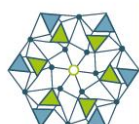




2021

**ENVIRONMENTAL REPORT  
STRATEGIC ENVIRONMENTAL ASSESSMENT  
OF THE RUSSIAN TERRITORY  
CBC KOLARCTIC 2021-2027**



КОЛЬСКИЙ  
НАУЧНЫЙ  
ЦЕНТР





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**ENVIRONMENTAL REPORT  
STRATEGIC ENVIRONMENTAL ASSESSMENT OF THE RUSSIAN  
TERRITORY CBC KOLARCTIC 2021-2027**

**Apatity  
2021**

Environmental Report. Strategic Environmental Assessment of the Russian territory CBC Kolarctic 2021-2027. Apatity: Kola Science Centre of RAS. 2021. 62 p.

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The Strategic Environmental Assessment was carried out by the Consortium of Experts for the Russian programme area and does not cover the entire geographic area of the Russian Arctic, to which it, in particular, belongs. The environmental assessment of the indicated area was carried out taking into account the policy objectives, Interreg specific objective, and their corresponding specific objectives selected by the Programming Committee for the period 2021-2027. Preparing the report, the Consortium took into account the current draft documents of the Kolarctic CBC Programme 2021-2027 provided by the Managing Authority, as well as analytic materials and other documents related to the studied territory that the Consortium has available in connection with its activities. This version of the report is subject to regular revision and updates as the key Programme documents are under development. The regulating document between the Consortium (Consultant) and the Managing Authority (Client) is the Consultancy agreement dated 03.06.2021 (Consultancy Agreement - Strategic Environmental Assessment).

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## **LIST OF ABBREVIATIONS**

Programme	Kolarctic Cross-Border Cooperation Programme 2021-2027
EU	European Union
Directive	Directive of the European Parliament and the Council No. 2001/42 of 27.06.2011 on the assessment of the effects of certain plans and programmes on the environment
EIA	Environmental impact assessment
SEA	Strategic environmental assessment
SPNA	Specially protected natural areas
KSC RAS	Kola Scientific Center of the Russian Academy of Sciences
BAT	Best available techniques
AR	Arkhangelsk Region
MR	Murmansk Region
NAD	Nenets Autonomous District

## INTRODUCTION

The Cross-Border Cooperation Programme Kolarctic for the period 2021-2027 (hereinafter referred to as the Programme) is implemented in the northern border regions of Russia, Finland, Sweden and Norway and is aimed at promoting their socio-economic development through co-financing of joint projects. Environmental protection was an important priority of the Programme during the programming periods 2007-2013 and 2014-2020, its scope ranged from joint solutions to existing environmental challenges to research on preventive measures in connection with global climate change.

The special attention is also given to the environmental topic in the new programming period 2021-2027. The European Commission has prioritized it as mandatory for all CBC Programmes. The Kolarctic CBC Programming Committee consisting of delegations from participating countries has also unanimously selected the environment as one of the key topics for the new programming period.

The term “environment” is considered by the Programme in a broad context and is not limited to ecology, although it is given significant attention in the report. The environmental components of the Programme also include the social and economic environment<sup>1</sup>.

According to the Directive of the European Parliament and of the Council No. 2001/42 of 27.06.2001 on the assessment of the effects of certain plans and programmes on the environment<sup>2</sup>, before the start of a new programme cycle, CBC programmes are required to examine the current state of the environment in the programme area and its socio-economic profile. Based on the information collected, as well as taking into account the plans of the Programme itself, an assessment of the environmental impact that may result from the implementation of the Programme should also be carried out.

A strategic environmental assessment is an assessment of likely environmental, social and economic consequences of a planned activity in a certain area, including the preparation of the assessment results (Environmental report) and ensuring active public involvement in the discussion of the report in order to take into account all opinions and recommendations.

Why does impact assessment have a presumable character? This is due to the fact that at the stage of the Programme development and preparation it is impossible to reliably know which projects, and therefore what kind of activities will be financed and implemented in the programme area. At the same time, it is recommended to carry out a strategic assessment at the initial stage of the planned programming activities in order to foresee possible risks, as well as to enhance the possible positive effect of the future

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<sup>1</sup>[https://ec.europa.eu/environment/archives/eia/pdf/030923\\_sea\\_guidance.pdf](https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf)

pg. 23: 5.1 “The environmental report is the central part of the environmental assessment required by the Directive”. 5.5 “The environmental report might in many cases be a part of a wider assessment of the plan or programme. It could, for example, be part of a document on sustainability assessment covering also social and economic effects, or a sustainability assessment could be integrated in the plan or programme.”

<sup>2</sup><https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN>

Programme, identifying new points of growth for local communities.

Important components in the assessment process are the policy objectives, Interreg specific objective, as well as the corresponding specific objectives selected by the Programming Committee:

**Policy objective 1. A smarter Europe:**

SO1 Enhancing research and innovation capacities and the uptake of advanced technologies.

SO 2. Reaping the benefits of digitisation for citizens, companies and governments.

**Policy Objective 2 A greener Europe:**

SO 4. Promoting climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem based approaches.

SO 7. Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution.

**Policy Objective 4 A more social Europe:**

SO 5. Enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation.

**Interreg Specific Objective 1 Better Governance:**

SO 3. People-to-people actions for increased trust.

The above objectives along with the geographical and socio-economic characteristics of the regions set the scope of the assessment, as they shape the *approximate parameters* of the future project initiatives.

The strategic environmental assessment of the Russian programme area was carried out by a Consortium managed by the Kola Science Center of the Russian Academy of Sciences<sup>1</sup>, consisting of the following regional experts: Doctor of Engineering V. A. Masloboev, Candidate of Economics E.M. Klyuchnikova, Candidate of Biology E.A.Borovichov (Murmansk Region), Candidate of Philology M.V. Nenasheva, (Arkhangelsk Region), A.I. Popov (Nenets Autonomous District).

Strategic environmental assessment for the programme regions in Finland, Sweden and Norway was carried out by the Swedish consultancy company Anthesis<sup>2</sup>, whose expert group included regional experts. A separate Environmental Assessment Report was prepared for these regions.

Applicants and future project partners are advised to take into account assessment results made by both expert groups, since project activities, according to the Programme requirements, should be aimed at solving joint problems. The Consortium also takes into account its own experience of participation in the two previous programme cycles as Lead Partners and Partners. As a rule, a successful project initiative lies in the intersection of partners' interests in all participating countries.

Thus, while working on the table in Section 11 "Assessment and

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<sup>1</sup><https://www.ksc.ru/>

<sup>2</sup><https://anthesis.se/en/>

Recommendations”, the Consortium proceeded from the collaborative nature of the project activities and took into account the results of stakeholder consultations in all participating countries. In cases where a specific approach to the implementation of a particular initiative is required due to any peculiar features of the Russian programme area, the Consortium analyzed the Russian component in more detail.

The result of the strategic environmental assessment is the Environmental Report<sup>1</sup> (hereinafter referred to as the Report), which includes recommendations for prevention and mitigation of adverse environmental impacts and measures to support the development of the whole Kolarctic region and of the Russian programme area in particular.<sup>2</sup>

In order to ensure proper implementation of the Directive, the European Commission has developed Guidelines for the implementation of strategic environmental assessment<sup>3</sup>. As the Programme seeks to contribute to sustainable development of outermost Northern regions in Russia, Finland, Sweden and Norway, the strategic assessment procedure also takes into account the national legislation and practices adopted in these countries.

Thus, when preparing a strategic environmental assessment for the Russian programme area, an integrated approach was adopted to ensure implementation of both the provisions of the European Commission Directive and the national legislation of the Russian Federation. The specifics of the Russian regulations are presented in section 1.1 “Review of strategic environmental assessment in Russia”, of the EU regulations — in section 1.2 “Review of strategic environmental assessment in relation to CBC Kolarctic Programme 2021-2027”.

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<sup>1</sup>[https://ec.europa.eu/environment/archives/eia/pdf/030923\\_sea\\_guidance.pdf](https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf) Note: when translating the term “Environmental Report” into Russian, a verbatim translation of the term is used, given the translation customary adopted in Russia (see the draft Environmental Assessment Protocol: <http://government.ru/en/all/3274/> )

<sup>2</sup>[Section 11 "Assessment and Recommendations"](#)

<sup>3</sup>[https://ec.europa.eu/environment/archives/eia/pdf/030923\\_sea\\_guidance.pdf](https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf)

## Chapter 1. STRATEGIC ENVIRONMENTAL ASSESSMENT

### 1.1. Overview of requirements to strategic environmental assessment in Russia

The Government of the Russian Federation enacted foundations of state policy in the field of environmental development of Russia for the period until 2030, where one of the main objectives is to develop a regulatory framework for the implementation and application of strategic environmental assessment<sup>1</sup> for projects, plans and programmes, the implementation of which may have an impact on the environment.

For example, the Strategy for Environmental Safety of the Russian Federation until 2025<sup>2</sup> includes a provision on strategic environmental assessment of projects and programmes aimed at development of the constituent entities (regions) of the Russian Federation. This provision is also stipulated by:

- Strategy for socio-economic development of Murmansk Region until 2025<sup>3</sup>
- Strategy for socio-economic development of Arkhangelsk Region until 2025<sup>4</sup>
- Strategy for socio-economic development of Nenets Autonomous District until 2030<sup>5</sup>

Information from regional strategies is taken into account in this Report.

A draft resolution enacting the Procedure for Conducting Strategic Environmental Assessment in the Russian Federation has been prepared<sup>6</sup> and has to be approved by the relevant ministries and federal executive authorities before being adopted. In the meantime, strategic environmental assessment is possible and is already being done on a voluntary basis.

The main tool of professional expertise in Russia is the environmental impact assessment (Оценка воздействия на окружающую среду, ОВОС<sup>7</sup>). EIA is carried out in relation to the planned economic and other activities that may have a direct or indirect impact on the environment, regardless of the legal form of ownership.

The scope of Russian requirements to an EIA significantly exceeds the scope of requirements to a strategic assessment. This is a complex process that requires the involvement of professionals in multiple fields, conducting field studies, including geotechnical, geodetic, environmental, etc. One of the key differences between the

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<sup>1</sup>Note: This report uses the official title of the draft regulation, which uses the term “ecological assessment”. However, in the English translation, the term “environmental assessment” is used according to the official translation: <http://government.ru/en/all/3274/>.

<sup>2</sup><http://www.kremlin.ru/acts/bank/41879>

<sup>3</sup>[https://minec.gov-murman.ru/activities/strat\\_plan/sub02/](https://minec.gov-murman.ru/activities/strat_plan/sub02/)

<sup>4</sup><https://strategy29.ru/about-strategy/>

<sup>5</sup><https://www.economy.gov.ru/material/file/c201223c6c46d44c358d468b6e54f6b3/28122018nao.pdf>

<sup>6</sup><http://www.consultant.ru/cons/cgi/online.cgi?req=doc&base=PNPA&n=4727#NRG2jdSZ6pvLOewQ>

<sup>7</sup>[Order of the Ministry of Natural Resources and Environment of the Russian Federation of December 1, 2020 No. 999 enacting requirements to environmental impact assessment materials \(takes effect starting from 01.09.2021 and remains valid until 01.09.2027\)](#)

Russian EIA and the EU strategic assessment is that in the former, the object of study (project) is known in advance and has predefined technical and other parameters, which, however, can be adjusted based on the results of the assessment. An analogue of the Russian EIA in the EU is the Environmental Impact Assessment (EIA) procedure.

EIA in the Russian Federation is regulated primarily by the following documents, but not limited to these:

- Federal Law of 10.01.2002 No. 7-FZ On Environmental Protection
- Federal Law of 23.11.1995 No. 174-FZ On Environmental Expert Review
- Order of the Ministry of Natural Resources and Environment of the Russian Federation of 01.12.2020 No. 999 enacting requirements to Environmental Impact Assessment materials<sup>1</sup>

At the same time, the procedure stipulated by the Regulation on EIA fully complies with basic principles and includes all the main elements of the procedure described in international treaties, the primary of which is the Espoo Convention. An additional list of international regulations applied in both Russia and the EU is given in the next section. It can be concluded that a similar legal framework balances the Russian and EU approaches to environmental assessment.

Despite the pending approval and, consequently, lacking legislation on *compulsory* strategic environmental assessment, the Consortium proceeds in its assessment from the existing legal norms and regulations. The experts take into account the existing regional strategies, as well as the experience of voluntary strategic environmental assessment.

## **1.2 Overview of the EU's strategic environmental assessment requirements as applied to the Kolarctic CBC for the period 2021-2027**

The document regulating strategic environmental assessment for plans and programmes in the EU is Directive 2001/42/EC of the European Parliament and of the Council dated June 27, 2001. In order to ensure proper implementation of the Directive, the European Commission has developed Guidelines for the implementation of strategic environmental assessment<sup>2</sup>, whose provisions were taken into account when preparing this Report.

The main advantage of strategic assessment is an analysis of all potential consequences of the implementation of environmental plans and programmes in the particular area. The strategic assessment findings are intended to facilitate environmentally and socially oriented decision-making for incorporation into the relevant plans and programmes, which also include the Kolarctic Cross-Border Cooperation Programme for the period 2021-2027.

Additional international regulations that were taken into account when developing

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<sup>1</sup>[Order of the Ministry of Natural Resources and Environment of the Russian Federation of December 1, 2020 No. 999 enacting requirements to environmental impact assessment materials \(takes effect starting from 01.09.2021 and remains valid until 01.09.2027\)](#)

<sup>2</sup>[https://ec.europa.eu/environment/archives/eia/pdf/030923\\_sea\\_guidance.pdf](https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf)

the Directive are:

- Protocol on Strategic Environmental Assessment (Kiev, 2003)<sup>1</sup>
- Convention on Access to Information, Public Participation in Environmental Decision-Making and Access to Justice in Environmental Matters (Aarhus, 1998)<sup>2</sup>
- Declaration on Environment and Development (Rio de Janeiro, 1992)<sup>3</sup>
- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991)<sup>4</sup>

According to the EU Directive and the Kiev Protocol, the mandatory components of a strategic assessment are:

- assessment of environmental and social risks
- preparation of an environmental report
- consultations with stakeholders, including in a cross-border context
- monitoring

The procedures for the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) in the EU are very similar, but have the following differences:

- Strategic environmental assessment implies consultation with environmental management authorities at the earliest screening stage and
- at the scoping stage. At this stage, the content and scope of issues that should be covered in the environmental report and coordinated with the competent authority are determined<sup>5</sup>.

In the case of the Programme, such competent authorities are the Managing Authority and the Programming Committee of the Kolarctic CBC 2021-2027, including representatives of the European Commission and delegations of the participating countries (Russia, Finland, Sweden and Norway).

To comply with the requirement concerning stakeholder consultations, the Programme conducted online consultations with stakeholders from the participating countries in January and June 2021. Additional public consultations are planned for autumn 2021, where this Report will be presented and discussed. In accordance with the Directive and other EU documents, as well as in compliance with the requirements adopted by Russia and the EU in the field of information disclosure, the Report should

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<sup>1</sup>[Protocol on strategic environmental assessment to the Convention on environment assessment in a transboundary context](#)

<sup>2</sup><https://ec.europa.eu/environment/aarhus/>

<sup>3</sup>[https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A\\_CONF.151\\_26\\_Vol.I\\_Declaration.pdf](https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf)

<sup>4</sup><https://unece.org/fileadmin/DAM/env/eia/eia.htm>

<sup>5</sup><https://ec.europa.eu/environment/eia/sea-legalcontext.htm>

take into account the outcomes of public consultations<sup>1</sup>.

Thus, the strategic environmental assessment of the Russian programme territory is intended to contribute to the implementation of international principles of environmental protection and social environment and thereby facilitate joint solutions of the participating countries' challenges in the common Kolarctic programme area.

### **1.3 Methodology of the strategic environmental assessment**

The proposed methodology aims to ensure compliance with the requirements of the European Commission Directive<sup>2</sup>, taking into account the policy objectives, Interreg specific objectives and their corresponding specific objectives, output and result indicators set forth in the programme documents, as well as in accordance with the existing legislation on environmental impact assessment in Russia and the EU.

The Directive sets out two objectives for the assessment:

- ensuring a high level of environmental protection
- facilitating the integration of assessment results into the preparation and adoption of plans and programmes<sup>3</sup>

The strategic environmental assessment of the entire programme area is coordinated with the Programming Committee responsible for the development of the main programme documents, the Managing Authority and Branch Offices of the Programme, the Consortium responsible for the assessment of the Russian programme area (KSC RAS), the company responsible for the assessment of regions in Finland, Sweden and Norway (Anthesis), as well as with authorities responsible for environmental protection, in order to collect and analyze information, achieve understanding and coherence between all stakeholders and, as a result, improve the quality of the future Programme content.

The methodology for a strategic environmental assessment of the Russian programme area includes the following stages<sup>4</sup>:

#### **Stage I: Screening**

- study of policy documents
- collection of relevant information on the environmental and socio-economic situation

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<sup>1</sup>[Implementation on Directive 2001/42 on the assessment of the effects of certain plans and programmes on the environment": Foreword page 2, paragraph 1: The public must also be consulted on the draft plans and on the environmental assessment and their views must be taken into account."; Article 6 \(5\), paragraphs 7.18-7.20; Article 7 Consultation](#)

<sup>2</sup><https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN>

<sup>3</sup>[Article 1 "Objectives of the Directive"](#)

<sup>4</sup> In this section, the methodology is systematized in terms of the Directive and its Implementation Guidelines and other related EU documents (for example, Implementing Article 10 of the SEA Directive). The research methodology is described in more detail in the Strategic Environmental Assessment Contract dated 03.06.2021.

➤ study of contemporary trends in the field of ecology and socio-economic development, taking into account regional development strategies and the selected priorities of the Programme

#### **Stage II: Scoping**

➤ defining areas and depth of study, defining context, clarifying goals and objectives

#### **Stage III: Analysis**

➤ analysis of the socio-economic and environmental profile of the Russian programme area

➤ analysis of the Programme strategy compliance with Russia's regional and national strategies in the field of environmental impact and environmental legislation

➤ brief comparative analysis of the main socio-economic and environmental indicators of the Russian programme area as of 2015 as part of the assessment for the programme period 2014-2020 and updated data as of 2021<sup>1</sup>

#### **Stage IV: Assessment**

➤ assessment of the potential Programme impact on the components of the natural and socio-economic environment

➤ assessment of cumulative impacts taking into account the implementation of current projects in the Russian programme area

#### **Stage V: Recommendations**

➤ formulating recommendations aimed at mitigating possible negative consequences;

➤ suggestions for improving programme measures.

#### **Stage VI: Monitoring**

➤ recommendations for monitoring at project and programme levels

To assess environmental and social risks in accordance with the Directive, the Consortium analyzed and presented in the Report the following thematic sections: biodiversity in the Russian programme area, its flora and fauna, soils, water, air, climatic factors, cultural heritage, etc<sup>2</sup>. The social component was not singled out, since it was included in the development of each section and taken into account in the recommendations.

To comply with the disclosure requirements in Russia and the EU, as well as being guided by the implementation principles of the Directive<sup>3</sup>, the strategic environmental assessment report is subject to discussion with general public and different categories of stakeholders in order to take into account their views and recommendations. Thus, the presented version of the Report is not final and is subject to further updates.

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<sup>1</sup> Strategic Environmental Assessment (SEA) for cross border cooperation (CBC) 2014-2020 Programme

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN>

<sup>3</sup> [Implementation on Directive 2001/42 on the assessment of the effects of certain plans and programmes on the environment": Foreword page 2, paragraph 1: The public must also be consulted on the draft plans and on the environmental assessment and their views must be taken into account."; Article 6 \(5\), paragraphs 7.18-7.20; Article 7 Consultation](#)

## 1.4 Synergy with the national strategies of the Kolarctic CBC countries for the period 2021-2027

The analysis of the Programme synergy consists in comparing its policy objectives, Interreg specific objective and their corresponding specific objectives with relevant national strategies of the countries participating in the Programme. The analysis results make it possible to assess the degree of their mutual complementarity, the presence of common goals, objectives and current trends, as well as their joint potential impact in the programme area.

The main documents for synergy analysis are:

- programme documents, including selected Programme priorities and territorial analysis of the participating countries;
- comparative analysis of Arctic strategies of the participating countries, prepared by the Managing Authority of the Programme;
- EU's integrated policy for the Arctic<sup>1</sup>;
- Development strategy for the Arctic Zone of the Russian Federation until 2035<sup>2</sup>;
- Finland Strategy for the Arctic Region 2013<sup>3</sup> and its updated version dated 26.09.2016<sup>4</sup>;
- Norway Arctic Strategy 2017<sup>5</sup>;
- Sweden's Strategy for the Arctic Region 2020<sup>6</sup>;

Synergy between the Programme, national strategies and the EU strategy lies in *common objectives* (briefly<sup>7</sup>):

1. international cooperation in the Arctic;
2. sustainable socio-economic and environmental development in the Arctic;
3. environmental protection, climate change prevention and mitigation measures;
4. safe and secured Arctic environment;

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<sup>1</sup>[JOINT COMMUNICATION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL An integrated European Union policy for the Arctic](#)

<sup>2</sup><http://www.kremlin.ru/acts/news/64274>

<sup>3</sup>[https://vnk.fi/documents/10616/1093242/J1613\\_Finland%E2%80%99s+Strategy+for+the+Arctic+Region.pdf/cf80d586-895a-4a32-8582-435f60400fd2](https://vnk.fi/documents/10616/1093242/J1613_Finland%E2%80%99s+Strategy+for+the+Arctic+Region.pdf/cf80d586-895a-4a32-8582-435f60400fd2)

<sup>4</sup><https://vnk.fi/documents/10616/334509/Arktisen+strategian+p%C3%A4ivitys+ENG.pdf/7efd3ed1-af83-4736-b80b-c00e26aebc05>

<sup>5</sup><https://www.regjeringen.no/contentassets/fad46f0404e14b2a9b551ca7359c1000/arctic-strategy.pdf>

<sup>6</sup><https://www.government.se/information-material/2020/11/swedens-strategy-for-the-arctic-region-2020/#:~:text=Sweden's%20strategy%20for%20the%20Arctic%20region%20presents%20the%20Government's%20objectives,and%20the%20environment%3B%20polar%20research%3B>

<sup>7</sup> Overview of Arctic strategies and policies of the Kolarctic CBC countries and the EU (provided by the Managing Authority)

*Common directions* towards these objectives are:

- 1.1. support of Cross-Border Cooperation Programmes in the Arctic region;
- 2.1. overcoming demographic challenges;
- 2.2. creating favorable living conditions for local communities and indigenous peoples;
- 2.3. diversifying economy and creating new jobs;
- 2.4. development of innovations and advanced technologies;
- 2.5. development of science, education and human resources in the Arctic regions;
- 3.1. solutions in the field of environmental protection and adaptation to climate change;
- 4.1. measures to protect the regional population from natural and anthropogenic emergencies.

*Common measures* towards these objectives are:

- 1.1.1. joint activities of the participating countries as part of the Arctic Council, the Council of the Barents Euro-Arctic Region and working groups there of;
- 1.1.2. continuation of the Cross-Border Cooperation Programmes between Russia, Norway and the European Union member states;
  - 2.1.1. developing healthcare technologies and increasing life expectancy of Arctic residents;
  - 2.1.2. creating comfortable living conditions in the Arctic regions, including support of gender equality and consideration of young people interests;
  - 2.2.1. involvement of local communities in the development of new businesses and in diversified economic activities in general;
  - 2.3.1. development of new types of industries, cluster approach, promotion of bioeconomy, including new food products, etc.;
  - 2.4.1. development of smart solutions;
  - 2.4.2. development of digital and information technology services in the Arctic region;
  - 2.5.1. encouraging educational and scientific institutions in experience dissemination on Arctic research, as well as use of scientific experience in technology development ;
  - 3.1.1. promotion of green and clean technologies (cleantech), efficient waste management, renewable energy based on biomass, greening of the industrial sector, development of green infrastructure, etc.;
  - 4.1.1. raising public awareness of prevention measures and responding methods to emergencies, introduction of early warning systems, including digital ones, joint exercises of the participating countries in the field of effective response to emergency situations.

The conducted analysis of the national strategies in relation to the goals and objectives of the Programme testifies to their synergy and complementary nature in terms of development trends of Arctic territories.

## Chapter 2. DESCRIPTION OF THE RUSSIAN PROGRAMME AREA

The Kolarctic 2021 - 2027 Programme area includes the following countries and regions:

- Russian Federation: Murmansk Region, Arkhangelsk Region, Nenets Autonomous District;
- Finland: Lapland region;
- Sweden: Norrbotten region;
- Norway: Nordland, Troms and Finnmark counties.

The Russian programme area represents 34% (909,000 sq m) of the entire programme area. The Arctic zone of the Russian Federation includes Murmansk Region, Nenets Autonomous District and northern parts of Arkhangelsk Region.

The Russian programme area has a land border with the Republic of Finland and the Kingdom of Norway. There is also a sea border with the Kingdom of Norway. The Barents, White, Pechora and Kara seas border three Russian regions. They are marginal seas of the Arctic Ocean, with the exception of the White Sea, which is an inland sea.

Arctic regions are distinguished by harsh natural and climatic conditions. Global climate change puts an additional stress on the programme territory. For more details on its consequences and possible solutions, see Section 7 "Climate change."

The population of the Russian part of the programme area is 48% (1.9 million people<sup>1</sup>) of the total population of the Kolarctic region. The population is constantly decreasing due to the migration outflow. Migration growth is observed only in Nenets Autonomous District, which has no effect on the general picture of the Russian regions due to the District's small population of 44.3 thousand people. The migration outflow is mainly represented by the working-age population and young people who seek to move to large and economically developed cities, such as Moscow and St. Petersburg. The natural population decline is caused by the high percentage of the aging population.

There is a high level of urbanization in the regions, about 90% of the residents live in cities. Federal and regional universities, as well as research institutions are located in the regional centers. Educational and research institutions have an infrastructure to develop innovative technologies and train professionals for the Arctic.

The Russian programme area is home to indigenous peoples of the Far North: Sami, Nenets, Komi and Komi-Izhma peoples. Thus, such traditional nature management practices as reindeer husbandry, fishing, hunting and gathering are not forgotten and are practiced in the regions.

The Russian programme area has all the features of the Arctic periphery, in particular, the presence of a significant number of hard-to-reach and remote settlements and local communities (more than 100).

This leads to the fact that organizations located in regional centers mostly

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<sup>1</sup>As of 01.01.2021: Murmansk Region 732,864 residents, Arkhangelsk Region 1,127,051 residents, Nenets Autonomous District 44,389 residents

participate in the Programme's projects, and, as a result, recruiting new participants to join the Programme in remote communities is a definite challenge. In addition, this circumstance makes it difficult to fully exploit the potential of the entire Russian programme area. For example, coastal communities, being the territories with high potential of renewable energy use (e.g. wind energy, tidal power) or of green infrastructure development, are almost not involved in cross-border cooperation. The Programme's activities are mainly visualized in four Arctic cities: Murmansk, Apatity, Arkhangelsk, Naryan-Mar.

The basis of the economic well-being of the Russian programme area are extractive industries and processing of natural resources. The transport infrastructure of the Northern Sea Route (NSR), into which all three regions are integrated, has actively developed in recent years.

The fishery and aquaculture sectors are among traditional sectors of the Russian programme area's economy. They play an important role in the socio-economic specialization of the Murmansk region<sup>1</sup>. Every sixth ton of fish food products in Russia is produced by Murmansk Region's businesses. Smolt plants are planned to support the development of aquaculture. Fisheries and aquaculture are in the spotlight as a potential source of enhanced regional economic activities<sup>2</sup> in Arkhangelsk Region and Nenets Autonomous District. The marine fish resources of all three regions are integrated into the marine system of the programme area.

A significant share of the Arkhangelsk Region economy is represented by the woodworking and pulp and paper industries. One of the regional priorities in this area is development of an innovative forest cluster and uptake of advanced technologies in woodworking.

The development of the agricultural sector in the Russian programme area is limited by severe climatic conditions. The main areas of agriculture are dairy farming, reindeer husbandry and crop production. Reindeer husbandry is the specialization of Nenets Autonomous District. An important goal of the region is to promote the implementation of innovative projects with application of advanced technologies for the deep reindeer meat processing<sup>3</sup>.

The natural resources are, as a rule, used by large industrial companies with state participation. Small and medium-sized businesses are less involved in the socio-economic development of the Russian programme area. One of the most significant developments in recent years has been the creation of family businesses working in the field of fisheries (fish and algae extraction and primary processing), which contributes to development in remote areas. In connection with the growing interest to agrotourism and ecotourism, accommodation of tourists in guest houses of local residents is gaining

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<sup>1</sup> [On the development and support of aquaculture \(fish farming\) in the Russian Federation](#): page 10: "Murmansk Region is among the leaders in aquaculture", see also pages 6, 52, 95.

<sup>2</sup> [On the development and support of aquaculture \(fish farming\) in the Russian Federation: pp. 42-48: "...state programme adopted to support the development of agriculture"](#)

<sup>3</sup> Territorial analysis of the Russian programme area

popularity. However, small and medium-sized businesses still require more active development in terms of their organization, modern management methods and provision of the necessary infrastructure.

The volunteer movement is actively growing in the regions as a response to social challenges. The accumulated experience shows that volunteering helps to consolidate society, solve common problems, such as responding to the coronavirus pandemic, supporting people with disabilities, etc.

The covid-19 pandemic brought a demand for international travel restrictions, which has increased domestic tourism. On the one hand, this partially compensated economic losses of the regions<sup>1</sup> caused by the objective economic slowdown<sup>2</sup>, but on the other hand, the anthropogenic load on the environment has increased.

A positive response to the pandemic was the rapid development of digital services, including public, medical and social services, which is especially important for residents in hard-to-reach regions.

The implementation of the Programme can contribute to the socio-economic development of the Russian regions. For example, by promoting innovations, interdisciplinary educational programmes between the participating countries, implementing programmes for tourism and small businesses development, involving local population and indigenous peoples in joint solutions of current challenges. Implementation of projects aimed at creating favorable conditions for young people and their integration into socio-economic life can contribute to their desire to stay in the regions, which will decrease migration outflow and the share of the aging population.

Cooperation between the participating countries will have beneficial results in development of sustainable environmental and tourism initiatives that take into account fragility of the Arctic nature.

Given the fact that the presence of hard-to-reach and remote territories is a common feature of all participating countries, joint work on their involvement in project activities could become an additional incentive for development. For example, more active use of digital technologies in education, medicine, logistics, and cultural life can bring significant benefits to the entire programme area and compensate for its remoteness. One of the programme measures could be a dedicated Call for project applications for organizations from remote and hard-to-reach areas.

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<sup>1</sup><http://government.ru/news/42158/>

<sup>2</sup><https://ru.investinrussia.com/data/files/sectors/ru-ru-tourism-in-russia-current.pdf>

### Chapter 3. BIODIVERSITY IN THE RUSSIAN PROGRAMME AREA

The Russian programme area is characterized by a high level of biological diversity. The regions are located in three nature zones: tundra, forest tundra and taiga. Aquatic ecosystems are represented by a well-developed hydrological network of sea and river basins, as well as wetlands and lakes. For example, the most important wetlands are located in Nenets Autonomous District, where the migration routes of valuable animal species lie<sup>1</sup>. All three regions are characterized by the presence of a valuable commercial species — salmon (Atlantic salmon). This species is closely linked with the life cycle of the flagship Arctic species — the European pearl mussel (*Margaritifera margaritifera*). Important regional marine resources include algae, which are used in agriculture, food industry and medicine.

In the Russian programme area, adventive (alien) species of plants and animals exist, including invasive and quarantine species — Sosnovsky and Mantegazzi hogweed (*Heracleum mantegazzianum*, *H. sosnowskyi*), Canadian elodea (*Elodea canadensis*), rugosa rose (*Rosa rugosa*), etc. An example of an introduced species in the marine ecosystem is a pink salmon, the closest relative of salmon. Pink salmon undermines the food chain base of other salmon species and negatively affects their abundance.

Anthropogenic pressure and economic activities negatively affect the biodiversity and sustainability of terrestrial and aquatic ecosystems in the Russian programme area. For example, deforestation leads to disruption of forest functions in Arkhangelsk Region and a reduction of primary forests in the area. There is a gradual change from coniferous forests to deciduous<sup>2</sup>.

Each region has its Red Data Book, where species of plants, lichens and animals in need of protection are registered<sup>345</sup>. The protected species of the Russian programme area include Lapland papaver (*Papaver lapponicum*), European pearl mussel (*Margaritifera margaritifera*), Bewick's swan (*Cygnus bewickii*Yarel), gyrfalcon (*Falco rusticolus*), European subspecies of wild reindeer (*Rangifer tarandus*) and many others.

Based on the Development Roadmap for the system of federal specially protected natural areas (SPNAs)<sup>6</sup>, nature conservation measures are aimed at preserving natural ecosystems, valuable and rare species and their habitats, monitoring the state of the

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<sup>1</sup>[Specially protected natural areas in Nenets Autonomous District](#)

<sup>2</sup> Byzova N.M. Spatial ecological analysis of the landscapes of Arkhangelsk Region. // Bulletin of the Pomor University. 2005. No. 1 (7). Pp. 18-24. (In Russian).

<sup>3</sup>The nature and indigenous population of the Arctic under the influence of climate change and industrial development: Murmansk Region/ Ed. by E. A. Borovichev and N. V. Vronsky. Moscow: Publishing House Graphite. 2020.180 p. (In Russian).

<sup>4</sup> Red Data Book of Arkhangelsk Region. Third edition. Arkhangelsk: Northern (Arctic) Federal University. 2020.490 p. (In Russian).

<sup>5</sup> Red Data Book of Nenets Autonomous District: official publication / Ex. editor N.V. Matveeva, Doctor of Biology. 2nd edition. Belgorod: CONSTANTA, 2020.456 p. (In Russian).

<sup>6</sup> Development roadmap for the system of federal specially protected natural areas for the period until 2020 and the draft Development Strategy for specially protected natural areas until 2030

environment and maintaining a favorable ecological environment for human life.

The functions of SPNAs include:

- supporting regional ecological stability
- reproduction of valuable renewable natural resources in natural conditions
- supporting a healthy environment for human life
- creating conditions for development of regulated tourism and recreation
- implementation of environmental education programmes and conducting

scientific research

As of January 2021, the total area of SNPAs is:

- in Murmansk Region: 2 million hectares<sup>1</sup>
- in Arkhangelsk Region: 11.5 million hectares<sup>2</sup>
- in Nenets Autonomous District: 2.28 million hectares<sup>3</sup>

Examples of significant SNPAs in the Russian programme area are:

- Khibiny National Park, Pasvik and Laplandsky Nature Reserves, Polar-Alpine Botanical Garden;
- National Parks Kenozero, Onega Pomorie, Russian Arctic, Vodlozero Nenets Nature Reserve;

Taking into account the peculiarities of the Kolarctic Programme, in particular, its main task of cross-border cooperation development, as well as the aim of protecting nature and preserving biodiversity, it is recommended to pay attention to the following:

- Development of cross-border green corridors and greenways. Creation of cross-border nature protection areas;
- Effective management of SNPAs: digital mapping of territories, monitoring the populations of animal and plant species, development of methodological recommendations, research activities;
- Combating the biodiversity loss: restoration of the populations of rare animal species, reclamation of disturbed areas, restoring ecosystem functions in disturbed areas;
- Invasive species control: Sosnovsky and Mantegazzi hogweed (*Heracleum mantegazzianum*, *H. sosnowskyi*), Canadian elodea (*Elodea canadensis*), Weirichfleeceflower (*Aconogononweyrichii*), Indian balsam (*Impatiens glandulifera*), rugosa rose (*Rosa rugosa*) and multifoliate lupine (*Lupinus polyphyllus*), etc.;
- Development of approaches and assessment of ecosystem services in the Arctic regions;
- Assessment of recreational potential of protected areas for the development

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<sup>1</sup>Report on the state and protection of the environment in Murmansk Region in 2020

<sup>2</sup> Report on the state and protection of the environment in Arkhangelsk Region in 2019. Arkhangelsk: Ministry of Natural Resources and Timber Industry of Arkhangelsk Region. 2020. 482 p. (In Russian).

<sup>3</sup> Report on the state and protection of the environment in Nenets Autonomous District in 2020. Naryan-Mar. 2021.142 p. (In Russian). List of active SNPAs in Nenets Autonomous District [https://dprea.adm-nao.ru/media/uploads/userfiles/2021/04/14/OOПТ\\_на\\_2021\\_г.\\_распоряжение\\_removed.pdf](https://dprea.adm-nao.ru/media/uploads/userfiles/2021/04/14/OOПТ_на_2021_г._распоряжение_removed.pdf)

of ecological tourism.

Analysis of strategic environmental documents of Russia<sup>1</sup> and the EU<sup>2</sup> allows us to conclude that they have common key priorities. The presence in the documents of such priorities as international cooperation and active involvement of the public in the implementation of environmental protection measures should be especially emphasized. The presence of the listed common priorities provides ample opportunities for joint project activities within the framework of the Programme.

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<sup>1</sup> Draft Strategy for the Development of SNPAs until 2030

<sup>2</sup>[EU biodiversity strategy for 2030](#)

## Chapter 4. SOIL QUALITY IN THE RUSSIAN PROGRAMME AREA

The soils of the Russian programme area are mainly represented by podzolic, boggy, tundra and peat soils. A distinctive feature of the soils is slow soil formation, which takes place under conditions of negative average annual temperatures, small populations of soil microorganisms, high water logging and lack of oxygen, increased acidity, which leads to rapid degradation of soils as a whole.

There is a reduction in the share of agricultural land throughout the Russian programme area. Decrease of reclamation and land-clearing works leads to degradation of farmlands, erosion and water logging. Reduction and degradation of fertile soils also occur in connection with improper tillage of fields, the use of fertilizers and the impact of industrial enterprises. Pesticides are not used in the Russian programme area<sup>1</sup>.

The main sources of soil pollution in the Russian programme area are large enterprises working in mining and mineral processing<sup>2</sup>, oil and gas, logging industries, agriculture, transport, as well as industrial and domestic waste. The targeted programmes have been developed by the regions to decommission landfills for industrial and solid domestic waste, as well as to improve the sanitary and hygienic situation.

Thus, the following is relevant for the Russian programme area:

- study of methods and uptake of measures for the sustainable management of soils, which can be achieved e.g. through construction of reclamation systems;
- development and implementation of technologies aimed at improving and maintaining the agrochemical properties of soils;
- development and implementation of new technologies for the rehabilitation of disturbed lands, as well as economic mechanisms for the application thereof.

Another important area is monitoring of pollutants in agricultural lands, as well as monitoring the physical, mechanical and agrochemical properties of soils, including by the use of digital technologies.

A special attention is required to recycling and involvement of industrial and domestic waste in the economic circulation, reduction of the landfills' number, decreasing waste volumes and territories of waste disposal sites. This requires the development and implementation of technologies that ensure green growth based on the approaches of a circular economy and industrial symbiosis.

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<sup>1</sup>Nesterkin, M.G. The state of soil fertility in Murmansk Region / M.G. Nesterkin, N.N. Khludneva // Advances of Science and Technology in Agriculture. — 2018. — Vol. 32. — No. 6. — Pp. 10-14. — DOI 10.24411/0235-2451-2018-10602. (In Russian).

<sup>2</sup> Report on the state of the environment in Murmansk Region in 2020, <https://gov-murman.ru/region/environmentstate/>

## Chapter 5. WATER QUALITY IN THE RUSSIAN PROGRAMME AREA

The Russian programme area is characterized by an abundant supply of both surface water and groundwater. There are significant reserves of drinking, mineral and industrial (commercial) water in all three regions.

The volume of water withdrawn for household and industrial needs has been steadily decreasing in recent years<sup>1</sup>, which corresponds to the general trend in water use in Russia and the EU. The decrease in the volume of water withdrawal is explained by increased water use efficiency and the uptake of new resource-saving technologies. A distinctive feature of the Russian programme area is the low share of water used for agricultural needs<sup>2</sup> (no more than 18% of the total water consumption). This is a consequence of the relatively small area of farmland and the reduction of reclamation activities.

The high level of industrialization and uneven distribution of industrial facilities create additional risks that reduce the quality of drinking water. Specific pollutants of water bodies are metal compounds, nitrogen, sulfates and phosphates. It should be noted that there is a steady positive trend towards a reduction in the discharge of pollutants, as well as the local nature and unevenness of pollution in the Russian programme area. A higher level of surface water pollution is observed near larger communities, which is a consequence of the deterioration of water supply systems and facilities. In this regard, measures to upgrade housing and utilities, in particular, water treatment facilities, drainage and waste water systems require attention and coordination of efforts by regional authorities, utility companies and water management and protection organizations.

The main body responsible for the integrated management and protection of water bodies in the Russian programme area is the Dvina-Pechora Basin Water Administration of the Federal Agency for Water Resources (hereinafter referred to as the Water Administration)<sup>3</sup>. The Water Administration is guided in its activities by the principles enshrined in the Water Code of the Russian Federation<sup>4</sup>, in particular, the priority of protecting water bodies over consuming their resources. The main activities of the Water Administration are:

- organization of statistical observation and monitoring of water bodies;
- monitoring of hydraulic structures condition;
- organization of interagency cooperation for prompt response to flood events and prevention of emergencies at water bodies;
- carrying out flood control, riverbank protection measures and other types of activities;

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<sup>1</sup>[http://www.mnr.gov.ru/upload/iblock/0c7/2019\\_gosdoklad\\_voda2018\\_new\\_09122019.pdf](http://www.mnr.gov.ru/upload/iblock/0c7/2019_gosdoklad_voda2018_new_09122019.pdf)

<sup>2</sup> ibid, p. 244

<sup>3</sup><http://www.dpbvu.ru/>

<sup>4</sup><http://pravo.gov.ru/proxy/ips/?docbody=&nd=102107048>

Climate change has led to an increase in the frequency of hazardous weather events throughout the Russian programme area. Murmansk Region, Arkhangelsk Region, and Nenets Autonomous District are classified as regions with a medium and high risk level of emergencies associated with the negative impact of water-related disasters<sup>1</sup>. Such negative impact includes, for example, abnormal precipitation, seasonal and other floods, coastline erosion as a result of water level changes in rivers and on the seacoast. All these phenomena require careful study and forecasting in order to develop and implement measures to prevent emergency situations at water bodies.

Taking into account the more frequent dangerous weather phenomena, water resources management is carried out in close cooperation with regional executive authorities and research centers. For example, regular analytical reports, proposals and recommendations are prepared and sent to relevant authorities and specialized organizations.

Considering the above characteristics of water management, similar principles of water management zoning in Russia and the EU (river-basin management) and being guided by the provisions of the Russian Water Code<sup>2</sup> and relevant EU documents<sup>3</sup>, the following promising areas of cooperation within the framework of project activities can be identified:

- collection and analysis of information on border water ecosystems and water bodies of adjacent river basins;
- assessment of the permissible anthropogenic load on water bodies;
- organization of water protection measures with the involvement of border regions residents;
- study of the water bodies potential for the development of sea, river transport and tourism in accordance with environmental requirements and standards;
- minimizing and mitigating the negative impact of water-related disasters study on optimal solutions and use of digital technologies for water treatment and supply in remote rural areas.

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<sup>1</sup> Government report "State and management of water resources in the Russian Federation in 2018"

<sup>2</sup> Water Code of the Russian Federation: <http://pravo.gov.ru/proxy/ips/?docbody=&nd=102107048>

<sup>3</sup> EU Water Framework Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02000L0060-20141120>

## Chapter 6. AIR QUALITY IN THE RUSSIAN PROGRAMME AREA

Atmospheric air is a vital component of the environment, the state of which is one of the leading factors that determine the human health and epidemiological situation.

The Russian programme area is one of Russia's most urbanized northern territories and a highly economically developed region of the Arctic. It is home to large mining, metals, pulp and paper and oil industry enterprises, which have an impact on the environment. Thermal power facilities, including municipal boiler houses, motor, water and rail transport are also sources of air pollution.

Natural sources of air pollution in the Russian programme area include forest fires, dust storms, weathering processes (wind erosion of soil and rocks), decomposition of organic matter<sup>1</sup>.

Russian legislation in the field of air protection is represented by a group of laws<sup>2</sup> and stipulates the principles of air quality regulation and requirements to economic activities. We can note the similarity to EU legislation in this field<sup>3</sup>, for example, doing business based on best available techniques (BAT)<sup>4</sup>. Taking into account the Russian and the EU legislation, as well as criteria for the development of BAT,<sup>5</sup> the recommended topics when planning and implementing projects can be:

- circular economy;
- greener production;
- pollution prevention;
- cleaner production;
- use of cleaning technologies at the last stage of the production cycle ("end-of-pipe");
- low carbon technologies.

The tasks of creating the necessary conditions for maintaining, strengthening and restoring the health of the residents have been formulated at the federal and regional level. These tasks include eliminating the harmful effect of environmental hazards, including improving the condition of atmospheric air<sup>6</sup>. Practical work on development and implementation of better methods for improving air quality and preventing air pollution can benefit the entire programme area.

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<sup>1</sup>[Report: State and protection of the environment in Arkhangelsk Region in 2018](#)

<sup>2</sup>Federal Law of 04 May 1999 No. 96-FZ on the Protection of Atmospheric Air, Federal Law of 10 January 2002 No. 7-FZ on Environmental Protection, etc.

<sup>3</sup>[Article 5 \(4\), item 5.26: "The notion of human health should be considered in the context of the other issues mentioned in 30 paragraph \(f\) and thus environmentally related health issues such as exposure to traffic noise or air pollutants are obvious aspects to study."](#)

<sup>4</sup>[Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions \(integrated pollution prevention and control\) Common Provisions, Article 1, item 10](#)

<sup>5</sup>[Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions \(integrated pollution prevention and control\) Annex III Criteria for determining best available techniques](#)

<sup>6</sup> Strategies for the socio-economic development of the Russian programme area

## Chapter 7. CLIMATE CHANGE

Climate change is a global phenomenon causing various economic, social and environmental risks. Therefore, one of the global sustainable development goals<sup>1</sup> is taking urgent action to combat climate change and its impacts.

Climate change occurs much faster and more intense in the Arctic than in other parts of the world. According to Roshydromet,<sup>2</sup> air temperatures in the Arctic have been rising rapidly since the late 1990s; the area and thickness of sea ice has decreased by 40%. At the same time, the indicators describing extreme heat in winter continue to grow<sup>3</sup>, and it is predicted that the average winter temperature will be 4-5 °C higher in 10-15 years than at the end of the 20th century. Based on the projected climatic changes for the Russian programme area, the following risks have been identified<sup>4</sup>:

- an increase in the frequency of catastrophic weather events, such as strong winds and precipitation, storms, ice, frequent freeze-thaw fluctuations (negative impact on public health, increased risks for transport, risk of infrastructure failures);
- increasing degradation of permafrost (risk of infrastructure failures);
- higher likelihood of major spring floods, accelerated coastal erosion (life safety, destruction of municipal infrastructure);
- changes in the time and duration of freeze-up on rivers and lakes (loss of winter roads, problems for reindeer migration);
- long-term biodiversity stress (loss of habitats, replacement of tundra vegetation by other species, penetration of invasive species, etc.);
- threats to public health (spread of new infectious pathogens, risk of more common cardiovascular disease with a sharp change in weather conditions, etc.);
- risk of increased systemic (synergistic) impact of climate change and anthropogenic pressure on Arctic ecosystems.

Adaptation of the Arctic economy and infrastructure to climate change, study and assessment of climate-related risks to public health are a strategic priority of national policies<sup>5</sup> on climate change adaptation. The adaptation of the Russian Federation to

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<sup>1</sup> UN. Sustainable Development Goals, <https://www.un.org/sustainabledevelopment/ru/climate-change/>

<sup>2</sup> Second assessment report Climate Change in the Russian Federation [http://voeikovmgo.ru/download/2014/od/resume\\_teh.pdf](http://voeikovmgo.ru/download/2014/od/resume_teh.pdf)

<sup>3</sup> Annual reports on the state of the climate in the Russian Federation, [http://climatechange.igce.ru/index.php?option=com\\_docman&Itemid=73&gid=27&lang=ru](http://climatechange.igce.ru/index.php?option=com_docman&Itemid=73&gid=27&lang=ru)

<sup>4</sup> Assessment of the macroeconomic consequences of climate change in the Russian Federation until 2030 and beyond, <http://voeikovmgo.ru/download/publikacii/2011/Mokryk.pdf>

<sup>5</sup> Decree of the President of the Russian Federation on the Strategy for the Development of the Arctic Zone and Ensuring National Security for the Period until 2035 <http://publication.pravo.gov.ru/Document/View/0001202010260033>; Climate Doctrine of the Russian Federation, <http://www.scrf.gov.ru/security/economic/document121>; Order of the Government of the Russian Federation of April 25, 2011 No. 730-r enacting a comprehensive plan for the implementation

climate change is related to the need to minimize the emerging complex risks, but also to the use of emerging favorable opportunities: productivity increase in agriculture and forestry, better accessibility of sea routes in the Arctic Ocean, the heating season length reduction.

To provide a mechanism for combating climate change at the global level, the Paris Agreement was adopted<sup>1</sup>, it was signed by the Russian Federation in 2016<sup>2</sup>. In accordance with the Agreement, the Ministry of Economic Development of the Russian Federation has developed a draft Strategy for the socio-economic development of the Russian Federation with a low level of greenhouse gas emissions until 2050<sup>3</sup>, which is pending approval by the Government of the Russian Federation. The main directions of the Strategy implementation are:

- improving energy efficiency;
- preserving and increasing the absorption capacity of forests, soils and other natural carbon sinks;
- conducting applied and exploratory research in the field of low greenhouse gas emissions.

The indicators of the achievement of strategic goals are:

- reduction in greenhouse gas emissions;
- reduction in the carbon intensity of manufactured products;
- increase in electricity production from renewable energy sources;
- higher energy efficiency;
- increase of reforestation areas.

To ensure low-carbon development, a package of key documents has been prepared for the launch of green financing<sup>4</sup>, the concept of a "climate project" is introduced<sup>5</sup>, the need to ensure international cooperation and scientific validity, consistency and an integrated approach to limiting greenhouse gas emissions is declared. Projects in the field of ecotourism, greener transport infrastructure, hydrogen and gas engine transport, forestry and agricultural projects, etc. are considered as "climatic".

Thus, projects in the field of adaptation to climate change and mitigating climate impacts are relevant for the Russian programme area. To develop and take appropriate adaptation measures, it may be advisable to organize monitoring of the climate change consequences in the programme area, develop local adaptation plans with the

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of the Climate Doctrine of the Russian Federation for the period until 2020, <https://www.garant.ru/products/ipo/prime/doc/2074495/>

<sup>1</sup><https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

<sup>2</sup><http://government.ru/docs/37917/>

<sup>3</sup>[https://www.economy.gov.ru/material/file/babacbb75d32d90e28d3298582d13a75/proekt\\_strategii.pdf](https://www.economy.gov.ru/material/file/babacbb75d32d90e28d3298582d13a75/proekt_strategii.pdf)

<sup>4</sup>

[https://www.economy.gov.ru/material/news/maksim\\_reshetnikov\\_minekonomrazvitiya\\_budet\\_privlekat\\_investicii\\_v\\_ekologiyu\\_i\\_zdorove\\_grazhdan\\_v\\_ramkah\\_esg.html](https://www.economy.gov.ru/material/news/maksim_reshetnikov_minekonomrazvitiya_budet_privlekat_investicii_v_ekologiyu_i_zdorove_grazhdan_v_ramkah_esg.html)

<sup>5</sup> Federal Law of 02.07.2021 No. 296-FZ on Limiting Greenhouse Gas Emissions <http://publication.pravo.gov.ru/Document/View/0001202107020031?index=19&rangeSize=1>

participation of the local population and consideration of traditional knowledge.

To mitigate the impact on the climate system, it is advisable to carry out reforestation and reclamation of disturbed lands. For better sustainability of ecological tourism, new knowledge is needed about the buffer capacity of the Arctic ecosystems, about eco-friendly approaches to organization of tourists activities, and about solutions in the field of greener tourism infrastructure. Considering the green transition, projects to improve energy efficiency and use of renewable energy sources are becoming highly relevant for the Programme area, including remote settlements.

## Chapter 8. GREEN INFRASTRUCTURE IN THE RUSSIAN PROGRAMME AREA

*The goal of creating green infrastructure is minimizing the negative impact on the environment and restoring damaged ecosystems in both rural and urban areas<sup>1</sup>. Attention to green infrastructure is given in the development strategies of the Russian programme area<sup>2</sup>.*

Green infrastructure, as a strategically planned network of natural and semi-natural areas, meets the *tasks* of preserving biodiversity, improving air quality, facilitating adaptation to climate change, ensuring environmentally balanced use of water resources and soils<sup>3</sup>. Smart and thoroughly designed green spaces increase the quality of the urban environment, improve human health and life quality of citizens and contribute to the development of the local economy and social sphere.

Most of the residential communities in the Russian programme area were built and developed based on the “garden city” concept, therefore, they have carefully planned green spaces, dust and noise protection belts along city roads, embankments, parks, squares and city forests on their territory.

However, the rapid pace of urbanization, too compact housing and real estate development, sharp increase of private cars and public urban transport have led to a decline in green building. Special landscaping departments ceased to exist, the influx of professionals in green construction working for public utility companies has dried up. Urban parks, squares and public places need qualified restoration and systematic planning, taking into account contemporary approaches to their spatial organizing.

Establishment of a comfortable and safe urban environment is included in the list of national development goals of the Russian Federation for the period up to 2030<sup>4</sup>. This goal provides for the involvement of regional and local authorities, business representatives and the general public in reconstruction, planning and creation of green infrastructure. For example, programmes are being implemented to create a comfortable urban environment in MR<sup>5</sup>, AR<sup>6</sup>, NAD<sup>7</sup>. In order to maximize the involvement of regional population in the decision-making on urban environment and green infrastructure, regional authorities have launched websites to collect feedback and suggestions from the residents<sup>8,12</sup>.

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<sup>1</sup>[Restoration priorities and strategies Restoration to protect biodiversity and enhance Green Infrastructure: Nordic examples of priorities and needs for strategic solutions](#)

<sup>2</sup>[NADt: 2.3. Goals and objectives of socio-economic development in NAD: 2.3 Goals and objectives of socio-economic development](#)

<sup>3</sup><https://op.europa.eu/en/publication-detail/-/publication/738d80bb-7d10-47bc-b131-ba8110e7c2d6>

<sup>4</sup><http://government.ru/rugovclassifier/846/events/>

<sup>5</sup><https://gov-murman.ru/info/gorsreda/>

<sup>6</sup>[https://dvinaland.ru/gov/city\\_comfortable\\_environment/](https://dvinaland.ru/gov/city_comfortable_environment/)

<sup>7</sup><https://gkh.adm-nao.ru/formirovanie-komfortnoj-gorodskoj-sredy/>

<sup>8</sup><https://51.gorodsreda.ru/voting/>

Examples of green infrastructure and other concepts' implementation can be tracked on these websites by comparing "before" and "after" pictures. The popular ideas in the green infrastructure development in the Russian programme area are landscaping, solving the problems of water flooding in urban areas, replanning and reconstruction of worn-out storm sewers, establishing bike paths and walking paths within green areas, which could become an organic part of green infrastructure on the one hand, and, on the other hand, serve as recreation destinations for local residents.

The Russian programme area has a network of national parks, specially protected natural areas and reserves. Given that natural ecosystems do not follow national borders, the development of green corridors (greenways) between the participating countries can help to connect fragmented ecosystems, which will contribute to the conservation of flora and fauna, genetic diversity, and will also prevent environmental degradation. Additionally, promising areas for the development of green infrastructure for the entire programme region can be:

- creation of an educational platform in the field of green infrastructure and urban development in the arctic conditions, as well as events for the exchange of experience and knowledge;
- establishment of green water management systems;
- establishment of floodplain forests and plantation strips to combat flood events;
- study and selection of the optimal composition of green roofs and walls adapted to northern climatic conditions;
- establishment of "educational landscapes", creation and use of green territories, gardens and vegetable patches near kindergartens, schools, universities in the educational process;
- study of the urban heat island effect on the health of residents and development of recommendations to reduce this negative impact;
- studying the positive economic effects of urban green infrastructure.

The green infrastructure topic contributes to the implementation of Russian legislation and regional initiatives in this area. Also, the EU legislation includes approaches<sup>3</sup> intersecting with the Russian ones. This kind of synergy, as well as the choice of the Programme in favor of green infrastructure development<sup>4</sup>, can have a positive effect on provision of a safe and ecologically clean living environment for the residents of the entire programme area.

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<sup>1</sup><https://29.gorodsreda.ru/>

<sup>2</sup><https://83.gorodsreda.ru/>

<sup>3</sup>[REGULATION \(EU\) 2021/1058 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 June 2021 on the European Regional Development Fund and on the Cohesion Fund: article 1, annex I](#)

<sup>4</sup> Joint Operational Programme 2021-2027 (draft versions 15.07.2021). Specific objective 7: "Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution"

## **Chapter 9. CULTURAL LIFE AND HERITAGE IN THE RUSSIAN PROGRAMME AREA**

The cultural heritage of the Russian programme area is represented by:

- sites on the UNESCO World Heritage List: Solovki State Historical, Cultural and Natural Museum, Kenozero National Park;
- cultural heritage sites of federal, regional and municipal significance;
- forms of traditional and spiritual culture;
- languages of indigenous peoples of the North.

The national policy of the Russian Federation recognizes culture as the most important factor in the growth of the quality of life, the key to dynamic socio-economic development<sup>1</sup>. Approximately 2000 cultural heritage sites in the Russian programme area are under state protection. Monuments of history and culture are represented by the following groups:

- architectural monuments;
- archeological monuments and sites;
- natural sites;
- historical monuments and sites;
- science and technology monuments;
- regional exploration and development monuments;
- international interaction monuments;
- objects of tangible and intangible culture of indigenous peoples of the North.

In accordance with Russian legislation, cultural heritage is to be protected and preserved. At the same time, due to the large number of sites and, in some cases, their geographical remoteness, a number of important cultural heritage sites require prompt measures for their restoration and preservation. The collection, documentation and study of objects of tangible and intangible cultural heritage for the Russian programme area are still relevant.

The diversity of the cultural heritage of the Russian North is a result of historical interaction of different cultures. Northern cuisine, represented by traditional Sami, Nenets, Pechera and Pomor cuisines, has gained great popularity among tourists and restaurateurs. The Arctic menu specialization has become a business trend and contributes to the development of small and medium-sized businesses. However, knowledge about traditional recipes is not full and weakly systematized. At the moment there is only one Sami cuisine publication available in Murmansk Region<sup>2</sup>, as well as few

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<sup>1</sup>[Decree of the President of the Russian Federation of December 24, 2014 No. 808 enacting the Fundamentals of State Cultural Policy](#)

<sup>2</sup>[E.Ya. Patsiya: The Kola Feast](#)

publications on the Pomor and Nenets cuisines, and no publications are available on the Pechera cuisine at all. More research is needed to preserve the authentic Northern culinary traditions.

Public spaces of libraries, museums and cultural centers have changed in recent years, and their functionality has expanded in favor of greater openness and accessibility to visitors. Now these are modern spaces focused on new forms of interaction: open lectures, films, public discussions, etc. Regional strategies support branded cultural events and products in cities and rural areas<sup>1</sup>. For example, the following events are organized in the Russian programme area:

- Sami games<sup>2</sup>;
- rural Pomor goat festival<sup>3</sup>;
- Festival of the North<sup>4</sup>;
- Arctic Festival Teriberka<sup>5</sup>;
- Taibola Eco-Festival<sup>6</sup>;
- annual international jazz festival<sup>7</sup>;
- international street theaters festival<sup>8</sup>;
- Reindeer breeders festival Deer Day<sup>9</sup>;
- sports festival Northern Lights<sup>10</sup>;
- snowmobile race Buran-Day<sup>11</sup>.

For the Russian programme area, with its large number of small and remote communities, development of cultural infrastructure, creation of favourable conditions for creative industries<sup>12</sup> based on both traditional and modern approaches is important. Considering geography of the Russian programme area bordering on the EU and Norway, joint work to preserve the diversity of national cultures, crafts and languages can provide significant benefits.

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<sup>1</sup>[Resolution of the Government of the Murmansk region of 11.11.2020 enacting the State Program of Murmansk Region on Culture](#)

<sup>2</sup>[Sami Games in Murmansk Region](#)

<sup>3</sup>[About the rural Pomor goat festival](#)

<sup>4</sup>[Festival of the North in Murmansk](#)

<sup>5</sup>[Arctic Festival in Teriberka, Murmansk Region](#)

<sup>6</sup>[Taibola Eco-Festival in Arkhangelsk Region](#)

<sup>7</sup>[International Jazz Festival in Arkhangelsk](#)

<sup>8</sup>[International Theater Festival in Arkhangelsk](#)

<sup>9</sup>[Deer Day in Naryan-Mar](#)

<sup>10</sup>[Chuprov Sports Festival Northern Lights in Naryan-Mar](#)

<sup>11</sup>[Snowmobile racing in Naryan-Mar](#)

<sup>12</sup>Order of the Government of the Russian Federation of February 29, 2016 N 326-r enacting the State Cultural Policy Strategy for the Period until 2030

<http://static.government.ru/media/files/AsA9RAyYVAJnoBuKgH0qEJA9IxP7f2xm.pdf>

## Chapter 10. HEALTHCARE IN THE RUSSIAN PROGRAMME AREA

The healthcare infrastructure of the Russian programme area is represented by more than 800 healthcare institutions located in urban and rural areas. Large medical centers are located in Murmansk, Arkhangelsk and Naryan-Mar. There is one higher educational institution that trains doctors of all specialties: Northern State Medical University in Arkhangelsk<sup>1</sup>. Student admission is open to the General Medicine programme at the Murmansk Arctic State University<sup>2</sup> since 2020. Secondary health education programmes are available at four medical colleges.

The low population density and the presence of more than a hundred remote and hard-to-reach rural communities complicate the prompt access to medical services for residents of these territories. For example, medical aviation is used to ensure the availability of health care in Nenets Autonomous District. Low attractiveness of remote areas negatively affects staffing and recruiting of medical personnel. Development of telemedicine<sup>3</sup> can provide access to medical services and prompt consultation with highly qualified personnel from other cities not only in the Russian programme area, but also from Moscow and St. Petersburg<sup>4</sup>. Telemedicine has become especially relevant in connection with the coronavirus pandemic.

Regional programmes on modernization of primary healthcare<sup>5</sup> are a response to the current situation. They are aimed at ensuring availability and quality of healthcare in rural areas and small towns for all groups of the population, including people with special needs. The healthcare system of the Russian programme area aims to be patient-oriented, to form a culture of health preservation among the population by supporting a healthy lifestyle and increasing medical literacy. One of the solutions in this area is the widespread use of digital technologies for remote health monitoring, including pregnant women and people with chronic diseases<sup>6</sup>.

Thus, issues relevant for the Russian programme area include providing medical organizations with qualified personnel, the timely provision of primary health care and high-tech medical care, especially to residents of hard-to-reach areas, as well as strengthening and effective use of material and technical resources for a better functioning of regional health systems.

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<sup>1</sup>[Northern State Medical University in Arkhangelsk](#)

<sup>2</sup>[Murmansk Arctic State University, major in General Medicine](#)

<sup>3</sup> *ibid*, p. 64: "The remoteness of the district's communities imposes requirements on the availability of medical services on an ongoing basis. One of the components of ensuring accessibility is telemedicine."

<sup>4</sup> Strategy of socio-economic development of Nenets Autonomous District until 2030: p. 40: "development of telemedicine technologies, effective information interaction of medical organizations based on a unified state health care system"

<sup>5</sup> Strategy of socio-economic development of Murmansk Region until 2025.

<sup>6</sup> Strategy of socio-economic development of Arkhangelsk Region until 2035.

## Chapter 11. TOURISM

Development of domestic and inbound tourism is in the focus of attention in Murmansk Region, Arkhangelsk Region and Nenets Autonomous District. Sport, ecological, ethnocultural, cruise and business tourism as well as recreational fishing are actively growing sectors of economy. The number of tourist facilities and tour operators is also increasing.

Tourism development programmes aimed at preserving and promotion of cultural, historical, spiritual and natural heritage are being implemented in the Russian programme area<sup>1</sup>. The clustering approach is applied for tourism development, which allows combining the efforts of authorities and business to create tourist and recreational zones<sup>2</sup>.

In this regard, a promising tourist destination is the Russian Arctic, where the Russian Arctic National Park, Franz Josef Land Federal Reserve, Solovki Museum Reserve, Kenozero National Park, Khibiny National Park are located.

The main challenges of tourism development in the Russian programme area are the remoteness of tourist attractions and regions as a whole, the undeveloped transport system, the high cost of accommodation, meals, and tourist services. The insufficient qualification of the hospitality industry staff, as well as the low degree of local residents' involvement in the tourism industry are also to be noted. The COVID-19 pandemic triggered an increase in domestic tourism in 2020, thereby increasing anthropogenic pressure on natural ecosystems.

Thus, it is important to implement the principles of sustainable tourism development in order to make the most efficient use of the tourist potential of the programme territories, which will give an impetus to the economic, social and environmental stability of the regions. To increase the tourist attractiveness of the regions, it is necessary to create favorable conditions for development of tourist clusters and infrastructure, the quality of tourist services, as well as involvement of local communities and businesses in the tourist industry.

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<sup>1</sup> Murmansk Regions's State Program "Economic Potential"

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## Chapter 12. ASSESSMENT AND RECOMMENDATIONS

The consortium proceeds in its assessment from the following scenarios of possible environmental risks:

- zero scenario;
- alternative scenario for a partial Programme implementation by 2027;
- scenario of full Programme implementation by 2027.

**Zero scenario** assumes a refusal to implement the Programme. In this case, the environmental and socio-economic profile of the Russian programme area presented in Section 2. “Description of the Russian programme area” and in other sections will match the baseline data as of 2021; its improvement will be associated mainly with the implementation of existing Russian federal and regional development strategies.

**Alternative scenario** assumes partial implementation of policy objectives, Interreg specific objective and corresponding specific objectives until the completion of the Programme in 2027.

**Scenario of full Programme strategy implementation** implies implementation of all Programme goals and objectives by 2027. Since it is not possible to undertake risk assessment of specific project activities at the Programme development stage, the Consortium proceeds from the assumption that the scope of assessment is determined by the selected policy objectives, the Interreg specific objective and the corresponding specific objectives.

Potential impact under the *alternative scenario* and *full implementation scenario* will depend on the maximum amount of financing assigned to the investment (infrastructure) component. Additional filters excluding projects with potentially negative environmental impact are assessment of project applications by regional expert groups, as well as by delegations of countries participating in the Joint Monitoring Committee. When considering project applications, the Consortium recommends to pay a special attention to proposed technological solutions, their environmental friendliness, effectiveness and energy-efficiency, as well as compliance with national and international regulatory frameworks.

Taking into account the significance of the selected Programme objectives and priorities, as well as the proposed list of potential project activities and their results<sup>1</sup>, the full implementation of the Programme is considered as the preferred scenario. The Programme will contribute to the integrated, sustainable development of the participating regions, contributing to the preservation of human and natural capital, to the development of a green economy and digital technologies. No less important aspects accompanying the implementation of the Programme are the strengthening of cross-border cooperation at the national, regional and local levels, the practical implementation of existing cooperation agreements, as well as synergy with other instruments of cooperation in the Barents and Arctic regions.

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<sup>1</sup> See Table 1.

For the purpose of studying *the full implementation scenario*, the Consortium analyzed the current status data on the Russian programme area<sup>1</sup>, current Russian legislation, federal and regional strategies, and correlating reports and research publications<sup>2</sup>. On the basis thereof, as well as taking into account expert experience and stakeholder consultations' results, the Consortium has formulated promising directions for addressing existing regional challenges, as well as measures to support sustainable development of the Russian programme area and the Kolarctic region as a whole.

An assessment of the proposed activities and their possible positive and/or negative impact (risks) is given in Table 1 "Assessment and Recommendations". To meet the requirements concerning information disclosure and have regard to the views and recommendations of stakeholders, the Consortium has also included in the table the project initiatives recommended by stakeholders during the two consultation rounds in January and June 2021<sup>3</sup>.

Section 13 "Monitoring" provides additional recommendations on timely recognition of environmental risks and procedures for their possible prevention and monitoring. Applicants are advised to take into account Section 15 "List of References", where they can find useful information on the current legislation in the field of environmental protection, as well as on regional development strategies and other documents with information on preventive measures and / or minimizing the risks of negative environmental impact both in the Russian program area and in the whole Kolarctic region. For ease of use, the list is divided into thematic blocks corresponding to the sections of this Report.

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<sup>1</sup> sections: Biodiversity, Soil Quality, Water Quality, Air Quality, Climate Change, Green Infrastructure, Cultural Life and Heritage, Health, Tourism

<sup>2</sup> See Section 15. List of references

<sup>3</sup> consultations organized by the managing authority and branch offices. After next stakeholders consultations planned for Autumn 2021 the list of proposed activities and the Table 1 will be updated

## Chapter 13. MONITORING

The Environmental Report is a central part of the strategic environmental assessment and serves as the basis for:

- identification of environmental risks that require consideration while preparing Programme documents;
- description of mechanisms for preventing and minimizing environmental risks during the implementation of the Programme;
- procedures for monitoring the results of the Programme implementation<sup>1</sup>.

Russian legislation in the field of strategic planning provides for monitoring and control measures in relation to activities regulated by international treaties<sup>2</sup>.

The Directive does not give a precise definition of the term "monitoring" and does not offer specific methods and techniques for its implementation<sup>3</sup>. There are different approaches to organizing and conducting monitoring recommended by the European Commission<sup>4</sup>. In this regard, Consortium considers it appropriate to use an objective-related monitoring approach. This approach is used in cases where environmental issues are among the selected objectives<sup>5</sup> and priorities<sup>6</sup>.

The Consortium takes into account the absence in the Programme documents of any plans to implement large infrastructure projects that could potentially include environmental risks related to construction activities. Information on other potential environmental risks and on the current environment state in the Russian programme area, including in sites and locations sensitive to environmental impacts is given in the relevant sections of the Report<sup>7</sup>. Recommendations for the nature preservation and possible improvements of the environmental situation, and in some cases for the minimization of existing environmental risks are also included in this report.

Procedural aspects of the organization of monitoring<sup>8</sup> relevant for the project and Programme levels:

- data collection;
- data processing and analysis;
- data evaluation and interpretation;

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<sup>1</sup> Article 5 "Environmental report": [https://ec.europa.eu/environment/archives/eia/pdf/030923\\_sea\\_guidance.pdf](https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf)

<sup>2</sup> [Federal Law of June 28, 2014 No. 172-FZ on Strategic Planning in the Russian Federation", Article 1, para. 3, 5](#)

<sup>3</sup> [3.1.5 Methods and Standards](#)

<sup>4</sup> [5.5.1.4 Scope of Monitoring: "The SEA team decided on a concrete procedure and on criteria for performing the monitoring requirement of the SEA Directive."](#)

<sup>5</sup> 3.2.2.4 Objective-related monitoring: [https://ec.europa.eu/environment/archives/eia/pdf/impel\\_final\\_report.pdf](https://ec.europa.eu/environment/archives/eia/pdf/impel_final_report.pdf)

<sup>6</sup> Joint Operational Programme 2021-2027 (draft versions as of 15.07.2021)

<sup>7</sup> Sections: 3. "Biodiversity", 4. "Soil quality", 5. "Water quality", 6. "Air quality", 7. "Climate change", 8. "Green infrastructure", 9. "Cultural heritage", 10. "Tourism", 11. "Assessment and recommendations"

<sup>8</sup> [3.1.3 How can monitoring be organized \(procedural aspects?\)](#)

- studying the consequences and taking corrective actions (if necessary).

The document reflecting the goals, objectives, procedures, as well as the regularity of monitoring at the programme level is the “Monitoring and Evaluation Plan”. This document presents Programme indicators that systematize information not only on the overall project results, but also demonstrate positive achievements in the environmental field (for example, the area in km<sup>2</sup> of water and land covered by environmental measures).

The choice of relevant indicators is an underlying component of monitoring. The following Common Output and Result Indicators suggested for the next Kolarctic Programme can contribute to the environmental protection and minimizing of environmental risks<sup>1</sup>:

- pilot actions developed jointly and implemented in projects;
- solutions taken up or up-scaled by organizations/cities;
- strategies and action plans jointly developed;
- specific indicators for green infrastructure or rehabilitated land areas;
- investments in new or upgraded disaster monitoring, preparedness, warning and response systems against natural disasters<sup>2</sup>.

When it comes to potential environmental impact assessment, the suggested indicators will be especially relevant within the Policy Objective 2.

Considering that the environmental protection is one of the Programme priorities, the Consortium recommends to develop and use additional “green indicators” as a voluntary initiative, for example:

- number of activities aimed at nature protection;
- number of research publications on ecology, biodiversity, etc.;
- number of implemented innovative solutions for environmental protection (including the number of successful and failed validations of new methods);
- number of educational courses/modules/programmes on ecology and environmental awareness raising.

By planning project activities, applicants are also recommended to be guided by programme documents, national and international legal acts in the field of environmental protection, as well as the results of strategic assessments carried out by the Russian and Swedish Consortia.

In cases where project activities include construction of facilities and/or a significant impact on the environment, it is recommended to conduct an environmental audit/review before the project start, during the implementation of the project and in the post-completion phase<sup>3</sup>. The development of a Stakeholder Engagement Plan can also contribute to minimization of environmental risks, as it obliges to take into account the views and requests of environmental organizations and the local population. The Plan is a

<sup>1</sup> The list is to be updated in accordance with the latest version of the joint programme document

<sup>2</sup> Presentation on indicators 2021-2027 (draft version as of 15.07.2021)

<sup>3</sup> [3.1.4 Monitoring of Transboundary Effects of the Implementation of Plans or Programmes: "Article 7 of the Espoo Convention provides for a voluntary procedure for carrying out post-project analysis..."](#)

living document and is subject to regular updates. When preparing a project application, it is necessary to consider and describe measures for the sustainability of the project deliverables after the end of its co-financing.

The importance of systematic, continuous monitoring at the project and programme level during all implementation stages should be emphasized. Upon projects' completion, it is recommended to conduct a final evaluation of the programme, taking into account the collected environmental indicators and the development of relevant recommendations.

## CONCLUSION

The Strategic Environmental Assessment (SEA) provides a comprehensive analysis of the Kolarctic programme for 2021-2027 based on an integrated approach that ensures the implementation of both provisions of the legislation of the Russian Federation and the Directives of the European Commission. The SEA is aimed at its practical use by interested parties and potential applicants (for example, by preparation of project ideas, as well as a guide to project implementation).

A common challenge faced by all regions in the Kolarctic programme area is the preservation of biodiversity and natural environment in the Arctic, as well as human well-being and public health. Therefore, the main sectors of regional economies, namely mining industry, agriculture and forestry, fishery, aquaculture and tourism should ensure environmentally sustainable use of natural resources. Specially protected natural areas contributing to preservation of biodiversity and habitats of Arctic species also have national and regional importance in this regard.

Climate change adaptation and mitigation are the policy priorities of the Russian Federation and the European Union. Therefore, the transition to low-carbon economy, green growth, advanced use of digital technologies and innovations, elaboration of preventive measures based also on traditional knowledge of local communities are of key importance for the Programme area.

Natural resources are the backbone of traditional economic activities of indigenous peoples. The tourism and hospitality industry also depends on the state of natural resources and objects of tangible and intangible cultural heritage. Tourism is a growing and at the same time a vulnerable economic sector, highly interdependent on the development of transport, public catering, culture and other spheres. The environmental risks associated with tourism have not yet been fully explored. However, taking into account the persisting demographic challenges and the important role of tourism in increasing attractiveness of the region, both in terms of living and visiting, it is crucial to pay attention to the development of culture and tourism industry with regard to all environmental aspects.

We believe that the sufficient synergy between the Programme, national strategies and the EU strategies has been achieved in the Kolarctic programme documents for 2021-2027. This synergy is based on the common goals of sustainable development in the participating countries. The goals and objectives of the Kolarctic Programme fully reflect the main current trends in the development of the Arctic territories. Implementation of joint project initiatives will go in line with the Russian and EU legislation, promote widely adopted principles of environmental conservation, and contribute to the socio-economic development in the whole Programme area.

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## ASSESSMENT AND RECOMMENDATIONS

<b>Policy objective 1: An innovative Europe through smart economic transformation</b>			
<b>Specific objective 1: Enhancing research and innovation capacities and the uptake of advanced technologies</b>			
<b>Possible activities</b> What?	<b>Justification</b> Why?	<b>Recommendations / mitigation</b> How?	<b>Assessment</b> Results / Risks
Facilitating uptake of innovations in the agriculture sector	Due to harsh climatic conditions agriculture is a rather weakly developed industry in the Russian and the whole Kolarctic area. To give a strong impetus to sectoral development, a close collaboration with research institutions and uptake of innovations can be crucial.	Through clustering approach and creation of partnerships consisting of research institutions and relevant agricultural organizations. Involvement of public authorities and NGOs may also help to upscale, use and disseminate new solutions. It is recommended to plan and implement activities foreseen in relevant Russian <sup>1</sup> and EU policy <sup>2</sup> documents, e.g. research on: restoration of soil and its functions, reduced use of pesticides and fertilizers, selection and seed production of crops, feed additives for animals.	Use of earth-friendly technologies and other innovations related to agriculture makes input into regional economic growth. The growing share of local products produced with respect to environment preservation is also beneficial both for the economy and environment.
Introducing innovations into sustainable forest management	Climate change, changes in labour markets, technological development and transition to a circular economy are among the key factors that influence forestry sector of all the Kolarctic members. Therefore, innovations in silviculture, forestry and wood use are of utmost importance for the adaptation of the forest-related sector to the current situation and possible changes in the future.	Transition to innovative forestry includes: - application of technological innovations, including deep processing of wood, upscaling of sustainable energy production, developing new types of wood products, cascading use of wood products - development of methodological recommendations for climate-smart forestry - capacity-building and promoting qualified forest-related jobs	Sustainable forest management makes solid input into preservation of the environment and minimization of potential environmental risks, e.g. wood waste management and use of new technological solutions prevent forest fires. Uptake of innovations contributes also to the economic growth of the Kolarctic regions, and, thus, to the welfare of local societies.
Development and use of deeper processing technologies in reindeer husbandry/ reindeer meat production	The uptake of advanced technologies in traditional economic activities is a tool to develop modern industries based on local resources which in turn helps to diversify the regional economies, as well as to	Modern reindeer husbandry/reindeer meat production includes: - technologies, electronic chips, satellites for space tracking of the herd, computers, electronic collars and	Application of new technologies facilitates development of the reindeer husbandry and reindeer meat production on the Russian and the whole Kolarctic territory with due regard for the

<sup>1</sup> Federal research programme on agriculture development - <http://government.ru/docs/29004/>

<sup>2</sup> [https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy\\_en](https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en)

	improve the quality of life of local communities in a sustainable way <sup>1</sup> .	high-speed equipment <sup>2</sup> -training personnel for reindeer husbandry/reindeer meat production in comply with modern technologies and requirements: in management and other areas of production process <sup>3</sup> - Development of technologies for obtaining new products from reindeer husbandry, including medicine, cosmetology, food products, as well as souvenirs and other goods made from reindeer skin, horns etc.	environment. Inclusion of the Russian regions in the list of countries authorized to export fresh meat of domesticated wild animals to the EU <sup>4</sup> is beneficial for regional economies.
Enhancing innovative potential in fisheries and aquaculture	The Programme area has a great potential for the development of aquaculture, which is not yet fully used. The types of aquaculture objects that can be more variable range from salmon and trout (major part) to sturgeon, mussels, oysters, trepang, scallop, sea urchin and kelp.	It is recommended to use the Guideline for fish farms developed by relevant Russian Ministries <sup>5</sup> . It gives methodological recommendations on breeding and / or maintenance, as well as cultivation of aquaculture objects. Based on the Guideline, it is recommended: -to enhance scientific support for the industry (e.g.: methods for assessing and improving the productivity of water bodies for the purposes of pasture aquaculture; studies on fish planting materials) -to train and upskill personnel (e.g. in production of compounds feeds for aquaculture facilities) -to uptake new technical means, equipment and materials	Innovative approaches and green solutions in aquaculture decrease environmental risks. As a result local companies get an economic added value (e.g. through better energy-efficiency) along with an environment-friendly production process.
Use of regional natural resources in pharmaceutical, cosmetics and food industries	Astonishingly rich northern nature provides a wide variety of raw materials. There are established traditions of their processing on the one hand and new opportunities of their use on the other hand. Innovations will bridge this gap.	Targeted research on certain products from natural resources based on regional industries' demand. Testing and piloting of new solutions is an important step for minimizing the way from research lab to industrial production.	The use of regional natural resources becomes more efficient and sustainable. Positive environmental impact is achieved, when innovations comply with policy papers on green growth <sup>6</sup>
Cleantech in the mining and mineral industry	Mining industry is deeply rooted in the regional economies, however to go in line with latest	Using a clustering approach with needs defined by industrial enterprises and solutions elaborated by	Cleantech solutions contribute strongly to the Zero pollution action plan <sup>7</sup> . Existing best practices in

<sup>1</sup> Joint operational programme document (draft version as of 15.07.2021)

<sup>2</sup> e-article - [Russian Agroindustrial Bulletin](#)

<sup>3</sup> Strategy on Husbandry Development in the Russian Federation - [Стратегия развития северного оленеводства Российской Федерации до 203](#)

<sup>4</sup> <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010R0206>

<sup>5</sup> On Support and Development of Aquaculture in the Russian Federation - <https://mcx.gov.ru/upload/iblock/d60/d6087223d0e3c78706d93fb3fc1208ac.pdf>

<sup>6</sup> [https://sustainabledevelopment.un.org/content/documents/126GER\\_synthesis\\_en.pdf](https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf)

<sup>7</sup> [https://ec.europa.eu/environment/strategy/zero-pollution-action-plan\\_en](https://ec.europa.eu/environment/strategy/zero-pollution-action-plan_en)

	environmental requirements and goals a strong input from research institutions is needed. Innovations ensure smooth transition to nature-friendly industrial processes	research institutions, relevant consultancy from external experts and public authorities may be useful as well. New ideas can be tested firstly as piloting project components	extractive waste management <sup>1</sup> tested and implemented in the High North conditions lead to better environmental sustainability of regional industries.
Food security in the High North	The importance of education and research for innovative food industry development is underlined in four national Food strategies and programmes <sup>2,3,4,5</sup> . The latest analytical report of the UN Food and Agriculture Organization <sup>6</sup> is devoted to transformation challenges in the food industry. In particular, food systems are viewed as extensive networks. Applied research and cross-sectoral collaboration are one of the tools for smooth food systems' transformation.	The joint collaboration of research laboratories in the Russian institutions <sup>7,8</sup> and the whole Programme area <sup>9</sup> , as well as uptake of biotechnologies can contribute to more efficient and nature-friendly food-supply chains	Development of the biotechnologies has not only boosted the scientific research sector and enhanced food security in the High North but also facilitated cross-sectoral interaction in compliance with eco-friendly principles
Research and collaboration for new space economy	Space economy belongs to science-driven industries, which existence and further development is possible in the intersection of applied research, high-tech industry and targeted state support	Through collaboration of leading universities and research centers on both sides of the borders, Special attention and support to talented students, young researchers and early-career scientists. Joint activities may uncover and enhance their creativity and research potential needed for development of new science fields.	Space technologies are widely used in meteorology, telecommunications, terrestrial, maritime and ice monitoring, urban development and other fields. Targeted research ensures exclusive adoption and promotion of environment-friendly solutions for space economy

<sup>1</sup> [https://ec.europa.eu/environment/pdf/waste/mining/guidance\\_extractive\\_waste.pdf](https://ec.europa.eu/environment/pdf/waste/mining/guidance_extractive_waste.pdf)

<sup>2</sup> Food Security Doctrine of the Russian Federation - <http://www.kremlin.ru/acts/bank/45106>

<sup>3</sup> Finnish Food Policy Report - [https://mmm.fi/documents/1410837/1923148/lopullinen03032017ruoka2030\\_en.pdf/d7e44e69-7993-4d47-a5ba-58c393bbac28](https://mmm.fi/documents/1410837/1923148/lopullinen03032017ruoka2030_en.pdf/d7e44e69-7993-4d47-a5ba-58c393bbac28)

<sup>4</sup> National Food Security for Sweden - [https://www.government.se/498282/contentassets/16ef73aaa6f74faab86ade5ef239b659/livsmedelsstrategin\\_kortversion\\_eng.pdf](https://www.government.se/498282/contentassets/16ef73aaa6f74faab86ade5ef239b659/livsmedelsstrategin_kortversion_eng.pdf)

<sup>5</sup> The Food Nation Norway - <https://www.regjeringen.no/en/topics/food-fisheries-and-agriculture/mat/innsikt/matnasjonen-norge/handlingsplakat-for-matnasjonen-norge/id2602157/>

<sup>6</sup> <http://www.fao.org/3/cb4474en/cb4474en.pdf>

<sup>7</sup> [Polar experimental station in Kirovsk. The station is a natural laboratory for studying the variability of cultivated plants and their physiological characteristics in the Arctic conditions](#)

<sup>8</sup> [Northern State Medical University, Arkhangelsk](#)

<sup>9</sup> [International project: Food \(in\)Security in the Arctic: Contribution of Traditional and Local Food to promote Food Security with Particular Reference to the European High North.](#)

International research and educational cooperation, science diplomacy for sustainable social, territorial and environmental development of the Kolarctic region	One of the most active groups of actors (stakeholders) in the region during previous Kolarctic programme periods (2007-2013 and 2014-2020) are educational and research institutions. Possessing broader knowledge in the field of preparation and implementation of projects, as well as a developed intellectual infrastructure, the scientific and educational regional cluster has an important function not only to support sustainable contacts between states and regional authorities, but also to develop inter-regional, intra-regional and cross-border relations. However, being not only an active actor of such cooperation, but also a direct object of research, research and educational institutions of the Kolarctic region experience a number of difficulties, for example, differences in regulatory norms by exchange of prototypes and field research materials, etc.	To overcome the existing difficulties of cooperation and to accomplish their comprehensive study, it is recommended: - to hold public consultations with various groups of regional stakeholders to identify difficulties arising by implementation of CBC projects, -to develop common approaches and guidance materials -to deepen cooperation by creating a wide expert community; -to develop joint mechanisms for the exchange of experience and knowledge; etc.	With a more thorough study of international cooperation and development of scientific diplomacy, the implementation of cross-border and interregional cooperation projects in the programme area will have a positive effect. Science diplomacy will significantly enhance development paths of research and educational cooperation itself, as well as sustainable development of the Kolarctic territory as a whole.
<b>Specific objective 2: Reaping the benefits of digitalization for citizens, companies and governments</b>			
Mobile applications and other IT solutions for overcoming challenges of insufficient connectivity and sparsely populated areas	There are two main directions for handling the connectivity challenges: development of infrastructure and development of skills. The key policy documents <sup>12</sup> envisage activities in both directions, e.g. further construction of 5G network, full access to mobile and Internet connection in remote areas, capacity-building courses for all groups of users, etc.	To secure sustainable projects' results, close collaboration with regional and municipal public authorities and active participation of the local population is highly recommended. Possible activities may include: creation and promotion of digital capacity-building courses, information dissemination about accessible mobile applications and other digital services, development of new digital solutions targeted at rural population, etc.	Digitalization of public services - "government in the palm of your hand" is an effective tool for full-fledged involvement of remote areas into active social and economic life. ICTs can bridge the existing gap between urban and rural population. The impact of technologies in this case is undeniably positive for society.
Development of distant and e-learning educational products for capacity building, especially in remote rural areas	The role of distant and e-learning education has drastically increased during the COVID-19 pandemic. Multiple information sources, various digital platforms and online courses offer great opportunities but also a big challenge for people. We need to learn how to adapt the existing system of education to the new reality and its demands.	To make a smooth transition and satisfy societal educational demands, exchange of knowledge and experiences between schools, vocational and higher educational institutions is important. Joint online and off-line events, new educational courses, students and teachers exchange, professional skills competitions may bring an added value.	Digital transition goes hand in hand with the green transition. Technologies help to reduce the carbon footprint, e.g. by joining videoconferences, distant classes people use transport less and contribute to decrease of emissions. Moreover, new technologies (not only in education, it concerns all spheres of human activities) are targeted at the most energy-effective and eco-friendly solutions.

<sup>1</sup>The federal programme Digital Economy of the Russian Federation - <http://government.ru/info/35568/>

<sup>2</sup><https://digital-strategy.ec.europa.eu/en/policies/digital-compass>

Uptake of digital technologies in local and regional health care systems	People living in rural and remote areas face additional challenges when it comes to access to health-care services. Small primary health-care institutions can't offer all types of professional consultancy and health screening. With uptake of digital technologies these challenges will be significantly decreased.	Digitally enabled health solutions for the Kolarctic programme territory may include: -electronic health records systems for urban and rural population -clinical decision support (use of AI, big data, IoT) -distant health monitoring -upskilling and lifelong learning for healthcare professionals -telemedicine	Digital technologies enable a society where geographical distance matters less. The beneficiaries of digitalization are first of all people living in sparsely populated areas. The social impact of digitalization in healthcare and preventive medicine is hard to overestimate.
Promoting healthy ageing in the North through approbation and use of new IT solutions	Promoting lifelong health and preventive care to maintain maximum functional capacity of individuals is listed among policy implications in World Population Ageing Report 2019 <sup>1</sup> Higher life expectancy and growing share of the population over 60 demand new solutions for ensuring the appropriate life quality.	Through development and uptake of e-health services,, better health monitoring and knowledge exchange in preventive medicine with use of digital technologies; along with activities aimed at promotion of healthy life-style and digital health control tools	
Digital inclusion of older generations, "Silver" digitalization	According to World Population Aging report 2020 <sup>2</sup> Finland, Norway, Sweden and Russia have one of the highest percentages of people over 65 living alone (2nd, 4th, 18th and 21st place in the world respectively). Digital technologies (e.g. mobile apps) are among the most useful and accessible tools for deeper inclusion of elders into active social life and increased connectivity with family members and community as a whole.	Special courses, open lectures and other capacity-building events for elders, development of digital applications adopted for their needs	With better use of digital tools and stable connections with local communities the life quality of elders will rise, especially in the more vulnerable group of lonely older people.
Digitization and digital infrastructure for small actors / farmer enterprises	Agriculture has a significant environmental footprint, therefore measures to reduce the impact are included into governmental policies and action plans. For example, the Russian Ministry of Agriculture has launched a federal project on Digital Agriculture <sup>3</sup> . Today, only 10% of Russia's arable land is cultivated using digital tech; neglecting it results in a 40% loss in harvest <sup>4</sup>	The following indicative list of activities facilitating a shift from generalized to more sustainable, highly optimized, individualized, real-time, and data driven management in agriculture: -development and use of digital systems (i.a. big data, Internet of Things) for land monitoring and qualified decision-making -testing and promotion of sustainable farming methods	To minimize the environmental impact, digitalization in agriculture must go along with and support the uptake of sustainable farming practices. Such initiatives as smart farming <sup>1</sup> processing and logistics are aimed to sustain food production in accordance with latest environmental strategies in Russia and EU.

<sup>1</sup> <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Highlights.pdf>

<sup>2</sup> [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa\\_pd-2020\\_world\\_population\\_ageing\\_highlights.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd-2020_world_population_ageing_highlights.pdf)

<sup>3</sup> The ministerial project on Digital Agriculture - <https://mcx.gov.ru/upload/iblock/900/900863fae06c026826a9ee43e124d058.pdf>

<sup>4</sup> e-article "Digital economy and digitalization of AIC" by E.S. Ustinovich, S.V. Mamontova, M.V. Kulikov. 17.03.2020

		(biodynamic farming, permaculture, hydro- and aquaponics, polycultures, crop rotation, urban agriculture and agroforestry) -research and preservation of genetic variety of crops and animals, measures to combat biodiversity loss -distant learning and consultancy for agriculture specialists -promotion of eco-friendly food supply chains (smart logistics, reduced / recyclable packaging, sustainable consumption, etc.)	
Creation of remote working job places for enhancing of regional economic potential	Online platforms boosted during the pandemic. They are used for communication, entertainment, learning and education, consuming goods and services and also for doing business. Remote working places became a demand and transformed the working environment <sup>2</sup> . However, some economic sectors are left behind the latest trends. It's a good time to enhance the full potential of teleworking for the economic benefit of Kolarctic area.	One of important prerequisites for teleworking is development of digital infrastructure. Another important issue is full-fledged access to the information about current status in the labour market. In this connection the following activities can be relevant: -data collection and analysis of existing gaps in the labour market (most demanded jobs, skills, services etc.) -capacity-building and retraining of specialists for a new teleworking job -enhancing connectivity of local, regional, national and international labour markets to balance demand/offer of remote jobs -development of e-Commerce, networked business processes, digital innovation hubs, living labs, web entrepreneurs and ICT start-ups	Teleworking is more cost-efficient and environmentally-friendly in comparison with traditional office work. Teleworkers do not use transport to go to their working place; they do not print out documents, as a rule, results of their activities are also digital. The social and economic impact of teleworking development is positive for regional and local labour markets.
Urban development in the North, "smart cities" concept development and implementation	According to the Smart Cities and Inclusive Growth OECD policy paper <sup>3</sup> , "leveraging the benefits of smart cities will be particularly critical to help cities and countries manage and rebound from the global crisis, caused by COVID-19 pandemic"	Scoping research in the field, exchange of experiences in the Kolarctic area and analysis of BAT, piloting of chosen solutions feasible for Northern regions	"Smart city" concept envisages special attention to environmental aspects, e.g. use of energy-efficient street lighting, eco-friendly public transport, upscaled waste sorting and recycling. Implementation of the mentioned and other feasible smart-city practices is beneficial for the Kolarctic area environment.

<sup>1</sup><https://smartertechnologies.com/the-complete-guide-to-smart-farming-agriculture/>

<sup>2</sup>[https://ec.europa.eu/jrc/sites/default/files/jrc120945\\_policy\\_brief\\_-\\_covid\\_and\\_telework\\_final.pdf](https://ec.europa.eu/jrc/sites/default/files/jrc120945_policy_brief_-_covid_and_telework_final.pdf)

<sup>3</sup>[https://www.oecd.org/cfe/cities/OECD\\_Policy\\_Paper\\_Smart\\_Cities\\_and\\_Inclusive\\_Growth.pdf](https://www.oecd.org/cfe/cities/OECD_Policy_Paper_Smart_Cities_and_Inclusive_Growth.pdf)

**Policy objective 2: A greener, lower carbon transition to a clean, zero carbon economy in a sustainable Europe**

**Specific objective 4: Promoting climate change adaptation, risk prevention and disaster resilience**

Research on adaptation capacities of Arctic ecosystems, elaboration of mitigation measures	Climate change is a topic going far beyond the environmental agenda. It influences political decisions, economic activities, strategies and goals set by the states. In this respect, research on adaptation and mitigation capacities becomes crucial for various stakeholders: decision-makers, businesses, academia. Arctic ecosystems <sup>1</sup> are in the focus of attention because of their vulnerability and growing economic activities in the Arctic.	To estimate current environmental status and threats, regular data collection and analysis are needed. For this purpose the following activities are recommended: -joint expeditions and field work, exchange of knowledge and research findings -joint monitoring programs of climate change and ecosystem responses in the Barents Region -close collaboration between researchers, NGO and responsible public authorities -awareness-raising campaigns for businesses and general public	Arctic ecosystems research has indirect positive environmental impact. Research results form a basis for decision-making on concrete activities ranging from local environmental actions to issuance of policy papers and launch of financing instruments on various levels.
Research on invasive species: control measures, possibilities to use in regional economies	Invasive species are one of the biggest causes of biodiversity loss and species extinctions, and are also a global threat to food security and livelihoods. Climate change facilitates the spread and establishment of many alien species and creates new opportunities for them to become invasive <sup>2</sup> .	-Data collecting, mapping of local and regional invasive species, elaboration of research-based control measures, -Early prevention: identification and eradication of alien species ("sleepers") that are likely to become invasive due to climate change -Transboundary control of alien and invasive species, harmonizing control measures, joint actions and exchange of successful experiences	Eradication of alien and invasive species has a clear and positive environmental impact. In particular, genetic biodiversity of Arctic and Subarctic species, especially endemic ones will be secured, unique Arctic ecosystems will be preserved.
Prevention of forest fires, risk management and preparedness	Climate change, forest degradation and fragmentation have led to more fire-prone conditions globally. With hotter and drier weather conditions, fires - either ignited by humans or by lightning - are more likely to burn over larger areas and at hotter temperatures. Forests degraded by logging and disease and fragmented by deforestation are also more susceptible to fire.	Such activities as prescribed burning, improved maintenance of infrastructure, awareness raising and education on fire prevention reduce the risk of forest fires. Actions aimed at protecting forests from deforestation and degradation also improves forest resilience to fire. Disease surveys and timely exchange of information are extremely relevant for terrestrial ecosystems.	Prevention of forest fires is especially relevant for the whole Kolarctic area. Forests cover vast territories in the North and build a basis for leading industry sectors. Forests play an important and multifunctional role for local communities. So, along with profound environmental impact, preservation of forests is also positive for social and economic life.
Minimizing the risks of floods, landslides, coastal erosion and	The frequency and negative impact of floods, landslides, coastal erosion and other natural phenomena	Coordination of efforts undertaken by responsible authorities, municipalities, educational and research	Putting into practice measures against negative manifestations of climate change builds resilience

<sup>1</sup><https://www.iucn.org/theme/marine-and-polar/our-work/polar-activities>

<sup>2</sup><https://www.iucn.org/resources/issues-briefs/invasive-alien-species-and-climate-change>

other negative manifestations of climate change	caused by climate change is growing. Consequences of such phenomena can be very dramatic, that's why measures to mitigate them take a central place in Russian <sup>1</sup> and EU's <sup>2</sup> policy documents.	institutions, volunteers and local communities is recommended to gain tangible results. Possible types of activities: - mapping of potential endangered areas - risks modeling and estimation - use of green infrastructure(e.g. buffer strips) to prevent floods and landslides - piloting of new nature-based solutions - construction of river bank protection facilities and other methods - exchange of experience, organizing international competence building courses and training programs	of local communities and contributes to sustainable living in the North. The potential impact has a complex nature and encompasses the environment, economics and society.
Mitigating climate change impact on economic activities in the Kolarctic area, e.g. reindeer husbandry, fishery	Regional economies in the North are deeply interconnected with natural resources. Environmental status has a direct influence on fishery, forestry, agriculture and other sectors of economy in Russia, Finland, Sweden and Norway.	Research on climate change impact is demanded in many areas. Potential project activities may include: -modelling of economic efficiency with regard to changing climatic conditions, elaboration of adaptation measures -piloting of new science-driven and/or nature-based solutions -creation of business hubs and networks to find synergies and share of experiences	Since nature and economy depend on each other in fishery, reindeer husbandry and other economic sectors, potential impact of programme activities will also encompass environment and economy. To secure positive changes, all decisions have to be well-weighted and balanced between these two areas.
Developing circular economy to minimize waste and pollution	Such circular economy topics as waste management and reducing of waste, reuse and recycling of materials take a central place in the Russian <sup>3</sup> and EU's <sup>4</sup> strategic documents. Joint activities in this field are needed to define optimal solutions and tools for achieving the strategic goals of circular economy development	Collaborative research of leading educational and research centers with involvement/coordination of responsible public authorities. Since innovative component is rather strong, it is recommended to pay attention to dissemination of results among relevant stakeholders and the uptake of found solutions into practice	Development of circular economy has a clear positive environmental impact (reducing waste, more efficient use of resources, etc.). Transition to circular economy principles must have a comprehensive character and involve leading and developing industrial sectors, decision-making on different levels and active participation of the population in the Kolarctic area.

<sup>1</sup> Water Code of the Russian Federation - <http://pravo.gov.ru/proxy/ips/?docbody=&nd=102107048>

<sup>2</sup> [https://ec.europa.eu/environment/water/flood\\_risk/key\\_docs.htm](https://ec.europa.eu/environment/water/flood_risk/key_docs.htm)

<sup>3</sup> Strategy on the Environmental Security of the Russian Federation <http://kremlin.ru/acts/bank/41879/page/2>

<sup>4</sup> [https://ec.europa.eu/environment/pdf/circular-economy/new\\_circular\\_economy\\_action\\_plan.pdf](https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf)

Social dimension of climate change: human health influenced by natural, climatic and anthropogenic factors	People living in harsh climatic conditions have specific health status features caused by extreme winter temperatures, white summer nights etc. Human capital is a focal issue for sparsely populated Northern regions; this is mirrored in regional strategies.	Profound health monitoring and research with regard to climatic factors, gathering and interpretation of relevant data, knowledge exchange between medical institutions, elaboration of recommendations for healthy life in the north, information dissemination.	Proposed activities have a definitely positive potential impact on the population in the whole Kolarctic area.
<b>Specific objective 7: Enhancing nature protection and biodiversity, green infrastructure in particular in the urban environment, and reducing pollution</b>			
Preservation of regional flora and fauna (e.g. wild reindeers), development and cooperation of natural reserves and protected areas	Fragile northern nature needs special protection. Russia, Finland, Sweden and Norway have achieved positive results in ecosystem preservation (increase of protected areas territory, exclusion of some species from the Red Lists, etc.) However, there is still a lot to be done to preserve flora, fauna and its habitat <sup>1</sup> .	Upscaled cooperation of nature protected areas in the whole Kolarctic region, creation of a functioning nature protection network with the aim to achieve synergy in preservation methods: -exchange of data on protected species, selection of common flagship species -joint actions, research, field work and other activities; -development of common analytical methods for laboratory work in each country, which will help to avoid transport of samples across the border - popularization of data, publications about species and protected natural areas, aimed at various groups of population	Conserving biodiversity is an insurance in maintaining important ecosystem services. It has a profound positive environmental impact, especially by comprehensive approach and involvement of all relevant stakeholders in four participating countries..
Sustainable forestry, including restoration of forests, forest certification and traceability	Forests are a natural source of CO <sub>2</sub> sequestration Russian <sup>2</sup> and EU's <sup>3</sup> strategic documents recognise the central and multifunctional role of forests, as well as the contribution of foresters and the entire forest-based value chain for achieving a sustainable and climate neutral economy	To secure implementation of planned activities and use of their results, involvement of public authorities responsible for nature protection and forest management in particular is highly recommended.	Uptake and harmonization of nature-friendly forestry methods and approaches is beneficial both for industry and environment. To gain and maintain the positive environmental impact a strong balance and monitoring of activities are needed.
Improving and maintaining the chemical properties of soils, restoration of damaged soils	Soils are strongly influenced by human activities (mining industry, agriculture, etc.). Unsustainable land use has led to soil degradation, air and water pollution, reduction or disappearance of valuable species and, as a consequence to negative impacts on human well-being <sup>4</sup> .	Stronger institutional coordination both horizontally and vertically (e.g. between national and regional public authorities) is needed to ensure the necessary linkage between different land restoration activities in participating countries), namely:	Research on soil pollution and degradation forms a solid base for weighted decision and concrete actions for restoration of damaged soils and landscapes. To achieve a maximum positive environmental effect, research must be well

<sup>1</sup> <https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/habitats-and-species-latest-status>

<sup>2</sup> Strategy on the Forestry Development in the Russian Federation - <http://static.government.ru/media/files/pFdqtWFH8y9SfQjDE0Xnwd8eXWoJJMYB.pdf>

<sup>3</sup> [https://ec.europa.eu/environment/strategy/forest-strategy\\_en](https://ec.europa.eu/environment/strategy/forest-strategy_en)

<sup>4</sup> <https://www.oecd.org/environment/resources/towards-sustainable-land-use-aligning-biodiversity-climate-and-food-policies.pdf>

		<ul style="list-style-type: none"> <li>- holding meetings and preparing plans for land reclamation, selection of pilot solutions;</li> <li>- selection of pilot areas for reclamation depending on the type of pollution</li> <li>- information campaigns</li> </ul>	targeted, its findings and results applicable and supported by restoration activities.
Handling of ocean waste issues, restoration and preservation of aquatic ecosystems	Today, at least 8 million tons of plastics leak into the ocean each year <sup>1</sup> . The main reasons for marine pollution are overabundant plastic production, poor waste management and low level of recycling.	Marine waste problem should be tackled in two interrelated directions: cleaning-up and prevention. The first one is implemented through environmental actions, the second - through awareness-raising campaigns with involvement of responsible state authorities, NGOs, local businesses, research and educational institutions, and the local population.	The higher positive environmental impact will be achieved by targeted practical actions. The water pollution problem is well known and discussed, so setting theory into practice is extremely significant for the environment.
Creation and reconstruction of eco-efficient water infrastructure	Water security and availability is an integrated part of all current major challenges and is a pervasive enabling element in all sectors of modern society. 75% of jobs depend on water and water crises rank among the top 5 global risks in terms of impact <sup>2</sup> .	To secure implementation of planned activities and use of their results, involvement of relevant public authorities and water supply and treatment companies is a prerequisite for projects planning and implementation includes infrastructure projects: <ul style="list-style-type: none"> <li>- reconstruction of water treatment systems and facilities in settlements</li> <li>- renewal of worn-out pipes</li> <li>- reconstruction of water pumping stations, etc.</li> </ul>	New scientific developments applied in water infrastructure projects at local and regional level enable better, cleaner and more sustainable use of water in the Kolarctic.
Enhancing green infrastructure potential in urban and rural areas	Green infrastructure is distinguished by its multifunctionality, i.e. ability to perform several functions and provide several benefits on the same spatial area. These functions can be environmental, such as conserving biodiversity or adapting to climate change, social, such as providing water drainage or green space, and economic, such as supplying jobs and raising property prices <sup>3</sup> .	Potential use options of green infrastructure are very wide. To find the most appropriate solutions feasible for Arctic regions, scoping research, capacity-building activities for interested stakeholders and piloting projects are much recommended. Practical landscaping activities focus on local species, phytosanitary safety, support for local nurseries and arboretums, creation and development of new plant nurseries, mass campaigns for landscaping courtyards, environmental actions.	Green infrastructure helps to achieve positive ecological, economic and social effects through nature-based solutions with due consideration of all ecosystem functions.
Enhancing and use of biogas	Biogas can be produced from a range of feedstocks <sup>4</sup> and	Production and use of biogas is still a rather	Biogas as an alternative source of heat and

<sup>1</sup> “The business case for reducing ocean waste”, World Business Council for Sustainable Development, 2017

<sup>2</sup> [https://watereurope.eu/wp-content/uploads/Implementation-publication\\_online.pdf](https://watereurope.eu/wp-content/uploads/Implementation-publication_online.pdf)

<sup>3</sup> [https://ec.europa.eu/environment/nature/ecosystems/docs/Green\\_Infrastructure.pdf](https://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf)

<sup>4</sup> [https://www.worldbiogasassociation.org/wp-content/uploads/2019/07/WBA-globalreport-56ppa4\\_digital.pdf](https://www.worldbiogasassociation.org/wp-content/uploads/2019/07/WBA-globalreport-56ppa4_digital.pdf)

potential, especially in rural agricultural areas	utilised in all energy sectors, contributing to the Russian and EU's decarbonisation, renewable energy and energy security objectives. However, the full potential of biogas is unlocked, more data and successful experiences are needed in this regard.	underdeveloped topic for the Kolarctic region, waiting for proper exploration. In this respect it is recommended: -to identify possible biogas contribution to the climate change mitigation, increase of energy and resource efficiency; -to identify existing technical, economic and administrative barriers to further development of biogas -to implement piloting and testing activities applicable for northern areas	electricity contributes to the low-carbon economy and decreases environmental footprint. On both national and regional level, attention should be given to knowledge transfer and raising awareness regarding the available benefits of biogas production and usage <sup>1</sup> . Independent electricity and heat supply based on biogas can be especially relevant for remote and rural areas in the Kolarctic.
<b>Policy objective 4: A more social Europe implementing the European Pillar of Social Rights</b>			
<b>Specific objective 5: Enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation</b>			
Collecting, documenting and research on intangible cultural heritage objects related to the Kolarctic area	Intangible cultural heritage (e.g. oral traditions, performing arts, crafts and rituals) is a valuable asset, being a tourist attraction and an identity factor, and it can also contribute to social cohesion. However, it is endangered by growing urbanization and globalization. Preservation of intangible cultural heritage should be in focus of support measures because of on-going societal changes and higher vulnerability.	Preservation of intangible cultural heritage is impossible without active participation of local communities. Joint work of research and cultural institutions is to be built upon close collaboration with tradition bearers. It is recommended to use research results in tourism and education.	Proposed activities aimed at maintenance and promotion of traditional arts, crafts and other types of cultural heritage have a profound social and potential economic impact.
Preservation of cultural heritage in the Kolarctic region (new technologies in restoration, reconstruction, archeology, etc.)	Cultural heritage has been taken into consideration in numerous Russian <sup>2</sup> and EU <sup>3</sup> strategic documents, which has allowed participating countries to undertake actions to revive national or local heritage, keep traditions and crafts, and thereby develop cultural tourism.	Joint field work, knowledge exchange, identifying the most efficient restoration technologies and methods, promotion of cultural heritage among tourists and local population can be within the scope of possible activities. Special attention can be given to uptake of digital solutions <sup>4</sup> .	Applied restoration and reconstruction methods must take into account environmental footprint and follow a comprehensive approach to preservation of cultural objects and surrounding landscapes.
Development and promotion of rural cultural infrastructure (libraries, educational and	Libraries are the centers of cultural and social life in rural and remote areas. Along with book reading they provide a variety of services ranging from Internet	-Competence building courses for cultural workers, including digital literacy -promotion of local and regional cultural heritage	Libraries can take part in minimizing environmental impact through education, communication, and training programmes

<sup>1</sup>[https://ec.europa.eu/energy/sites/ener/files/documents/ce\\_delft\\_3g84\\_biogas\\_beyond\\_2020\\_final\\_report.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/ce_delft_3g84_biogas_beyond_2020_final_report.pdf)

<sup>2</sup>The federal project on Culture - <https://culture.gov.ru/about/national-project/about-project/>

<sup>3</sup><http://openarchive.icomos.org/id/eprint/2317/1/NC0319331ENN.en.pdf>

<sup>4</sup>The federal project on Digital Culture - <https://culture.gov.ru/about/national-project/digital-culture/>

cultural institutions)	access to organizing cultural and educational events and other activities for the local population. During the pandemic libraries have shown great resilience and gained importance. However, cultural institutions in the countryside demand joint efforts and special attention to go in line with latest developments and trends <sup>1</sup> .	- joint events (e.g. exhibitions, presentations of books and authors) -development of digital libraries, archives, online guides and other digital solutions enhancing access to culture	regarding green practices, climate change mitigation and adaptation in the community, and the role of culture and heritage in climate action.
Enhancing regional tourism potential through creation and renovation of infrastructure, development of new tourism products and travel routes	The tourism value chain is closely linked with transport, food industry, accommodation, experience and culture. The COVID-19 outbreak has paralyzed the global tourism sector, at the same time, pandemic outlined its importance and the need of joint measures to rebuild and rethink the tourism industry in a more sustainable way <sup>2</sup> .	Possible project activities aimed at sustainable tourism development may include: -projects focused on agrotourism, rural tourism and ecotourism in remote areas and territories with population outflow; -creation of new tourist routes suitable for walking, cycling or horseback riding with shared access; -creation of modern objects of tourist infrastructure - campings, navigation systems, visit centers, parking lots, hotels, food outlets, souvenir shops, etc., -uptake of digital services and other innovative solutions -efforts to increase accessibility and connectivity of remote regions with high tourism potential -efforts to involve producers from the primary sector (agriculture, livestock and fisheries) in tourism initiatives -digital literacy training, competence building for people working in tourism industry (courses for guides, translators, service providers) - exchange of experience in the field of marketing	To minimize potential negative ecological footprint, it is crucial to support the tourism industry in implementing the principles of the circular economy, by for instance boosting the supply of climate-neutral products, using clean energy, reducing the use of harmful chemicals and single-use plastics, improving the energy efficiency of buildings by incentivising the renovation of the tourism building stock, implementing rainwater and domestic wastewater recycling processes, facilitating recycling and preventing waste
Defining tourism carrying capacity of protected areas, promoting sustainable tourism practices	Remote areas in the High North enjoy special tourists' attention offering almost untouched treasures of nature and good abstraction from the stressed urban life. At the same time, eco- and ethno tourism development demands strong consideration of environmental impact.	To go in line with sustainable tourism development trends <sup>3</sup> , a thorough review of existing practices and adoption of nature-preserving approaches are needed. Another important field of potential activities is awareness raising, competence building for staff /hosts and share of successful experiences:	Uncontrolled tourism development is a potential threat to the environment. That is why any activities aimed at enhancing of tourism industry should be planned and implemented only with simultaneous account and, where needed, implementation of nature protection measures

<sup>1</sup><http://www.eblida.org/news/libraries-all-over-europe-are-calling.html>

<sup>2</sup>[https://www.europarl.europa.eu/doceo/document/TA-9-2021-0109\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2021-0109_EN.html)

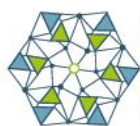
<sup>3</sup><https://www.unwto.org/global/publication/tourism-and-sustainable-development-goals-journey-2030>

		<ul style="list-style-type: none"> <li>- development of eco-trail and decking infrastructure</li> <li>- monitoring tourists flow and their impact on ecosystems</li> <li>- development of systems for separate waste collection in protected areas and in visitor centers</li> <li>- development of environmental education programs to form a responsible attitude towards nature and reduce the negative impact of tourism</li> <li>- dialogue between protected areas, tour operators, business and government</li> </ul>	
Discovering cultural and economic potential of remote municipalities	Regional development in the High North is uneven with big differences between bigger cities and remote rural areas. The uptake of technologies (mobile phones, Internet access) and increased connectivity form promising opportunities for bridging the gap between urban and rural citizens.	<p>Potential activities for facilitation of economic and cultural development:</p> <ul style="list-style-type: none"> <li>-creation of art residencies for artists from Russia, Finland, Sweden and Norway</li> <li>-museums' collaboration, joint exhibitions, including moving and digital ones</li> <li>-rural festivals and other cultural events</li> <li>-involvement of families with traditional lifestyle into event and ethno-tourism development</li> </ul>	Proposed activities have a beneficial effect on social and economic development in rural areas. They also contribute to solving demographic challenges by creation of new working places in tourism and enhancement of cultural life
Promoting traditional local cuisines based on authentic regional food products	Due to cultural diversity the same raw materials (herbs, berries, mushrooms, game, fish) are used to prepare various meals with local distinctive features in Russia, Finland, Sweden and Norway. Promotion of traditional cuisines will make input into local identity preservation.	Possible project activities will have synergistic effect promoting cross-industry approach: efficient use of regional natural resources + promoting indigenous cultures + enhancing businesses: tourism, logistics, restaurants	Promotion of locally produced food is beneficial for regional economic development, for tourism, hospitality, agriculture, fisheries in particular. Food festivals and other events for tourists and local residents offer a good opportunity to highlight sustainable respectful approach to fragile northern nature.
<b>Interreg specific objective 1. Better management</b>			
<b>Specific objective 3: People-to-people action for increased trust</b>			
Development of volunteer movement on the local and	Volunteers contributed to social resilience during the COVID-19 crisis <sup>1</sup> . They are active in many socially	Joint camps, capacity-building and engaging events for youth, upskilling for volunteers and specialists working	Volunteers provide targeted aid in vulnerable areas <sup>2</sup> being a societal response to the current

<sup>1</sup>[https://economy.gov.ru/material/news/chislo\\_volonterov\\_v\\_rossii\\_uvelichilos\\_bolee\\_chem\\_v\\_pyat\\_raz\\_za\\_8\\_let.html](https://economy.gov.ru/material/news/chislo_volonterov_v_rossii_uvelichilos_bolee_chem_v_pyat_raz_za_8_let.html)

<sup>2</sup>[https://europa.eu/youth/strategy/european-youth-goals\\_en](https://europa.eu/youth/strategy/european-youth-goals_en)

regional level	important spheres. Changing environments demand new capacities, upskilling and exchange of experiences to develop the volunteer movement and engage youth into socially important activities.	in the social sphere, study visits, experience sharing, joint actions in relevant fields and other cross-border events are advisable as possible activities.	challenges. Volunteer movement contributes to mitigation of negative social, economic and environmental impact, which is beneficial for the whole Kolarctic region.
Preservation and promotion of indigenous cultural traditions	Indigenous peoples are an integral part of society, they build cultural diversity and local identity, create knowledge transfer from generation to generation.	Organizing international festivals, competitions and other cultural events, educational courses on Indigenous traditional arts and crafts, master-classes for local youth and tourists, creation of digital products based on Indigenous arts and crafts	Traditional Indigenous culture and household are a good example of harmonic coexistence of people and nature. They can serve as a source of learning and inspiration to enable transition to a sustainable way of living.
Organization of interregional cultural and sport events (festivals, competitions, etc.), including events for children and youth	Public events drastically decreased because of COVID-19 pandemic. Their gradual revival is important for development of cooperation and good neighbour relations between regions and countries.	To secure regional and local authorities' support, it is recommended to present and discuss the planned events on the early stage for their inclusion into relevant action plans and support programmes. Special attention should be given to preventive health measures, if pandemic threats will stay.	Social and economic impact of public events is undeniably positive. To be sure that environmental impact is also beneficial, special preventive measures are to be implemented with on-going monitoring and, if needed, correction of approaches.
Trainings and best practices exchange for professionals and students in the fields of tourism and hospitality, culture, archeology and other fields of mutual interest	Tourism, education, culture and some other spheres are deeply dependent on communication and experience exchange. Travel and other restrictions during the pandemic helped to explore digital communication formats. Nevertheless, face-to-face meetings are highly demanded and anticipated in the whole Kolarctic area.	Well established cooperation in the Barents region and previous generations of cross-border programmes build a favourable preconditions for renewed joint activities during the next programming period. It's recommended to involve into cooperation new actors, people and organizations, especially in remote rural areas.	Focus on remote rural areas involvement and development increases resilience of northern communities and facilitates more harmonized social and economic development in the Kolarctic.
Multisectoral solutions for e.g. enhancing local livelihoods, combating youth marginalisation	Regional demographic challenges shared by neighbouring Kolarctic countries demand joint solutions and adequate response measures, especially during and after pandemic.	Enhanced cooperation of social and educational institutions, employment agencies and involvement of relevant NGOs and public authorities will form a good ground for well-working solutions.	Proposed activities have a positive social and economic impact. Potential environmental impact can be estimated as neutral or positive in case, e.g. of youth involvement into nature protection activities



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