

Strategic Environmental Assessment

Karelia cross-border cooperation programme 2021-2027

DRAFT

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1. Introduction

1.1 Purpose of the strategic environmental assessment

The purpose of the strategic environmental assessment is to ensure that the environmental impacts are assessed and duly considered during the preparation and approval of the Karelia cross-border cooperation programme 2021-2027.

The report is prepared in accordance with the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment as well as with the corresponding Finnish legislation (SEA Act 200/2005).

1.2 Key facts

Programme title:

Karelia cross-border cooperation programme

Programme duration:

2021-2027

Programme area:

North Karelia, Kainuu and Oulu Region in Finland;
the Republic of Karelia in Russia

Managing Authority:

Council of Oulu Region, Oulu, Finland

Contact point:

Karelia CBC Programme,
Council of Oulu Region

Website:

<http://www.kareliacbc.fi/en/2021-2027>



1.3. Assessment process

The assessment has been drafted in parallel with the programme document giving the strategic environmental assessment an opportunity to effect on the programme strategy.

The Programming Committee of the Karelia cross-border cooperation programme 2021-2027 launched the discussion about the environmental assessment process in December 2020. An announcement on launching of the process was published on the programme's website on December 22. 2021.

The regional councils of the programme region and the SEA groups working under them were involved in the process. In collaboration with the councils and groups, the initial state analysis and environmental strategies of the programme region were updated. The SEA groups are seen in this process as **environmental experts**.

In Finland, the first official consultation required by the SEA Act 200/2005 was held with the Centers for Economic Development, Transport and the Environment of the Programme area on April 16, 2021. The Centers for Economic Development, Transport and the Environment of the Programme area are being seen in this process as **environmental authorities**.

A meeting with the SEA groups was held on May 11, 2021. The shortlisted priorities and specific objectives of the programme were presented and discussed from an environmental point of view. The comments were taken into account when deciding on the programme strategy. After the priorities and specific objectives of the programme were prepared, the environmental experts were able to send their comments via online inquiry, which was open 23.6.2021-19.8.2021.

The environmental legislation in the Russian Federation does not equally recognise programme level strategic environmental assessment as on the EU side but environmental experts and authorities are involved to the process from the Republic of Karelia as well. The environmental expert has participated in the preparation of the description of state of the environment of the Republic of Karelia and has provided background information of the Russian nature protection legislation. Also, the Ministry of Natural Resources and Environment of the Republic of Karelia is involved the process.

2. Karelia cross-border cooperation programme 2021-2027 in environmental context

2.1. Karelia cross-border cooperation programme 2021-2027

Karelia as a cooperation area has developed during the implementation of cooperation programmes since the end of 1990's. Equal participation from both sides of the border as well as cross-border partnerships have been strongly underlined in the programmes and clear willingness to do cooperation has been shown by the regions. Will and support for the cooperation from the national level in both countries has established a solid basis on which the programmes have been built.

The programme area faces challenges that the programme tries to tackle on its part. Each region belonging to the programme area have their own strategies to tackle their respective challenges. The cross-border cooperation programme focuses on those challenges and thematic on which clear mutual benefit is foreseen from cooperation. Programme is expected to bring cross-border aspect to the development challenges that the regions are facing and at the same time it focuses on strengthening and developing the cross-border cooperation and cooperation governance as such.

In the programming process a total of three policy objectives (PO) and one Interreg specific objective (ISO) were selected for the programme. Based on the objectives programme priorities were created covering one or more of specific objectives each. The priorities are built to tackle the following regional development challenges.

- Population trends: Population is decreasing and ageing and slowly concentrating to the major cities within the region. The area is large with relatively low population which in practise means sparse population.
- Regional competitiveness: The regional GDP is behind the national averages in both countries. Also unemployment rates are higher than national averages but at the same time competent labour is not available for the businesses as much would be needed.
- Environment: Climate change and loss of biodiversity affect the programme region. Challenges related to the waste management and circular economy as well as to the water management are typical for the programme region.
- Current issues: The pandemic has challenged the regional economies, particularly some industries like tourism, and has stopped the cross-border contacts between the people.

2.2. Programme priorities

Priority 1: Competitive regional economy (Policy Objective 1: Smarter cooperation area)

This priority improves the competitiveness of the region through investments on research and innovations and the competitiveness of SMEs. Digitalisation is considered as a tool to improve the competitiveness of SMEs and new digital solutions are searched through research and innovations. Main target groups will be SMEs, NGOs, research organisations, higher education organisations, business development organisations, vocational education institutions, local and regional authorities.

Priority 2: Environment (Policy Objective 2: Greener Cooperation Area)

This priority focuses on energy efficiency, sustainable water management, circular economy and the nature protection and biodiversity. Main target groups will be local and regional authorities, research centers and higher education organisations, business development organisations, SMEs, NGOs, environmental authorities and organisation.

Priority 3: Tourism (Policy objective 5, Cooperation area closer to its citizens)

The priority focuses to enhance the utilization of the regions' high potential for tourism. Priority calls for integrated actions cross different sectors and large local and regional participation of key stakeholders. Integrated tourism sector development actions are based on Euregio Karelia sub-strategy, which strives for the development of the programme area as a tourism object. Main target groups will be Tourism development organisations, to tourism businesses, local and regional authorities, NGOs, SMEs, educational organisations, research organisations.

Priority 4: Culture (Policy objective 5, Cooperation area closer to its citizens)

This priority works to jointly improve the cultural sector cross the border for the benefit of the regional economy and building of the cross-border cultural identity. Integrated culture sector development actions are based on Euregio Karelia sub-strategy. Cultural cooperation improves the attractiveness of the programme region and supports the regional economy. Cultural cooperation provides a platform for cross-border people-to-people actions. Main target groups will be cultural organizations, local and regional authorities, NGOs, businesses, educational organizations, research organizations

Priority 5: People to people (Interreg Specific Objective 1, Better cooperation governance)

This priority improves and widens the cooperation governance capacity and knowhow and people to people contacts cross the border. Objective is to improve the knowhow of the neighbours and to increase the mutual trust. Main target groups will be NGOs, youth organizations, local and regional level authorities, sectoral authorities, schools, universities.

2.3. Synergy with Environmental Strategies, Programmes and Policies

General environmental policies have been established on the European level, and national programmes and strategies have been built accordingly. The key strategies, programmes and policies that may have an impact to the Karelia cross-border cooperation programme 2021-2027 are identified in this chapter.

Global acts

The 2030 Agenda for Sustainable Development, adopted by the international community in September 2015, represents an ambitious new blueprint to respond to global trends and challenges. The core of the 2030 Agenda are the 17 Sustainable Development Goals (SDGs) and associated targets, which run to 2030.

European Union

The European Union made a positive and constructive contribution to the development of the 2030 Agenda and is committed to implement the Sustainable Development Goals in all policies and encourages the EU countries in doing the same.

The challenge is to combine protecting the environment for the quality of life of current and future generations with continuing economic growth in a way which is sustainable over the long term. The environment policy of the European Union is based on the belief that high environmental standards stimulate innovation and business opportunities. For the years 2019-24, the European Commission has identified two priorities:

The Green Deal: A program aimed at “making the EU a climate-neutral, just and prosperous society with a modern, resource-efficient and competitive economy”. The European Green Deals main goal is to make the EU's economy sustainable.

The Green Deal consists of entities, which in many respects also overlap. Some have a clear link with the Karelia cross-border cooperation programme 2021-2027:

- Sustainable industry: promoting more sustainable production based on a circular economy
- Clean energy: promoting carbon-free energy production and energy efficiency
- Sustainable mobility: reducing transport emissions (90% by 2050)
- Construction and renovation: promoting energy efficiency, the circular economy, digitalization and climate resilience in renovation and new construction
- Biodiversity: EU Biodiversity Strategy 2030

A Europe fit for the digital age: The European Union's digital strategy aims to make transformation work for people and businesses, while helping to achieve its target of a climate-neutral Europe by 2050.

National and regional levels in both countries

Finland and Russia have a common border of 1,250 kilometers. Finland and Russia have a great responsibility to preserve this valuable European natural heritage. There are several Finnish-Russian bilateral agreements which aim at protecting the common environment.

Both Finland and Russia are members of several environmental cooperation bodies, for example the Arctic Council and the Barents and Euro-Arctic Council. Also, both countries participate on the Northern Dimension Policy that aims at addressing the special regional development challenges of northern Europe. These include cold climatic conditions, long distances, wide disparities in standards-of-living, environmental challenges including problems with nuclear waste and waste water management, and insufficient transport and border crossing facilities.

Legal basis of the environmental protection policy of the Finland

The development of national environmental protection legislation is strongly linked to the EU legislation, the content of which Finland seeks to contribute to.

The most important instrument is the Environmental Protection Act, which entered into force in 2000 and was completely revised in 2014. The Act requires that activities that might pose a risk of pollution must be subject to an environmental permit. Under the Environmental Protection Act, regulations are issued on the objectives and implementation of the Act.

- Important environmental objectives have been defined in **the following strategies or programmes in Finland**. The list is not comprehensive but includes the main guidelines which have clear links and synergy with the Karelia cross-border cooperation programme 2021-2027

- *Finnish law and act on Nature protection*

- *National Bioeconomy strategy*

The aim is to harness the bioeconomy to create new products and services that drive economic growth and employment while promoting the transition to a carbon neutral society.

- *Energy efficiency plans 2017-2025*

The aim of these agreements is to improve the efficient use of energy within industry, the energy sector, service sector, property and building sector, municipalities, and oil-heated real estates.

- *The Hinku network.*

A network of pioneers in climate change mitigation established in 2008. The target is an 80% reduction in emissions by 2030 from 2007 levels. Coordinated by The Finnish Environmental Institute.

- *National waste plan.*

Strategic plan for Finland 's waste management and waste prevention goals and measures until 2023.

- *Strategic program for the circular economy*

The aim is to transform the economy into one that is based on the principles of circular economy by 2035

- *The 2019 Red List of Finnish species*

The assessment of threatened species in Finland. Fifth version.

- *Regional strategies*
 - o Lake Finland Rural Environment and Climate Program 2020-2027
 - o Local Bio-economy strategies
 - o Local environmental programs and climate strategies
 - o Local waste management strategies

Legal basis of the environmental protection policy of the Russian Federation

The strategic goal of the environmental protection policy is to solve socio-economic problems that ensure environmentally oriented economic growth, preserve a favorable environment, biological diversity and natural resources, that should meet the needs of present and future generations, realize the right of every person to a healthy environment, strengthen the rule of law in the field of environmental protection and environmental safety.

Tentatively speaking the modern environmental legislation in Russia is based on two types of documents. One of them – laws “On the protection of the natural environment” (2002), “On ecological expertise” (1995), “On specially protected natural areas” (1995), “On the protection of atmospheric air” (1999) – can be defined as “environmental”, while another one – the Land Code (2001), “On Subsoil” (1992), Water Code (2006), Forestry Code (2006) - as “resource”.

The most tangible contribution to the regulatory and legal framework of environmental protection comes from the regulatory documents of executive bodies and laws of the constituent entities of the Russian Federation. It is associated with the solution of the environmental management regulation, licensing, etc.

In August 2003, the Russian Government reviewed and approved the environmental doctrine of the Russian Federation. This document is a system of provisions established by the state that determine the solution of the problems of rational nature management and preservation of the natural environment.

Important environmental objectives have been defined in **the following strategies/programmes in Russia**. Just as at the Finnish side, the list is not comprehensive but includes the main guidelines which have clear links and synergy with the Karelia cross-border cooperation programme 2021-2027.

- *State Program of the Russian Federation "Environmental Protection"*
- *State program of the Russian Federation "Reproduction and use of natural resources"*
- *State program of the Russian Federation "Development of forestry"*
- *Russian Federation Water strategy*
- *Russian Federation Conservation strategy for rare and endangered species of animals, plants and fungi*
- *Russian Federation Geological industry development strategy until 2030*

In addition to national strategies, Russia has following specific presidential decrees, which guide environmental actions:

- *Strategy of Environmental Safety of the Russian Federation for the period up to 2025 was approved by order of the President of the Russian Federation by 19.04.2017 No 176.*

- *Environmental Doctrine of the Russian Federation* was approved by the Government of the Russian Federation 31.08.2002 № 1225-p. The strategic goals of the state environmental policy are:
 - protection of nature ecosystems,
 - increasing of wellbeing,
 - enhancing of a public health and demography situation,
 - environmental safety of the country.

- *Fundamentals of state policy in the field of environmental development in Russia for the period up to 2030* was approved by order of the President of the Russian Federation by 30.04.2012 N 176. The document determines the following priorities for the national programmes:
 - sustainable development of the economy,
 - environmental wellbeing conservation,
 - biodiversity and nature resources conservation for future generations,
 - implementation of the human right to a healthy environment, strengthening the rule of law in the field of environmental protection.
 - ensuring environmental safety.

- *Decree on the national development goals of Russia until 2030* issued by the President of the Russian Federation on 21.07.2020. The document is a basis for the development of the national projects and establishing the national environmental goals:
 - enhance waste management;
 - decrease the negative pollution on the environment and health;
 - dissolution of the most hazardous sites and ecological improvement of water bodies

- *National project "Ecology" on the basis of President's decree "On national goals and strategic objectives of development of the Russian Federation until 2024" issued 07.05.2018*. This national project gathered all activities and projects that are implemented to enhance the environmental quality and financed by the federal budget. Main goals of the national project related to the Programme area:
 - complex system of waste management;
 - enhancing drinking water quality;
 - conservation of unique water bodies
 - forest protection.

- *Regional strategies*
 - *The Red Book of the Republic of Karelia*: The 2020 edition includes information on the state, distribution and also adopted and necessary measures for the protection of 310 species of plants and animals.
 - *Reproduction and use of natural resources and environmental protection in the Republic of Karelia*: Is aimed at solving problems of increasing the efficiency of the use of natural resources on the basis of multipurpose, rational and non-depleting nature management while maintaining a favorable ecological situation.

3. *Environmental baseline and strategic environmental issues*

3.1. Environment of the programme area

The area covered by the Karelia cross-border cooperation programme 2021-2027 comprises of Kainuu, North Karelia and Oulu Region in Finland and the Republic of Karelia in Russia. Finland and Russia share 723 km of border in the programme area. The geographical coverage of the programme area is 263 667 km², of which the Republic of Karelia makes up 180 500 km².

The programme area in its integrity reaches from the Gulf of Bothnia in the Baltic Sea through forest, fog, ridge and hill areas divided by river and lake routes up to the White Sea and Onega and Ladoga, the big lakes in Republic of Karelia. These lakes are the biggest lakes in the Europe.

The chain of natural forests reaching from the Baltic Sea to the Arctic Ocean in the border regions of Russia and Finland is called the Fennoscandia's Green Belt. It incorporates the current and planned protected areas on both sides of the border which are very important for the whole of Northern Europe in terms of the ecosystem within the boreal forest zone and the protection of species.

Typical landscape for the whole area is forest, which covers majority of the surface area: Oulu Region approximately 60%, Kainuu 80%, North Karelia 89% and Republic of Karelia 55%.

The natural landscapes of Oulu Region are characterized by a flat coastal area divided by rivers flowing into the Gulf of Bothnia and the rugged highlands of Northeast Finland. Oulu Region is a low-lake area (less than 6% of land area).

The nature in Kainuu is characterized by hills, lakes and large uninhabited forest areas. The biggest lake in the region, Oulujärvi, (928,1 km²) is also fifth biggest lake in Finland. As mentioned before, nearly 80 % of land area is forest. The climate is continental.

The landscape of North Karelia is characterized by chains of rivers and lakes as well as forests, ridges and marshes. The biggest lake in the region is Pielinen (894,2 km²) and the highest point is Lieksa Koli, which reaches an altitude of 347 meters above sea level.

The Republic of Karelia is sometimes called as "the land of rocks, lakes and forests". The saying describes well the main features of the republic's nature. The most notable fells include Gora Nuorunen (Гора Нуорунен) (576 m, the highest peak in the republic), Mjantjutunturi (Мянтютунтури) (550 m), Sieppitunturi (Сйэппитунтури) (537 m) and Kivakka (Кивакка). The climate shows the combined effect of a continental and a temperate Atlantic climate.

Finland's nature protection area system is based on natural and national parks, other conservation areas as well as natural monuments established through legislation. Majority of the protected places are included in the proposition of the government for the areas of the EU's Natura 2000. Of Finland's 40 national parks, eight are situated either partly or totally in the programme area. The biggest of these parks is Oulanka national park (founded in 1956) covering 270 km².

The government has named 156 nationally the most significant sceneries of which 31 are located in the programme area; The cultivation and land upheaval area of Liminka, the village scenery of Melalahti-Vaarankylä as well as the hill and lake scenery of Koli could be mentioned as examples.

The programme area comprises also hundreds of smaller, also nationally significant cultural environments. Nationally or regionally significant landscapes may also be designated as landscape conservation areas under Finland's Nature Conservation Act, so that their special natural, cultural or historical features can be suitably managed and preserved. Only one such landscape conservation area has so far been established – the Hietajärven-Kuivajärven landscape conservation area in Suomussalmi which is located in an immediate proximity of the Russian border.

The cultural interaction between The Republic of Karelia and the Finnish regions can be perceived on the architectural heritage of the programme area. One of the most important cultural environment sites of the programme area is the State Historical-Architectural and Ethnographic Museum "Kizhi" which located on the island Kizhi in the Onega lake. In 1990 the monuments of Kizhsky Pogost and the surrounding buildings were included into the UNESCO's World Heritage List. In addition there are several important cultural environments on the programme area, though, it can be noted that the architectural heritage is, in European level, very young.

In the Republic of Karelia the nature protection areas are classified according to the object's value, size and protectional purpose to protected areas, national and natural parks, scenery, botanic, zoological as well as dendrologic protected areas and national monuments. There are a total of 955 090 hectares, 5,5 % of the total area of the republic, of protected nature areas in the Republic of Karelia. There are 4 national parks: Paanajarvi, Vodlozersky, Kalevalsky and Ladoga skerries, the latter was founded in 2018.

The largest area of unbroken old forests of Fennoscandia is located there. The planning of the national park has been an important element of the environmental protection cooperation between Finland and Russia. Cooperation has taken place between the countries since the 1970s. A concrete example of co-operation is the so called park pairing between Finnish national parks and Russian national parks. In the program area, such parks include Oulanka – Paanajärvi in Kuusamo on both sides of the border, Friendship Park in Kuhmo and Kostomuksha, and Hossa National Park in Suomussalmi, established in 2017.

Taking into account the landscape features of the Republic of Karelia, almost all large protected areas are directed in various ways to the protection of forests. These forests are an exceptional natural heritage of the area and their conservation is one of the priorities of environmental activities. The further development of the protected network should, firstly, ensure a significant increase in the number of protected areas in the vast wetlands of the Republic.

Features having impact on the state of environment in the whole Programme region:

- Sparse population density:
 - o Oulu Region 11,24/ km²
 - o Kainuu 3,55/ km²
 - o North Karelia 9,03/ km²
 - o The Republic of Karelia 3,6 / km²

At the same time most of the people are located to the growth centers.

- Eastern and Northern Finland are rural-like areas where forests cover the major share of the land area. Proximity to the nature, cleanness and safety are seen as the key attraction factors.
- Programme regions location in the north brings peculiar and unique features. Area's climate and nature are particularly vulnerable for the changes.

- Climate change: According to the studies¹, the increase in the average annual temperature in northern Europe may be 1 ° C by 2010 and 2 ° C by 2030. This could cause extreme weather events such as vegetation changes, floods and forest fires.

3.2. State of the environment

State of the environment in the Programme area is broadly good. The area is located at a considerable distance from major sources of pollution located in the industrial regions of Central Europe and Russia. Greenhouse gas emissions of the traffic and energy production are prominent because of the sparse population and long distances. Increasing mining industry can be seen as a potential risk factor for the state of the environment.

Air

In the Programme area, the air pollution load is concentrated mainly to the centres with industrial production. The biggest sources of environmental load in the Finnish side of the programme area are Oulu, Kajaani and Raahe with their industrial plants. On the Russian side, the most significant sources of environmental load are Kostamuksha, Kondopoga, Segeza and Petrozavodsk. In the majority of the programme area the air quality is good. However, in the biggest cities the energy production and traffic weaken the air quality. In some areas also the emissions of the industry are remarkable.

In the latest decades, strong and successful contributions have been made to reduce the air pollution originating from the industry and energy production in both countries.

Watercourses and ground waters

On the Finnish regions, the condition of surface water and groundwater is mostly good or excellent except on the coastal areas. In agricultural areas the quality of waters is usually satisfactory or below average. Intensive forestry also puts a strain on surface waters. Decline of the quality of waters on the living environments is also weakening the condition of the environment as a whole. Agriculture, forestry, human settlements and peat production load the rivers and lakes the most. Also water engineering and water rationing weaken the waters. Biggest loading factors are agriculture and forestry. The developed waste water processing methods have decreased the effluent discharges (especially phosphorus) from municipalities and industries during the last few decades.

In the Oulu region has over 400 000 inhabitants, of which more than 80% are in Oulu and surroundings. 98% of the population is connected to the water supply networks of water supply utilities and 79% to the sewerage networks. There is a lot of industry in the water management area in relation to the population. The wood processing and chemical industries are concentrated in Oulu and the metal industry in Raahe.

In Kainuu, surface waters are natural nutrient-poor and widely in good or excellent ecological condition. In a weaker ecological state existing water bodies are concentrated in the western part of the water management area, near the coast.

The water bodies examined in North Karelia are mainly in good or excellent ecological status. Of the classified lake area, 26,2% is in excellent condition, 66,2% in good condition and 7,6% in good worse condition. The condition of rivers is somewhat weaker than that of lakes. 4,2% of the river formations are in excellent condition, 78,1% in good condition and 17,7% in good worse condition in terms of their length.

¹ Filatov N.N. Changes in the climate of eastern Fennoscandia and the water level of the largest lakes in Europe. Petrozavodsk: Karelian Science Center of the Russian Academy of Sciences, 1997

Emissions from North Karelia's water bodies come as point loads from communities, industrial plants and peat production, as well as diffuse emissions from fields, forests and properties in sparsely populated areas. The most burdensome for water bodies are eutrophic nutrients, phosphorus and nitrogen, organic substances that consume oxygen resources in water, solids that cause sedimentation, and compounds harmful to aquatic organisms, such as heavy metals.

The Republic of Karelia is rich in surface water resources 23 600 rivers and 61 000 lakes, the biggest lakes of Europe (Lake Onega and Lake Ladoga) among them. Most lakes are small, over 99% of them have surface area less than 10 square km. About half of rivers flow southward to the Baltic Sea. Full surface area of hydrologic system of the Republic of Karelia is 31000 km², which makes up 18% of total surface area of the republic.

According to the classification of surface water resources of Republic of Karelia, conducted by the Northern Water Problems Institute, high quality water is found in open bodies of water of lakes Ladoga, Onego, Syamozero and Vedlozero. Water in small lakes is of low or satisfactory quality which is caused in most cases by the influence of river waters.

Catchment areas of rivers in middle and south parts of Republic of Karelia consist of marshlands and as a result river waters are polluted with humus from marshes. Organic matters of natural origin present in river water explain high colour level of water and high content of iron. Polluted river water also affects the quality of natural water in shore areas of big lakes.

Trout farms significantly increased the production of farmed fish. Increased production of trout has resulted in disturbance of the environment due to excess fish food that is deposited at the bottom of lakes.

The pollution of Onego and Ladoga lakes, the White Sea, Vygozero-Ondsky reservoir, rivers of Shuya, Neglinka, Lososinka and their water-currents with crude and un- or partly purified sewage is a serious environmental problem in the Republic of Karelia.

In six regional centres of the Republic the sewage disposal plants are insufficient and there, basically, sewage is discharged in reservoirs being sources of drinking water supply (towns of Kem, Belomorsk, Medvezhiegorsk, Pudozh, settlements of Louhi and Kalevala). In all about 10 percent of the municipal sewage is discharged without purification and great majority insufficiently purified. Also deterioration of sewer waste disposal plants and networks of water drain increases every year. Aging sewers have been rehabilitated with CBC funding during the previous program and the situation has been improved.

Drinking water supply is the most important water problem for The Republic of Karelia. In the Republic, only 19% of population centers have centralized water supply. At the same time, the condition and quality of water supply in many cases do not meet current requirements. A drinking water intake has been renovated in the Sortavala area, so the situation is improving there.

One possible solution to the drinking water problem is to promote the use of groundwater, which in comparison with surface waters have the best health and environmental properties. Inferred resources of fresh groundwater in Republic of Karelia is estimated at 814,7 m³/day and reliably provide the population the most of the administrative districts of the Republic. In some areas, especially in Sortavala area, potential groundwater sources are located far from town, surface water from the lakes is the only realistic option.

The groundwaters are threat by human actions in many ways in Republic of Karelia. These are for example trenching, industrial areas, dumping grounds, service stations and garages located on or near groundwater areas.

As a whole, there are plenty of groundwaters in the programme area. On the Finnish side of the programme area groundwater is used as household water, with the exception of Oulu where 78 % of household water is surface water. On the Republic of Karelian side, nearly only surface water is used as household water and its quality is not everywhere particularly good. The problem has been addressed and several construction projects related to the improvement of drinking water have been carried out within the Karelia CBC Programme.

In the European Union assessing of the state of the waterways is nowadays done according to the framework set by the Water Framework Directive.

Waste management

In Finland waste management's most important principles are reduction of waste amount and increasing of recycling according to the European Union's directives concerning waste management. The municipalities occupy a central role in the organisation of waste management.

In Oulu Region there is one major waste center in Oulu, Rusko, and 15 smaller waste stations in the surrounding municipalities. The waste incineration plant was opened in Oulu in 2012. Approximately 150,000 tons of municipal and industrial waste is incinerated at the plant each year, half of which comes from the Oulu Waste Management area and half from the rest of Northern Finland. The energy produced by the plant is utilized in the production of electricity and district heating.

In Kainuu there is one major waste center in Majasaari and 8 smaller waste stations in the surrounding municipalities.

In North Karelia there is one major waste center in Kontisuo and 10 smaller waste stations in the surrounding municipalities. The composting of bio-waste and sludge as well as the final disposal area for contaminated land and the composting of oily land operate at the treatment plant. In addition, there are numerous industrial waste and landfill sites in the province, as well as landfills for closed mines.

In the latest years the municipalities have been organising waste management in cooperation, which results in more efficient waste management with smaller costs. The main strategy is to reduce the number of traditional landfills and create more centralized model.

The waste intensity (GPD in proportion to waste level) has decreased in Finland in recent years and the waste disposal is relatively well organised. However, there's still work to be done: for example, except for the biggest centres of population, small waste accumulations and long distances create problems for recycling. Also due to long distances, emissions from transport remains a problem.

In the Republic of Karelia there are 206 waste disposal facilities, of which 65 dumps of solid household waste are unauthorized landfills that do not meet modern environmental requirements and are used in numerous violations. In addition, cases of unauthorized waste disposal in green areas around cities, the occurrence of natural landfills on used quarries, forest roads, land of the State Forest Fund around garden cooperatives are not uncommon.

In the Republic of Karelia waste management is developing. One goal is to reduce the number of illegal landfills. Significant part of waste disposal plants demand repair, replacement of equipment and reconstruction. Absence of means for reconstruction and purchase of equipment in local budgets leads to unsatisfactory work of waste disposal plants. Significant part of waste polluted by mineral oil is located on firm household waste disposal tips. According to the latest waste law 2019, the Russian Federation aims to recycle 36% of waste by 2024.

Biodiversity

Large-scale and intensive utilisation of the forests causes one of the most significant environmental threats on the programme area – the loss of biodiversity. Forestry has decreased the biodiversity of the forest and wilderness nature on the Finnish side and causes the same threat on the Russian side as well. Forestry and peat extraction has decreased the biodiversity and had a significant effect on the state of the wetlands as well.

One of the key environmental challenge for the whole Programme area, is the loss of biodiversity resulting from the exploitation of natural resources and land use. In recent decades protected areas have increased strongly and nature is taken more widely into account in forestry and other forms of land use. Climate change also poses a threat to northern nature.

Development of the network of protected areas improves also the situation with the biodiversity. The challenge is the preservation of ecological networks and the reduction of the threats caused by the fragmentation. Increase of new and invasive species is a new threat for the natural species.

Energy and climate

In Eastern and Northern Finland, relatively large amount of energy is consumed per capita. This is consequence of the inherent characteristics (cold climate, long distances), energy-intensive industry, and the standard of living-related factors (eg. housing density and abundance of cars).

On the other hand, the region's rich energy resources have made it possible to produce energy not only for the region's own needs, but also for the other regions in Finland. A new nuclear power plant is under construction in Pyhäjoki, Oulu Region and a final construction permit is expected in 2022.

In addition, large utilization of local energy resources ensures the high-energy self-sufficiency for the region. The area is rich with forests and peat resources, which have long been utilized in industry, municipalities and rural energy supply.

Northern Finland also produces a significant part of Finland's water power and 42% of wind power. In traffic the area is, however, dependent on imported fossil fuels. Major part of the material is being transported by trucks.

The energy sector is seen to have, in addition to the mining sector, significant development potential. One clearly raising trend is biofuel industry, where one of the most ambitious goals is the North Karelia's Roadmap to an oil-free and low-carbon North Karelia 2040.

In the whole Programme area, in energy efficiency the key development needs are seen on building construction (both in new houses and renovation). It is also important to take energy perspective into account in land use planning and to try to strengthen the respective knowhow of enterprises, communities and people.

Natural resources

Forest industry

Forests cover most of the Programme area and have traditionally been one of the most important natural resource for the regions. The available timber resources and tree growth in recent decades has increased as a result of active forest management, which on the other hand, has resulted to the growth of the proportion of young forests.

Wood is an important raw material for the paper industry and the wood products industry, as well as a source of energy. Operating environment for the forest industry in Finland is good what comes to the forest resources. On the other hand, the mechanical forestry has caused lack of biodiversity and burden on surface waters , when the forest has been seen only as a resource for raw material.

Forest and traditionally paper sector are changing and is going through a structural change which also has an impact on the use of forest resources. New trends are the use of wood for energy production (electricity and heating) as well as for the biofuels.

Forest fund on the territory of Republic of Karelia in 2019 occupied 14 474,6 thousand hectares (80,2% of the area of the republic), of which 9 286,1 thousand hectares are covered with forest vegetation. The protective forests account for 4 628,4 thousand hectares or 32,0% of the forest fund.

Exploitation of forests has influenced the state of the Republic of Karelia's forests in recent decades. The forest landscape has been shaped most by clear cuttings with soil cultivation and construction of forest lorry roads. Due to the forests' age structure, the amount of utilizable tree stand is continuously increasing. The problem is that the economically utilizable wood resources are scattered and the availability of good quality, stout timber is decreasing.

In Republic of Karelia, renewal and development of the technology applied in the utilization of forests is important, because utilisation of the present technology may have remarkable long-term negative impacts on the forest nature. In addition to waste waters the nitrate and sulphur emissions to the air has had their effect on the environment.

Mining

Eastern and Northern Finland as well as the Republic of Karelia belong to one of the world's most important mineral deposits, which is why the potential for the mining industry is particularly high in the region. Mining industry has extensive environmental impacts which slow down the wide use of existing resources.

Conclusions

Natural resources as a whole constitute an important role in the Programme area's business structure, even though especially in agriculture and forestry employment has declined relatively steadily, and its importance has decreased. Large and clean nature areas and waters form an important basis for the development of tourism and the population's wellbeing.

Long distances are a key challenge to the use of natural resources. For example, it is not profitable to transport the wood raw material far for the energy production. Distances underline the importance of decentralized and local production models.

Key trends in the use of natural resources are the management of the environmental impacts of the industries, material and resource efficiency and the adaptation to climate change impacts. It is particularly important, in the long term, to be able to foresee the impacts of the climate change to the industries based on the use of natural resources.

4. Environmental assessment

4.1. Introduction

At this stage of the programme development, the exact locations, nature and impacts of the actions cannot be identified, as this depends on specific projects that will be implemented. Also the objectives set for individual calls for proposals will have an effect on the impacts. Accordingly, the approach of this report is to provide an indication of the range of potential impacts and suggest ways in which negative impacts can be mitigated.

It can be noted that the main objectives of the environmental strategies and programmes on regional, national and international level do not contradict the Karelia cross-border cooperation programme 2021-2027 objectives. On the contrary, the objectives can be supported by the activities of the programme.

The total value, including the funding from the European Union and national contributions, of the programme is xx million euros. It is reasonable to note that compared to larger programmes and strategies Karelia cross-border cooperation programme 2021-2027 potential impact to the environment is less significant both from the positive and negative perspective. However, the positive impact can be increased when the environmental aspects are taken into account in the project selection.

4.2. Appraisal of the programme

At this stage of the programme development, the exact locations, nature and impacts of actions cannot be identified, as this depends on specific projects that will be implemented.

The environmental impacts will be one of the assessment points in the evaluations of future project proposals. In both Finland and Russia, the legislation clearly requires that if a project has significant environmental impacts, an environmental impact assessment must be conducted.

Competitive regional economy (Policy Objective 1: Smarter cooperation area)			
Specific objective	Potential Impact	Mitigation of Negative impacts	Examples of current environmental strategies
1.1. Enhancing research and innovation capacities and the uptake of advanced technologies	<p>The introduction of new technologies can increase production and thus place an additional burden on nature.</p> <p>New technologies and innovations are more energy and resource efficient which saves natural resources.</p>	<p>The environmental perspective is taken into account in research and innovation processes.</p> <p>New technologies are energy saving and environmentally friendly, therefore the increased production does not impose an additional burden on the environment.</p>	<p>EU: Commission priorities for 2019-24: <i>A Europe fit for the digital age</i> and <i>The Green Deal</i></p> <p>National Level: Energy efficiency plans 2017-2025, The Hinku network</p> <p>Russian Federation Geological industry development strategy until 2030</p>
1.3. Enhancing growth and competitiveness of SMEs	<p>The increased business of companies increases, and this may create conditions for increasing cross border trade, which further on may have also negative environmental impacts.</p> <p>Environmental friendliness can be seen as a competitive advantage.</p>	<p>Environmental friendliness is seen clearly as competitive advantage. Further activities may then take these proposals concerning the environmentally sustainable cross-border trade into consideration and this way the possible negative environmental impacts may be prevented or mitigated</p>	<p>EU: The Green Deal, A Europe fit for the digital age</p> <p>National Level: Energy efficiency plans 2017-2025</p> <p>State program of the Russian Federation "Development of forestry"</p> <p>Russian Federation Geological industry development strategy until 2030</p> <p>Regional Level: Local Bio-economy programs</p>

Environment (Policy Objective 2: Greener Cooperation area)			
Specific objective	Potential Impact	Mitigation of Negative impacts	Examples of current environmental strategies
2.1. Promoting energy efficiency and reducing greenhouse gas emissions	<p>Positive environmental impacts in general.</p> <p>The environmental load and greenhouse gas emission are reduced due the more efficient ways to use energy.</p> <p>Polluting energy sources are being replaced by cleaner ones</p>	<p>In both Finland and Russia, the Environmental impact assessment is obligatory, if there's any possibility that project could have negative environmental impact.</p>	<p>EU: The Green Deal</p> <p>National Level: Energy efficiency plans 2017-2025, The Hinku network</p> <p>Regional Level: Local environmental programs and climate strategies</p>
2.5. Promoting access to water and sustainable water management	<p>Positive environmental impacts in general.</p>	<p>In both Finland and Russia, the Environmental impact assessment is obligatory, if</p>	<p>National Level:</p>

	<p>Water pollution is reduced. Quality of drinking water is improved.</p> <p>In Infrastructure projects, there may be negative environmental impacts during the construction phase.</p>	<p>there's any possibility that project could have negative environmental impact.</p>	<p>Decree on the national development goals of Russia until 2030</p> <p>Russian Federation Water strategy</p> <p>Regional Level: Local environmental programs and climate strategies</p> <p>Lake Finland Rural Environment and Climate Program 2020-2027</p>
<p>2.6. Promoting the transition to a circular and resource efficient economy</p>	<p>Positive environmental impacts in general.</p> <p>The amount of waste going to landfills is reduced, Energy savings due the re-using of material.</p> <p>In Infrastructure projects, there may be negative environmental impacts during the construction phase.</p>	<p>In both Finland and Russia, the Environmental impact assessment is obligatory, if there's any possibility that project could have negative environmental impact.</p>	<p>EU: The Green Deal</p> <p>National Level: Finland National Waste Plan (till 2023)</p> <p>Strategic program for the circular economy</p> <p>Decree on the national development goals of Russia until 2030</p> <p>State program of the Russian Federation "Reproduction and use of natural resources"</p> <p>Regional Level: Local waste management strategies</p>
<p>2.7. Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution;</p>	<p>Positive environmental impacts in general.</p> <p>The quality of the urban living environment is improved.</p> <p>In Infrastructure projects, there may be negative environmental impacts during the construction phase.</p>	<p>In both Finland and Russia, the Environmental impact assessment is obligatory, if there's any possibility that project could have negative environmental impact.</p>	<p>EU: The Green Deal, Biodiversity Strategy 2030</p> <p>National Level: Energy efficiency plans 2017-2025</p> <p>Fundamentals of state policy in the field of environmental development in Russia for the period up to 2030</p> <p>Russian Federation Conservation strategy for rare and endangered species of animals, plants and fungi</p> <p>Regional Level: Lake Finland Rural Environment and Climate Program 2020-2027, Local environmental programs, and climate strategies</p> <p>The Red Book of the Republic of Karelia</p>

Tourism (Policy objective 5, Cooperation area closer to its citizens)			
<u>Specific objective</u>	Potential Impact	Mitigation of Negative impacts	Examples of current environmental strategies
5.2. Fostering the integrated and inclusive social, economic and environmental local development, culture, natural heritage, sustainable tourism and security, in areas other than urban areas	<p>Growing tourism can cause additional burden on nature, especially in nature parks.</p> <p>In infrastructure projects, there may be negative environmental impacts during the construction phase</p>	<p>Emphasis on natural values, especially in nature tourism. If the importance of preserving clean nature is emphasized, it will have an environmental significance.</p> <p>Emphasizing the importance of pure nature for local tourist businesses.</p> <p>The negative effects can be reduced by emphasizing the development of tourism in an environmentally sustainable way.</p>	<p>EU: The Green Deal</p> <p>National Level: Russian Federation Water strategy</p> <p>Regional Level: Lake Finland Rural Environment and Climate Program 2020-2027. Local environmental programs, climate strategies and waste management strategies</p>

Culture (Policy objective 5, Cooperation area closer to its citizens)			
<u>Specific objective</u>	Potential Impact	Mitigation of Negative impacts	Examples of Links current environmental strategies
5.2. Fostering the integrated and inclusive social, economic and environmental local development, culture, natural heritage, sustainable tourism and security, in areas other than urban areas	<p>Increasing capacities of cultural stakeholders may increase the cross-border interaction which then may have negative impacts environmentally.</p> <p>On the other hand, the intensification of cultural activities can increase the appreciation of nature</p>	<p>Possible negative environmental impacts can be reduced by increasing the environmental awareness as part of the skills development activities, specially with young people.</p>	

People to people (Interreg Specific Objective 1, Better cooperation governance)			
<u>Specific objective</u>	Potential Impact	Mitigation of Negative impacts	Examples of current environmental strategies
6.3. Build up mutual trust, in particular by encouraging people-to-people actions	<p>Positive or neutral environmental impacts in general.</p>	<p>the environmental perspective is taken into account in the decision-making process</p>	<p>EU: A Europe fit for the digital age</p>

4.3. Mitigation of negative impacts

Although the priorities and actions in the Karelia cross-border cooperation programme 2021-2027 have a wide potential to achieve positive environmental impacts, there are number of ways how projects could create also negative impacts – for example projects aiming at increasing the cross-border trade cannot be considered entirely environment-friendly. In this respect it is important to pay attention to the mitigation of the negative impacts.

In general, when reviewing the need for mitigation, options for consideration include avoiding projects completely in the areas that are environmentally the most sensitive, remedying or compensating for negative impacts of projects by imposing conditions on the funding being granted to prevent or minimize impacts, and enhancing positive impacts.

Competitive regional economy: There is a risk that development and competitiveness and the environmental aspects are conflicting with each other – economic development and sustainable environment do not go hand in hand.

Accordingly, tempting business environment might also include environmental aspect in a sustainable way. Climate change and loss of biodiversity threaten the nature globally and the successful business cannot be realized by completely ignoring the values of nature. A successful business can also be environmentally friendly. For example, in the circular economy there is economic potential, so environmental friendliness and competitiveness are not necessarily mutually exclusive. Also, energy-saving technologies and environmental friendliness are clear factors in competitiveness.

Environment: The biggest threat could, accordingly, be the loosing of opportunities for improving the state of the environment so that the present situation remains in force.

Tourism: Increasing passenger and tourist volumes can place an additional burden on the environment. This can be reduced by emphasizing the importance of ecotourism and clean nature. The importance of the inviolability of nature parks and other nature or culture based destinations must be emphasized. The importance of eco-tourism must be raised.

Culture: Increasing capacities of cultural stakeholders might cause some burden on environment, thought this is a rather environmentally neutral issue. Due the intensified culture and improved capacities of the local cultural organisations, the value of the surrounding pure nature can be clarified.

Bridges between the people: This is a rather environmentally neutral issue that, if successful, could have clear positive effects on the environment. Improved communication between organizations can enhance future and existing joint environmental projects.

Public consultation and dialogues between projects, local people and authorities can provide a forum for local people to express opinions. People need to feel that they are being listened and their concerns are being included. Many misunderstandings within projects may be due to poor communication, poor management and cultural differences.

4.4. Alternatives

Preparation of the programme is based on joint challenges and defined priorities. Comparing is made between the chosen strategy and the 0-strategy. The 0-strategy intends that the Programme is not implemented.

A total of three policy objectives and one Interreg specific objective were selected for the programme. The programme priorities, suitable for the Programme area, were derived from the policy objectives. The objective is that the environmental issues shall be taken into account within all specific objectives and all of the calls for proposals. It should be also noted that the policy objective 2, Greener Cooperation Area, is clearly meant to minimize the threat to the environment.

Comparing the chosen strategy to 0-strategy it can be stated that the chosen strategy is better both from the perspective of the programme area and the environment. When implemented, the programme has the potential to prevent threats and enable positive development for nature as well as tackle the identified development challenges, identified in chapter 2.1.

4.5 Monitoring of the environmental impacts and effectiveness

Under the SEA directive, there is a requirement to establish a monitoring programme to measure environmental effectiveness. The environmental indicators can be used to inform the impacts in addressing environmental effectiveness of programme.

Monitoring mechanism operating on a regular basis is built for the Programme. Monitoring function shall produce regular information for the decision making bodies (Joint Monitoring Committee) about the Progress of the Programme. Monitoring function produces information about the Programme's performance towards the set objectives. Environmental aspect shall be one element to be monitored. Environmentally the monitoring function shall put a special focus on the mitigating measures to minimise the negative impacts of project activities.

5. Summary

The purpose of the strategic environmental assessment is to ensure that the environmental impacts are assessed and duly considered during the preparation of the Programme. The aim is to guarantee that environmental consequences are identified and assessed during the preparation and before adoption.

The report is prepared in accordance with Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment as well as with the corresponding Finnish legislation (SEA Act 200/2005).

From the wide list of Environmental Policies, Strategies and Programmes the most crucial international and local ones are concerned. The state of environmental legislation and administration both in Finland and in Russia is shortly described. Many environmental strategies have overlaps and impacts are interlinked.

Considering the state and the future of the environment on the programme area there are challenges especially on the waste management and on the water maintenance. The loss of the biodiversity is a serious concern to be taken into account. Climate change also poses a threat to the region's environment.

The actions implemented on the priorities depend on what kind of projects will be selected by the Programme bodies. At this stage of the Programme development, the exact locations, nature and impacts of actions cannot be identified, as this depends on specific projects that will be implemented.

Accordingly, the programme must convey a clear message that positive environmental impact is a key element of the programme's strategy.

Programme's monitoring function shall produce regular information about the performance of the Programme and it would be good if the environmental impact would be one of the assessment points in project selection;