchikova, L., & Khokholova, 2020,
8.		Mariani & Giorgio, 2017 Cisneros-Martínez et al., 2018
9.		Yanagi, 2022
10.	Indicators of Sustainable Development for Tourism Destinations, “Sport Events, Fairs, Festivities, Crowd Control” (World Tourism Organization, 2004, p. 193)	Gozalova et al., 2014 Golubchikov et al., 2019
11.		Voronyanskyi et al., 2020 Timoshenko, 2020
12.	Indicators of Sustainable Development for Tourism Destinations, “Branding, Vision, Strategic Marketing” (World Tourism Organization, 2004, p. 236)	Zdravković & Peković, 2020,
13.		Zdravković & Peković, 2020
14.		Bondarenko et al., 2018
15., 16.	The European Tourism Indicator System, D.1 Reducing transport impact. (European Commission, 2016, p. 22)	Davies, 2020
17.	Indicators of Sustainable Development for Tourism Destinations, “Protection of Valuable Natural Assets” (World Tourism Organization, 2004, p. 147)	Buckley, 2020, Shang & Luo, 2022
18.		Ksenofontova et al., 2021
19.		Akay, 2020
20.	Indicators of Sustainable Development for Tourism Destinations, “Community Attitudes, Social Benefits, Changes in Lifestyles, Housing, Demographics” (World Tourism Organization, 2004, p. 58)	Petruša & Vlahov, 2019
21.		Shetty & Alkonda, 2022 De Leaniz et al., 2018.
22.		Shetty & Alkonda, 2022 Cavero-Rubio & Amorós-Martínez, 2020, Özyurt & Kantarci, 2017.

Talking about research methods of the questionnaire, it should be noted, that questionnaire was designed in a way, where possible answers to questions 7–22 had not only 7-point Likert scale (points 1 to 7), but also “0”. This answer means, that the respondent did not see, consider or is familiar with evaluated indicator. For example, question №17: “Did you use or notice charging stations for electric cars or other electric vehicles in the region?”. If the respondent did not see charging stations for electric cars, he/she was asked to answer “0”. This should be analyzed as categorical data, where “0” means “FALSE”, and answers from 1 to 7, mean “TRUE”.

Further, the data was transformed, and all “0” results were changed for “NA”. This can be a limitation of the research, as the rows, which include “NA” are not included in regression analysis. This means, that regression models are missing the results for all the factors, if at least one of them was not known by the respondent. Though, the number of observations is 381, which does not differentiate with sample size for more that does not exceed 3%. This is acceptable, as this number together with *p*-values does not exceed 5% of trustworthy interval. Correlation matrix is counted for every variable separately, so this limitation does not relate to correlation test.

Further analysis should contain usual 7-point Likert scale, where 1 stands for strongly disagree, and 7 for strongly agree. This tool includes points from 1 to 7 only. This means, values “0” are not relevant for further research. That is why all the “0” results are replaced with “NA”, so that they are not counted in analysis. At this step the type of data for the survey results should be pointed out. It is debatable whether Likert scale can be considered continuous or not: as every Likert item stands for certain categorical answer of the respondent, e.g., “strongly agree” or “strongly disagree”. Jamieson (2004, p. 1217) argues, that Likert scale results do not have equal intervals between items: the respondents’ perception of the difference between “strongly disagree” and “disagree” is not equal to difference between other items. Though, Grace-Martin (2008) claims, that Likert scale can be treated as numerical order, if following conditions are true:

- Item has at least 7 values
- Underlying construct is continuous
- Intervals between points is equal.

In case of current research, the wording of the question, without naming level of agreement was chosen: “define on a scale from 1 to 7 whether it had positive influence” (see Appendix 5). This makes the respondents’ perception of the intervals between points equal. So, it means the variable in this research can be considered interval, and analysed with parametric tests. The questionnaire was designed according to the indicators, which stand for SD factors. For further research on the factors, the result for each of them is needed. This is the reason why the average result was counted for all the factors, based on its indicators:

- Overall customer satisfaction (satisfaction and revisit intention);

- Local culture (ethnic celebrations, special events and local artists);
- Sports infrastructure (ski and hockey facilities);
- Environment (air quality, land use system and land/marine inhabitants);
- Smart infrastructure (electric cars and chargers);
- Accessibility of nature (natural parks, hiking trails and coastline);
- Eco-accommodation (camping grounds, glampings and eco-hotels).

In order to proceed with linear regression analysis, correlation analysis is needed. However, as the initial step prior to the analysis it would be to process standard data-quality tests. For instance, the test for normality of distribution shows how close a random value from the assessed data sample is to a normal distribution, which defines the next steps of analysis. The performance of Shapiro–Wilk Test results in the W -coefficient ranging in values from -1 to 1 and its p -value varying from 0 to 1. Hence, the coefficient W shows the extent to which a given sample is close to the ideally normal distribution, so the higher its value is, the closer the sample to the normally distributed set of values (Razali & Wah, 2011, p. 25). However, there is also an even more important indicator of p -value. According to rate of p -value, the statistical probability of a normal distribution can be seen, if the value does not exceed 0.05, while the rates higher than that mean a non-normal distribution (Razali & Wah, 2011, p. 25). This is normal for questionnaires, especially Likert scale. In general, it means, that the data is generally more close to one side, than to another. For the correlation test among indicators, Spearman correlation test is used, as this data must also be distributed non-normally.

The Spearman's correlation shows mutual variance or a covariance of multiple variables included into correlation matrix, illustrating association between studying objects (Asuero et al., 2006, p. 41). On this ground, a correlation coefficient is a measure of fluctuation of the values of two quantities (Asuero et al., 2006, p. 42), where the higher coefficient's rate means the higher rate of mutual fluctuation. If case of a normal distribution, the other form of correlation should have been applied, namely, the Pearson correlation. Apart from the data normality condition, its main difference from the Spearman's correlation is the more common application for continuous variables rather than for ordinal or categorical variables (Khamis, 2008, p. 158). It shows the

‘linear relationship between values of the two or more multidimensional variables’ (Asuero et al., 2006, p. 41). Correlation coefficients lie in range from -1 to 1 (Asuero et al., 2006, p. 49). Positive coefficient means, that when one variable increases, the other does also. Negative means opposite: when one variable increases, the other decreases (Asuero et al., 2006, p. 50). Following Table 4 is showing the meaning of correlation coefficient ranks.

Table 4. Meaning of correlation coefficient ranks.

Correlation coefficient	Meaning
0–0.09	Negligible correlation
0.10–0.39	Weak correlation
0.40–0.69	Moderate correlation
0.70–0.89	Strong correlation
0.90–1.00	Very strong correlation

Source: Schobe et al., 2018, p. 1765

The next core part of the inquiry is the regression analysis. This statistical tool links the values of independent variables to the values of dependent variable by the mean of linear function in order to indicate positive or negative influence of the former on the fluctuation of the dependent variable (Zhang et al., 2020, p. 3). Parameters of such correlation are useful for analytics, because they might show important features of the relationship between the variables. For instance, estimates of the variables show the ratio to which a dependent variable changes with a change of an independent one. CI values shows the confidence interval in which the values of a variable are changing in the model. And the most important element is a *p*-value, which indicates statistical significance of the predictor. The lowest *p*-value is the best, while commonly a rate of 0.05 is assumed as an edge rate of statistical significance. Finally, R^2 or the R squared is the share of the sample ranging from 0 to 1, which is explained by the model, so the higher its value is a positive sign of the constructed model (Zhang et al., 2020, p. 3).

In order to verify the regression model’s results, the residuals distribution tests were made. Being separated from the main non-normally distributed data, residuals are reviewed for normality separately. On this ground, the lower the residual’s test is, the more accurate and valid the regression is, while the normal distribution of the residuals confirms that the linear regression is a valid strategy for data analysis (Shamaan et al.,

2015, p. 17). Such test uses graphical and mathematical verification of the residuals' normal distribution.

Additionally, both models were verified in terms of multicollinearity by the VIF test, which tests if there is any association between the independent variables. This test is necessary to ensure the quality of prediction model, because multicollinear independent variables might influence each other values, making the entire regression model invalid. Values of the VIF test shows if the correlation between the independent variables exists and is able to influence the regression coefficient (Daoud, 2017, p. 4). In case of the high test's value, the independent variables correlate between each other, it can affect multiple regression model. In terms of the test's value, the range between 1 and 5 shows low and weak correlation between the variables, what is actually possible, due to short range of possible variable's values. Meanwhile, being lower than 1 means the absence of multicollinearity.

Overall, the suggested research design allows utilizing first-hand impressions and perceptions of tourists who have visited Russian Arctic to verify if sustainable tourism practices capable of increasing touristic attractiveness of an Arctic region in Russia. Designated questionnaire measures if a given sustainable practice has been indicated and appreciated by a tourist in regard to his level of satisfaction and revisit intention. High point on an answer's Likert-scale means the closer association between a sustainable practice and a higher level of tourist satisfaction in perception of a given respondent. Noteworthy, a respondent is not obliged to be familiar with the concept of sustainable tourism and related practices, but instead he needs to indicate his subjective attitude to the idea that some experience with a sustainable tourism feature could possibly made the whole trip more pleasant and satisfying. Moreover, in case of missing some of these practices during the trip, a respondent is free to indicate it too, by pointing zero on a Likert-scale. On this ground, the questionnaire brings an empirical data of two main variables of the research: rates of the formulated sustainable development indicators and attractiveness of the destination.

This methodology provides a chance to discover which of the sustainable tourism factors are significant in terms of creating a positive tourist experience for the case of the Russian Arctic regions. Aims of the questionnaire are to collect opinions and

impressions of the tourists who actually visited the Russian Arctic. Then this data is used as values for independent variables showing the tourists' perception and attitudes to sustainable factors, and to dependent variable expressing the tourists' positive experience via their general satisfaction and an intention to revisit a given polar region. Analytical part of this research assesses statistical findings showing the extent of their correlation and influence of the independent variables on dependent. In particular, correlation analysis shows the existence of interconnections between SD factors and attractiveness of Russian Arctic, while regression model shows causal interlinkages and their strength. This allows to rate the factors and indicators of SD by their influence on attractiveness, which is very useful for making recommendations for local stakeholders. Summing up, the methodology of the research helps to answer research question and fulfill the objectives of the study.

2.2. Results

The practical part of the thesis required the survey. In order to collect the data, 256 links to Google Forms questionnaire were sent directly to the respondents' e-mails and duplicated in personal Telegram chats. In order to get required 384 responses, the link was also posted in social media (Instagram and Telegram channel of the agency, and the author), there the other 135 responses were collected. Four responses were erased from the sample, because the respondents cannot be considered tourists. In the 4th question about type of trip organization, they chose the answer "Other". Three wrote, that they were coming, one wrote, that he went for shift work. Out of the rest 387 responses (see Figure 1), 56% were male, 41% were female and 2% respondents chose "non-Binary" gender. 17% of respondents used local guides for their trips, 31% of respondents organized their trips independently and 52% are clients of the agency. This contributes with the way of convenience sampling method: probably, because the respondents from the travel agency clients' database have used local guides or travelled with a group quite often. This limitation was discussed in 2.1. Figure 1 shows general information on age of the respondents and visited region of Russian Arctic.

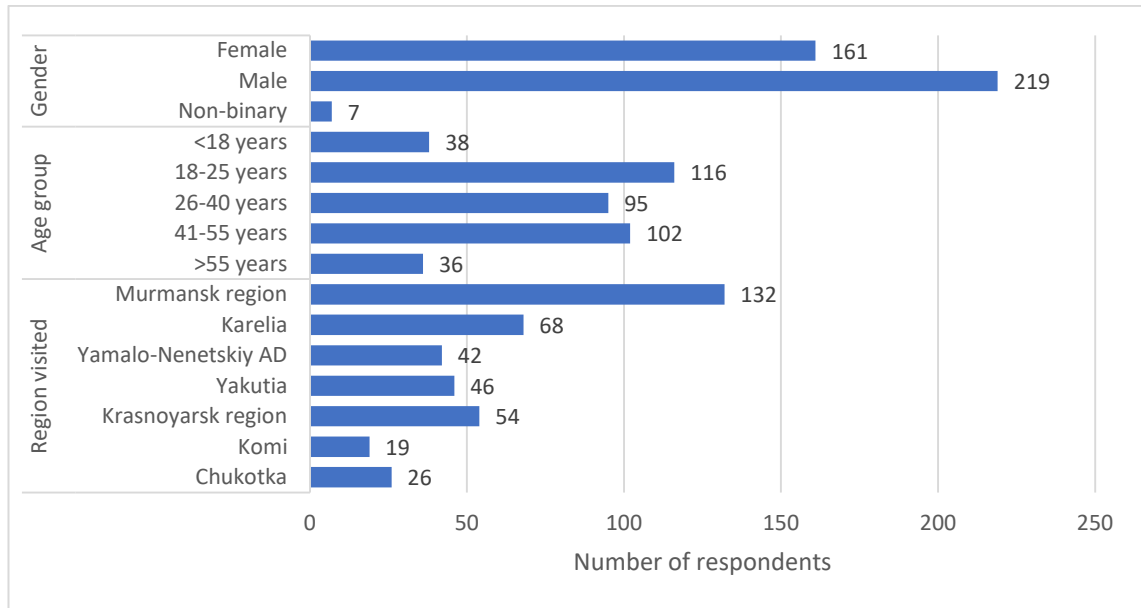


Figure 1. General information of the sample on age and visited region (N = 387)

Mostly questioned tourists are 18–55 years old, elder and younger tourists’ proportion is almost the same (9 and 10%). The most visited region is Murmansk region (34%), the least popular are Chukotka and Komi (7% and 5%). Other regions have almost the same visit rate from 11% to 17%.

The questionnaire was designed as a set of questions, evaluating customer satisfaction and different factors of SD, existing in Russian Arctic, which were described in chapter 1.5. The questions represent independent and dependent variables, the names and what they stand for are shown in Table 5.

The Table 6 shows the number of “0” responses to the factors of SD and its percentage of all sample. This indication shows, which of the factor was the most unfamiliar for the respondents who attended the questionnaire. Also, thematically close indicators constitute a factor of sustainable development, for instance ethnic, special and artists altogether are the factor of local events and celebration. On this ground, the table contains the average rate of responds unfamiliar with each of the factor. According the rates, the most unfamiliar factor is urban infrastructure, which includes electric vehicles and electric charges at the street.

Table 5. Names and meanings of indicators

Name of factor	Name of indicator	Question	Meaning
Attractiveness of the tourism destination	SATISF	5	Overall satisfaction from the trip
	REVISIT	6	Intention of the respondent to come back to Arctic
Local culture	ETHNIC	7	Influence of ethnic celebrations on local culture
	SPECIAL	8	Influence of special regional events on local culture
	ARTISTS	9	Influence of local artists on local culture
Sports infrastructure	SKIING	10	Influence of skiing/snowboarding facilities on well-being of local community
	HOCKEY	11	Influence of hockey facilities on well-being of local community
Environment	AIR	12	Influence of air quality on brand of the territory
	LAND	13	Influence of land use system quality on brand of the territory
	MARINE	14	Influence of land and marine inhabitants on brand of the territory
Smart infrastructure	EVEHICLES	15	Influence of electronic vehicles on the territory environment
	CHARGERS	16	Influence of charging stations on the territory environment
Accessibility of nature	PARKS	17	Accessibility of natural parks' influence on the ecosystem of the region
	HIKING	18	Accessibility of hiking trails' influence on the ecosystem of the region
	LAKES	19	Accessibility of lakes and marine coasts' influence on the ecosystem of the region
Eco-accomodation	CAMP	20	Influence of camping grounds on the territory's accommodation eco-friendliness
	GLAMPING	21	Influence of glampings on the territory's accommodation eco-friendliness
	HOSTEL	22	Influence of eco-hotels on the territory's accommodation eco-friendliness

As it is seen from the Table 6 the most well-known factor are skiing facilities, with only 8 respondents, who did not know about them. One of the reasons can be the “BIG WOOD” ski resort, located in Kirovsk, Murmanskaya region. This is one of the most popular ski resorts in Russia, which has season from October till middle of June (Dushkova & Krasovskaya 2018, p. 10). Also, almost all the respondents considered glamping as their potential accommodation (97% of all sample). The least known indicators are electronic vehicles (318 unaware respondents) and charging stations of them (256 unaware respondents). This fact shows that there are few electric cars in Arctic region in Russia. Also, tourists saw chargers more than vehicles (the difference

in numbers for vehicles and charging stations is 62). So, there is infrastructure for electric vehicles, but people are not using electro cars much. It may be explained by long cold season and low mileage performance of electric motors in cold weather, but this is not the topic of the research. Third least known indicator is the land-use system (138 unaware respondents). This witnesses the problems in communication of the land-use system. The other indicators have similar distribution of unaware tourists. The least known are “Artists”, “Marine”, “Hiking”, “Lakes” and “Camping”: they have almost the same “0” replies: from 14% to 17% of all respondents. The middle segment includes “Air” and “Hockey”, with 9% and 10% of unaware tourists. And the most known are “Ethnic”, “Special”, “Parks” and “Hostel”, with 5–7% of unaware respondents. Talking about factors, the most communicated to tourists is “Availability of diverse sport infrastructure” (94% of tourists know about the factor). Almost the same number of respondents are aware of special events and ethnic celebrations (92%), and consider eco-housing as their accommodation (91%). Ecological factor and accessibility of nature have 19% and 12% of unaware rate. The least known is eco-transport, which has 74% of unaware respondents.

Table 6. Number of respondents, who were not familiar with the indicator

Name of indicator	Number of respondents, who were not familiar with the indicator	Percentage of all sample	Average for the factor
ETHNIC	24	6%	8%
SPECIAL	20	5%	
ARTISTS	55	14%	
SKIING	8	2%	6%
HOCKEY	38	10%	
AIR	33	9%	19%
LAND	138	35%	
MARINE	54	14%	
EVEHICLES	318	82%	74%
CHARGERS	256	65%	
PARKS	23	6%	12%
HIKING	55	14%	
LAKES	58	15%	
CAMP	67	17%	9%
GLAMPING	10	3%	
HOSTEL	27	7%	

From the Figure 2 it is visible how the values of dataset are dispersed among the questions. The colors represent quantity of the answers, for which the color stands. Difference in the length of the line appears because “0” results have been pointed out. As it has been decided to join thematically close indicators by using averages into the single factors in order to verify their complex relationship with the touristic attractiveness and the revisit intention, their explanation is provided. Overall, this dataset has one dependent variable and six factors varying from 1 score to 7. These six factors consist out of 18 indicators, which are represented by questions. From the Figure 2 it is seen, that there are much more 6 and 7 results, that any others, which make the data-quality tests very important.

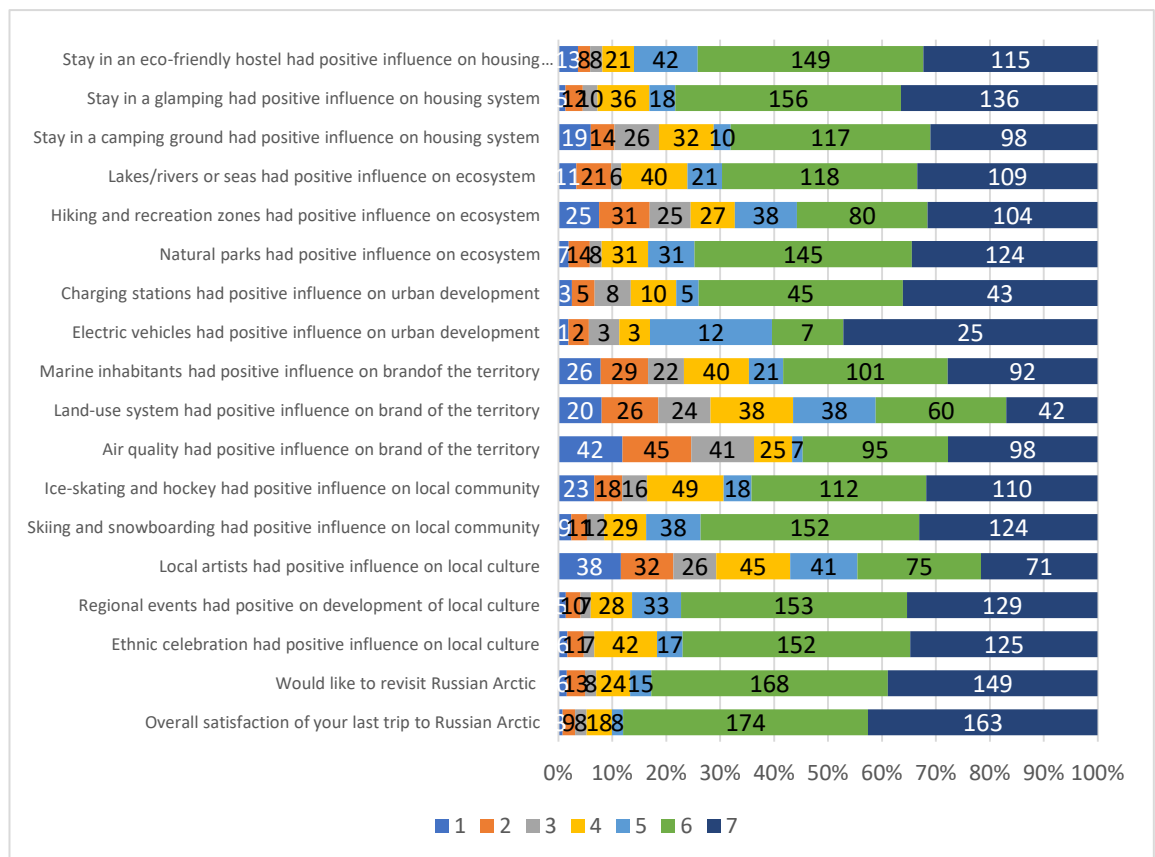


Figure 2. Descriptive statistics and variable definitions

Prior to the correlation and regression analysis, distribution of data was analyzed by making the Figure 3. The figure shows, that data is dispersed not equally. Hence, the performed Shapiro–Wilk Test for normality of sample data distribution resulted in the W -coefficient equals to 0.89827 with its p -value $< 2.2e-16$. According to the presented

p -value, the statistical probability of a normal distribution does not exceed 0.05, which means that our data is distributed non-normally. This is normal for questionnaires, especially Likert scale. In general it means, that the data is generally more close to one side, than to another. In other words, the sample had much more positive or negative answers. As it is powerful evidence before any numeric analysis to present distribution visually the bar chart of the overall answers is presented in Figure 3. In case of the current research mostly respondents tend to vote “6” or “7”, than “1” or “2” (Figure 3).

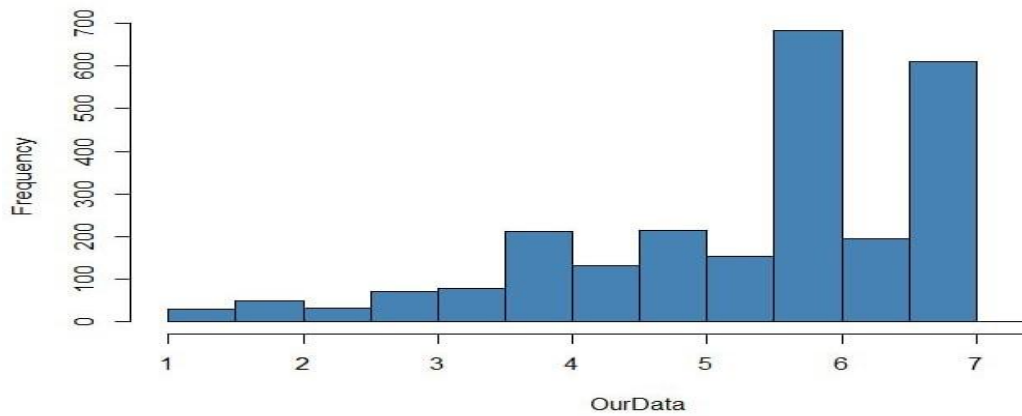


Figure 3. General distribution of data

Due to that, calculation of residuals must be undertaken after the regression model is done to deal with non-normal distribution for regression modeling. Proceeding to the correlation analysis, it is noteworthy to consider using the Spearman’s type of correlation matrix, because of the non-normally distributed data. Thus, Spearman correlation has been used (see Table 7 and Table 8).

Correlation coefficients (see Table 7) between overall customer satisfaction and local culture, sports infrastructure, smart infrastructure and eco-accommodation are 0.7 or above (accordingly 0.76, 0.73, 0.69, and 0.74; $p < 0.05$). This means, that correlation between these factors and overall customer satisfaction is strong. The other factors also have statistically significant result ($p < 0.01$), but the coefficients are lower than 0.7 (environment – 0.52 and accessibility of nature – 0,63). This means that there is correlation, but it is moderate, because none of the coefficient exceed 0.7 level, therefore it cannot be considered as significant. The result of correlation analysis shows, that overall customer satisfaction really depends on SD factors and further regression

analysis can be proceeded. Coefficients for environment and accessibility of nature are not strong enough, but show that there is correlation. In order to understand the indicators, which affect this correlation further correlation analysis between indicators is needed. That will also improve understanding of other factors. The data on indicators does not need to be tested for normal distribution, as distribution of its averages is already known.

Table 7. Correlation matrix for SD factors and overall customer satisfaction

Characteristic	Average of Satisfaction and Revisit
Average of Satisfaction and Revisit	1.00
Average of Local Culture	0.76***
Average of Winter Sports	0.73***
Average of Environment	0.52***
Average of Smart Infrastructure	0.069***
Average of Access to Nature	0.063***
Average of Accommodation	0.074***

* $p < 0.1$

** $p < 0.01$

*** $p < 0.05$

In this correlation matrix (see Table 8) overall customer satisfaction was also divided on indicators. The analysis showed strong correlation (0,78) between customer satisfaction and their revisit intention. The only indicator, which has significance for one dependant variable and does not have for another is ethnic celebrations, but 0,69 can be rounded up to 0,7 and considered as strong correlation. All the factors, which had strong correlation with overall customer satisfaction (see Table 7), have at least 1 indicator, which has strong correlation with both customer satisfaction and their revisit intention (see Table 8). For factors with the absence of correlation, where such coefficients are low (Environment and Accessibility of Nature), only one indicator out of six showed strong correlation. This is accessibility of natural parks (0,72 for customer satisfaction and 0,77 for revisit intention). The fact, that there is an indicator with strong correlation, which is related to the factor with relatively low correlation makes it necessary to build regression model for indicators also.

Table 8. Correlation matrix of indicators with Satisfaction and Revisit Intention

Characteristic	Satisfaction	Revisit Intention
Satisf	1.00	0.78***
Revisit	0.78**	1.00
Ethnic	0.69	0.74**
Special_Ev	0.79**	0.83**
Artists	0.29	0.29
Skiing	0.73**	0.72**
Hockey	0.47	0.50
Air	0.35	0.39
Land	0.23	0.30
Marine	0.40	0.43
Evehicles	0.57	0.49
Chargers	0.76**	0.77**
Parks	0.73**	0.77**
Hiking	0.23	0.27
Lakes	0.51	0.52
Camp	0.52	0.58
Glamping	0.72**	0.77**
Hostel	0.39	0.42

* p < 0.1

** p < 0.01

*** p < 0.05

According to the results of correlation analysis, only strong correlated independent variables have been considered for the linear regression part. On this ground, the linear model examines the relationship between satisfaction of the tourists as a dependent variable and the set of independent variables, including local culture, sports infrastructure, smart infrastructure and eco-accommodation. The regression model for indicators includes availability of ethnic celebrations and special events, skiing facilities, availability of natural parks and conservation zones, access to electric chargers facilities, and accessibility of accommodation in glamping.

The multiple regression model is utilized instead of group of pair regressions in order to verify how the set of factors relates to the dependent variable all together. As it is assumed that each of the tourist factors is influential, they have to be assessed in a group. Potentially, this approach would show more reliable and accurate results. The following tables 9 and 10 contain outputs of two regression models. One (Table 9) is for sustainable development thematically factors, while the second one (Table 10) in regard

to the narrower indicators, which correspond to the separate questions in the questionnaire.

Reviewing the Table 9, the linear regression formula for this model is as following:

$$\begin{aligned} \text{Satisfaction and Revisit} &= 0.39 \\ &+ 0.31 * \text{Average of Local Culture} \\ &+ 0.24 * \text{Average of Winter Sports} \\ &+ 0.06 * \text{Average of Environment} \\ &+ 0.16 * \text{Average of Access to Nature} \\ &+ 0.27 * \text{Average of Accommodation.} \end{aligned}$$

Table 9. Output of regression analysis of SD factors and overall customer satisfaction

Predictors	Average Satisfaction and Revisit		
	Estimates	Confidence Interval	p-value
(Intercept)	0.39	0.09 - 0.68	0.010
Average of Local Culture	0.31	0.25 - 0.37	<0.001
Average of Winter Sports	0.24	0.18 - 0.29	<0.001
Average of Environment	0.06	0.01 - 0.10	0.009
Average of Access to Nature	0.16	0.10 - 0.21	<0.001
Average of Accommodation	0.27	0.21 - 0.33	<0.001
Observations	381	R2/R2 Adjusted	0.803/0.800

Reading out the regression formula, one finds that the factors are clearly different in their relationship with the touristic attractiveness. Hence, the most powerful independent variable is the local culture with the rate 0.31. Quite close to it, stands the next factor of accommodation with the rate 0.27. The next one is the winter sports factor showing an extent of access to winter sport facilities with the rate of 0.24. Further, there is the factor of access to natural zones indicating 0.16 coefficient. Last but not least, there is the environment factor with 0.06 rate. As for their statistical significance, almost all factors hold an outstanding p-value of lower than 0.005, while only the environment factors reach 0.009 level. This model has 381 observations with the R² rate of 0.8, explaining about 80% of the sample. The number of observations for regression model is lower, than the overall number of respondents by 6. It happens, because for these 6 respondents, the average result for one of the factors was “0”. Statistically such replies cannot be considered in the regression model. Though, this number does not exceed 5% statistically significant interval, so the model can be approved.

During preparation of the regression analysis for indicators, which were selected after considering their correlation rate, one of the variables has been excluded. Thus, the indicator of electric chargers has been deleted from the model, due to its negative influence on the quality of modeling. Many of the respondents answered 0 to the question about the national parks, meaning that they have not heard or seen them. Due to that, too few observations were included into the model with parks – therefore it has been decided to erase the variable from the following table.

As the Table 10 shows, the linear regression formula looks like the following:

$$\begin{aligned} \text{Average Satisfaction and Revisit} &= 0.24 \\ &+ 0.28 * \text{Special Events} \\ &+ 0.17 * \text{Skiing} \\ &+ 0.24 * \text{Parks} \\ &+ 0.30 * \text{Glamping.} \end{aligned}$$

According to the formula, the most influential factor is glamping with the estimate rate of almost 0.3. Then it is followed by the 0.19 estimate of the special events' availability and the national parks factor with 0.24 estimate. Further, there is the skiing and snowboarding facilities holding a rate of 0.17. As for their statistical significance, four variables are significant, due to the low rate of p-value, which does not exceed 0.05 threshold. All of the reviewed factors in this model contain 334 observations with the R² rate of 0.905, which corresponds to the ~90% of the sample explained.

Table 10. Regression analysis of indicators and overall customer satisfaction

Predictors	Average Satisfaction and Revisit		
	Estimates	Confidence Interval	p-value
(Intercept)	0.24	0.03 - 0.44	0.022
Special Events	0.28	0.23 - 0.34	<0.001
Skiing	0.17	0.13 - 0.21	<0.001
Parks	0.24	0.19 - 0.29	<0.001
Glamping	0.30	0.24 - 0.35	<0.001
Observations	334	R2/R2 Adjusted	0.905/0.904

In order to verify the regression models, the residuals distribution tests were made. Being separated from the main data as non-normally distributed, residuals are reviewed for normality separately. The detailed overview of the residuals normality test shows graphically how they are distributed. From the Figure 4 it is visible, that the data on the

right side follows the pattern of the normally distributed data (most data is close to the red line).

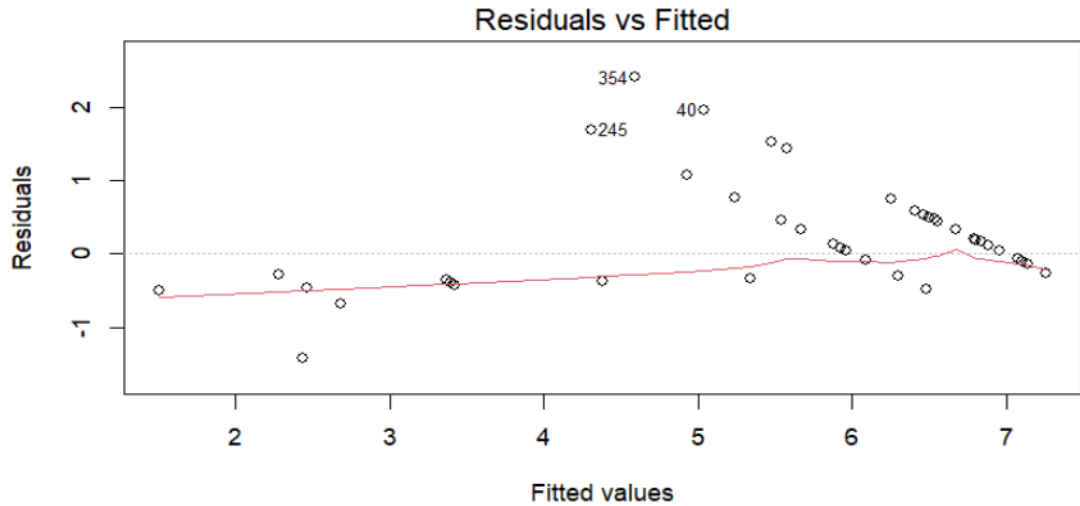


Figure 4. Normality of the Residuals Distribution

Additionally, both models were verified in terms of multicollinearity by the VIF test (Table 11).

Table 11. Output of Multicollinearity tests for two regression models

Model with Factors	Value of Multicollinearity
Average of Local Culture	1,89
Average of Winter Sports	1,87
Average of Environment	1,39
Average of Access to Nature	1,57
Average of Accommodation	1,84
Model with Significant Indicators	Value of Multicollinearity
Special Events	2,02
Skiing	2,17
Parks	2,16
Glamping	2,04

In terms of the test's value, the range between 1 and 5 shows low and weak correlation between the variables, what is actually possible, due to short range of possible variable's values. Meanwhile, being lower than 1 means the absence of multicollinearity. The variables are closer to the value 1 than 5, therefore their extent of

interconnection is still low. This, together with the distribution of residuals show, that the multiple regression models are accurate, and can be used for sample description.

The results of the research show that the implementation of SD practices has a significant impact on the attractiveness of Russian Arctic. According to the analysis of respondents' awareness with SD indicators, the most known practices are skiing (98%) and glampings (97%). The least known is smart infrastructure with 318 unaware respondents for electric vehicles and 256 for chargers. Spearman correlation test showed, that local culture, sport infrastructure, smart infrastructure and eco-accommodation have high correlation with level of tourists' satisfaction with their trip to Russian Arctic. In particular, Ethnic celebrations, regional special events, skiing infrastructure, chargers for electric vehicles, national parks and glampings are the indicators, which affect overall customer satisfaction more. For the regression models variables with high level of unaware respondents were moved out.

These findings demonstrate which factors affect attractiveness of the destination more, and demonstrate the importance of sustainable development for creating attractive tourist destinations in Russian Arctic.

2.3. Discussion and recommendations

This part is devoted to comparing the statistical analysis of the survey results with the theoretical and general assumptions about sustainable practices in regards to touristic attractiveness of the Arctic. Also, the limitations of the study should be taken into consideration, and recommendations are to be made taking them into account.

Out of all sample, there were more male respondents, but not significantly. Distribution of the age range 18–25, 26–40 and 41–55 appeared to be almost equal. This shows that the Russian Arctic and its attractions are interested to all the ages of respondents. This contributes well with other destinations: e.g. in Gu et al. (2022, p. 12) survey among tourists in China this age range was also the most popular, and respondents under 18 and over 65 were lower in number. Relating the results of the research, this sex and age ranges mean, that the results are representable for all ages and sexes. The visited regions have obvious leader: Murmansk region. Distribution between other regions is relatively

equal. This contributes with the way of convenience sampling method (Andrade, 2021, p. 88): probability that respondents from the travel agency clients database will have travelled to Murmansk region is higher, because there are more tours. This limitation was discussed in chapter 2.1, and in case of the results means, that the generalization for all the tourist inflow to Russian Arctic is discussable. With 100% significance the results can be applied only to the used sample (Andrade, 2021, p. 88).

The first point of the study showed, that tourists, who come to Russian Arctic are not familiar with electric vehicles and infrastructure for it. Davies (2020, p. 211) in his work claimed, that electric vehicles' key feature is public transport: the usage of electric scooters, or electric carsharing makes it easier for people to get from one place to another. He finds this factor of SD more important to local population, but tourists also benefit from electric vehicles, as the peripheral areas of the city become more accessible (Davies, 2020, p. 211). Rudskaia (2021, p. 8) also oversees smart infrastructure as one of the points of urban development. So, the fact, that most of the respondents (74%) were not familiar and did not use electric vehicles might be explained by the visited areas: mostly tourists visit natural sights, which are located far away from big cities. Those respondents, who were familiar with the smart infrastructure showed quite high result in their assessment of its influence on SD, and also quite high correlation coefficient with overall satisfaction. This confirms Davies (2020, p. 211) findings, that this factor is influential to attractiveness of the destination among tourists. So, developing smart infrastructure could be influential for attractiveness of cities in Russian Arctic for tourism, if communicated well. But this cannot be assumed for sure, because this factor was deleted from regression test, according to the lack of significant data (only 26% of all sample). These facts lead to recommendation to spread eco-transport infrastructure over all the area, not just big cities.

Among other factors, land-use system was not known much by respondents. This indicator did not show high correlation with overall tourists' satisfaction, so the only assumption to be made is the lack of communication of this factor. Research made by Bondarenko et al. (2018, p. 54) showed, that mostly local people are interested in the territory, but they are not interested in ecological situation, which does not help brand formation (Bondarenko et al., 2018, p. 61). The lack of branding might be the reason,

why the land-use system is not widely recognized by tourists. Other factors showed pretty high awareness among respondents, which confirms that factors of SD pointed out from theoretical research made in chapter 1.6 are visible and valuable for tourists.

The regression model for average results showed, that local culture is the most important for growth of attractiveness of Arctic as a tourism destination. This factor result was reduced by the “Local artists” indicator: it had weak correlation. From regression model among indicators, it is seen, that special events are the 2nd influential indicator on overall customer satisfaction. These findings correlate with other authors, who claim that cultural events increase regional competitiveness (Alberti & Giusti, 2012, p. 262; Zamorshchikova & Khokholova, 2020, p. 587). As different authors claim, that regions can use special events for highlighting of regional cultural features (Mariani & Giorgio, 2017, p. 8) and provide tourists an experience to get familiar with the culture (Gumede et al., 2022, p. 13), it is highly recommended to develop regional special events and ethnic celebrations. The indicator, used for local artists did not show significant influence on destination attractiveness. But local artist will surely benefit from developing of ethnic celebrations and local special events, as they will participate in them. These findings lead to recommendations to develop regional special events and ethnic celebrations and use mostly local artists for organization.

The second significant factor in regression model was availability of sustainable accommodation (0.27 estimate). Also this variable is one of the most known among tourists, and among indicators only camping grounds were not common for almost 20% of respondents. This witnesses for high awareness about eco-accommodation. The factor has strong correlation with overall customer satisfaction (coefficient 0.74), but among indicators only glampings showed strong correlation. Talking about eco-hotels, the awareness among respondents is high, so the low result might witness, either that tourists with environmental perceptions are excluded from the agency clients and this is the research limitation (Andrade, 2021, p. 88), either that perceptions for eco-friendly hotels do not have any connection with their satisfaction with the trip. This can be contradictory for Cavero-Rubio & Amoros-Martinez results (2020, p. 771), about crisis sales of certified eco-hotels staying the same in 2008 and willingness to stay and overpay for eco-accommodation (Ting et al., 2019, p. 13; González-Rodríguez et al.,

2020, p. 72). Thus, it can be explained by the level of trust to eco-hotels: if they are really “eco”, and tend to care about environment. This issue of “overcertification” and lack of trust to eco-certifications is also significant for SD (Alonso-Muñoz et al., 2023, p. 471). Talking about glampings, it showed the highest result in regression model, which means that glampings are the most influential factor on overall customer satisfaction among other significant indicators. This leads to recommendation to develop glamping services, making them more eco-friendly and research the issues of eco-hotels’ performance in case of eco-friendliness, and improve the issues. The main research question is do tourists in Russian arctic trust eco-hotels and tend to overpay for them?

The third most influential factor for destination attractiveness is development of sport facilities. This factor consists out of two indicators: skiing and hockey. As Kirovsk, located in Arctic region is known as the first ski resort in Russia (Dushkova & Krasovskaya 2018, p. 10), the first indicator is attractive itself. The second indicator was aimed to show the effect of sport infrastructure, which is used more by locals. Indicator for skiing infrastructure showed strong correlation with overall customer satisfaction, and also was 3rd most influential variable in regression model among indicators. Hockey had moderate correlation with overall customer satisfaction, and could not have been observed in regression model. This can mean, that sport infrastructure, which makes Russian Arctic more attractive for tourists is infrastructure, which is designed for them (ski resorts). And infrastructure, which is designed for locals, is not so relevant for attractiveness (hockey). For SD it is important, that all kinds of infrastructure had equal availability for locals and tourists (Alonso-Muñoz et al., 2023, p. 470). In this case it is important to understand which factors make sports infrastructure attractive for tourists, and how this attractiveness depends on availability of this infrastructure for locals. Talking about other research, the advice on targeting of sport infrastructure on local people also can be found (Voronyanskyi et al., 2020, p. 163). Also, according to the research, keeping the quality of Skiing infrastructure is important. Regions other than Kirovsk, should think of developing its own ski resorts, in case they have suitable conditions. This may potentially attract new investment in the regional budgets (Timoshenko, 2020, p. 5) and become a popularization factor of the destination (Gozalova et al., 2014, p. 93). So, the recommendations are to keep existing

skiing infrastructure, and develop new ski resorts and check, if the existing infrastructure is available for locals. Make it more available, if it is not. The potential research questions for the factor are: which factors make sports infrastructure attractive for tourists? And how attractiveness of sports infrastructure among tourists depends on availability of this infrastructure for locals?

The fourth factor in the regression analysis is accessibility of nature and national parks. It got 0,16 estimate in regression model. Awareness about this factor is middle for the sample (88%), which is decrease by 15% of unaware respondents for accessibility of coastal zones and 14% of unaware respondents for accessibility of hiking trails. This is middle result for the sample, and witnesses, that accessibility of natural sights exists, and is communicated well. In correlation analysis, only accessibility of natural parks showed significant result. And its estimate in regression model is 0,24, which makes this indicator quite important for the attractiveness of Russian Arctic. Findings of Ziryanov and co-authors (2016, p. 82) about attracting tourists to the destination depending on hiking trails in Northern Ural region (Ziryanov et al., 2016, p. 82) does not meet its approval for all Arctic region. Also, this can explain low result for accessibility of coastal zones, as these zones are popular among hikers (Akay, 2020, p. 536). Though, the limitations of the sampling method still can be applied: tourists, who tend to hike might not consider tourist agency, as a service provider, so backpackers' perceptions for hiking trails and accessibility of coastal zones can be observed. According to regression analysis, this factor should be developed, with main focus on national parks environment and accessibility.

The last factor is ecological brand of the territory. This factor has 19% off unawareness rate, which was mainly caused by 138 respondents, who were not familiar with land – use system in the region. Such level of unawareness might be a problem for the level of attractiveness, as most of the researchers (Zdravković & Peković, 2020, p 72, Bondarenko et al., 2018, p. 56) tend to emphasize that ecological situation influences the territorial brand development. Such level of awareness for one of the most common issues of SD, might be explained by poor situation of environmental sustainability and following silencing of the issue by government and stakeholders. This factor did not show significant correlation with destination attractiveness (0,52 for correlation

coefficient). This is the reason why further correlation was not proceeded. The absence of interdependence contradicts the research, which emphasizes the importance of environmental concerns of tourists (Booking.com, 2022, p. 4, Sanchez-Ollero et al., 2011, p. 1841, Özyurt & Kantarci, 2017, p. 100). In particular, Bigné et al. point out ecological factor as the most important for destination attractiveness (2020, p. 701). This result may be linked with the possible reason of the result of eco-hotels performance (correlation coefficient – 0,39). Tourists' low level of trust to environmental activities may result in their indifference to ecological issues. Bondarenko et al. (2018, p. 56) claim, that local population in other Russian region, Rostov, do not pay enough attention to ecological situation, and recommends government to educate local people and stakeholders. This recommendation can be also applied to Arctic regions. Also, the case research on real environmental situation in Arctic region should be done: why does environmental sustainability in Russian Arctic is not communicated well; and how does level of trust to environmental communication affects tourists' perceptions of eco-practices?

To sum up, the most significant effect on attractiveness of Russian Arctic as a tourism destination makes local culture, then goes eco-accommodation, development of sport facilities and accessibility of national parks. Ecological brand has got relatively low rate of correlation with customer satisfaction. Smart infrastructure has got very high rate of unawareness and was not considered in regression models. Though correlation of electric vehicles and chargers for electric vehicles with destination attractiveness was found to be strong. According to results following recommendations to stakeholders were made:

- Develop regional special events and ethnic celebrations.
- Use mostly local artists for organization.
- Check, if the existing infrastructure is available for locals. Make it more available, if it is not.
- Keep existing skiing infrastructure, and develop new ski resorts.
- Improve awareness about ecological situation.
- Carry out research on real environmental situation in Arctic region.
- Spread eco-transport infrastructure over all the area, not just big cities.

- Develop accessibility of natural sights, with main focus on national parks environment and accessibility.
- Develop glampings, paying attention to its eco-friendliness.
- Research the issues of eco-hotels' performance in case of eco-friendliness, and improve the issues.

The convenience sampling type is the limitation of the research. Though it is taken into account and results are discussed considering the limitation. Another limitation of the research is the questionnaire design, which does not consider hard data on SD in Russian Arctic, and uses tourists' perceptions on SD indicators. This limitation did not affect the quality of the results and findings, as long as the subject of the research is tourists' perceptions on SD, but not the real situation.

CONCLUSION

Hospitality and tourism industry is strategically important for successful functioning of any state. Tourism links many industries together in order to meet the needs of customers, who visit previously unknown places and plunge into an unfamiliar culture. People use many different products, coming to tourism destinations: from water and food to different services and infrastructure. The growth of demand in travel industry generated more and more supply in the world market. And, as a result, the overgrown tourist flow became part of the global environmental crisis. It has only expanded over the years and is in a progressive stage to this day. Not only has the environment become a victim of the expansion of tourism enterprises, but also local population and cultures. And, labor and gender inequalities have emerged in countries where women's rights are restricted.

At some point, UN launched and developed a global initiative to preserve and protect the planet for future generations – the development and widespread implementation of the concept of sustainable development, both at the civil and business levels. Despite being attached to many social spheres, this initiative has quickly spread over tourism sector. Due to that, this circumstance is resulting in creation sustainable tourism development concept, which is aimed to adjust supply and demand in industry markets towards environmental, economic and socio-cultural sustainability in order to minimize potential damage in the future.

But talking about SD it should not be forgotten that tourism is business and all the tourism companies, as well as other ones, aim to get profit: invest, develop their projects and earn money. This means, that SDGs can only be achieved if long-term profit is understood by stakeholders. Thus, it makes it very important to carry out studies, which explain profit, which stakeholders can get applying SD concept.

Research on SD has shown that often the question is tested inversely with the study of the influence of the attractiveness of the region on its indicators of environmental friendliness, socio-cultural sustainability and economic growth. Despite the rarity of works related to assessment of SD influence of on attractiveness of tourism destination, there are many works that study the individual impact of the SD situation in the region on tourist demand. All in all, many independent studies scientifically confirm that the image of a tourist destination largely depends on SD in the region and the measures taken by the authorities to protect the natural environment and cultural heritage of the destination.

In accordance with the purpose of the study, it was needed to establish factors of SD, which are existent in Arctic region in Russia. In general factors are divided in 4 categories: management features, social and cultural impact, economic value, and environmental impact. This was the base for determination of the influential aspects of the tourism industry in Arctic destinations. In turn, they are mostly linked to the activity of multiple stakeholders influential for tourism development. Special regional events, ethnic holidays, excursions and tours to villages (developing local art) are identified as a valuable source of growth and development in the Arctic tourism industry. Special events also can be considered as a way to attract visitors to the region even in off-season periods, boost the social capital, connections, and creativity of the region's population. Developed sports infrastructure is also important for sustainable tourism and can serve as a reason for holding national and international sports events in a given territory, which can potentially popularize the region. Another important factor is environmental friendliness in promoting sustainable tourism in the Arctic regions. The Russian Arctic has great potential to become an international eco-friendly brand by the effective use of its natural resources, such as national parks and marine sources. Also, preserving nature is quite important, when dealing with high tourists flow. This lead to development of hiking trails, recreation zones and accessible coastal areas. The last, but not least is housing problem in tourism. Russian Arctic widely use campings and innovative forms of them: glampings.

To collect the empirical data the 7-point Likert scale questionnaire was used. It used questions on overall satisfaction and revisit intentions for assessing destination

attractiveness (dependent variable) and tourists' awareness and perceptions on SD indicators (independent variable). The data from 384 tourists who visited the region in the past year was collected and analyzed with correlation and multiple regression methods to identify sustainable development (SD) factors that positively influence touristic attractiveness in order to achieve the thesis goal. Necessary data-validity tests were applied.

The results of the research show that the concept of sustainable development has a significant impact on the tourism industry, particularly in the Arctic region. According to the results, the most significant effect on attractiveness of Russian Arctic as a tourism destination comes from following factors: local culture, sports and eco-accommodation. Also during the study it was found out that destination attractiveness increases in dependence to following indicators; ethnic celebrations and special events, skiing facilities, natural parks and conservation zones and accessibility of accommodation in glampings. Electric vehicles and smart infrastructure potentially also could be influential to the attractiveness of Russian Arctic, but it is not developed and communicated enough. In order to improve SD motivation among stakeholders, the thesis goal was also to give recommendations for improvement and further research. Mainly, recommendations include developing the most significant factors and indicators of SD, pay attention to local community and culture and make deep research on the problematic indicators. Detailed recommendations are done in chapter 2.3. Future research is suggested to study environmental issues in Russian Arctic, trust issues to the activities of stakeholders in environmental and eco-fields.

These findings demonstrate the importance of sustainable development in creating attractive and sustainable tourist destinations. Communicated to local government and stakeholders in Russian Arctic, the recommendation will increase awareness about SD, and its positive effect on attractiveness off the destination. This will surely make its impact on stakeholders' motivation towards SD. Thus, the research problem can be solved, if the research is communicated well to certain stakeholders.

REFERENCES

- Ahmad, S. Z., Ahmad, N., & Papastathopoulos, A. (2018). Measuring service quality and customer satisfaction of the small-and medium-sized hotels (SMSHs) industry: lessons from United Arab Emirates (UAE). *Tourism Review*, 74(3), 349–370. <https://doi.org/10.1108/TR-10-2017-0160>
- Akay, B. (2020). Examining the rural tourism experiences of tourists in emerging rural tourism destination: Burdur province, Turkey. *Geo Journal of Tourism and Geosites*, 29(2), 534–544. <https://doi.org/10.30892/gtg.29212-487>
- Alberti, F. G., & Giusti, J. D. (2012). Cultural heritage, tourism and regional competitiveness: The Motor Valley cluster. *City, Culture and Society*, 3(4), 261–273. <https://doi.org/10.1016/j.ccs.2012.11.003>
- Alonso-Muñoz, S., Torrejón-Ramos, M., Medina-Salgado, M. S., & González-Sánchez, R. (2023). Sustainability as a building block for tourism–future research: tourism agenda 2030. *Tourism Review*, 78(2), 461–474. <https://doi.org/10.1108/TR-12-2021-0568>
- Andrade, C. (2021). The inconvenient truth about convenience and purposive samples. *Indian Journal of Psychological Medicine*, 43(1), 86–88 <https://doi.org/10.1177/0253717620977000>
- Andrew, R. (2014). Socio-Economic Drivers of Change in the Arctic. *AMAP Technical Report*, 9. Arctic Monitoring and Assessment Programme (AMAP). <https://oaarchive.arctic-council.org/handle/11374/730>
- Arabadzhyan, A., Figini, P., & Vici, L. (2021). Measuring destination image: a novel approach based on visual data mining. A methodological proposal and an application to European islands. *Journal of Destination Marketing & Management*, 20, Article 100611. <https://doi.org/10.1016/j.jdmm.2021.100611>
- Artic Council. (2011). Agreement on Cooperation on Aeronautical and Maritime search and Rescue in the Arctic. Artic Council. <https://oaarchive.arctic-council.org/handle/11374/531>

- Arctic Council. (2013). Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/529>
- Arctic Council. (2017). Agreement on Enhancing International Arctic Scientific Cooperation. Arctic Council. <https://oaarchive.arctic-council.org/handle/11374/1916>
- Asuero, A. G., Sayago, A., & González, A. G. (2006). The correlation coefficient: An overview. *Critical Reviews in Analytical Chemistry*, 36(1), 41–59. <https://doi.org/10.1080/10408340500526766>
- Bigné, E., Zanfardini, M., & Andreu, L. (2020). How online reviews of destination responsibility influence tourists' evaluations: an exploratory study of mountain tourism. *Journal of Sustainable Tourism*, 28(5), 686–704. <https://doi.org/10.1080/09669582.2019.1699565>
- Belsoy, J., Korir, J., & Yego, J. (2012). Environmental impacts of tourism in protected areas. *Journal of Environment and Earth Science*, 2(10), 64–73.
- Bigné, E., Zanfardini, M., & Andreu, L. (2020). How online reviews of destination responsibility influence tourists' evaluations: an exploratory study of mountain tourism. *Journal of Sustainable Tourism*, 28(5), 686–704. <https://doi.org/10.1080/09669582.2019.1699565>
- Bondarenko, V. A., Dianova, S., Joom, T., & Dubinina, M. (2018). Residents' interest to form a “green” territory brand. *European Research Studies Journal*, 21(1), 51–62.
- Booking.com. (2022). *Sustainable Travel Report 2022*. <https://globalnews.booking.com/download/1161485/booking.comsustainabletravelreport2022final.pdf>
- Buckley, R. (2020). Nature tourism and mental health: parks, happiness, and causation. *Journal of Sustainable Tourism*, 28(9), 1409–1424. <https://doi.org/10.1080/09669582.2020.1742725>
- Cajiao D., Leung, Y. F., Larson, L. R., Tejedo, P., & Benayas, J. (2022). Tourists' motivations, learning, and trip satisfaction facilitate pro-environmental outcomes of the Antarctic tourist experience. *Journal of Outdoor Recreation and Tourism*, 37, Article 100454. <https://doi.org/10.1016/j.jort.2021.100454>

- Cavero-Rubio, J. A., & Amorós-Martínez, A. (2020). Environmental certification and Spanish hotels' performance in the 2008 financial crisis. *Journal of Sustainable Tourism*, 28(5), 771–796. <https://doi.org/10.1080/09669582.2019.1705316>
- Chater, A. (2016). Explaining Russia's relationship with the Arctic Council. *International Organizations Research Journal*, 11(4), 41–54. <https://doi.org/10.17323/1996-7845-2016-04-205>
- Chok, N. S. (2010). *Pearson's versus Spearman's and Kendall's correlation coefficients for continuous data* [Master's thesis, University of Pittsburgh]. D-Scholarship. <http://d-scholarship.pitt.edu/8056/>
- Cisneros-Martínez, J. D., McCabe, S., & Fernández-Morales, A. (2018). The contribution of social tourism to sustainable tourism: A case study of seasonally adjusted programmes in Spain. *Journal of Sustainable Tourism*, 26(1), 85–107. <https://doi.org/10.1080/09669582.2017.1319844>
- Cunha, D., Kastenholz, E., & Lane, B. (2021). Challenges for collecting questionnaire-based onsite survey data in a niche tourism market context: The case of wine tourism in rural areas. *Sustainability*, 13(21), Article 12251. <https://doi.org/10.3390/su132112251>
- Davies, N., Blazejewski, L., & Sherriff, G. (2020). The rise of micromobilities at tourism destinations. *Journal of Tourism Futures*, 6(3), 209–212. <https://doi.org/10.1108/JTF-10-2019-0113>
- Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics: Conference Series*, 949(1), Article 012009. <https://doi.org/10.1088/1742-6596/949/1/012009>
- Deng, T., Li, X., & Ma, M. (2017). Evaluating impact of air pollution on China's inbound tourism industry: a spatial econometric approach. *Asia Pacific Journal of Tourism Research*, 22(7), 771–780. <https://doi.org/10.1080/10941665.2017.1331923>
- Destek, M. A., & Aydın, S. (2022). An empirical note on tourism and sustainable development nexus. *Environmental Science and Pollution Research*, 29, 34515–34527. <https://doi.org/10.1007/s11356-021-18371-9>
- Dushkova, D., & Krasovskaya, T. (2018). Post-Soviet single-industry cities in northern Russia: movement towards sustainable development. A case study of

- Kirovsk. *Belgeo. Revue belge de géographie*, (4), 1–24.
<https://doi.org/10.4000/belgeo.27427>
- Dwyer, L. (2022). Tourism contribution to the SDGs: applying a well-being lens. *European Journal of Tourism Research*, 32, Article 3212.
<https://doi.org/10.54055/ejtr.v32i.2500>
- EarthCheck. (2022). *Company Standard, version 4.1*. <https://earthcheck.org/wp-content/uploads/2022/12/FINAL-MASTER-EarthCheck-Company-Standard-V4.1-25-August-20-January-2022-release-DZ.pdf>
- Eskiev, M. A. (2021). Territory Branding As An Opportunity For The Region Development. *European Proceedings of Social and Behavioural Sciences*, 117, 531–539.
<https://www.europeanproceedings.com/article/10.15405/epsbs.2021.11.70>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- European Commission. (2016). *The European Tourism Indicator System, ETIS Toolkit for Sustainable Destination Management*. Publications Office of the European Union. <https://destinet.eu/resources/...-various-target-groups/etis-toolkit/download/en/1/ETIS%20toolkit%202016%20150316.pdf>
- Garcés-Ordóñez, O., Díaz, L. F. E., Cardoso, R. P., & Muniz, M. C. (2020). The impact of tourism on marine litter pollution on Santa Marta beaches, Colombian Caribbean. *Marine Pollution Bulletin*, 160, Article 111558.
<https://doi.org/10.1016/j.marpolbul.2020.111558>
- Global Destination Sustainability Index (2019). *Creating better places to live, meet & thrive in*. https://www.oneplanetnetwork.org/sites/default/files/gds-index_white_paper_2019_compressed.pdf
- Global Destination Sustainability Movement. (2022). *Benchmarking Methodology*. <https://www.gds.earth/wp-content/uploads/Methodology-2022.pdf>
- Global Sustainable Tourism Council. (2019). *GSTC Destination Criteria, version 2.0*. <https://www.gstcouncil.org/wp-content/uploads/GSTC-Destination-Criteria-v2.0.pdf>

- Golubchikov, Y. N., Kruzhalin, V. I., & Nikanorova, A. D. (2019). Arctic tourism: state and prospects for Russia. *Geography, Environment, Sustainability*, 11(4), 5–13. <https://doi.org/10.24057/2071-9388-2018-11-4-05-13>
- Gonzalez-Rodriguez, M. R., Diaz-Fernandez, M. C., & Font, X. (2020). Factors influencing willingness of customers of environmentally friendly hotels to pay a price premium. *International Journal of Contemporary Hospitality Management*, 32(1), 60–80. <https://doi.org/10.1108/IJCHM-02-2019-0147>
- Gozalova, M., Shchikanov, A., Vernigor, A., & Bagdasarian, V. (2014). Sports tourism. *Polish Journal of Sport and Tourism*, 21(2), 92–96. <https://doi.org/10.2478/pjst-2014-0009>
- Grace-Martin, K. (2008). *Can Likert scale data ever be continuous*. The Analysis Factor. <https://www.theanalysisfactor.com/can-likert-scale-data-ever-be-continuous/>
- Green Destinations. (2021). *Green Destinations Standard V2*. <https://www.greendestinations.org/wp-content/uploads/2022/11/GD-Standard-V2-2021-GSTC-Recognised.pdf>
- Green Destinations. (2022). *2022 Green Destinations Top 100 Stories*. <https://www.greendestinations.org/home/what-we-do/solutions-for-travellers/top-100-2022-destination-stories/>
- Gu, X., Hunt, C. A., Jia, X., & Niu, L. (2022). Evaluating Nature-Based Tourism Destination Attractiveness with a Fuzzy-AHP Approach. *Sustainability*, 14(13), Article 7584. <https://doi.org/10.3390/su14137584>
- Gumede, T. K., Nzama, A. T., & Mdiniso, J. M. (2022). Evaluating the Effectiveness of the Strategies for Sustaining Nature-Based Tourism amid Global Health Crises: A Global Perspective. In Y.-E. Yang (Ed.), *Sustainable Built Environment* (pp. 1–67). IntechOpen. <https://doi.org/10.5772/intechopen.108782>
- Guo, Y., Jiang, J., & Li, S. (2019). A sustainable tourism policy research review. *Sustainability*, 11(11), Article 3187. <https://doi.org/10.3390/su11113187>
- Heleniak, T. (2021). The future of the Arctic populations. *Polar Geography*, 44(2), 136–152. <https://doi.org/10.1080/1088937X.2019.1707316>
- Holden, A. (2008). *Environment and tourism* (2nd ed.). Routledge.

- Hu, W., & Wall, G. (2005). Environmental management, environmental image and the competitive tourist attraction. *Journal of Sustainable Tourism*, 13(6), 617–635. <https://doi.org/10.1080/09669580508668584>
- Jamieson, S. (2004). Likert scales: How to (ab) use them?. *Medical Education*, 38(12), 1217–1218. <https://doi.org/10.1111/j.1365-2929.2004.02012.x>
- Kankaanpää, P., & Young, O. R. (2012). The effectiveness of the Arctic Council. *Polar Research*, 31(1), Article 17176. <https://doi.org/10.3402/polar.v31i0.17176>
- Khamis, H. (2008). Measures of association: how to choose?. *Journal of Diagnostic Medical Sonography*, 24(3), 155–162. <https://doi.org/10.1080/1040834050052676610.1177/8756479308317006>
- Komkov, N. I., Selin, V. S., Tsukerman, V. A., & Goryachevskaya, E. S. (2017). Problems and perspectives of innovative development of the industrial system in Russian Arctic regions. *Studies on Russian Economic Development*, 28, 31–38. <https://doi.org/10.1134/S1075700717010051>
- Ksenofontova, T. Y., Tarkhanova, N. P., Kosheleva, T. N., Voronov, A. A., & Luchaninov, R. S. (2021). Leading directions of tourism development in Ural region. *Journal of Environmental Management & Tourism*, 12(8), 2038–2044. [https://doi.org/10.14505/jemt.v12.8\(56\).02](https://doi.org/10.14505/jemt.v12.8(56).02)
- Lukin, Y. F. (2016). Arctic tourism: rating of regions, opportunities and threats. *Arctic and North*, (23), 77–100. http://www.arcticandnorth.ru/upload/iblock/515/09_lukin.pdf
- Malthus, T. (1798). *An Essay on the Principle of Population, as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr Godwin, M. Condorcet, and other Writers*. St. Paul's Church-Yard; <http://www.esp.org/books/malthus/population/malthus.pdf>
- Mariani, M. M., & Giorgio, L. (2017). The “Pink Night” festival revisited: Meta-events and the role of destination partnerships in staging event tourism. *Annals of Tourism Research*, 62, 89–109. <https://doi.org/10.1016/j.annals.2016.11.003>

- Martínez García de Leaniz, P., Herrero Crespo, Á., & Gómez López, R. (2018). Customer responses to environmentally certified hotels: The moderating effect of environmental consciousness on the formation of behavioural intentions. *Journal of Sustainable Tourism*, 26(7), 1160–1177. <https://doi.org/10.1080/09669582.2017.1349775>
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). *The limits to growth*. Potomac Associates Books.
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1), Article 1653531. <https://doi.org/10.1080/23311886.2019.1653531>
- Mensah, J., & Enu-Kwesi, F. (2019). Implications of environmental sanitation management for sustainable livelihoods in the catchment area of Benya Lagoon in Ghana. *Journal of Integrative Environmental Sciences*, 16(1), 23–43. <https://doi.org/10.1080/1943815X.2018.1554591>
- Mihanyar, P., Rahman, S. A., & Aminudin, N. (2015). The Influence of Sustainable Tourism Awareness and Environmental Sustainability Dimensions on Behavioural Intentions Among Domestic Tourists in Developing Countries. *Tourism, Leisure and Global Change*, 2(1), 119–124.
- Musa, M. S., Jelilov, G., Iorember, P. T., & Usman, O. (2021). Effects of tourism, financial development, and renewable energy on environmental performance in EU-28: does institutional quality matter?. *Environmental Science and Pollution Research*, 28, 53328–53339. <https://doi.org/10.1007/s11356-021-14450-z>
- Nadalipour, Z., Imani Khoshkhoo, M. H., & Eftekhari, A. R. (2019). An integrated model of destination sustainable competitiveness. *Competitiveness Review: An International Business Journal*, 29(4), 314–335. <https://doi.org/10.1108/CR-12-2017-0086>
- O’Garra, T. (2017). Economic value of ecosystem services, minerals and oil in a melting Arctic: A preliminary assessment. *Ecosystem Services*, 24, 180–186. <https://doi.org/10.1016/j.ecoser.2017.02.024>

- Özyurt, P. M., & Kantarcı, K. (2017). The intervening role of competitiveness on the relationship between sustainability and tourism performance: A research on European countries. *Economic Themes*, 55(1), 89–103. <https://doi.org/10.1515/ethemes-2017-0006>
- Pai, C. K., Liu, Y., Kang, S., & Dai, A. (2020). The role of perceived smart tourism technology experience for tourist satisfaction, happiness and revisit intention. *Sustainability*, 12(16), Article 6592. <https://doi.org/10.3390/su12166592>
- Raosoft. (n.d.). *Sample Size Calculator*. <http://www.raosoft.com/samplesize.html>
- Pedroso, R., & Kung'u, J. B. (2019). Tourists' willingness to pay for upstream restoration and conservation measures. *Journal of Sustainable Tourism*, 27(8), 1107–1124. <https://doi.org/10.1080/09669582.2019.1593991>
- Petruša, I., & Vlahov, A. (2019). The role of glamping in development of camping tourism offer-possibilities and future prospects in the Republic of Croatia. In J. Šimurina, I. Načinović Braje & I. Pavić (Eds.), *Proceedings of FEB Zagreb International Odyssey Conference on Economics and Business* (pp. 834–843). University of Zagreb, Faculty of Economics and Business.
- Rantala, O., Barre, S. D. L., Granås, B., Jóhannesson, G. Þ., Müller, D. K., Saarinen, J., Tervo-Kankare, K., Maher, P. T., & Niskala, M. (2019). *Arctic tourism in times of change: Seasonality*. Nordic Council of Ministers. <https://doi.org/10.6027/TN2019-528>
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Aarling tests. *Journal of Statistical Modeling and Analytics*, 2(1), 21–33.
- Ritchie, H. (2020) *Where in the world do people have the highest CO2 emissions from flying?* Our World in Data. <https://ourworldindata.org/carbon-footprint-flying>
- Ritchie, H., & Roser, M. (2021). *CO2 emissions*. Our World in Data. <https://ourworldindata.org/co2-emissions>
- Rudskaia, E. N. (2021). Environmental sustainability as the basis for urbanized ecosystems cluster projection. *IOP Conference Series: Earth and Environmental Science*, 937(4), Article 042015. <https://doi.org/10.1088/1755-1315/937/4/042015>

- Ritchie, H., Roser, M., Mispy, J. & Ortiz-Ospina, E. (2018). *Ensure sustainable consumption and production patterns*. SDG-Tracker.org. <https://sdg-tracker.org/sustainable-consumption-production#targets>
- Saarinen, J. (2014). Critical sustainability: Setting the limits to growth and responsibility in tourism. *Sustainability*, 6(1), 1–17. <https://doi.org/10.3390/su6010001>
- Sanchez-Ollero, J. L., García-Pozo, A., & Marchante-Lara, M. (2011). The environment and competitive strategies in hotels in Andalusia. *Environmental Engineering and Management Journal*, 10(12), 1835–1843. <https://doi.org/10.30638/eemj.2011.247>
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Sergunin, A. (2021). Thinking about Russian Arctic council chairmanship: Challenges and opportunities. *Polar Science*, 29, Article 100694. <https://doi.org/10.1016/j.polar.2021.100694>
- Shamaan, N. A., Shukor, M. S., Masdor, N. A., Sabullah, M. K., & Shukor, M. Y. (2015). Testing the normality of residuals on regression model for the growth of *Moraxella* sp. B on monobromoacetic acid. *Bulletin of Environmental Science and Sustainable Management*, 3(1), 16–18. <https://doi.org/10.54987/bessm.v3i1.263>
- Shang, Z., & Luo, J. M. (2022). Topic modeling for hiking trail online reviews: Analysis of the Mutianyu Great Wall. *Sustainability*, 14(6), Article 3246. <https://doi.org/10.3390/su14063246>
- Shetty, P., & Alkonda, V. (2022). Glamping—understanding a new tourism trend in Maharashtra. *Multi-Disciplinary Journal*, 1(2), 1–4. http://www.mahratta.org/CurrIssue/2022_March_Spl-1/9.%20Glamping%20-%20understanding%20a%20new%20tourism%20trend%20in%20Maharashtra-Ms.%20Priyanka%20Shetty,Mr.%20Vishal%20Alkonda.pdf
- Sknavis, C., & Sakellari, M. (2011). International tourism, domestic tourism and environmental change: environmental education can find the balance. *Tourismos*, 6(1), 233–249. <https://doi.org/10.26215/tourismos.v6i1.206>

- Smirnov, A. V. (2020). The Arctic population: dynamics and centers of the settlement system. *Arctic North*, 270–290. <https://doi.org/10.37482/issn2221-2698.2020.40.270>
- Stewart, E. J., Liggett, D., & Dawson, J. (2017). The evolution of polar tourism scholarship: Research themes, networks and agendas. *Polar Geography*, 40(1), 59–84. <https://doi.org/10.1080/1088937X.2016.1274789>
- Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable Development*, 29(1), 259–271. <https://doi.org/10.1002/sd.2133>
- Snetkov, V. N., Ponomarenko, A. V., & Asemenova, K. (2019). Specific features of domestic and international legal regulation of environmental management in the Arctic. *IOP Conference Series: Earth and Environmental Science*, 302(1), Article 012030. <https://doi.org/10.1088/1755-1315/302/1/012030>
- Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. . *International Journal of Academic Research in Management*, 5(2), 18–27. http://elvedit.com/journals/IJARM/wp-content/uploads/Sampling-Method-in-Research-Methodology_-How-to-Choose-a-Sampling-Technique-for-Research.pdf
- Taherdoost, H. (2019). What is the best response scale for survey and questionnaire design; review of different lengths of rating scale / attitude scale / Likert scale. *International Journal of Academic Research in Management*, 8(1), 1–10. <https://elvedit.com/journals/IJARM/archive/volume-08-2019/>
- Tang, J., Yuan, X., Ramos, V., & Sriboonchitta, S. (2019). Does air pollution decrease inbound tourist arrivals? The case of Beijing. *Asia Pacific Journal of Tourism Research*, 24(6), 597–605. <https://doi.org/10.1080/10941665.2019.1610004>
- The World Counts. (n.d.). *We are consuming the future*. Retrieved November 12, 2022, from <https://www.theworldcounts.com/challenges/planet-earth/state-of-the-planet/overuse-of-resources-on-earth>
- Timoshenko, D. S. (2020). Sustainable Tourism Development in the Russian Arctic: Challenges and Prospects. *IOP Conference Series: Earth and Environmental Science*, 539, Article 012097. <https://doi.org/10.1088/1755-1315/539/1/012097>

- Ting, C. T., Hsieh, C. M., Chang, H. P., & Chen, H. S. (2019). Environmental consciousness and green customer behavior: The moderating roles of incentive mechanisms. *Sustainability*, *11*(3), Article 819. <https://doi.org/10.3390/su11030819>
- Tosun, J., & Leininger, J. (2017). Governing the interlinkages between the sustainable development goals: Approaches to attain policy integration. *Global Challenges*, *1*(9), Article 1700036. <https://doi.org/10.1002/gch2.201700036>
- United Nations. (1987). *Report of the World Commission on Environment and Development: Our common future*. <https://digitallibrary.un.org/record/139811>
- United Nations. (1992). *Agenda 21*. <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>
- United Nations. (2002). *Plan of implementation of the World Summit on Sustainable Development*. https://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf
- United Nations. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf
- United Nations. (2022). *The Sustainable Development Goals Report 2022*. <https://unstats.un.org/sdgs/report/2022/The-Sustainable-Development-Goals-Report-2022.pdf>
- United Nations. (2023). *The 17 Goals*. <https://sdgs.un.org/goals>
- United Nations Environment Programme, & World Tourism Organization. (2005). *Making Tourism More Sustainable: A Guide for Policy Makers*. <https://wedocs.unep.org/handle/20.500.11822/8741>
- Varnajot, A. (2019). Digital Rovaniemi: contemporary and future arctic tourist experiences. *Journal of Tourism Futures*, *6*(1), 6–23. <https://doi.org/10.1108/JTF-01-2019-0009>

- Voronyanskyi, A., Moiseeva, N., & Omelchenko, H. (2020). The potential of sports tourism in the economic development of territories. In O. Mandych & T. Pokusa (Eds.), *Vectors of competitive development of socio-economic systems* (pp. 161–165). The Academy of Management and Administration in Opole https://repo.btu.kharkov.ua/bitstream/123456789/9388/1/Voronyanskyi_The_potential_of_sports_article.pdf
- World Tourism Organization. (2004). *Indicators of Sustainable Development for Tourism Destinations: A Guidebook*. <https://www.e-unwto.org/doi/abs/10.18111/9789284407262>
- World Tourism Organization. (2023). *World Tourism Barometer*. <https://doi.org/10.18111/wtobarometereng.2023.21.1.1>
- World Travel and Tourism Council, World Tourism Organization, & Earth Council. (1997). *Agenda 21 for the Travel and Tourism Industry: Towards Environmentally Sustainable Development*. <https://digitallibrary.un.org/record/254041>
- World Wide Fund for Nature. (2001). *Ten Principles for Arctic Tourism*. https://wwf.panda.org/wwf_news/?11911/Ten-Principles-for-Arctic-Tourism
- Yanagi, M. (2022). Analysis of the path and mode of tourism resources innovation in Japan. *Geographical Research Bulletin*, 1, 2–13. https://doi.org/10.50908/grb.1.0_2
- Zamorshchikova, L., & Khokholova, I. (2020). Winter destination: Peculiarity of tourism in the arctic. In J. Fialová (Ed.), *Public recreation and landscape protection – with sense in hand* (pp. 586–590). Mendel University in Brno
- Zhang, D., Wang, X., Gao, L., & Gong, Y. (2021). Predict and analyze exchange rate fluctuations accordingly based on quantile regression model and K-nearest neighbor. *Journal of Physics: Conference Series*, 1813(1), Article 012016. <https://doi.org/10.1088/1742-6596/1813/1/012016>
- Zdravković, S., & Peković, J. (2020). The analysis of factors influencing tourists' choice of green hotels. *Hotel and Tourism Management*, 8(1), 69–78. <https://doi.org/10.5937/menhottur2001069Z>

- Силин, А. Н. (2021). *Вахтовый труд в Арктике: социально-пространственный дискурс* [Shift method of work in Arctic: social-spatial discourse]. ООО Консалтинговая компания Юком. <https://www.elibrary.ru/item.asp?id=46558692>
- Тропова Е. (2022, December, 15). *Растет ли на самом деле турпоток в арктические регионы России* [Does tourism flow to Russian Arctic regions really grow?]. Ассоциация Туроператоров. <https://www.atorus.ru/node/50677>

Appendix 1. Sustainable development goals

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages;
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
9. Build resilient infrastructure, promoting inclusive and sustainable industrialization and foster innovation;
10. Reduce inequality within and among countries;
11. Make cities and human settlements inclusive, safe, resilient and sustainable;
12. Ensure sustainable consumption and production patterns;
13. Take urgent action to combat climate change and its consequences;
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Source: United Nations, 2015, p. 14

Appendix 2. Guiding principles for sustainable tourism

1. Travel & Tourism should assist people in leading healthy and productive lives in harmony with nature.
2. Travel & Tourism should contribute to the conservation, protection, and restoration of Earth's ecosystem.
3. Travel & Tourism should be based upon sustainable patterns of production and consumption.
4. Nations should cooperate to promote an open economic system, in which international trade in Travel & Tourism services can take place on a sustainable basis.
5. Travel & Tourism, peace, development, and environmental protection are interdependent.
6. Protection in trade in Travel & Tourism services be halted or reversed.
7. Environmental protection should continue an integral part of the tourism development processes.
8. Tourism development issues should be handled with participation of concerned citizens, with planning decisions being adopted at local level.
9. Nations shall warn one another of natural disasters that could affect tourists or tourist areas.
10. Travel & Tourism should be its capacity to create employment for women and indigenous peoples to the fullest extent.
11. Tourism development should recognize and support the identity, culture, and interests of indigenous peoples.
12. International laws protecting the environment should be respected by the Travel & Tourism industry.

Source: World Travel and Tourism Council et al., 1997, p. 34

Appendix 3. SDGs and potential tourism contribution

Sustainable Development Goal	Potential tourism contribution	Tourism performance indicators
SDG 1 End poverty everywhere	tourism creates jobs and income at local and community levels; tourism has the potential to enhance the livelihoods of the least skilled, poorer members of society	Tourism Direct Gross Domestic Product (TDGDP) for a destination; tourism employment; tourism contribution to informal economy; average income of tourism workforce; hourly earnings in tourism
SDG 2 End hunger	tourism spurs agricultural production in general and via gastronomic tourism; tourism generates income and jobs in agriculture; agri-tourism (farm tourism) generates additional income for industry and local communities, promoting a more resilient agriculture sector.	share of tourism intermediate consumption from domestic agriculture; share of agricultural income from agri-tourism activity.
SDG 3 Ensure healthy lives and promote well-being for all at all ages	tourism development establishes health and public health structures required for tourists and from which local communities also benefit; tourism related activities promote resident physical and mental health; tourism provides facilities to improve health and well-being	share of health tourism related to total tourism; contribution of different health related tourism operations to TDGDP
SDG 4 Ensure inclusive and equitable quality education, promoting lifelong learning for all	tourism requires a skilled workforce; tourism education provides employment opportunities for youth, women, and minority groups; inhouse training courses and skills development can transfer knowledge to wider society	Relative skill levels of tourism workers; proportion of employed persons in tourism industries with school education compared to overall population; Youth not in employment, education or training (NEET) rate (% of persons aged 15-24
SDG 5 Achieve gender equality and empower females	tourism creates jobs and earnings for marginalized groups; tourism provides opportunities for women to better engage in the workforce	share of women in tourism; share of women in tourism management; average income of females and males in tourism industry employment; tourism informal sector employment

Appendix 3 continued

SDG 6 Ensure sustainable management of water and sanitation	tourism related infrastructure helps to achieve water access and security, and pollution control technology	final water use / TDGDP; share of treated waste water from tourism operators; waste water per visitor; sewage water per tourist per day
SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all	tourism promotes investments in clean energy sources, helps to reduce greenhouse gases, mitigate climate change and contribute to access of energy for all	share of final energy use related to TDGDP; share of renewable energy in total tourism energy use; net domestic energy use by tourism industries
SDG 8 Promote sustained, inclusive and sustainable economic growth, employment and decent work	tourism supports economic growth, locally, regionally and nationally; tourism is an important export earner globally; tourism provides decent work opportunities; diversification through tourism value chains reduces income inequalities.	growth in TDGDP; growth in tourism industry employment; tourism employment share of total employment; share of seasonal jobs to total tourism jobs; productivity growth of tourism industry and its composite sectors
SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization, foster innovation	tourism supports community infrastructure development, making it more sustainable, innovative, resource-efficient, and reducing carbon footprint	tourism infrastructure share of total infrastructure investment
SDG 10 Reduce inequality within and among countries	tourism development engages local populations; tourism contributes to urban renewal and rural development; tourism facilitates economic integration and diversification	net tourism exports; share of tourism exports in total service exports; average income and hourly earnings of tourism workers compared to all industry; income and wealth inequality and gender pay gaps in tourism sectors
SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable	tourism advances urban infrastructure and accessibility, promotes regeneration and preserves cultural and natural heritage assets; investment in green infrastructure promotes smarter and greener cities for residents and visitors	accessibility of tourism facilities; number of visitors per 100 residents; number of beds in tourist accommodation facilities per 100 residents

Appendix 3 continued

SDG 12 Ensure sustainable consumption and production patterns	tourism can adopt sustainable consumption and production modes; green tourism identifies environmentally friendly tourism activities; ecotourism promotes conservation and delivers socio-economic benefits	tourism share of solid waste; sewage produced per tourist compared to per resident; energy efficiency in tourism compared to other industries; waste water per visitor; net domestic energy use by tourism industries; share of final energy use related to TDGDP; tourism energy use from renewables
SDG 13 Take urgent action to combat climate change and its impacts	tourism can play a leading role in climate change mitigation and adaptation strategies	greenhouse gas emissions from tourism industries compared to total economy; tourism carbon footprint total and by sector
SDG 14 Conserve and sustainably use the oceans, seas and marine resources	coastal and maritime tourism supports healthy marine ecosystems and sustainable use of marine resources; tourism as part of Integrated Coastal Zone Management helps conserve fragile marine ecosystems.	change in coastal ecosystem condition due to tourism; use of marine environments for recreation and education; sustainable fisheries as a proportion of GDP
SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems and halt biodiversity loss	tourism can help to conserve and preserve biodiversity and generate revenue as an alternative livelihood to local communities	contribution of national parks to TDGDP; share of protected areas related to total area of a destination; tourism generated revenue for conservation
SDG 16 Promote peaceful and inclusive societies, justice for all, and build inclusive institutions	tourism that engages local communities can foster tolerance and understanding between persons of different cultures	rates of crime in tourism destination visitor share of victims of crime; visitor numbers compared to resident population
SDG 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development	improved tourism governance strengthens private/public partnerships and engages multiple stakeholders to collaborate to achieve the SDGs	adoption of TSA and SEEA based frameworks; share of budget allocated for statistical tools to assess tourism performance

Source: Dwyer (2022), pp. 3–5

Appendix 4. Issues of SD in tourism and their measurement indicators

Issue	Measurement Indicator
Local satisfaction with tourism	Local satisfaction level with tourism (Questionnaire)
Effects of tourism on communities	<ul style="list-style-type: none"> - Ratio of tourists to locals (average and peak period/days) - % who believes that tourism has helped bring new services or infrastructure. (questionnaire-based) - Number and capacity of social services available to the community (% which are attributable to tourism)
Sustaining tourist satisfaction	<ul style="list-style-type: none"> - Level of satisfaction by visitors (questionnaire-based) - Perception of value for money (questionnaire-based) <ul style="list-style-type: none"> - Percentage of return visitors
Tourism seasonality	<ul style="list-style-type: none"> - Tourist arrivals by month or quarter (distribution throughout the year) - Occupancy rates for licensed (official) accommodation by month (peak periods relative to low season) and % of all occupancy in peak quarter or month <ul style="list-style-type: none"> - % of business establishments open all year - Number and % of tourist industry jobs which are permanent or full-year (compared to temporary jobs)
Economic benefits of tourism	<ul style="list-style-type: none"> - Number of local people (and ratio of men to women) employed in tourism (also ratio of tourism employment to total employment) - Revenues generated by tourism as % of total revenues generated in the community
Energy management	<ul style="list-style-type: none"> - Per capita consumption of energy from all sources (overall, and by tourist sector – per person day) - Percentage of businesses participating in energy conservation programs, or applying energy saving policy and techniques - % of energy consumption from renewable resources (at destinations, establishments)
Water availability and conservation	<ul style="list-style-type: none"> - Water use: (total volume consumed and litres per tourist per day) <ul style="list-style-type: none"> - Water saving (% reduced, recaptured or recycled)
Drinking water quality	<ul style="list-style-type: none"> - Percentage of tourism establishments with water treated to international potable standards - Frequency of water-borne diseases: number/percentage of visitors reporting water-borne illnesses during their stay
Waste water management)	<ul style="list-style-type: none"> - Percentage of sewage from site receiving treatment (to primary, secondary, (wastewater management) tertiary levels) - Percentage of tourism establishments (or accommodation) on treatment system(s)

Appendix 4 continued

Issue	Measurement Indicator
Controlling use intensity	<ul style="list-style-type: none"> - Total number of tourist arrivals (mean, monthly, peak periods) - Number of tourists per square metre of the site (e.g., at beaches, attractions), per square kilometre of the destination, - mean number/peak period average
Solid waste management	<ul style="list-style-type: none"> - Waste volume produced by the destination (tonnes) (by month) (Garbage) - Volume of waste recycled (m3) / Total volume of waste (m3)
Development control	<ul style="list-style-type: none"> - Existence of a land use or development planning process, including tourism <ul style="list-style-type: none"> - % of area subject to control (density, design, etc.)

Source: World Tourism Organization, 2004, pp. 244–245

Appendix 5. Questionnaire

Sustainable development issues in Russian Arctic

Hello!

My name is Kirill Vasilev, and I am carrying out research about the influence of sustainable development of the region on its attractiveness for tourists. I would like to ask you to go through the following questionnaire and share your experience of visit of Russian Arctic.

1) Define your age group in years:

- Below 18
- 18–25
- 26–40
- 41–55
- 56+

2) Gender:

- Male
- Female
- Nonbinary

3) Which region (s) did you visit as a tourist during your last trip to Russian Arctic?

4) How your last trip to Russian Arctic has been organized?

- Independently
- Tour group or travel agency
- Local guide
- Other:

5) Please define on a scale from 0 to 7 your overall satisfaction of your last trip to Russian Arctic.

6) Please define on a scale from 0 to 7 whether you would like to visit Russian Arctic as a tourist again.

Appendix 5 continued

- 7) Did you attend or witnessed ethnic celebration in the region? If yes, please define on a scale from 1 to 7 whether they had positive influence on development of local culture. If no, please put “0”.
- 8) Did you attend or witnessed special regional events in the region? If yes, please define on a scale from 1 to 7 whether they had positive on development of local culture. If no, please put “0”.
- 9) Did you attend or witnessed local artists’ performances in the region? If yes, please define on a scale from 1 to 7 whether they had positive influence on development of local culture. If no, please put “0”.
- 10) Did you use or saw skiing and snowboarding facilities in the region? If yes, please define on a scale from 1 to 7 whether they had positive influence on well-being of local community. If no, please put “0”.
- 11) Did you enjoy or saw ice-skating rinks or hockey in the region? If yes, please define on a scale from 1 to 7 whether they had positive influence on well-being of local community. If no, please put “0”.
- 12) Were you familiar with air quality in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on brand of the territory. If no, please put “0”.
- 13) Were you familiar with quality of land-use system in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on environment of the territory. If no, please put “0”.
- 14) Were you familiar with land or marine inhabitants in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on environment of the territory. If no, please put “0”.
- 15) Did you use or notice available electric vehicles in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on environment of the territory. If no, please put “0”.
- 16) Did you use or notice charging stations for electric cars or other electric vehicles in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on the territory’s environment. If no, please put “0”.

Appendix 5 continued

- 17) Did you visit or knew about accessibility of natural parks in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on ecosystem of the territory. If no, please put “0”.
- 18) Did you visit or knew about accessibility of hiking and recreation zones in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on ecosystem of the territory. If no, please put “0”.
- 19) Did you visit or knew about accessibility of coasts of lakes/rivers or seas in the region? If yes, please define on a scale from 1 to 7 whether it had positive influence on ecosystem of the territory. If no, please put “0”.
- 20) Did you accommodate or considered an option in a camping ground? If yes, please define on a scale from 1 to 7 whether it had positive influence on the eco-friendliness of housing system of the territory. If no, please put “0”.
- 21) Did you accommodate or considered an option in a glamping? If yes, please define on a scale from 1 to 7 whether it had positive influence on eco-friendliness of housing system of the territory. If no, please put “0”.
- 22) Did you accommodate or considered an option in an eco-friendly hostel? If yes, please define on a scale from 1 to 7 whether it had positive influence on the eco-friendliness of housing system of the territory. If no, please put “0”.

Thank you for your time, and feel free to contact me via e-mail: ...

RESÜMEE

SÄÄSTVA ARENGU JUHTIMISE MÕJU TURISMISIHTKOHA ATRAKTIIVSUSELE: VENEMAA ARKTIKA JUHTUM

Kirill Vasilev

Käesolevas magistritöös keskendutakse ÜRO ja teadlaste poolt rõhutatud säästva arengu (SA) eesmärkide saavutamise seotud probleemidele. Kuigi ÜRO ja teadlased on pööranud märkimisväärselt palju tähelepanu SA on nende eesmärkide saavutamisel siski mitmeid takistusi Üheks keskseks probleemiks on kohalike sidusrühmade teadlikkuse puudumine säästva arengu efektiivsusest. Seetõttu on vajalik uurida, kuidas muuta SA tegevused ning põhimõtted ettevõtetele ja sidusrühmadele atraktiivsemaks, kasulikuks ning tulusamaks. Käesoleva töö eesmärgiks on analüüsida säästva arengu üldist mõju Venemaa Arktika turistide atraktiivsusele, et seeläbi aidata kohalikel huvirühmadel mõista paremini säästva arengu tähtsust ning anda soovitusi edaspidiseks.

Uuringu esimeses etapis tuuakse välja Arktika piirkonna jaoks olulised säästva arengu tegurid. Kokku on tuvastatud 7 tegurit, mis jaotuvad 16 näitajaks. Sihtkoha atraktiivsust hinnatakse üldise rahulolu küsimustiku abil, mille aluseks on 22 küsimust. Uuringus küsitleti kokku 384 turisti ning nende arusaamu säästva arengu tegurite kohta Venemaa Arktikas kui ka üldis rahulolu reisi osas. Tegurid tähistavad sõltumatuid muutujaid, samal ajal kui sihtkoha atraktiivsus on sõltuv muutuja. Tulemuste põhjal kasutati korrelatsioonianalüüsi ja regressioonimudelit, et mõista säästva arengu ja Venemaa Arktika atraktiivsuse vahelisi seoseid.

Tulemusena ilmnes, et Venemaa Arktika turismisihtkoha atraktiivsust mõjutab enim kohalik kultuur, millele järgnevad ökomajutus, spordirajatiste arendamine ja rahvusparkide ligipääsetavus. Uuringus leiti, et ökoloogilisel kaubamärgil on suhteliselt madal korrelatsioonikordaja kliendi rahuloluga. Nutika infrastruktuuri mõju on jäänud

vähese tähelepanuta ning seda ei arvestatud regressioonimudelites. Sihtkoha atraktiivsust mõjutavaid tegureid soovitatakse arendada, võttes arvesse kohalike elanike huve. Ökoloogilise teguri ja nutika infrastruktuuri osas on vajalik edasine täiendav uurimistöö nende olemuse paremaks mõistmiseks.

Käesolev magistritöö annab panuse säästva arengu uurimisvaldkonda ning pakub kohalikele sidusrühmadele paremat arusaama säästva arengu olulisusest Venemaa Arktika turismisihtkohas.

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