



NPA 2021-2027 AREA ANALYSIS

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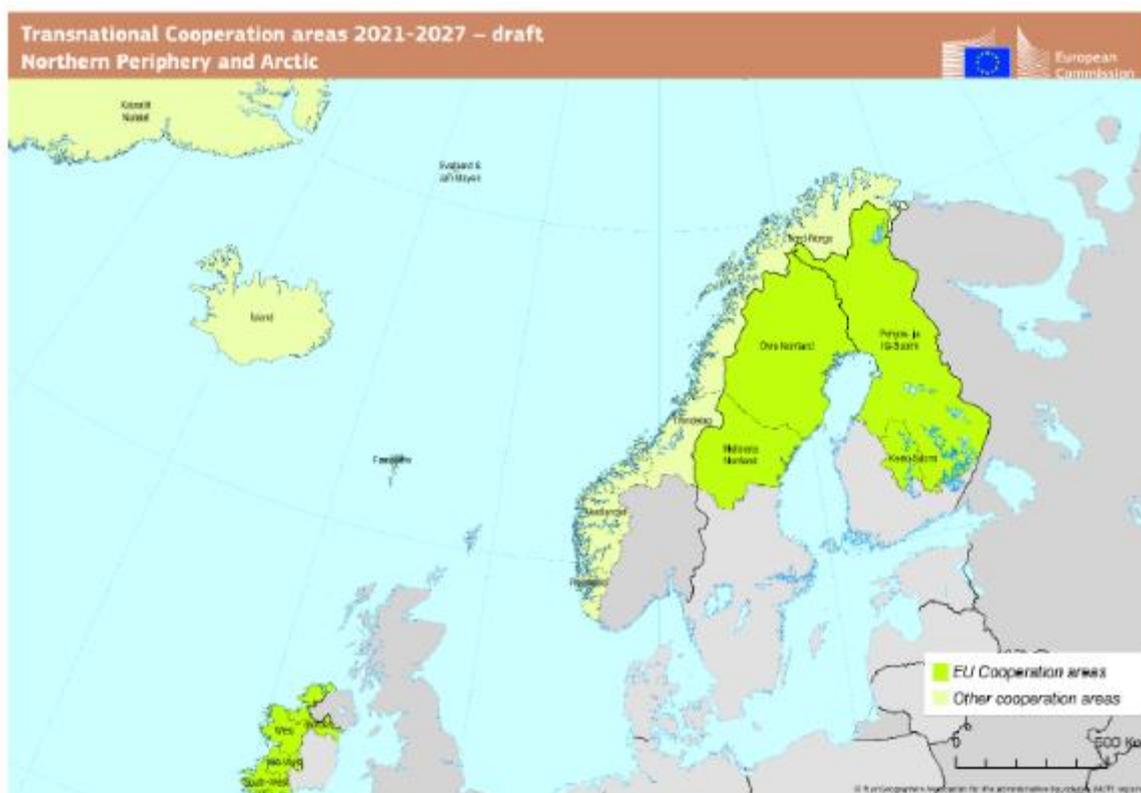
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1 INTRODUCTION

The overall objective of the area analysis, as described in Article 17 of the draft ETC regulation, is to set out a summary of the main joint challenges, taking into account: (i) economic, social and territorial disparities; (ii) joint investment needs and complementarity with other forms of support; (iii) lessons learnt from past experience; and (iv) macro-regional strategies and sea-basin strategies where the programme area as a whole or partially is covered by one or more strategies. As outlined in the European Commission's orientation paper, for the NPA 2021-2027 this also includes the EU Arctic Policy. The territories covered in the analysis are listed in detail in Annex 1 (see technical annex document).

Figure 1: Proposed 2021-2027 NPA Programme Area



Source: European Commission (2020) Orientation Paper NPA 2021-2027



2 NPA AREA ANALYSIS



- Area: approx 2,967,4451 km²
- Population: approx 6.5 million people
- Sparse population: e.g. Pohjois- ja Itä-Suomi in Finland 6.3 persons per km²; Iceland 3.5 per km²; Northern Norway 5 persons per km²; Greenland (ice free areas) 0.3 persons per km²
- Peripherality : < 2.0 km per 1,000 km² of Motorway e.g. Pohjois- ja Itä-Suomi in Finland; Övre Norrland, Mellersta Norrland in Sweden
- Diverse cultural identities, indigenous peoples and minority languages.

The Northern Periphery and Arctic Programme covers a vast geography from the West Coast of Greenland to the Eastern borders of Finland, approximately 2,967,4451 km² and approximately 6.5 million people. The programme area covers diverse landscapes, ranging from mountainous regions and large forests to long coastlines and islands. Harsh and extreme climatic conditions are a common feature, with many regions experiencing long cold winters. A large part of the Programme area lies within the Arctic, but it also includes non-Arctic areas of Norway, Sweden, Finland, Iceland, Ireland and Faroe Islands.

Amplified by extreme environments and geography, **extreme peripherality from major economic centres and sparse populations** are defining characteristics that present a functional rationale for cooperation across the territory.

- The NPA area has **notable regional centres** such as Tromsø, Umeå, Oulu, Reykjavik and Galway. However, in contrast to the high levels of urbanisation and connectivity across much of the EU, the **scale of distances to and between centres, physical barriers, and cost of transport** are key factors shaping development across the NPA area. For example, in Pohjois- ja Itä-Suomi in Finland, in Övre Norrland and Mellersta Norrland in Sweden, and in Nord-Norge and Trøndelag in Norway there is less than 2.0 km per 1,000 km² of motorway.¹
- **Population density across the NPA regions is significantly below the EU average** of 117 people per km², e.g. North and East Finland has a population density of 6.3 people per km²; Northern Norway 5 persons per km²; and Iceland 3.5 per km², see also Annex 3. Greenland's population density is the lowest in the world; counting the ice-free areas only, it is 0.3 persons per square kilometre.³
- **The programme area has a rich diversity of cultures with distinct identities, indigenous peoples and a range of minority languages.**

In this context, the NPA Programme provides a framework for the countries and regions to cooperate on within a functional area defined by common issues, working in a way that recognises the particular challenges and approaches to cooperation necessitated by the geographical characteristics of the area. More traditional forms of cooperation are difficult to achieve over the distances and climatic conditions evident in the NPA area. The Programme encourages effective cooperation to maximise place-based development linking areas

facing shared or similar development challenges, enabling them to, e.g. build on advantages in sparsely-populated communities, find innovative solutions to their linkage into larger markets and more populated areas. This gives the Programme a distinct role in relation to other forms of cooperation.

The concept of functional areas provides a strong basis for cooperation within the NPA area. The concept also reinforces the value in the NPA's wider territorial network and links. Well-established cooperation links with regions in Scotland and Northern Ireland and shared and common development concerns particularly linking the North Atlantic NPA territories are a dimension the Programme can preserve and develop in new ways in the future. Similarly, the wider links with North West Russia and Atlantic Canada developed by the Programme show how functional geographies can be applied at various levels and scales.



2.1 Economy and innovation

- GDP generally above EU average, but peripheral regions lagging behind national averages.
- Long-standing economic patterns - reliance on primary industries such as fishing, mining, forestry and oil/gas, shifts towards building greater economic diversification.
- Increased economic diversification and opportunities in growth sectors.
- Economic shocks (e.g. Covid and Brexit) likely to bring long-term economic impacts, challenging recovery for peripheral regions, need for building capacity for adaptation and resilience.
- Business structure - dominance of SMEs and micro businesses but also often resource-based multinational firm activity.
- Focus on building critical mass and capacity for resilience.

GDP levels across the region tend to be above the EU average, particularly in Norway, Iceland and Southern Ireland, see Annex 4. In 2019, Ireland recorded the second highest level of GDP per capita in the EU27, 91 percent above the EU average, while in Norway the GDP level is 44 percent above and in Sweden more than 20 percent above the average.⁴ However since March 2020, the **Covid crisis has had a significant impact on national and regional economies**, e.g. both in Finland and in Sweden the GDP is expected to shrink by around six percent in 2020.⁵⁶ Estimates from the Irish Department of Finance suggest the Irish economy is projected to decline by 10.5 per cent in 2020.⁷ These broad trends also affect regional economies within the NPA area. *(The situation in the NPA area in relation to Covid-19 is also covered in detail in an accompanying briefing paper).*

Economic performance varies across the programme area. NPA regions tend to lag behind national averages, e.g. with the Northern and Western region of Ireland with a GDP PPS level



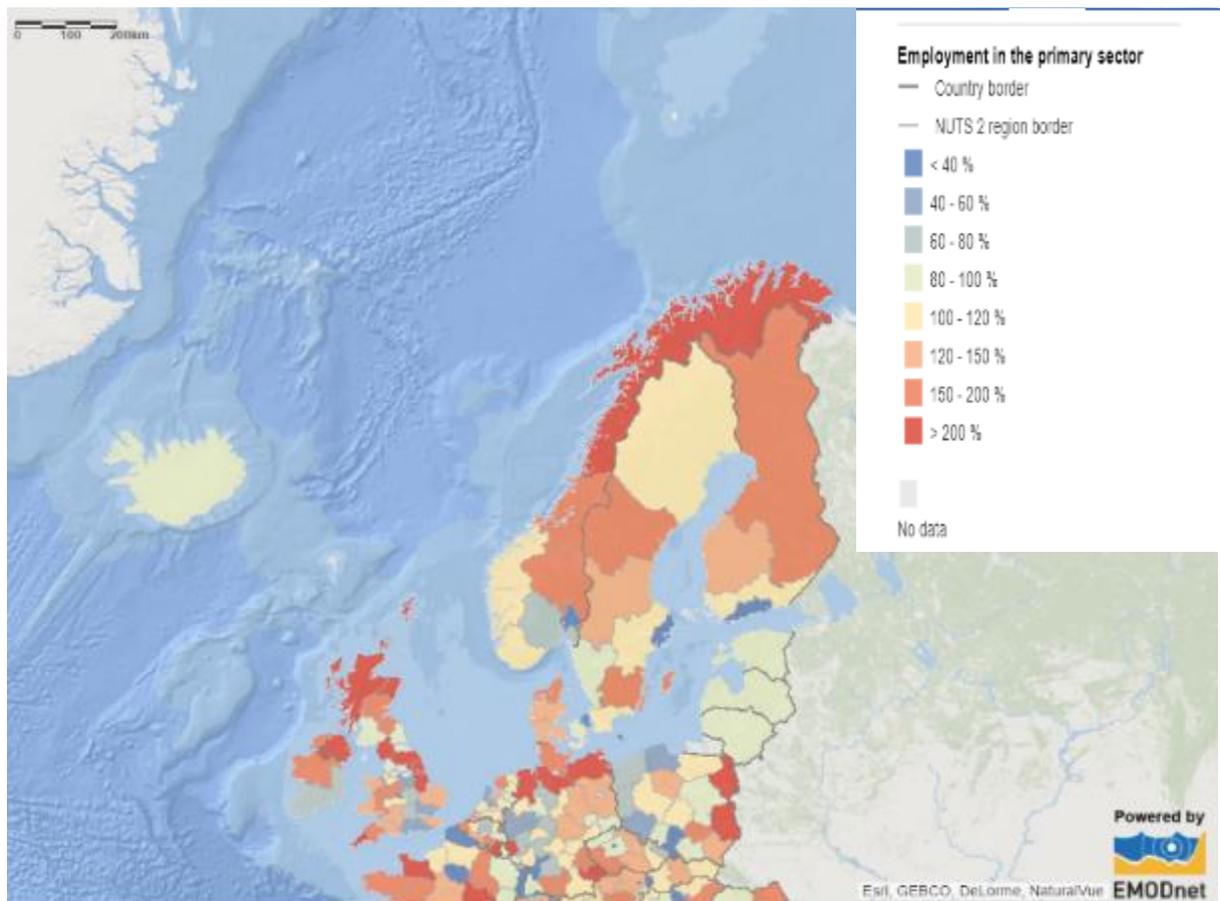
of 75 percent of the EU27 compared to the Southern region, which includes Dublin, at 222 percent in 2017.⁸ Disparities are linked to: settlement pattern; degree of peripherality (amplified by extreme environment and geography); demographic trends (outmigration of young people/women, ageing population, labour supply/skills mismatch which is related to the demographic trends and changes in the society)⁹; and long standing economic trends (reliance on primary industries such as fishing, mining, forestry and oil/gas, extent of economic diversification).

Looking to the future, these patterns of disparity could be amplified because of major economic shifts linked to Covid and Brexit (which has a particularly significant impact in Ireland). For example, in Ireland, the economic impacts of Brexit and coronavirus are expected to be particularly pronounced in already economically lagging peripheral regions, amplifying long standing regional development disparities in the country. Based on an analysis of sectoral concentrations, a study of the regional economic impacts of Covid suggests that border counties (Donegal) and the south west (Clare and Kerry) could be particularly vulnerable. This pattern is linked to their reliance on commercial activities that generally require human interaction and cannot be operated remotely.¹⁰ The **reliance on primary resources is a long-standing trend across the NPA area**. As Figure 2 illustrates, employment in the primary sector for example in Nord-Norge, Pohjois- ja Itä-Suomi, Mellersta Norrland, and Northern and Western Region are all above national averages. The use of natural resources, mining and mineral processing, oil and gas extraction are key industries. Growing numbers of mega projects in mining, oil and gas is a continuing trend within the area, in particular in Arctic parts of the programme area. Sweden is one of the largest sources of iron ore in Europe and has the world's largest underground iron-ore mine in Kiruna. Fisheries, forestry and chemical production also rank among the top exports in NPA areas.

Primary sector products rely heavily on international demand, which has been an important source of growth in recent years. For example, export firms in the Faroe Islands reported higher than average demand in the period up to 2020.¹¹ However, since January 2020 and the onset of the Covid crisis, a drop in consumer confidence in the primary sector and industry has been recorded, falling from +35 to - 28 in June 2020.¹² **In primary sectors in particular, a decline in revenue** is linked to decreased activity levels due to lockdown, ability to get the necessary work force, and demand and delivery of raw materials.

Over-reliance on single sectors and the vulnerability of primary industries to shifts in global demand and markets means that **economic diversification and resilience are important**. Within traditional and primary sectors there are ways to diversify and expand activities, e.g. through innovation and pursuing higher value-added processes within the area drawing on specialist sectoral knowledge and expertise. The importance of secondary and tertiary sectors across the area reflects this trend towards greater diversification. Manufacture of food products and beverages, construction and public services and education are all key growth sectors, e.g. the service sectors accounts for 65.5 percent of GDP in Iceland.¹³

Figure 2: Employment in the Primary Sector¹⁴



Source: EMODnet

https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/#lang=EN;p=w;bkqd=5;theme=37:0.75;c=-3990382.020629635.8155403.844180195;z=3

Other areas of activity of particular importance for the NPA area are the circular, green and blue economies and new areas of the bio-economy. Employment in new bio-based sectors such as textiles, bioenergy, and the blue economy has grown in many regions. For example, in Ireland the coastal counties of the region have a broad range of opportunities from the diverse marine economy, and given the long coastlines and access to sea, the sector plays also a crucial role in the economies of Iceland, Greenland, the Faroe Islands and the coastal regions of Norway.¹⁵ Similarly, aquaculture has shown steady growth for example in Nordland, Troms and Finnmark in Norway.¹⁶ In addition to fisheries and aquaculture, the Arctic blue economy includes a variety of other activities (e.g. the development of innovative marine industry based on for example algae and bioprospecting) while land-based bio-economy is more prevalent in northern Sweden and northern Finland.¹⁷ At the same time, the proportion of the population employed in traditional sectors, such as agriculture, forestry and fisheries, is decreasing, particularly in Norway and Finland,¹⁸ although many of the traditional activities (e.g. reindeer herding, family/small-scale local resource production) continue to play an important role in the Nordic Arctic areas.¹⁹



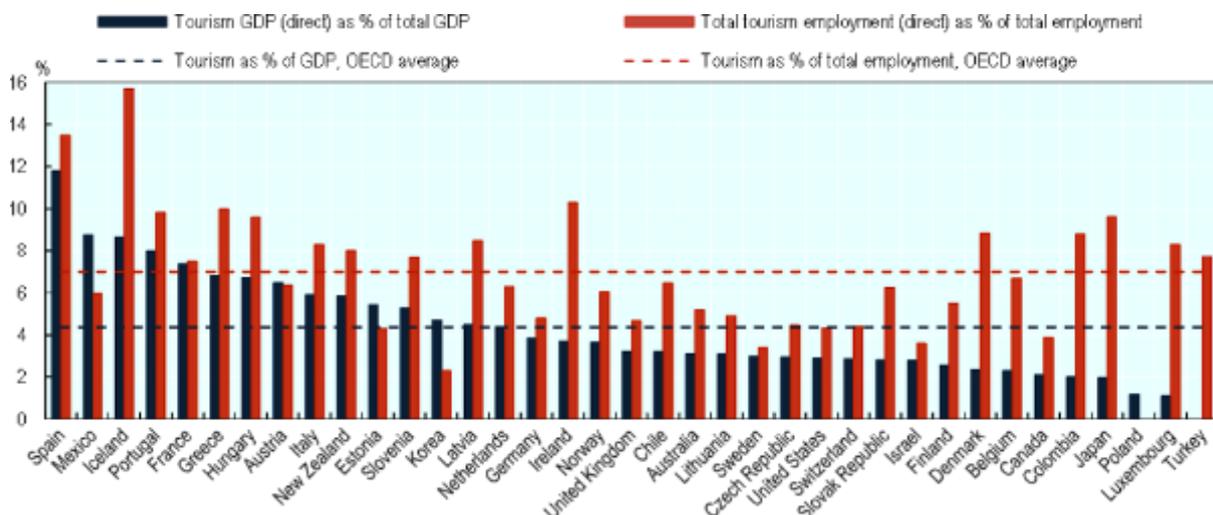
Creative industries are another example of an area of growth. Collectively, the countries of the Nordic Region are amongst the global leaders in creative sectors (such as design and games), processes (such as linking new technology to new content), and activities (such as in developing cultural tourism). Similarly, in Ireland development of the creative industries is identified as a 'key deliverable to diversify our enterprise base ensuring the Irish economy is more resilient and adaptable', with a particular emphasis on connecting people, creativity and well-being.²⁰

As noted in the OECD's 2017 review of Northern Sparsely Populated areas, sparsely-populated peripheral areas can develop areas of advantage in social and economic community development. This can include the presence of natural resources, place- or climate-specific tourism opportunities, and supporting the lifestyle and culture of indigenous people groups.²¹

Tourism is a key sector across the NPA area, having a particularly significant role in the economies of Iceland and Ireland, see Figure 3. Tourism in Iceland contributes 8.6 percent of GDP and travel represents 47.7 percent of total service exports in 2019.²² Winter and summer tourism activities using the unique natural environment of the Arctic area in particular (e.g. the northern lights), but also island and coastal-based opportunities, provide important options for development. How to support small communities in managing high levels of tourist visitors is a possible issue for the future, as despite Covid, domestic tourism has placed some destinations under pressure.

Major economic shocks, such as those linked to the Covid crisis, raise significant challenges for the tourism sector, especially for small businesses. The OECD's Policy Note COVID-19: SME Policy Responses²³ highlights that SMEs may have less resilience and flexibility to cope with the costs that such shocks entail. In addition, this sector is highly fragmented and diverse, covering a wide range of interdependent industries. For example, a crisis in one sub-sector, such as aviation, can have significant follow-on effects on the tourism value chain.

Figure 3: Tourism and percentage of GDP and employment



Source: OECD Policy Responses to Coronavirus (COVID-19, Tourism Policy Responses to the coronavirus (COVID-19), <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/>, accessed 25 July 2020

SMEs and micro enterprises are central to the economies of the NPA area, making up the majority of firms. Improving the local environment for start-ups and innovation is important for entrepreneurship. SMEs can have stronger links into local communities and offer job possibilities attractive to the local labour force and young people/women in particular. Thus, efforts to increase local entrepreneurship have the potential to reduce youth/women outmigration and provide an opportunity to return for those who leave for higher skills' training.

Looking to the future, for both established sectors and new areas of activity, SMEs and larger companies, **innovation capacity is key.** Innovative firms offering new products and processes also have a potentially vital role for the local economy in expanding market opportunities, increasing the competitiveness of other local suppliers, and providing a model for encouraging wider innovation among local firms and entrepreneurs. A key aspect of emerging strength in the area is the increasing use of digitalisation, innovative solutions and partnerships between private and community sectors that continue to be necessary to deliver high quality services to remote communities. In addition, new forms of economic activity in areas such as niche manufacturing and food production are necessary for ongoing sustainable growth. The growing focus on the circular economy requires new solutions and innovations to transform production processes and change consumer behaviour, for example in waste prevention, recycling and the sharing economy.²⁴ Across the NPA area, there are important opportunities for knowledge transfer, skills development, and cooperation in this area to inform new thinking, introduce new methods of operation/disruptive technologies, support emerging sectors, and boost productivity.²⁵

Valuable regional innovation and R&D centres exist in the NPA area, see Annex 5. The European innovation scoreboard ranks all countries within the NPA region as either 'Strong' or 'Leading' innovators. However, within countries there can be large regional disparities. Some regions and regional centres have high levels of innovation, R&D and knowledge intensive jobs often linked to the presence of universities or research centres and the use of high-tech solutions to diversify traditional primary industries, e.g. the Arctic University of Norway. However, other regions face challenges linked to: the long distance to research-intensive environments; a lack of venture capital for very sparsely-populated areas; and the fragility of the innovation system, often relying on individuals rather than organisations and a corresponding lack of capacity within SMEs and micro businesses. These and other challenges present an opportunity to create new complementary cooperation partnerships, not least to gain the critical mass of actors and competences to strengthen the innovation potential.²⁶



2.2



Green development and the environment

- The area has diverse, unique environment and abundant environmental and natural resources such as forests, fish, metals, minerals, oil and renewable energy resources.
- A range of environmental challenges linked to the exploitation of natural resources, environmental protection and climate change.
- Combatting climate change and climate change adaptation/resilience are major challenges for the area and have driven innovation, capacity and leadership in 'Green technologies'.
- The region already has substantial renewable energy generation and expertise in the sector.
- Networks which facilitate environmental monitoring and strategic analysis are well developed.
- Territorial cooperation can contribute to an enhanced understanding of climate change and environmental challenges in varying natural contexts.

The NPA area is both particularly susceptible to the impact of environmental damage and climate change, especially in the Arctic regions, and an area with huge potential for green development and renewable energy resources. **The programme area has abundant environmental and natural resources** such as forests, marine resources and fish, metals, minerals, oil and renewable energy resources. The area has diverse, unique environments, ranging from Arctic, boreal forest to coastal maritime territories. Natural resources form an important basis for the economies of the area, e.g. forestry, fishing, mineral extraction. This tradition and the opening of new mining megaprojects (especially in the Arctic parts of the programme area) highlight the ongoing and evolving challenge of how to balance sustainable economic development, environmental management and the needs of local communities.

The NPA region faces a range of environmental challenges linked to the exploitation of natural resources, environmental protection, and climate change. The impacts of climate change are diverse and wide-ranging, including loss of biodiversity, increased river levels due to higher rates of rainfall, smaller and less glaciated areas, fewer areas with permafrost, and more extreme weather events threatening coastal communities, see Annex 6. Climate change affects the whole territory, but regions within the area also face specific challenges. For example, the Arctic NPA area is particularly sensitive to climate change because of ice-albedo feedback and the vulnerability of its ecosystem - temperatures have increased at almost twice the global average rate over the past century.²⁷

Combatting climate change and climate change adaptation/resilience are major challenges for the area. Climate change is already a common focus in bilateral and multilateral programmes and networks across the area (e.g. Working Groups in the Arctic Council) and

each NPA country has set ambitious goals toward cutting carbon emissions. This commitment has driven **innovation, capacity, and leadership in 'Green technologies and solutions'** and with respect to carbon neutrality and environmental aspects. Achieving these goals will rely heavily on innovation in the industrial, transport and building sectors, as well as efforts towards behaviour change, particularly with respect to consumption patterns.²⁸ For example, actions to support remote working, more energy efficient buildings, developing eco-products, Cleantech, boosting the circular economy, addressing efficiencies in supply chains, recycling and waste reduction (especially food waste) will all have a role.

For some areas, particularly in the Arctic, a major challenge will be to enable sustainable development and to safeguard the environment against the impacts of transport and primary resource extraction. The reduction in summer ice cover will open up new Arctic shipping routes, but increased maritime traffic will place greater environmental pressure on marine and coastal environments (for example, through black carbon diesel engine emissions). Onshore and offshore primary resource extraction (hydrocarbons and mining) is also expected to intensify. Climate change is a major factor in considering the development of infrastructure in northern sparsely-populated areas. Infrastructure will need to be adapted to the effects of warming climate on sea ice, more frequent storms, and coastal erosion.

Territorial cooperation can contribute to an enhanced understanding of climate change and environmental challenges in varying natural contexts and support environmental monitoring and strategic analysis. Regional authorities and organisations continually develop knowledge and experience through the implementation of projects, research and evaluation in place-specific natural and ecological settings (such as maritime, coastal, tundra, and upland/mountainous environments). However, opportunities to transfer findings to ecologically similar but spatially distant locales are not always maximised. Inter-regional networks are a potentially strong mechanism for achieving this.

The NPA region already has **substantial renewable energy generation and expertise in the sector**, e.g. hydro in Norway and Sweden, biomass in Finland, geothermal in Iceland²⁹, and the increased use of wind energy in Ireland.³⁰ About two thirds of the electricity consumption in the Nordic region derives from renewable energy sources, with the figure in Iceland and Norway close to 100 percent. As a result, electricity's carbon intensity is below 60 CO₂/kWh compared to a global average of around 500.³¹

There is potential in the NPA area for 'niche'³² alternative energy source development and addressing the specific needs of remote and peripheral territories. However, this is an area which is already well developed. For example, decarbonising island energy systems is an area of ongoing work. Island communities have traditionally relied on diesel generators or imported energy. The Faroe Islands are working to use local energy resources in a smart and zero-emission energy system using wind, hydro, solar, tidal, pumped storage, and batteries.³³ Greenland aims to achieve 100 percent renewable heat and power supply for its 55,000 residents by 2024, primarily by tapping its significant hydropower potential.³⁴



Another example is solar photovoltaic energy which is not currently widely used in the Arctic but high latitude regions can receive significant amounts of sunlight and this particular source has strong future growth potential. Nordic Energy Research has already supported a collaborative research and feasibility study relating to solar PV through the project 'Solar Power Plants in the North'.³⁵ Other niche generation sources include biomass, micro-scale wind turbines and combined heat and power systems. Many are well suited to community-level use (energy generation, but also the distribution, trading and management of energy). **Distributed generation solutions³⁶ can be relevant in the peripheral regions** (e.g. islands and other remote areas). Communities not connected to national electricity grids may rely upon distributed generation (i.e. the production of electricity from numerous microgeneration sources). Renewable sources have development potential in this context. Community-based energy generation can also contribute to regional economic development and can have associated social and political benefits, such as strengthening local engagement and social capital. Cooperation and financial support can be important contributors to the viability of this type of energy source development.

The efficient use of energy through low-carbon technology and sustainable use, including the conservation of thermal energy, is an extremely important factor in the NPA environment. There is potential for closer regional energy collaboration in areas such as community microgeneration, mainstreaming energy efficient construction practices and promoting energy-efficient technologies. There is also a need to adapt and respond to large scale changes - particularly more intensive hydrocarbon resource extraction. Though territorial cooperation programmes do not aim to directly influence large scale generation, they are a mechanism for addressing the regional and local dimensions of associated challenges. **NPA regions are already home to clusters of localised area specific expertise and there is potential to develop innovative energy efficiency solutions.** There are already well-established eco-innovation strengths in some regions (for example, Sweden and Finland rank highly in the eco-innovation scoreboards³⁷). Territorial cooperation can support new and innovative efficiency solutions through the pooling of knowledge and R&D resources. The uptake of innovative energy efficiency solutions is also important, e.g. through energy efficiency mechanisms which can be mainstreamed through cooperative agreements and knowledge transferred to other regions.

2.3

Connectivity and networks



- The geographical and climatic conditions of the NPA present particular challenges for both transport and digital connectivity including:
 - Economic development in peripheral regions, which are distanced from major markets, is strongly correlated with good transport infrastructure.
 - Digitalisation has enormous potential (accentuated during Covid-19) to overcome some of the specific challenges facing NPA areas, offering the possibility to overcome the barriers of distance and open up new service provision and employment opportunities in e-education, e-health and e-business, as well as fostering greener development.

The geographic and climatic conditions of the NPA present particular challenges for both transport and digital connectivity including: huge distances between settlements and to nearest regional and national urban centres; and difficult topography and climatic conditions which increase the logistical feasibility, financial and time cost and potential environmental impact of physical infrastructure links.

Sustainable regional development across the area is reliant on good transport and logistics infrastructure. Economic development in peripheral regions that are distanced from major markets is strongly correlated with good transport infrastructure that provides the means for the exchange of physical goods and products, labour mobility, access to services and educational interaction.³⁸ Good infrastructure provision is also necessary as a factor in population retention as well as the development of industries with growth potential such as tourism. Though the TEN-T network provides access throughout the core of Europe, it does not yet cover much of the region.³⁹

The development and maintenance of transport links and infrastructure is challenging across the area. Physical barriers are a major challenge. At its most extreme in Greenland, all towns and settlements are located along the coastline and no roads exist between towns, and all travel is by ship and aircraft only.⁴⁰ Environmental and climatic conditions mean that transport infrastructure can be subject to high rates of fatigue and attrition. In addition, climate change has a significant impact on regional transport. Reduced sea ice cover is expected to make trans-Arctic shipping routes more easily navigable (for example, the Northern Sea Route). Climate change also affects terrestrial infrastructure. For example, predicted reductions in permafrost due to climate change will make some roads in certain regions more vulnerable to subsidence. More extreme weather conditions impact on key routes to remote communities.

Transport networks and infrastructure, therefore, are potentially on the cusp of significant change linked to the opening up of new sea routes, wider impacts of climate change, and major economic developments in the region. Territorial cooperation through smaller scale

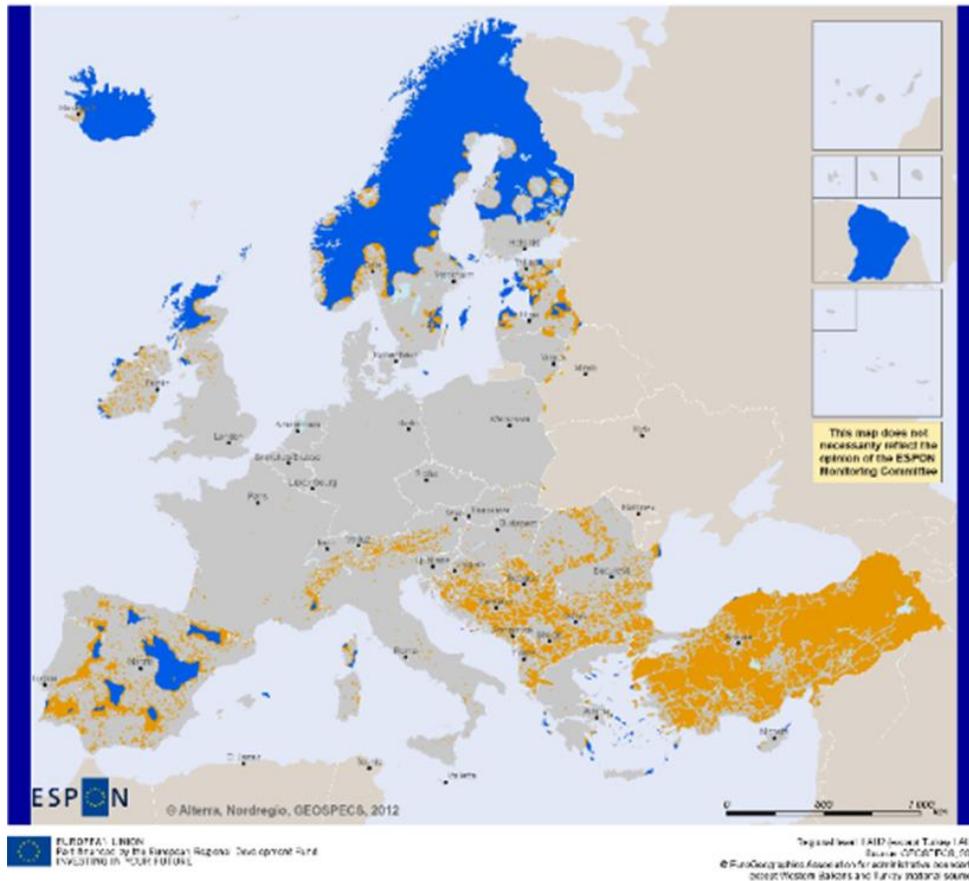


projects such as Interreg can inform new and innovative approaches to regional transport and logistics, e.g. by mobilising and using existing knowledge. Inter-regional transport networks benefit from close relations between regions, particularly those which are hubs in multi-modal networks. Multi-modal networks (i.e. in which goods or passengers move between destinations via two or more different modes of interconnecting transport) enable economic efficiency savings by maximising the advantages of each transit mechanism.

Countries with large distances and low population densities require more resources to extend digital coverage. Commitment in national, and regional, digitalisation strategies in NPA countries over the last decade have helped improve coverage. The average figure for household access to high capacity fixed broadband, for example, was 63 percent in 2016 for Nordic municipalities, although municipalities with figures between 30-60 percent of households were mainly found in rural Norway and Finland and northern Sweden⁴¹, see also Annex 7. Differences in access at local level can be related to the extent to which local authorities have championed access, promoted 'own attractiveness', or there has been participation in national strategies and associated available State Aid support.

Digitalisation is vital for the social, economic and environmental development of NPA regions but geographical remoteness presents particular challenges for infrastructure provision and supply. Digitalisation has enormous potential to overcome some of the specific challenges facing NPA areas, offering the potential to overcome the barriers of distance and open up new service provision and employment opportunities in e-education, e-health and e-business. Place-based development opportunities can also be exploited more effectively when remote communities can be digitally connected, see Figure 5. Barriers to progress in digitalisation in many peripheral areas include: the higher infrastructure costs of bringing new technologies over longer distances to smaller areas of population; urban-led technology development taking less account of the needs of remote areas; and lack of skills and knowledge to fully exploit new technology opportunities. Nevertheless, digitalisation has been a priority for many NPA regions and there are many policy initiatives supporting effective provision and use of new digital technologies, increasingly amplified by the Covid-19 circumstances.

Figure 4: Sparse population and poor connections



Areas with low population potentials
(Population potentials for areas below 100 000 inhabitants and 50 km and 45 min delineations)

- Poorly connected
(According to the 45 min delineation)
- Sparsely populated
(According to the 50 km and 45 min delineations)

Source: <http://mapfinder.espon.eu/?p=1282>

Figure 5: Opportunities of digitalisation in remote and peripheral areas

| | | | |
|--|---|---|--|
| <ul style="list-style-type: none"> • Stronger links with urban hubs and international markets <p>Overcome geographic isolation</p>  | <ul style="list-style-type: none"> • Online services to diversify and to develop new innovative services / products <p>Diversify businesses</p>  | <ul style="list-style-type: none"> • Expansion of local business into new markets (national, global) <p>Improve competitiveness</p>  | <ul style="list-style-type: none"> • Access to high-quality mobile & broadband likely to attract young people to stay & develop knowledge-intensive businesses <p>Reduce out-migration & brain drain</p>  |
|--|---|---|--|

Source: Adapted from Nordregio (2017) *Inclusive Digitalization in the Baltic Sea Region, An Instrument for Growth and Development in Declining Rural Areas, Nordregio Policy Brief 4.*



2.4



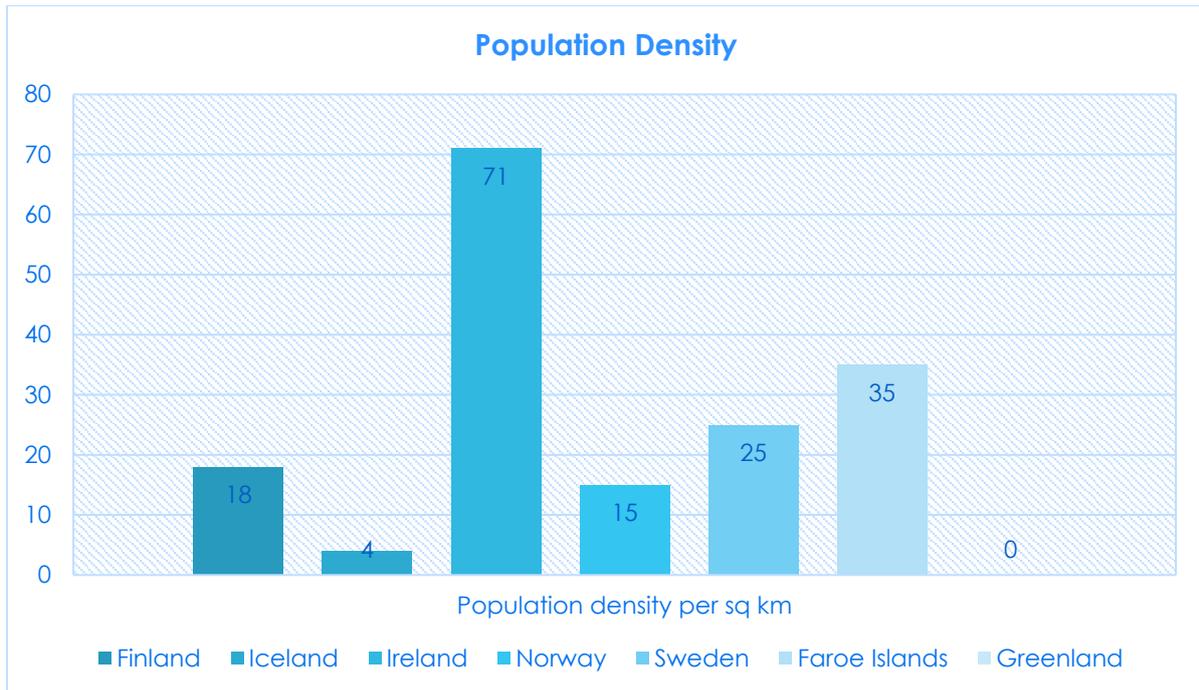
Communities and people

- Sparse population is a defining characteristic of the NPA area.
- A wide variety of cultures, with their own distinctive cultural identity and a range of minority languages.
- Ageing populations and the outmigration of young adults (particularly women)⁴² are longstanding development concerns.
- Impacts of migration on access to key skills and competencies
- Regional well-being figures show NPA regions rate highly in indicators.
- The tertiary educational attainment among people aged 30-34 years is generally high in the NPA countries, although with notable regional variations.
- In terms of employment, rates are generally high, but these have fallen as a result of the Covid crisis.
- Research into new and emerging industries finds attracting skilled people a key challenge, particularly outside of towns.
- High quality living environments are important aspects in encouraging inward migration to the sparsely populated and peripheral areas, as well as economic diversification and the presence of competitive job opportunities.

The population growth is rather modest across the programme partner countries (although varies between the regions)⁴³ but sparse population is a defining characteristic of the NPA area and is linked to dispersed settlement structures, physical barriers and regional centres which have higher concentration of population, see Figure 6. All countries have population densities far below the EU average of 117 people per km², a pattern which is amplified even further at regional level. The northern sparsely-populated areas of Norway, Sweden and Finland have five people for every square kilometre, with a total of 2.6 million people in an area of 532 000 square kilometres, comparable to the population of Rome inhabiting the entire area of Spain.⁴⁴

Another characteristic of the population is the rich, unique cultural heritage. The programme area hosts a wide variety of cultures with their own distinctive cultural identity and a range of minority languages, e.g. Sami in Norway, Sweden, Finland and Russia; Gaelic in the Gaeltacht counties in Ireland. Within the NPA Programme area, there are also two indigenous groups, Inuit in Greenland and Sami in Norway, Sweden, Finland and also in Russia. The total Sami population is estimated at approx. 80,000, of whom around half live in Norway.⁴⁵ Approximately 89 percent of Greenland's population of 57,695 is Greenlandic Inuit.

Figure 6: Population Density per sq km. (2018)



Source: Eurostat <https://ec.europa.eu/eurostat/databrowser/view/tps00003/default/table?lang=en>

In terms of the overall population of the programme area, **ageing populations and the outmigration of young adults (particularly women)⁴⁶ are longstanding development concerns**, particularly in the smaller settlements, see Annex 8 and 9. By 2030, large parts northern and eastern Finland, for example, are expected to have populations where more than half of the population aged over 15 is more than 65 years old.⁴⁷ Smaller urban and rural municipalities have witnessed increases in old age dependency ratios.⁴⁸ It is not uncommon for 40–60 percent of their young people to move away and this is the case in many communities of the NPA programme area such as e.g. in Lappi, Pohjois-Pohjanmaa, Pohjois-Karjala, Pohjois-Savo, Etelä-Savo, Kainuu, Keski-Suomi in Finland.⁴⁹ In particular, small inland municipalities with already small populations have seen decline⁵⁰ and here migratory movements that would be negligible in other contexts can have a major impact.⁵¹ For example, the loss of people with key competencies, such as doctors, can significantly affect a local community. At the same time, an inflow of just a few individuals or families with the right qualifications can trigger a positive development dynamic.⁵²

Despite this overall trend there are regional variations. Some municipalities with larger urban functional areas, including in northern territories, have seen population increase.⁵³ For example in Norway, the towns of Bodø, Tromsø and Alta have a strong public sector and universities which have contributed to attracting young people and skilled labour.⁵⁴ Tromsø and Alta have also some of the lower prospective old-age dependency ratios.⁵⁵ This suggests that in the NPA context, small and medium sized cities have an important role for regional development, both as a counter to the focus on cities and for connections, growth stimuli and links to the surrounding areas.



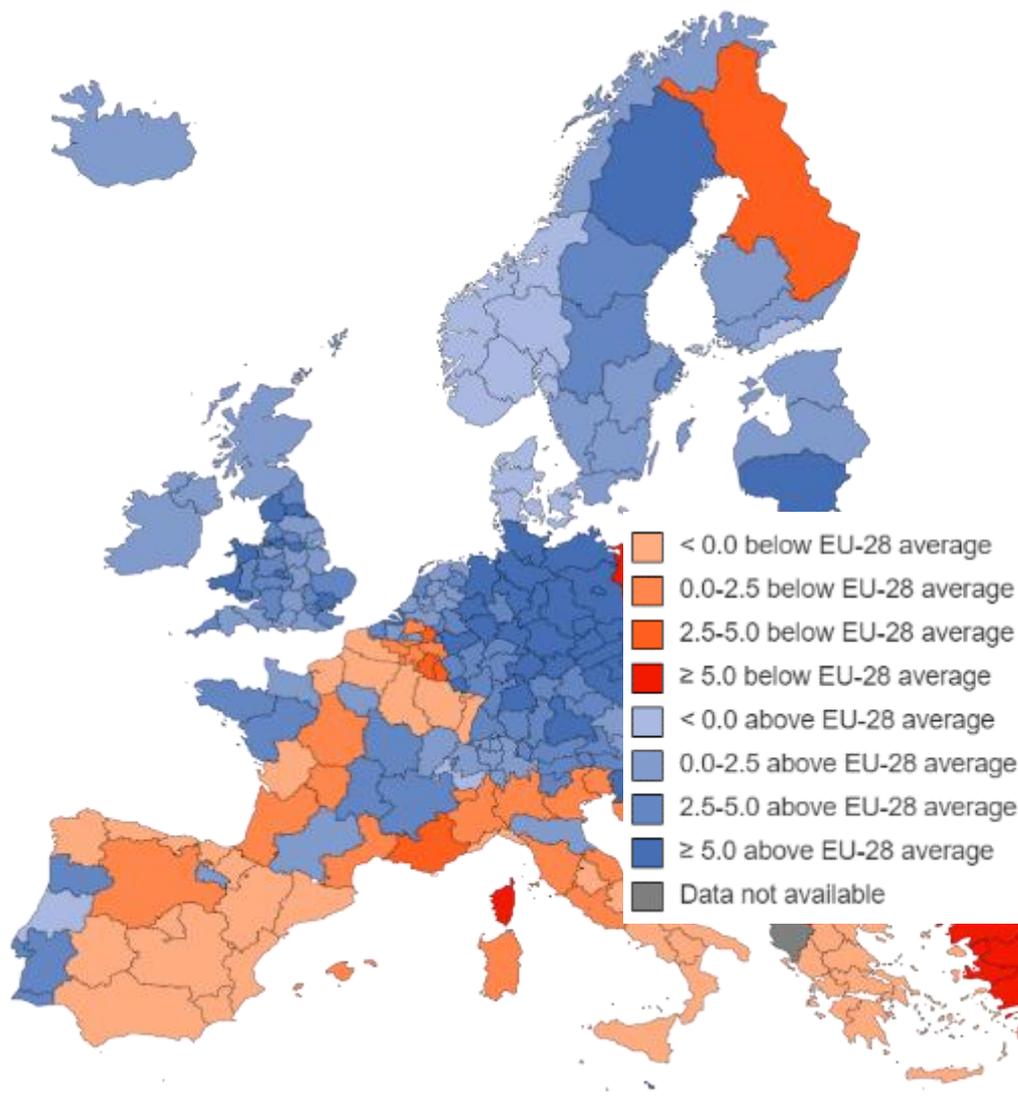
High old age dependency ratios are widely viewed as a development challenge, due to pressure on public services and lower levels of working populations. However, **aging populations also present opportunities for promoting health and well-being** into older age groups and more age-friendly living environments through adapting housing, public transport and urban structures to suit people of different ages and abilities.⁵⁶ More generally, it is important to take a broader view of development opportunities and strengths, e.g. **the impact of place on quality of life and encouraging people to stay/move to an area.**

Countries in the programme area have been at the forefront of activity to promote early adaptation and approaches to addressing equality, sustainability and diversity and inclusion and rate highly in terms of regional well-being. This is particularly important as community resilience and well-being is increasingly viewed as key to managing economic crisis and is an area where the programme area is strong. The OECD use an indicator for regional well-being based on measures of income, jobs, housing, health, access to services, environment, education, safety, civic engagement and governance, community, and life satisfaction. These figures show NPA regions rate highly in key well-being indicators.⁵⁷ For example, on a scale of 1-10, there are high levels of perceived social network support with figures of 9.7 in Border, Midland, and Western region of Ireland, 9.8 in Trøndelag in Norway and 9.5 in Iceland. Life satisfaction levels are similarly high scoring 8.9 in Pohjois- ja Itä-Suomi in Finland and 9.6 in Trøndelag in Norway. For quality of the environment, Mellersta Norrland in Sweden has a score of 9.3, Iceland 10, and BMW in Ireland 8.7. However, lower rates are noted in relation to earnings and job opportunities.

Employment rates are generally high, e.g. with Iceland at 86.1 percent and Norway at 74 percent, compared to the EU average of 67.7 percent⁵⁸, see Figure 7. However, linked to Covid, employment levels are falling, e.g. in Finland, employment rate is set to decline from 72.9 percent (2019) to below 71 percent in the course of 2020.⁵⁹ Unemployment levels are lower than the EU average, for example, 2.8 per cent in Iceland and 4.2 per cent in Norway, compared to an EU average of 7.6 percent in 2017.⁶⁰ However, for 2020 levels are expected to rise, e.g. to 8.5 percent in Finland⁶¹, and 9.2 percent in Iceland.⁶²

Large firms and local governments have a disproportionately large share of jobs, often focused on public service provision. The NPA areas have a large proportion of public-sector jobs (32 percent of the total employment in the Northern Sparsely populated areas in Sweden, 28 percent in Finland and 35 percent in Norway).⁶³ Large private sector firms are often part of multi-national companies which can bring benefits to a community but tend to be poorly linked into the overall well-being of the region. **Research into new and emerging industries consistently finds that attracting skilled people is a key challenge, particularly outside of cities and towns.** Local unemployment is often weighted towards low skilled or unskilled workers and there can be a mismatch to jobs available, particularly in more innovative or larger investment enterprises.

Figure 7: Employment Rates



Source: Eurostat (Employment rate, 2018 (% people aged 20-64 years in employment as a share of all people aged 20-64 years; percentage points, change of this share between 2008 and 2018; by NUTS 2 regions) EU-28: 2018 = 73.1 %

The **tertiary educational attainment among people aged 30-34 years is generally high** in the NPA countries, e.g. covering more than half of this sub-population in Sweden and Ireland.⁶⁴ However, rates tend to be lower in sparsely populated regions, see Annex 11. Larger cities (e.g. Umeå, Oulu and Tromsø), which are usually the centres of local labour market areas, have an important role to play in the functioning of the labour market, as the centres for education, but also more widely in regional development and relating to the specific opportunities in the Arctic. In more remote areas, labour markets are more restricted, they have limited opportunities for further education, and service provision is fragile.⁶⁵

Economic diversification and the presence of competitive job opportunities and high quality living environments are important aspects in encouraging inward migration to the sparsely



populated and peripheral areas. In order to attract people to remain or come to the area, a combination of sustainable and attractive living environments (also for families), robust communities and good job opportunities need to be in place. There has been an increase in the foreign-born population in many areas, but there is still a strong trend towards migrants remaining in urban centres. However, the **potential for migrants to offset negative demographic trends** in sparsely populated and rural areas is increasingly recognised and reflected in policy settings.⁶⁶

Linked to building attractive, inclusive communities, cooperation and innovative approaches to the provision of public services is an important area of future growth. The provision of public services in the NPA area is particularly challenging given the increasing demand of an ageing population, the unit cost of service provision to small populations over large distances and the skills gap in the shift to more e-based solutions. The physical remoteness and distances between settlements in the sparsely populated NPA regions increases the importance of developing innovative methods of delivery for health and social care services. Equally important is the need for information exchange, knowledge transfer networks, building on cooperation with players in other territories and across large distances through services such as e-commerce or e-governance. Local authorities in peripheral areas have the potential to form collective functional areas to share services and knowhow in many aspects of e-based service provision.

The wider relevance of this expertise is highlighted by the Covid crisis. The experience of the pandemic has been very different in many of the peripheral and remote areas that make up the NPA region in comparison to urban settings. Infection rates have generally been lower and the area is in a strong position to adapt/respond due to, for example, the expertise in e-services, maximising the role of local producers, distance working, and supporting the needs of vulnerable groups where physical contact may not be possible.

Building resilience in the face of ongoing social, environmental, economic and political transformations is a concern for all communities. Issues of particular concern, such as contaminants, land use, climate, security, access in the form of rights to land and sea, and service provision, all pose challenges to NPA communities. In particular, changes in lifestyles and increased connectivity across the Arctic communities have led to cultural transformations, including alterations in family structure, values and cultural forms of expression.⁶⁷ This is particularly relevant for indigenous groups, which have specific connections to the land they inhabit as well as distinct languages, cultures and traditional livelihoods such as reindeer herding, fishing and hunting.^{68,69} There is potential to increase the inclusion of Sami peoples and representative bodies, for example, in regional decision-making and planning as well as in tourism, food production and natural resource management operations. There may also be opportunities for linking initiatives targeted at the indigenous groups and communities more generally in the Arctic regions.

3 COOPERATION IN THE NORTHERN PERIPHERY: LESSONS, LEGACY AND COLLABORATION



- The 2014-2020 Programme has a good track record of effective and efficient programme management and implementation.
- The Programme is in a position where it adds a recognised 'regional development level' to EU Arctic Policy and, in so doing, reinforces and strengthens wider NPA activities, objectives and areas.
- The programme can continue to build its expertise in working with areas outside the programme area, particularly working to retain links with Scotland and Northern Ireland.

The NPA area benefits from well established networks of territorially-based cooperation and collaboration. As a result, across the programme area there is valuable expertise, capacity and skills in collaborative and joint working, drawing on wider networks of Nordic, Arctic, Atlantic and cross-border cooperation. The NPA itself has an extensive, twenty year, experience, with **a good track record of effective and efficient programme management and implementation** and delivering robust results to the benefit of the area.⁷⁰ These points are all covered in a greater detail in an accompanying paper on the Programme's policy context.

Looking to the future, given the complex array of existing cooperation arrangements in the area, the Programme can continue to play a significant role supporting cross programme working as well as widening and deepening cooperation within the programme area. **For the NPA, neighbourhood relations are of major developmental and programme significance.**

- **Arctic** – the programme has a role in promoting cooperation and collaboration between Arctic Interreg programmes, participates in Arctic fora, and delivers interventions with relevance to the Arctic and the wider northern periphery neighbourhood (see also Policy context paper). **The Arctic connections have also greatly facilitated many of the programme's productive links with partners Interreg programmes.**
- **Expertise in external relations** - The NPA has been able to build considerable expertise and experience in working in a range of ways and at a range of levels with non-EU Member States and territories.
- **Brexit** - The NPA's reliable and pragmatic approach to cooperation along external EU borders, and the strength of relations with Northern Ireland and Scotland, mean that the programme is well placed to take initiatives to maximise opportunities to work with partners in Scotland and Northern Ireland in the future.



4 CONCLUSIONS



- NPA regions have a shared purpose and common development concerns/opportunities.
- Building resilience and capacity to respond to change will be especially relevant for the 2021-2027 period.
- Green development and supporting innovation are key areas of intervention for the programme to build upon.
- The specific development context of the NPA means that a social/community dimension is critical, e.g. to build sustainable, resilient communities, access local knowhow/capacity, and maintain populations.

The Programme area is vast, but the participating regions have a shared purpose and common development concerns/opportunities. Key differentiating factors of the NPA area include harsh climate, strong natural resource endowment and potential for renewable energy, sparse population, long distances between settlements and from markets, a high cost of transport and maintaining sustainable, and resilient communities. Looking to build resilience and capacity to respond to change will be especially relevant for the 2021-27 period. In addition to the well-recognised uncertainties and challenges posed by climate change and economic shifts, uncertainties over Brexit (its impacts on the programme area and the programme itself), and the Covid crisis will be issues that the programme and programme area will have to respond to on an ongoing basis. Nevertheless, it is possible to identify strengths and weaknesses for development in the area. The scale and extent to which these issues can be addressed will depend on the Programme budget, with large-scale interventions unlikely to be realistic. It is also important to consider the activities in which future cooperation could add value.

The issues outlined in Table 1 fall across a wide range of themes. It is important to note that some issues have a dual aspect – having both positive and negative connotations for development in the area. However, taking into account the Programme's scale/funding, previous strengths, and complementarity with other programmes, clusters of joint challenges and need are apparent where transnational cooperation can add value.

Table 1: Opportunities and challenges in the NPA area

| | |
|--|--|
| <p>Strengths</p> <p><u>Economy</u></p> <ul style="list-style-type: none"> • Increasingly diverse business sector • High proportion of diverse SMEs (local entrepreneurship and economic diversification) • Sectoral expertise and specialist knowledge • Expertise in green/sustainable growth sectors, e.g. bioeconomy • Labour market assets, e.g. demand for skilled workforce • Good ICT provision and e-services in many areas • Strong regional centres • Robust governance and welfare systems • Arctic and cold climate expertise <p><u>Environment</u></p> <ul style="list-style-type: none"> • Abundant natural resources • Unspoilt natural resources (terrestrial, marine and freshwater) • Large protected areas • Rich biodiversity • Strong community and cultural links and heritage • Expertise in environmental monitoring and protection • Expertise in green economy and low carbon <p><u>Social</u></p> <ul style="list-style-type: none"> • High employment levels and low unemployment compared to EU averages • High levels of skills and education • High quality of life and well-being • Strong commitment to equality and inclusion • Education or cultural hubs to attract young people • Some areas experiencing population increases/greater stability • Commitment to Arctic/wider northern periphery links • Administrative capacity and experience of cooperation in the programme and programme area | <p>Weaknesses</p> <p><u>Economy</u></p> <ul style="list-style-type: none"> • Weak connection/access to R&D centres • Sparse population (weak customer base) • Lack of connectivity to major centres and across the area • Fragile local economies, high dependence on single sectors and small internal markets • Dependence on SMES and micro enterprises (challenges of critical mass, access to markets and capacity to innovate and adapt, access to capital) • Globalisation and increased exposure to major international shifts in trade, transport and markets • Uncertainties linked to Covid, Brexit, pace of climate change and international relations in the area • Infrastructure deficits <p><u>Environment</u></p> <ul style="list-style-type: none"> • High impact of climate and environmental change • Habitat loss and fragmentation • Pressure and pollution in marine and freshwater ecosystems • Peripherality and accessibility • High per capita greenhouse gas emissions • High transport costs and service delivery • Potential for increased renewables production and greater energy efficiency • Challenges of waste management and developing circular economy in relate areas • Pressure of tourism on sensitive environments <p><u>Social</u></p> <ul style="list-style-type: none"> • Depopulation and aging populations • Youth out migration (especially high for women) • Small labour markets • Pressures and challenges in service provision, e.g. provision if health and mental health services • High dependence on public sector employment • Disruption of links to cooperation partners in Scotland and Northern Ireland • Skills shortages in some areas, lack of just for skilled workers in others • Seasonality of some employment • Inclusion of international/migrant workers/students |
| <p>Opportunities</p> <p><u>Economy</u></p> <ul style="list-style-type: none"> • Innovation in key sectors particularly in green economy and low carbon • Expertise in renewable and alternative energy, particularly adapted to needs of peripheral communities. • Building cooperation to enhance specialised service provision in peripheries • New approaches to tourism (e.g. development and management of sustainable tourism in small communities) • Potential for technology solutions to help overcome peripherality • Develop regional sharing platforms to reach critical mass through cooperation (circular economy) | <p>Threats</p> <p><u>Economy</u></p> <ul style="list-style-type: none"> • Slow economic recovery from Covid crisis • Weak international demand for key goods • Declining employment in traditional sectors • Further economic instability, pressures linked to globalisation • Loss of transport linkages and worse accessibility due to downturn in travel aviation industry and travel restrictions • Pressure on tourist industry • Lack of capacity, especially in SMEs, to adapt to economic change/shocks • Accessibility issues, e.g. if air traffic reduced |



| | |
|---|---|
| <ul style="list-style-type: none"> • Skills and knowledge in remote working and digital solutions <p><u>Environment</u></p> <ul style="list-style-type: none"> • Sustainable management of abundant natural resources • Pursue sensitive niche solutions to address needs in high North environments • Development of the circular economy • Green Economy and responses to climate change • Supporting local adaptation measures to economic shifts linked to climate change – building resilience • Sustainable green tourism • High level of environmental awareness in the populations <p><u>Social</u></p> <ul style="list-style-type: none"> • Sharing and developing knowhow in remote service provision and remote working • Building balanced communities, reducing youth/female out migration • Scope to build external links with NPA neighbourhood • Services and engagement with elderly • Cooperation enhances specialised services • Openness to cooperation | <p><u>Environment</u></p> <ul style="list-style-type: none"> • Environmental pressures from pollution in marine and terrestrial ecosystems • Risks linked to climate change • Pressure on physical environment linked to exploitation of resources • Stresses/tensions in the area affecting capacity to collaborate on common/shared environmental challenges • Weak engagement with local communities <p><u>Social</u></p> <ul style="list-style-type: none"> • Pressure on services • Demographic challenges - ageing and migration • Continued brain drain, age dependency ratios • Challenge of balancing global interest in the region with local (incl. indigenous) needs and interests • Loss of traditional/indigenous livelihoods • Managing cohesion in communities experiencing rapid change and migration • Lack of 'voice' for local communities affected by major international shifts, e.g. Brexit and Arctic relations. • Pressures on local and indigenous population. Loss of traditional and indigenous cultures and identities. |
|---|---|

'Green development' is a broad theme that cuts across these issues discussed and should be a pillar for future development in the Programme area, but this need not be at the expense of other development needs. It is an issue where there is vast potential and need for cooperation, especially as areas respond to changing and challenging economic conditions. However, it is also worth considering that in some areas, e.g. renewable energy and environmental protection there is already vast expertise, and capacity across the area and more specialist innovative approaches to building green and resilient territories could be more appropriate.

There is particular potential to maximise the territorial strengths of the region in **'innovation'** within, for example, circular economy, green economy/low-carbon development, the take up, application and adaptation of green technologies, and responses to climate change. The impacts of Covid are also forcing changes in the way people are working (i.e. increase in remote working, which has consequently advanced digitalisation), and day-to-day links across borders, and the NPA has scope to build on and share its expertise in remote working, access to e-services, and addressing issues around isolation and inclusion.

These interventions can **'support communities'** and populations in remote and peripheral areas to build critical mass, access and share resources necessary to engage with the significant development challenges across the area, as well as build resilience, capacity and skills to respond to crises and change linked to, among others, climate change and Covid (e.g. the Covid crisis has affected the rural economies, such as rural tourism, but these areas can also be perceived to be safer areas to visit). Interventions could, for example: use new and innovative e-solutions; develop greener/sustainable public services; support changing

patterns in consumption/disruptive technologies; and work in ways that support and engage with local communities, local enterprises, particularly SMEs, to develop 'green' solutions that address demographic and social challenges faced by these areas, e.g. demographic aging and the retention of young people/women.

Working transnationally is key to enabling NPA communities to act and support their own development and brings an important **social inclusion/'people orientation'** to the programme including:

- demonstrating and enabling ways for local stakeholders and communities to take a role in addressing large scale/transnational issues such as marine plastic pollution;
- building critical mass and access to expertise;
- taking local solutions and up-scaling to a transnational scale; and
- allowing niche, place-specific activities to connect across wider, transnational spaces.

The Programme's Arctic dimension could be seen as an 'exclusionary' element, with non-Arctic territories less able to directly engage and identify with this aspect of the Programme. However, the **connections between Arctic territories and 'near-neighbours' is a strength in the programme, and directly addresses issues linked to critical mass and the wider relevance of developments in and around the Arctic.** Thus, the programme geography and transnational dimension helps to foster cooperation and increase outward linkages, encourage cooperation to create critical mass in areas of very sparse population, and use exchange of experience to encourage community and local growth in situ across NPA area as a whole.

The Programme can continue to play a significant role supporting cross programme working. This work is highly valuable and widely supported and could be expanded/continued, e.g. *"...there is scope to examine how to maximise synergies and complementarities between different EU funded cross-border collaborations, particularly those supported by the ERDF"*⁷¹. **The 'soft cooperation' approach taken by the Programme, and reinforced by the European Commission's Communication on Arctic Cooperation, has proved to be a sensitive, productive and proactive way forward.** This expertise and experience can also be extended to retaining and developing links with the Programme's wider neighbourhood, in particular Scotland and Northern Ireland, should they not be in a position to formally participate.



Notes

- ¹ Eurostat (2020) <https://ec.europa.eu/eurostat/cache/RCI/#?vis=nuts2.transport&lang=en>
- ² Teräs J, Nygård V, Myhr S and Karlstad S (2020) Kunnskapsgrunnlag/områdeanalyse, Nordland, Troms og Finnmark, Sapmi, 31 October 2020 (based on NORCE, Statistics Norway)
- ³ Statistics Greenland (2018) Greenland in figures <http://www.stat.gl/publ/da/GF/2018/pdf/Greenland%20in%20Figures%202018.pdf>
- ⁴ Eurostat https://ec.europa.eu/eurostat/statistics-explained/index.php/GDP_per_capita,_consumption_per_capita_and_price_level_indices#Overview
- ⁵ European Commission (2020) European Economic Forecast, Spring 2020, Institutional Paper 125, May 2020 and Ministry of Finance (2020), Taloudellinen katsaus, Valtionvarainministeriön julkaisuja 2020:55
- ⁶ Government of Sweden (2020) Some Signs of Recovery in the Economy – but situation is still very serious, 18 June 2020 <https://www.government.se/press-releases/2020/06/some-signs-of-recovery-in-the-economy--but-situation-still-very-serious/>
- ⁷ Government of Ireland (2020) Minister Donohoe publishes Stability Programme Update 2020, <https://www.gov.ie/en/news/d2ec5b-minister-donohoe-publishes-stability-programme-update-2020/>
- ⁸ Eurostat <https://ec.europa.eu/eurostat/databrowser/view/tgs00006/default/table?lang=en>
- ⁹ Giacometti A and Cuadrado A (2020) Skills supply and governance in the Bothnian Arc cross-border region, Nordregio Report 2020:10
- ¹⁰ Regional Assemblies Ireland (2020) Covid-19 Regional Economic Analysis
- ¹¹ Statistics Faroes Islands (2020) Economic Barometer is falling, Statistics Faores Islands, 6 July 2020, <https://hagstova.fo/en/news/economic-barometer-falling>
- ¹² *Ibid.*
- ¹³ Statista, Iceland: Distribution of gross domestic product (GDP) across economic sectors from 2009 to 2019 <https://www.statista.com/statistics/398787/iceland-gdp-distribution-across-economic-sectors/>
- ¹⁴ Employment in the primary sector consists of extraction activities such as mining, agriculture and active fishing. This map shows the share of primary sector employment in overall employment in regions, in comparison with the national average that equals 100. When the indicator's value is below 100, the value in the region is below the national average. When the indicator's value is above 100, the value in the region is above the national average.
- ¹⁵ Karlsdóttir A, Smed Olsen L, Greve Harbo L, Sustainable Regional Development in the Nordic Arctic, Policy Recommendations, The Nordic Arctic Working Group on Sustainable Regional Development
- ¹⁶ Teräs J, Nygård V, Myhr S and Karlstad S (2020) Kunnskapsgrunnlag/områdeanalyse, *op.cit.*
- ¹⁷ Karlsdóttir A, Smed Olsen L, Greve Harbo L, *op.cit.*
- ¹⁸ Nilsson K, Jokinen J, Karlsdóttir A, Heleniak T (2020) State of the Nordic Region, Nordregio, Nordic Council of Ministers
- ¹⁹ Karlsdóttir A, Smed Olsen L, Greve Harbo L, *op.cit.*
- ²⁰ Creative Ireland <https://www.creativeireland.gov.ie/en/news/creative-industries-roadmap/>
- ²¹ OECD (2017) OECD Territorial Reviews: Northern Sparsely Populated Areas, OECD Paris, https://read.oecd-ilibrary.org/urban-rural-and-regional-development/oecd-territorial-reviews-the-northern-sparsely-populated-areas_9789264268234-en#page4
- ²² OECD Policy Responses to Coronavirus (COVID-19, Tourism Policy Responses to the coronavirus (COVID-19), <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/>
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- ²⁴ REID Consulting (2016) Strategic Cooperation on Blue Growth in the North Sea WORKSHOP BACKGROUND PAPER, JUNE 2016, Workshop Hague, 20-21 June 2016

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- ²⁵ OECD (2017) OECD Territorial Reviews: Northern Sparsely Populated Areas, OECD Paris
- ²⁶ Direct engagement with SMEs has proven challenging in the past, but these types of intervention could cover organisations working with SMEs.
- ²⁷ IPCC Fourth Assessment Report (AR4): Climate Change 2007, Synthesis Report, p 30.
- ²⁸ Nilsson K, Jokinen J, Karlsdóttir A, Heleniak T (2020) State of the Nordic Region, *op.cit.*
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- ³² Scalable generation sources which are not currently mainstreamed, and in which technology is rapidly evolving.
- ³³ Nordic Energy Research (2018) The Nordics: Decarbonising island energy systems, <https://www.nordicenergy.org/figure/decarbonising-island-energy-systems/>
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- ³⁵ Nordic Energy Research (2012) Solar Power Plants in the North <http://www.nordicenergy.org/project/solar-power-plants-in-the-north/>
- ³⁶ The generation of energy through multiple smaller sources as opposed to few large-scale centralised sources.
- ³⁷ European Commission https://ec.europa.eu/environment/ecoap/finland_en#:~:text=Finland%20continues%20to%20distinguish%20itself,amongst%20all%2028%20EU%20MS and https://ec.europa.eu/environment/ecoap/sweden_en
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- ³⁹ Based on the nine core networks identified for 2014-2020. The Bothnian Corridor may be a future TEN-T core corridor.
- ⁴⁰ Statistics Greenland (2018) Greenland In Figures <http://www.stat.gl/publ/da/GF/2018/pdf/Greenland%20in%20Figures%202018.pdf>
- ⁴¹ Nordregio, (2018) Household access to high capacity fixed broadband 2016, < <https://nordregio.org/maps/household-access-to-high-capacity-fixed-broadband-2016/>>
- ⁴² This development has also been termed the 'rural exodus' of women who, to a greater extent than men, envision few job opportunities in rural areas (Holm & Öhrn, 2014) Holm, A & Öhrn, E. (Ed) (2014). Att lyckas i skolan: Om skolprestationer och kön i olika undervisningspraktiker, Gothenburg Studies in Educational Sciences 363, ISSN 0436-1121. Retrieved from <http://hdl.handle.net/2077/37427> Dahlström, M. (1996). Young Women in a Male Periphery: Experiences from the Scandinavian North, Journal of Rural Studies, 12:3, pp. 259-271, see also Anna Karlsdóttir, Timothy Heleniak and Michael Kull (2020) BIRTHS, CHILDREN AND YOUNG PEOPLE Nordregio (2018) State of the Nordic region, Nordic Council of Ministers, <http://norden.diva-portal.org/smash/record.jsf?pid=diva2%3A1180241&dswid=-962>
- ⁴³ Heleniak, T (2020) Polar Peoples in the Future: Projections of the Arctic Populations, Nordregio Working Paper 2020:3
- ⁴⁴ OECD (2017) OECD Territorial Reviews: Northern Sparsely Populated Areas, *op.cit.*
- ⁴⁵ <https://nordnorge.com/en/tema/the-sami-are-the-indigenous-people-of-the-north/>
- ⁴⁶ This development has also been termed the 'rural exodus' of women who, to a greater extent than men, envision few job opportunities in rural areas (Holm, A & Öhrn, E. (Ed) (2014) Att lyckas i skolan: Om skolprestationer och kön i olika undervisningspraktiker, Gothenburg Studies in Educational Sciences 363, ISSN 0436-1121. Retrieved from <http://hdl.handle.net/2077/37427> Dahlström, M. (1996) Young Women in a Male Periphery: Experiences from the Scandinavian North, Journal of Rural Studies, 12:3, pp. 259-271, see also Anna Karlsdóttir, Timothy Heleniak and Michael Kull (2020) Births, Children and Young People

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- Nordregio (2018) State of the Nordic region, Nordic Council of Ministers, <http://norden.diva-portal.org/smash/record.jsf?pid=diva2%3A1180241&dswid=-962>
- ⁴⁷ Nordregio (2018) State of the Nordic region, Nordic Council of Ministers, <http://norden.diva-portal.org/smash/record.jsf?pid=diva2%3A1180241&dswid=-962>
- ⁴⁸ *Ibid.*
- ⁴⁹ *Ibid.*
- ⁵⁰ Nordregio (Polar Peoples in the Future) Projection of the Arctic Population <http://norden.diva-portal.org/smash/get/diva2:1428148/FULLTEXT01.pdf>
- ⁵¹ Stjernberg M (2020) Aging as a Major demographic Trend, in State of the Nordic region, Nordic Council of Ministers, <https://pub.norden.org/nord2020-001/nord2020-001.pdf>
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- ⁵³ Low-density economies lack the agglomeration benefits of cities that are generated by sharing facilities, inputs. Specialisation, larger labour markets and knowledge spill overs. OECD (2017) OECD Territorial Reviews: Northern Sparsely Populated Areas, OECD Paris
- ⁵⁴ Teräs J, Nygård V, Myhr S and Karlstad S (2020) Kunnskapsgrunnlag/områdeanalyse, *op.cit.*
- ⁵⁵ Stjernberg M (2020) *op.cit.*
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