Navigating Global Transitions in European Arctic Regions

Lessons from 14 NSPA regions

The project was Implemented by the OECD in co-operation with the European Commission Task Force for Reform and Investment (SG REFORM), with financial support from the EU Technical Support Instrument (TSI).

Foreword

The Northern Sparsely Populated Areas (NSPA) of Finland, Sweden, and Norway – Europe's gateway to the Arctic – comprise 14 regions located in northern Sweden, northern Norway as well as northern and eastern Finland. Strategically positioned, the NSPA is gaining prominence on national and EU agendas, driven by emerging opportunities in natural resources, green technologies, Arctic shipping routes, and climate change adaptation, while its shared border with Russia further reinforces its geopolitical importance.

The OECD's 2017 Territorial Review of the NSPA identified priorities to improve connectivity, foster innovation, and strengthen urban-rural linkages. Since then, the regions have made significant progress in implementing many of the recommendations while enhancing their co-operation framework. However, due to their geographical remoteness and small, dispersed populations, challenges persist, including limited economies of scale and distance from large markets. Addressing these issues requires stronger collaboration in infrastructure networks, workforce mobility, digital connectivity, and supply chain integration to enhance the region's global competitiveness.

The socio-economic landscape has been further complicated by two major shocks – the COVID-19 pandemic and Russia's unjustified aggression against Ukraine – alongside broader megatrends such as demographic imbalances and the digital and green transitions. These dynamics call for more strategic territorial responses to anticipate future opportunities and challenges. A deeper and more co-ordinated approach among the 14 NSPA regions can lead to more effective solutions to common challenges while maximising available resources.

This new report is part of the project "*Support to the implementation capacity of sustainable green development in the European Arctic Northern Sparsely Populated Areas (NSPA)*" supported by the EU Technical Support Instrument (TSI) and Norway's Arctic 2030 grant scheme. Its goal is to enhance multi-level co-ordination in NSPA regions for green and digital transitions, while strengthening the capacity to design and manage policies and projects that support socio-economic development and citizen well-being. The project undertook study missions to all 14 regions, delivered specific reports to each NSPA region and cross-thematic reports on demographic challenges, labour market dynamics, competitiveness, innovation, green and digital transitions, multi-level governance, and policy foresight each providing recommendations and action plans. This report summarises the main findings and recommendation emerging from all these elements.

The analysis examines the structural challenges faced by the NSPA, including low population density, an ageing population, workforce shortages, and limited connectivity. Addressing these, requires targeted investments in skills, infrastructure, and governance, alongside innovative policymaking to unlock the region's potential and align with broader sustainability goals.

Despite these challenges, NSPA regions show a strong performance in innovation when compared to similar types of regions – implementing smart specialisation strategies to leverage their unique strengths, driving innovation-led growth, developing solutions through green technologies and resource management, and enhancing regional attractiveness. Strengthening regional and cross-border collaboration remains essential, particularly in sectors where market size limitations necessitate collective action.

The OECD remains committed to supporting these efforts, helping the NSPA overcome geographic, demographic, and geopolitical challenges while fostering inclusive, sustainable communities. By reinforcing co-operation and scaling up successful strategies, the NSPA can serve as a model for other rural and sparsely populated regions worldwide.

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Abbreviations and Acronyms

AFLRA	Association of Finnish Local and Regional Authorities
AURC	Arctic Urban-Regional Co-operation programme
AVI	Regional State Administrative Agencies (Finland)
CAGR	Compound Annual Growth Rate
CAP	European Common Agricultural Policy
CCS	Carbon Capture and Storage
CLLD	European Community led local development
CPMR	Conference of Peripheral Maritime Regions
CSEP	European Civil Servant Exchange Programme:
EAFRD	European Agricultural Fund for Rural Development
EaSI	European Employment and Social Innovation programme
EDR	Elderly Dependency Ratio
EGD	European Green Deal
ELY Centres	Centres for Economic Development, Transport and the Environment (Finland)
EMFAF	European Maritime, Fisheries and Aquaculture Fund
ERD	European Regional Development Fund
ESF / ESF+	European Social Fund
ESIF	European Structural and Investment Funds
EUSBSR	European Strategy for the Baltic Sea Region
FLAG	European Fisheries Local Action Groups
FUA	Functional urban area
GHG	Greenhouse Gas
HINKU	The Finnish Initiative for Climate-Friendly Municipalities
HVO	Hydrotreated Vegetable Oil
INTERREG	European Territorial Co-operation (EU programme)
ITI	European Integrated Territorial Investment
JTF	European Just Transition Fund
KS	Norwegian Association of Local and Regional Authorities
LAG	European Local Action Groups
LEADER	Européen Liaison Entre Actions de Développement de l'Économie Rurale
LLM	Local labour market
LUKE	Natural Resources Institute Finland
LULUCF	Land Use, Land Use Change, and Forestry
MIUN	Mid Sweden University
MR	Metropolitan Regions
NMR	Non-Metropolitan Regions (OECD)
NMR-R	Non-Metropolitan Region – Remote (OECD)
NMR-S	Non-Metropolitan Region - Small (referring to proximity to a small urban area)
NNEO	North Norway European Office
NUTS2	European Nomenclature of Territorial Units for Statistics (Level 2)
NUTS3	European Nomenclature of Units for Territorial Statistics (Level 3)
PPP	Purchasing power parity
PV	Photovoltaic (solar energy)
S3	Smart Specialisation Strategy
SALAR	Swedish Association of Local Authorities and Regions
STEM	Science, Technology, Engineering, and Mathematics
TL2	Territorial Level 2 (a statistical classification used in OECD)
TL3	Territorial Level 3 (a statistical classification used in OECD)
URBACT	European Urban and Regional Development Action
YDR	Youth Dependency Ratio

Executive Summary

The Northern Sparsely Populated Areas (NSPA) is a network of Nordic regions established in 2008 with the aim to foster collaboration and facilitate the exchange of best practices. It includes:

- the seven northernmost and eastern regions of Finland (Central Ostrobothnia, Kainuu, Lapland, North Karelia, Northern Ostrobothnia, Pohjois-Savo, and South-Savo),
- the four northernmost regions of Sweden (Jämtland Härjedalen, Norrbotten, Västerbotten, and Västernorrland), and
- the three northernmost regions of Norway (Finnmark, Nordland, and Troms).

The NSPA face significant socio-economic challenges, including demographic decline, ageing populations, and geographic isolation. These challenges, which are more pronounced compared to other OECD regions, require targeted, innovative policy responses to ensure long-term sustainability and economic growth. At the same time, NSPA regions also possess unique assets, including abundant natural resources, a tradition of innovation, and a strong welfare model, which can be leveraged to overcome these hurdles and build a resilient future.

NSPA regions are facing declining and ageing populations, exacerbating challenges such as workforce shortages, skill mismatches, and increasing public service costs. The rising demands of an ageing population, particularly in sectors like elderly care, further strain municipal resources. Consequently, there is a pressing need for policies that both adapt to demographic change and attract younger, skilled workers by enhancing regional attractiveness and facilitating migration. Key solutions to ensure economic stability with fewer resources include the adoption of labour-saving technologies, the digitalisation of services, and the enhancement of digital infrastructure.

The NSPA's competitive advantage stems from its natural resource sectors, including forestry, fishing, mining, and renewable energy—particularly hydropower and wind. These sectors present opportunities for sustainable economic development, especially within the green transition. However, regional disparities persist, with some areas remaining reliant on energy-intensive industries. To advance the green transition, NSPA regions should further increase investments in renewable energy, promote circular economy practices, and foster innovation in green technologies. Additionally, cross-border collaboration among Nordic countries—Finland, Norway, and Sweden—can create synergies, scale local solutions, and facilitate the spread of low-carbon practices across these countries and the European Union.

Innovation and entrepreneurship are critical to the NSPA’s socio-economic development. Despite challenges such as limited infrastructure and long distances, the region possesses strong potential for innovation, particularly in emerging sectors like digital services, bioeconomy, and sustainable industries. Supporting SMEs and new entrepreneurs through better access to all forms of finance, accelerator programmes, and public procurement for innovation projects is essential for fostering growth. Furthermore, enhancing digital infrastructure and promoting digital literacy can bridge the digital divide, enabling business transformation and the creation of new business models.

Better aligning education systems with the evolving needs of the labour market is also imperative for the NSPA. This alignment can be achieved through strengthened partnerships between educational institutions and industry, vocational training programs, and opportunities for lifelong learning. Addressing workforce shortages, especially in high-demand industries, may require introducing retraining programmes, offering incentives for migrant workers, and integrating Indigenous peoples' knowledge into local workforce development.

Inclusive governance is fundamental to the NSPA's development. The region's multilevel governance structure, encompassing local and regional governments that share responsibilities with national authorities, facilitates inclusive and participatory policy design. This framework ensures that diverse stakeholders, including Indigenous communities, are involved in decision-making processes related to land use, natural resource management, and the green transition. Transparent governance, equitable resource allocation, and financial mechanisms that support underserved areas are essential to ensure that all communities benefit from regional growth.

In conclusion, to unlock the full potential of the NSPA requires a comprehensive and integrated approach that harnesses the region's natural resources, technological innovation, and welfare-driven employment strategies. This calls for deepening and revisiting the existing co-operation frameworks among the fourteen NSPA regions to develop targeted, forward-looking solutions while optimising available resources. Policies should prioritise economic diversification, green growth, and inclusive governance to foster sustainable and resilient local economies. By aligning regional strategies with the European Green Deal and Arctic initiatives, the NSPA can continue to advance its model of sustainable and inclusive growth in rural Europe and the OECD.

Assessment & Recommendations

Socio-economic trends and policy frameworks in the NSPA

The Northern Sparsely Populated Areas (NSPA) of Finland, Norway, and Sweden present a unique blend of challenges and opportunities shaped by geographic, demographic, and economic contexts. Characterised by remote locations, harsh climates, and sparse populations, these regions are showing adaptability and proving to be strong innovators. Despite facing significant challenges, such as climate change, demographic shifts, and the geopolitical tensions triggered by Russia's invasion of Ukraine, the NSPA demonstrate that remote, sparsely populated areas can achieve positive socioeconomic outcomes. For example, over 2001-20, The NSPA region experienced an aggregate GDP per capita growth of 30% (1.35% annually), surpassing non-NSPA regions: 18% growth (0.85% annually), OECD non-metropolitan near a small FUA (NMR-S) regions: 25% growth (1.12% annually) and OECD non-metropolitan remote (NMR-R) regions: 15% growth (0.69% annually). This growth is influenced by initiatives such as smart specialisation, digitalisation, and efforts to improve regional attractiveness. These measures contribute to economic development, diversification, and resilience, providing insights for other rural areas within the OECD.

A central factor that has fuelled the performance in NSPA region is the focus on green technologies and sustainable resource management, which align local development with global sustainability goals. For example, Finnfjord AS located in northern Norway, is recognised as one of the world's most energy-efficient and environmentally friendly producers of ferrosilicon. Investments in clean energy, circular economies, and green innovation reduce reliance on traditional production technologies, while supporting global climate targets. Moreover, the NSPA's commitment to navigating both green and digital transitions – particularly in response to unpredictable challenges like geopolitical instability – demonstrates their adaptability and foresight. By integrating sustainability and digitalisation into their strategies, the NSPA show how rural areas can be drivers on environmental sustainability and technological advancement.

The analysis undertakes a diagnosis in population trends, economic competitiveness, infrastructure, transition to a green economy and governance. These are summarised next.

Population dynamics and policy

Population dynamics

NSPA regions have lower populations on average when compared to other benchmark regions and are experiencing a long-term decline. In 2022, the average NSPA population was 2.5 times lower than in non-NSPA regions and one-third lower than OECD NMR-S regions. Between 2001 and 2022, the NSPA population decreased by nearly 2% (-0.01% annually on average), while non-NSPA regions grew by 12%

(0.76% annually) and OECD NMR-S and non-metropolitan near a mid-size/large FUA (NMR-R) regions grew by 10% overall (0.31% annually) and 8% (0.43% annually), respectively. Only 46% of NSPA regions experienced population growth over this period, compared to 89% of non-NSPA regions. The largest decline was in South Savo (-0.81% annually), while Northern Ostrobothnia (0.49% annually) recorded the highest growth. These trends highlight a growing regional disparity, with NSPA struggling to maintain its population base.

The NSPA has also undergone significant demographic shifts, particularly within its working-age population, reflecting an overall trend toward an aging workforce. However, compared to other benchmarks, the region maintains a relatively stable base of younger workers, which could benefit long-term labor sustainability. The older working-age group (50-64) has grown from 30% to 32%, aligning with trends in other benchmark regions: OECD NMR-S (25% to 31%), OECD NMR-R (26% to 32%), and non-NSPA regions (28.9% to 29.4%). Meanwhile, the prime working-age group (35-49) declined from 33% to 29% between 2003 and 2022, mirroring similar trends in non-NSPA regions (32% to 31%) and OECD NMR-R (33% to 30%). Notably, the young working-age group (20-34) was the only cohort to experience absolute growth in the NSPA, rising from 27% to 30%, surpassing non-NSPA regions (30% to 31%). In contrast, OECD NMR-S and NMR-R regions saw declines in this group, from 32% to 28% and 30% to 28%, respectively.

This demographic shift has been accompanied by a sharp rise in the elderly dependency ratio (EDR). In 2002, NSPA and non-NSPA regions had nearly identical ratios, with around 26 people aged 65+ per 100 working-age individuals (15-64). Over time, however, the NSPA aged more rapidly, with an average annual growth of 2.4%, reaching 42% in 2022. Non-NSPA regions saw a slower increase (1.7% annual), ending at around 37%. The elderly population (65+) has increased at a faster rate in NSPA than in non-NSPA regions. Within NSPA, Kainuu (Finland) recorded the highest increase (+3.41%), while Jämtland Härjedalen (Sweden) had the lowest (+1.21%). By comparison, the median increase in non-NSPA regions was 1.45%.

The NSPA faces a declining population and rapid ageing, both of which are more pronounced than in non-NSPA regions. This dual combination can reinforce a negative cycle posing long-term sustainability challenges for the region.

Addressing demographic challenges

Demographic dynamics in the NSPA present a critical challenge to its economic, social, and fiscal resilience, demanding targeted and innovative solutions. These regions face a combination of ageing populations, declining birth rates, and significant youth outmigration, which strain local labour markets, reduce the taxbase, and can hinder the development potential of the NSPA. The shrinking workforce impacts productivity and weakens the financial capacity of municipalities, limiting their ability to fund and deliver essential public services. This fiscal pressure creates a negative feedback loop, as reduced service quality can further diminish the attractiveness of the region for both potential residents and investors.

Addressing these challenges requires multifaceted strategies, including incentivising young professionals by making quality housing available, competitive wages, and enhanced quality of life measures including quality services and cultural and recreational opportunities. Immigration policies should seek to attract foreign works with the skills that are needed in sectors of demand. Attracting skilled workers can help revitalise local economies and expand the tax base. Furthermore, better aligning education and vocational training with regional economic needs will retain a higher share of the local youth. Prioritising family-friendly policies, such as accessible childcare and flexible working conditions, can help support population growth and reduce barriers for working-age families. These efforts must also account for the inclusion of marginalised communities, ensuring that solutions address social cohesion and economic equity across the NSPA.

Economy, competitiveness, and policy

Economic outlook

The NSPA region recorded a higher GDP per capita (USD 41 284) in 2020 than the average of NMR-S and NMR-R regions, but lower than in nationally. This figure however remains below the non-NSPA average. Within the NSPA, Norrbotten (Sweden), Nordland, Troms, and Finnmark (Norway) had the highest GDP per capita, whereas South Savo, North Karelia, and Kainuu (Finland) the lowest. Between 2001 and 2020, GDP per capita in the NSPA grew 1.35% annually, outpacing the rates in non-NSPA regions (0.85%), OECD NMR-S (1.12%), and OECD NMR-R (0.69%).

Labour productivity in the NSPA in 2020 (USD 79 000) was below non-NSPA regions (USD 82 000). The annual average increase over 2008-20 was lower (0.46%) than in non-NSPA regions (0.56%). Productivity gains were primarily driven by within-sector improvements rather than resource reallocation between sectors. The sector with the highest productivity growth over 2008-20 include:

- Agriculture, Forestry, and Fishing (+50%), largely due to declining employment alongside increased gross value added.
- Professional Services (+42%), reflecting the OECD-wide shift toward a service-based economy.
- Mining (+37%), driven by shifts in labour and capital, with increases in both employment and gross value-added.

Conversely, productivity declined most in:

- Manufacturing (-73%), reflecting a structural shift away from the sector.
- Public Administration (-56%), due to rising employment and reduced public expenditure per worker, highlighting the high cost of service delivery in sparsely populated areas.

Non-NSPA regions experienced similar trends but with varying intensities, including stronger growth in mining and ICT and a less pronounced decline in the public sector (-9%).

The analysis suggests that the NSPA region has outperformed other rural OECD regions in GDP and productivity growth, yet sectoral shifts, regional inequalities, and structural challenges persist. Addressing these issues through targeted economic and labour policies will be crucial for inclusive and sustainable regional development.

Competitiveness, innovation, and trade

Firms in the NSPA region face competition at both national and international levels. Regional governments have implemented strategies to foster innovation and entrepreneurship, particularly among SMEs, which dominate the NSPA economy. Smaller firms (1–9 employees) make up 85% of all businesses in NSPA, comparable to non-NSPA regions (86%) and OECD NMR-R (87%) and NMR-S (89%) regions. However, these firms contribute only 28% of total employment in NSPA—higher than non-NSPA regions (21%) but lower than OECD NMR-R (33%) and NMR-S (32%) regions. This suggests the presence of a more fragmented distribution of firms with more limited employment capacity. Firm density in NSPA is lower than in non-NSPA regions, with 21 smaller firms per 1 000 individuals compared to 24 per 1 000 in non-NSPA. Larger firms (10+ employees) follow a similar trend, with a slightly lower density difference of 0.3 firms per 1 000 individuals.

Despite a relatively strong innovation ecosystem, NSPA lags behind non-NSPA regions. In 2020, NSPA recorded 106 patent applications per 1 million individuals, lower than non-NSPA regions (159) but significantly higher than OECD NMR-S (46) and NMR-R (21) regions, reflecting its relatively advanced high-tech innovation compared to similar regions. Innovation performance in NSPA has grown marginally, with patent applications increasing from 102 per 1 million individuals (2011-15) to 104 (2016-20), while

non-NSPA regions saw a decline from 205 to 188. OECD NMR-S regions remained stable (50), whereas NMR-R regions declined (26 to 24). These trends highlight the need for continued efforts to foster innovation diffusion and address disparities within NSPA, particularly between urban, university-driven innovation and rural, incremental entrepreneurship.

Although geographic challenges faced by NSPA regions, sparse population and a remote location, continued to impact trade connectivity, it has been catching up in recent years. In 2020, total export values reached approximately USD 2 billion, lower than non-NSPA regions (USD 5.5 billion) and OECD NMR-S regions (USD 2.6 billion). This figure however is comparable to OECD NMR-R regions. Despite lower export values, NSPA has experienced robust growth in exports, increasing by 21% over 2015-20 – outpacing non-NSPA (10%), OECD NMR-S (9%), and OECD NMR-R (4%) regions. The compound annual growth rate for NSPA (3.3%) nearly doubled that of non-NSPA (1.7%) and was significantly higher than OECD NMR-S (1.5%) and NMR-R (0.7%) regions. Additionally, NSPA maintains a higher trade surplus than non-NSPA regions, indicating that exports significantly exceed imports. However, challenges related to regional data accuracy, headquarter bias, and intermediary trade companies complicate precise trade balance assessments.

Competitiveness through economic diversification and workforce development

The economic competitiveness of the NSPA depends on its ability to transform its production from traditional primary sectors including forestry, fishing, and mining, towards innovative, high-value economic products and processes. This shift is essential for ensuring long-term regional sustainability, economic diversification, and alignment with national and international policy priorities on innovation, environmental responsibility, and economic resilience. This task necessitates fostering innovation and entrepreneurship, particularly in industries such as renewable energy, ICT, biotechnology, and cold-climate technologies. Leveraging the region's competitive advantages, that include the presence of natural resources and geographic position, can attract investment and stimulate the growth of knowledge-intensive industries. Collaborative partnerships with universities, research institutions, and incubators are essential for creating an entrepreneurial ecosystem that supports start-ups and SMEs in these emerging fields. Targeted public and private investment, alongside tailored venture capital initiatives, can enable the development of competitive local industries while encouraging job creation.

A key pillar of competitiveness is aligning workforce development with the needs of these evolving economic sectors. The NSPA faces significant challenges in terms of labour shortages, particularly in specialised and high-skill industries, which are exacerbated by demographic decline and outmigration. Addressing these gaps requires the implementation of tailored educational programmes and vocational training that equip local populations with the skills demanded in growing sectors. Expanding partnerships between industry and educational institutions can ensure that curricula remain aligned with market demands. Simultaneously, policies to attract and retain talent, such as scholarships, mentorship programmes, and professional networks, can help reverse the trend of youth outmigration and bring fresh energy to the workforce. Additionally, targeted immigration strategies, including international recruitment and integration programmes, can further address labour shortages and support economic growth. Finally, promoting gender equity and workforce inclusivity can unlock untapped potential within the region.

Strategic infrastructure and policy

Accessibility to markets and connectivity

The NSPA region faces significant accessibility challenges due to its vast geography and dispersed population. These difficulties manifest both in physical and digital infrastructure, affecting residents' access to essential services, economic opportunities, and overall quality of life.

Physical accessibility: distance and transportation limitations

A key indicator of accessibility is the drive time to the nearest large city, which may influence access to employment, education, and healthcare. Compared to non-NSPA regions, the NSPA has fewer large urban centres, resulting in longer travel distances and logistical barriers that hinder mobility and economic efficiency. The region's heavy reliance on road transport exacerbates these challenges. With limited railway infrastructure, roads serve as the primary mode of transport, yet they are often narrow, requires updating, and prone to congestion. These deficiencies restrict passenger mobility, disrupt freight movement, and reduce economic productivity while increasing environmental impact.

Although drive-time data provides valuable insights into car travel, it does not fully capture the region's transportation dynamics, and air travel remains a critical link for many remote NSPA communities. Many residents rely on regional airports for access to essential services, business opportunities, and long-distance travel, making aviation infrastructure a key component of connectivity in the region.

Digital accessibility: internet infrastructure and regional disparities

Improved digital infrastructure can help mitigate physical accessibility constraints in NSPA regions, but disparities in internet access and quality persist. Rural areas often lack reliable internet, and available speeds tend to be lower than in urban areas.

According to OECD estimates from Q4 2023, the national average fixed broadband download speeds were approximately 140 Mbps in Norway and Sweden and 105 Mbps in Finland.[1] Progress in NSPA regions varied, with disparities decreasing in most but not all regions. Among the 14 NSPA regions, seven recorded user-reported internet speeds above their national averages in Q3 2023. The highest positive deviations were observed in Central Ostrobothnia (13.3%), Northern Ostrobothnia (13.2%), Troms and Finnmark (11.4%), Lapland (8.5%), Kainuu (5.9%), and Pohjois-Savo (5.6%). Conversely, seven regions lagged behind their national benchmarks, with the largest negative gaps in South Savo (-29.8%), Västerbotten (-27.5%), Norrbotten (-16.6%), Jämtland Härjedalen (-14.1%), Västernorrland (-8.9%), North Karelia (-7.0%), and Nordland (-1.1%).

Despite an overall trend of narrowing disparities, four of the six regions with below-average speeds in Q4 2021 saw their gaps widen further: South Savo (7.7 percentage points), North Karelia (4.7 percentage points), Norrbotten (3.0 percentage points), and Västerbotten (2.6 percentage points).

Fixed broadband speeds have improved across OECD, NSPA, and non-NSPA regions. Between Q4 2021 and Q3 2023, speeds increased by 15% in NSPA regions, 17% in non-NSPA regions, 35% in OECD NMR-R regions, and 40% in OECD NMR-S regions. However, relative growth was lower in NSPA regions, as areas with initially slower speeds – such as OECD NMR-R and NMR-S – had more room for improvement. A similar trend emerged at the national level: Finland's speeds rose by 30%, while Sweden and Norway, starting from higher baselines, saw smaller increases of 12% and 11%, respectively – both below the OECD average.

Connectivity as a catalyst for regional integration

Connectivity is essential for unlocking the economic and social potential of the NSPA, integrating it into national and global networks, and overcoming the isolation imposed by its geographic and demographic characteristics. Enhanced physical infrastructure – spanning road, rail, air, and maritime networks – is crucial for improving market access and facilitating the seamless movement of goods, services, and people. Enhancing transportation corridors and expanding regional connections will help expand commuting flows improve labour market integration, making it easier for workers to access job

[1] OECD (forthcoming), Bridging connectivity divides, OECD Publishing, Paris.

opportunities. This is crucial for tackling demographic shifts and workforce shortages. Investments in transport systems must also emphasise sustainability, incorporating green solutions such as electrified railways and low-emission public transit systems that align with the region's broader climate goals.

Digital connectivity is equally critical for regional integration. Further, expanding access to high-speed broadband and 5G networks can bridge the digital divide and support remote economic activities such as telemedicine, e-learning, and remote work. This digital infrastructure is particularly important for smaller, isolated communities where physical connectivity remains a challenge. By fostering digital inclusion, the NSPA can promote entrepreneurship, attract investments in ICT and digital services, and enhance the delivery of public services. Additionally, robust digital infrastructure facilitates cross-border collaboration, facilitating Finland, Norway, and Sweden to jointly develop research and innovation projects. This strengthens regional co-operation and enhances their integration into global digital networks, driving economic and technological growth.

Cross-border co-operation on infrastructure development amplifies the impact of connectivity improvements and strengthens regional integration. Collaborative initiatives, such as shared transport projects and joint digital infrastructure investments, can help address common challenges and capitalise on shared opportunities. The harmonisation of policies and standards across borders will ensure the more seamless movement of goods and people while fostering economic synergies and cultural exchange. By prioritising both physical and digital connectivity, the NSPA can reduce geographic barriers, enhance regional cohesion, and position itself as a vital contributor to the broader Nordic and European economies.

Green transformation and policy

The shift to a green economy

The NSPA regions have a relative abundance in natural resources, positioning them well for progress in the green transition. With nature conservation as a core value, these regions have made significant efforts in reducing greenhouse gas (GHG) emissions and transitioning to renewable energy. Production-based statistics indicate that from 1970 to 2022, GHG emissions per capita in the NSPA regions declined from 14 to 10 tons of CO_2 equivalent. This reduction surpasses that of OECD NMR-S regions, where emissions remained stable at 12 tons per capita, and OECD NMR-R regions, where the decline was minor, from 19 to 18 tons per capita. However, the progress in NSPA regions has been slower than in non-NSPA regions in Finland, Norway, and Sweden, where emissions were halved from 12 to 6 tons per capita over the same period.

Despite relatively higher per capita emissions, total emissions in the NSPA regions remain lower than in non-NSPA regions. In 2022, the regional average emissions in the NSPA stood at 3.26 tons of CO_2 equivalent, compared to 4.32 tons in non-NSPA regions. However, while non-NSPA regions have reduced their emissions over time, the NSPA regions have experienced an increase. In 1970, NSPA regions emitted 2.89 tons of CO_2 equivalent per region, which rose to 3.26 tons in 2022. In contrast, emissions in non-NSPA regions fell from 4.93 to 4.32 tons per region. This indicates that while per capita emissions have decreased, total regional emissions in the NSPA have risen, whereas they have declined in non-NSPA regions.

The NSPA regions stand out in their adoption of renewable energy, demonstrating a high degree of sustainability in electricity production. In 2019, 99% of electricity production in the NSPA was generated from renewable sources, significantly higher than the 77% share in non-NSPA regions. This figure is also above the levels observed in OECD NMR-S (72%) and NMR-R (70%) regions. The high integration of renewable electricity in the NSPA regions highlights their progress in the green transition and suggests that other regions could draw insights from their experience in adopting renewable energy.

Overall, the NSPA regions have made significant progress in reducing GHG emissions per capita and expanding renewable energy use. However, the rise in total regional emissions, in contrast to the declining trend in non-NSPA regions, remains a key issue. This underscores the need for a deeper understanding of the factors contributing to increased emissions at the regional level.

Driving the green transition and equity

The green transition in the NSPA is a pivotal opportunity to drive economic transformation while ensuring equity and inclusivity in its implementation. This transition, rooted in decarbonisation and the adoption of renewable energy technologies, leverages the NSPA's abundant natural resources, such as wind, minerals, hydroelectric power, and bio-based materials. However, achieving these objectives requires policies that balance environmental sustainability with social justice, ensuring that community are not left behind. The green transition must address structural disparities, providing equitable benefits to all stakeholders, including marginalized groups and Indigenous peoples.

Decarbonising industries, such as mining, forestry, and steel production, is central to the green transition. Investments in technologies like green hydrogen, carbon capture and storage, and advanced biofuels can significantly reduce emissions while maintaining economic competitiveness. These industries must also adopt practices that minimise their environmental footprint. At the same time, polices need to ensure that the economic benefits of this transformation—such as job creation in green technology sectors—must also reach regions and communities where they are being produced. Ensuring that affected communities, particularly those reliant on traditional industries, are supported through retraining programmes and economic diversification initiatives will be critical to achieving a just transition.

Equity in the green transition requires the inclusion of Indigenous communities and other underrepresented groups in decision-making processes. The Sámi people, as stewards of traditional lands and resources, hold valuable knowledge that can enhance sustainable practices in areas such as land use, reindeer herding, and biodiversity conservation. Policies must respect Indigenous peoples' rights by ensuring that land-use planning and resource management are conducted with their active participation and consent. By incorporating their perspectives, the NSPA can align environmental objectives with cultural preservation, strengthening social cohesion and long-term sustainability.

Finally, the green transition must be supported by inclusive financial and policy mechanisms to address disparities in access to resources and opportunities. Investments in green infrastructure, such as energy-efficient housing and low-carbon transport systems, should also reach underserved areas and communities, ensuring equitable access to the benefits of sustainability. Furthermore, participatory governance models, where local stakeholders play a central role in planning and implementation, can foster trust and community buy-in. By aligning green economic strategies with equity-focused policies, the NSPA can lead a transition that not only achieves environmental goals but also promotes a more inclusive, resilient, and fair society.

Inclusive governance and community participation

Inclusive governance and community participation are foundational to the supporting a sustainable and resilient development model in the NSPA. The multilevel governance structure in Finland, Norway, and Sweden offers a unique opportunity to involve diverse stakeholders in shaping regional policies. Local and regional governments, operating with varying degrees of autonomy, play a crucial role in strategic planning and the delivery of essential services adapting to the specific needs and priorities of their communities. These efforts can be enhanced by participatory processes that actively engage residents, businesses, academic institutions, and civil society organisations. Such inclusion ensures that development priorities reflect the region's diverse needs and aspirations, fostering trust and long-term commitment to policy outcomes.

A hallmark of governance in the NSPA is the integration of Indigenous peoples' rights and voices, particularly those of the Sámi people. The Sámi Parliaments in each country act as representative bodies that advocate for Indigenous rights and interests, trying to influence policies on land use, cultural preservation, and sustainable development within national legal frameworks and political dynamics.

Policies must continue to strengthen these institutions, ensuring that Sámi perspectives are not only included but prioritised in regional decision-making. Collaborative governance models that involve Indigenous peoples' representatives in land-use planning, resource management, and green transition projects ensure alignment between environmental and cultural objectives. This approach respects Indigenous peoples' rights while enabling the NSPA to benefit from traditional ecological knowledge that can enhance sustainability efforts.

Transparency and accountability are essential for building trust between communities and policymakers. Effective participatory governance—through public consultations, citizen assemblies, and digital platforms for feedback—can strengthen community engagement and improve the legitimacy of policies. For example, involving local stakeholders in the design and implementation of infrastructure projects can help addressing concerns related to environmental impact, land use, and social equity. By embedding these practices into decision-making, the NSPA can foster a culture of shared responsibility, ensuring that communities have a meaningful role in shaping regional development.

Fair and effective financial mechanisms are crucial for inclusive governance. Local governments fund public services and development projects through a mix of municipal taxes, national subsidies, and European Union funds. However, differences in fiscal capacity between regions can lead to uneven service delivery and infrastructure development.

To mitigate these disparities, equalisation mechanisms and targeted funding programmes should focus on underserved areas, ensuring that all communities- regardless of their size or economic resources-—have the opportunity to contribute to and benefit from regional growth.

Unlocking the NSPA's potential

Unlocking the full potential of the NSPA requires a comprehensive and integrated approach that leverages the region's unique assets while addressing its persistent challenges. Central to this transformation is the ability to harness the region's competitive advantages—such as its rich natural resources, strategic Arctic location, and strong tradition of governance—while mitigating barriers related to geographic isolation, demographic pressures, and labour market gaps.

Economic diversification and innovation are critical drivers of the NSPA's potential. The region's transition to a knowledge-driven and green economy must be supported by targeted investments in research and development, particularly in sectors like renewable energy, cold-climate technologies, and sustainable resource management. Collaboration between governments, universities, and private enterprises can create innovation hubs that stimulate entrepreneurship and attract global attention. By fostering a robust ecosystem of small and medium-sized enterprises (SMEs) and start-ups, the NSPA can help local economies to adapt to global trends and disruptions.

Realising this potential also requires policies that prioritise inclusive growth. The success of the NSPA depends on its ability to create opportunities for all communities, particularly those facing structural disadvantages such as more remote locations or limited access to infrastructure and services. A focus on participatory governance, equitable resource allocation, and cross-border co-operation can ensure that regional development is both inclusive and sustainable.

By aligning these efforts with the broader objectives of the European Green Deal and Arctic strategies, the NSPA can enhance its role in promoting sustainable and inclusive development, ensuring the region remains both competitive and liveable for future generations.

Recommendations

This section provides actionable policy recommendations to help guide the NSPA regions through global megatrends, transitions and economic shocks. The recommendations are derived by combining quantitative diagnosis and analysis with qualitative analysis that undertook field visits to all 14 NSPA regions. In line with the chapters of this report, the recommendations are structured in four thematic areas that are critical to the NSPA's socio-economic development (Table 1).

- Sustainable development in the context of demographic change
- Competitiveness and connectivity
- Green transition and environmental challenges
- Multilevel governance and cross-border co-operation

Recognising the need for a holistic, integrated, and tailored approach, recommendations need to align policy response across levels of government, countries, and the 14 NSPA regions. In addition to these recommendations, the regional reports contain tailored made recommendation for each of the NSPA regions. The recommendations are therefore organised and categorised at different geographic scales and for different policy constituencies as follows (Table 2):

- 11 Recommendations for the NSPA regions as a whole
- 8 Recommendations common to Finland, Norway and Sweden (national level)
- 3 Recommendations for the European Union
- 29 Recommendations for Finland and the Finnish NSPA
  - National level (14)
  - National and regional (NSPA) levels (3)
  - Regional (NSPA) level (12)
- 33 Recommendations for Norway and the Norwegian NSPA
  - National level (17)
  - National and regional (NSPA) levels (3)
  - Regional (NSPA) level (13)
- 31 Recommendations for Sweden and the Swedish NSPA
  - National level (12)
  - National and regional (NSPA) levels (12)
  - Regional (NSPA) level (7)

Table 1. Four main thematic areas of policy recommendations for NSPA

Thematic Area	Recommendations
Addressing demographic challenges	Actionable guidelines to adapt and mitigate demographic shifts.
Competitiveness and connectivity	Policies promoting enhanced economic competitiveness and improved connectivity, both digital and physical.
Green transition and environmental challenges	Approaches for fostering green economic transition, mitigating environmental issues, and responding to climate change challenges.
Multilevel governance and cross-border co-operation	Emphasis on strengthening governance structures and promoting cross-border collaboration and foresight for regional development.

Source: Own elaboration

Table 2. Policy recommendations for the NSPA, countries and regions

Level	Number of Recommendations	Areas of Focus
NSPA regions as a whole	11	Overarching recommendations applicable to all NSPA regions.
Finland, Norway, and Sweden	8	Policy actions common to Finland, Norway, and Sweden at the national level.
European Union	3	Recommendations for the EU, considering the broader NSPA regional and economic context.
Finland and the Finnish NSPA	29	
▪ National level	14	Finland-specific national policies.
▪ National and regional levels	3	Policies applicable at both national and regional (NSPA) levels.
▪ Regional level	12	Recommendations specific to the Finnish NSPA regions.
Norway and the Norwegian NSPA	33	
▪ National level	17	Norway-specific national policies.
▪ National and regional levels	3	Policies applicable at both national and regional (NSPA) levels.
▪ Regional level	13	Recommendations specific to the Norwegian NSPA regions.
Sweden and the Swedish NSPA	31	
▪ National level	12	Sweden-specific national policies.
▪ National and regional levels	12	Policies applicable at both national and regional (NSPA) levels.
▪ Regional level	7	Recommendations specific to the Swedish NSPA regions.

Source: Own elaboration

Recommendations for the NSPA as a whole

1. Demographic challenges should **support core services in smaller local labour markets.** National governments should offer practical guidance, clear policy frameworks, and targeted financial support to help smaller municipalities improve service delivery. However, regional governments should take the lead in implementing and managing core public services in these areas, tackling challenges like as high transportation costs, difficulties in attracting skilled professionals, and limited economies of scale. This approach allows national oversight to support regionally tailored solutions that effectively address local needs.

2. **Encourage "smart shrinking" for viability.** For municipalities facing depopulation, national and regional governments should support a "smart shrinking" approach. This means providing financial and logistical support to help these communities adapt in a sustainable way, managing population decline while maintaining essential services and ensuring long-term viability.

3. **Enhance inter-municipal collaboration.** Strengthen collaboration between municipalities by expanding programmes that enable share services, pool labour resources, and co-ordinated regional development. In cases where municipalities are not geographically close, use remote delivery mechanisms to ensure efficient service delivery and maintain regional connectivity.

4. **Foster flexible workforce development and enhance elderly workforce participation.** Workforce development programmes should prioritise flexibility, equipping residents with both job-specific

skills for long-term careers and transferable skills that allow for smooth transitions between occupations. This ensures workers remain adaptable to shifting job markets and changing economic conditions. Simultaneously, policies should encourage greater participation of older workers by revising employment regulations and supporting employer practices such as job sharing, workplace adaptations, expanded part-time opportunities, flexible scheduling, and targeted incentives to retain experienced workers. These measures will help address demographic challenges and keep older workers engaged in the economy.

5. **Attract and retain workers through lifestyle and housing improvements.** To make NSPA regions more attractive to residents and potential newcomers, it is essential to ensure affordable housing and a high quality of life. This requires a comprehensive housing strategy focused on affordability and liveability. Key actions include providing incentives for the construction and renovation of affordable homes, streamlining zoning and regulatory processes to accelerate housing development, and fostering collaboration with private developers and local governments to expand housing supply. Additionally, targeted marketing campaigns aimed at former residents, tourists, and immigrants will showcase the region's opportunities and lifestyle benefits, reinforcing both population retention and growth.

Competitiveness

6. **Strengthen entrepreneurship and SME support.** Expand targeted programs to support entrepreneurship and the growth of SMEs, focusing on access to financing, mentorship, and market expansion. Encouraging innovation-driven enterprises and fostering collaboration between local businesses and research institutions can help diversify the economy, create sustainable job opportunities, and enhance community resilience.

7. **Support productivity-enhancing firms.** Economic development strategies should prioritise firms that can increase productivity, as rising labour costs from workforce shrinkage will require greater competitiveness. Tailor regional policies to support firms in enhancing efficiency and innovation, rather than offering broad, sector-specific support. This approach will help local economies remain competitive in the face of demographic challenges.

NSPA co-operation

8. **Enhance co-ordination and strategic alignment in Nordic co-operation.** To effectively address current and future challenges faced by the NSPA, it is crucial to promote a higher level of co-ordination across Nordic co-operation initiatives. Strengthening co-ordination among the NSPAs in their participation in cross-border and transnational initiatives is key to fostering synergies and ensuring that these efforts are aligned with the region's strategic priorities. A central component of this effort is the creation of a more effective co-ordination platform for the NSPA, building upon the existing NSPA Network. This platform should facilitate dialogue and collaboration among regional actors, including local governments, municipalities, and national authorities, while also promoting a unified regional voice at both national and international levels. To further strengthen collaboration, joint co-operation projects should be designed with strategic alignment across Finland, Norway, and Sweden. One potential measure is the establishment of an NSPA committee for regional co-operation, supported by a permanent secretariat. This framework would ensure that projects are not only strategically aligned but also address long-term development needs in a coherent manner.

9. **Improve understanding and learning of the benefits of Nordic co-operation for the NSPA.** A comprehensive monitoring and evaluation exercise should be conducted to assess the benefits of Nordic cross-border and transnational co-operation for the NSPA. This analysis will provide factual evidence on how existing Nordic co-operation bodies and initiatives have contributed to regional development. Based on this data, the NSPA will be better positioned to engage in future co-operation initiatives and make informed decisions on the design of strategies, programmes, and projects. Understanding the benefits of

Nordic collaboration will empower regional actors to actively participate in and shape future cross-border initiatives.

10. **Facilitate regional co-operation on strategic infrastructure and defence.** Promote east-west regional co-operation by addressing shared challenges and opportunities through investments in strategic infrastructure. In particular, for border regions or those with military presence, it is essential to replicate successful frameworks such as Troms, Nordland, and Finnmark's "Defence Forum." These models improve co-ordination with military activities and help leverage associated benefits, such as shared resources and enhanced security. This collaboration should also encompass critical infrastructure projects, which are vital for the economic and social well-being of the region.

11. **Strengthen NSPA foresight capacity through regional collaboration and intelligence networks.** Build foresight capacity at the local level is crucial to address regional disparities and promote inclusive development. This requires equipping civil servants and local institutions with the skills and resources to integrate future considerations into policy analysis and decision-making. A practical approach is "learning-by-doing," where hands-on experience fosters anticipatory thinking and proactive planning. Developing regional foresight intelligence with a spatial lens is also essential for strengthening cross-regional collaboration. This involves gathering and analysing data on local and global trends to assess their impact on regional co-operation and cross-border initiatives. Special attention should be given to shared challenges, such as labour market integration, digital connectivity, and infrastructure development, particularly in rural areas. Additionally, identifying joint opportunities in areas like renewable energy, tourism, and natural resource management can help drive collaborative regional initiatives. To support this effort, establishing joint NSPA foresight hubs or networks is key. These hubs could be integrated into existing educational institutions or formed as collaborative networks focusing on tracking and analysing trends at global, national, and local levels. They would provide actionable insights to shape long-term strategies and identify immediate opportunities. Moreover, these hubs could serve as early warning systems for emerging challenges, ensuring that regions remain resilient and adaptable in an evolving landscape.

Recommendations common for Finland, Norway and Sweden (national level)

Sustainable development during demographic change

12. **Integrate local labour market assessment and support.** Conduct comprehensive assessments of local labour markets in small and isolated communities, focusing on their future potential. National governments should support capacity-building initiatives and foster collaboration between regions on key issues like connectivity, digitalisation, and skills supply. This initiative should be implemented through Nordregio to ensure coherence and efficient resource allocation across NSPA regions.

13. **Develop innovative service delivery models.** Allow regions and municipalities more autonomy in determining public service delivery methods, focusing on achieving desired outcomes instead of prescriptive approaches. For instance, successful models like Västerbotten's rural healthcare delivery should be scaled across the NSPA regions to promote innovation in service provision.

14. **Foster outcome-based governance in public services.** Continue devolving public service responsibilities to regional and municipal levels, ensuring these transfers include the necessary fiscal capacity. Implement outcome-based evaluations to assess performance and incentivise local innovation in service design and delivery. This approach will empower local governments while maintaining accountability for results.

15. **Enhance supplemental funding for isolated municipalities.** Provide targeted funding to municipalities facing high public service delivery costs due to demographic shifts. This supplemental

funding should help mitigate challenges in education, healthcare, and other essential services caused by high unit service costs due to small populations and geographic isolation.

16. **Enhance transport infrastructure investments.** Prioritise investments in east-west transport infrastructure to better connect NSPA regions with both external and internal markets. This includes developing roads, air connections, and grid interconnections. Also, continue enhancing North-South connectivity within the region to improve overall competitiveness and address national security concerns.

17. **Co-ordinate energy grid development.** Develop a co-ordinated energy transmission strategy that balances east-west and north-south interconnections. This strategy should aim to enhance energy resilience, improve load balancing, and foster economic integration within the NSPA, ensuring energy security for all regions.

18. **Implement tax credits to address living costs.** Introduce a lump-sum tax credit for NSPA residents to help alleviate high living costs. This measure would support lower-income households and incentivise workforce participation, particularly in areas with high cost-of-living disparities.

19. **Disaggregate sectors' statistics reporting.** Improve data collection by disaggregating e.g. agricultural statistics into distinct sectors: Farming, Fishing, and Forestry. This will enable better identification of economic strengths and opportunities specific to different NSPA regions, helping to unlock the potential of local renewable resources.

Recommendations for the European Union

Competitiveness and connectivity

20. **Promote smart Arctic innovation hubs and platforms.** To foster sustainable development and resilience in the Arctic, it is crucial for the EU to invest in the creation of smart Arctic innovation hubs and platforms. Key actions may include: (i) Develop guidelines for smart, climate-resilient infrastructure using renewable energy and smart grid technologies, supported by pilot programmes involving public and private sectors. (ii) Encourage the creation of Arctic-specific technologies by providing financial incentives to businesses and research institutions, particularly those utilising local resources like forestry by-products and mining residues. Support circular economy models in Arctic industries to ensure environmental and economic benefits. (iii) Promote the creation of Digital Twin technology to enhance resource management and territorial planning in the Arctic. Pilot projects should focus on urban planning, energy management, and environmental monitoring using real-time simulations tailored to Arctic conditions. (iv) Establish platforms for sharing best practices, data, and research among stakeholders (governments, businesses, and academia) to promote innovation, regional co-operation, and digital transformation in the Arctic. These platforms should link Arctic stakeholders with broader EU innovation networks.

Green transition and environmental challenges

21. **Support green and just transition policies for marginalised communities.** To ensure that the transition to a sustainable, low-carbon economy is both effective and equitable, it is essential to develop policies that support marginalised communities and prioritise inclusivity. Key actions include deploy targeted financial instruments to support marginalised communities by earmarking funds for local renewable energy projects, energy-efficient housing, and climate adaptation. Expand microfinance and low-interest loan programs to enable community investments in clean energy. Simplify funding applications and provide technical assistance to reduce barriers to access. Prioritise outcome-based grants that promote job creation, skills training, and local business growth in the green sector. Guarantee equitable fund distribution through quotas or priority access for disadvantaged groups, ensuring resources reach those most in need.

Multilevel governance and cross-border co-operation

22. **Support Arctic geopolitical resilience and energy security.** In light of growing geopolitical challenges, including the impact of Russia's invasion of Ukraine, it is crucial to strengthen the Arctic's energy resilience and security. Actions may include: (i) Prioritise investments in renewable energy projects tailored to the Arctic's unique environmental conditions, such as wind, hydro, and bioenergy to increase energy self-sufficiency. (ii) Promote cross-border energy partnerships, particularly within the NSPA to enhance energy security and resilience. This includes facilitating shared energy infrastructures, such as regional electricity grids and interconnectors, to improve flexibility and reliability. (iii) Focus on the development of advanced energy storage technologies—such as batteries, hydrogen storage, and other innovative solutions—to ensure reliable energy supply during disruptions, particularly in periods of geopolitical instability. (iv) Support the alignment of energy policies and investments in shared infrastructure among Finland, Norway, and Sweden. Encourage trilateral co-operation to streamline policy frameworks, co-invest in infrastructure projects, and address energy challenges while ensuring resilience against geopolitical pressures and climate change.

Recommendations for Finland and the Finnish NSPA

National level

Competitiveness and connectivity

23. **Increase SME access to digital and green technologies.** Recognising the transformative potential of digital and green technologies, the Finnish Ministry of Economic Affairs and Employment and the Ministry of Trade and Industry could establish specialised innovation hubs to support SMEs in adopting these technologies. These hubs would provide resources, expertise, and networking opportunities in fields like advanced digital tools and sustainable practices. Economic incentives such as tax credits, grants, and regulatory frameworks should encourage SME adoption of digital and green innovations. The goal could be to support the digital and green transformation of 100 SMEs by 2030, positioning Finland as a leader in sustainable business innovation. Expected outcomes may include establishment of digital and green technology support centres (e.g. innovation hubs, green tech parks), introduction of new regulations on tax incentives for digital transformation investments, development of sustainable business certification programs for SMEs.

24. **Incentivise R&D in renewable energy sectors.** The Ministry of Economic Affairs and Employment could implement targeted incentives to boost R&D in renewable energy, particularly in bioenergy and wind energy. Using a mix of supply-side instruments (e.g. grants, tax credits) and demand-side instruments (e.g. public procurement for green innovation), the goal could be to increase renewable energy R&D projects by 25%. This would position Finland as a hub for sustainable energy solutions, advancing both technological innovation and energy independence. Expected outcomes may include creation of new tax credits and grants for renewable energy R&D, establishment of public-private partnerships for green R&D initiatives, regional funding schemes supporting sustainable energy projects.

25. **Foster cross-sectoral innovation linkages.** To enhance innovation capabilities, the Finnish Funding Agency for Innovation (TEKES) could spearhead the creation of cross-sectoral partnerships that bring together Finnish industry associations, regional clusters, and SMEs. These partnerships would focus on developing new clusters in emerging industries such as green energy, bioeconomy, and digital technologies. A systemic policy mix combining innovation clusters, tax incentives, and regulatory support for public-private partnerships would be required. A target could be the development of 10 new cross-sectoral partnerships by 2030. Expected outcomes may include formation of sectoral clusters (e.g. green energy, bioeconomy), launch of cross-sectoral innovation voucher schemes to support SME collaboration, establishment of regional co-ordination committees for multi-industry projects.

Green transition and environmental challenges

26. **Support high value biorefining and circular bioeconomy.** Finland should encourage the production of advanced bio-based materials such as biodegradable plastics, nanofibers, and food additives from forestry biomass. Investments in decentralised, small-scale biorefineries could complement larger facilities and boost local value creation, strengthening Finland's bioeconomy. This effort would contribute to sustainable growth, creating new markets for green technologies. Expected outcomes may include increased production and commercialisation of bio-based materials, investment in small-scale, decentralised biorefineries, strengthened local value creation and job opportunities in the bioeconomy sector.

27. **Accelerate the deployment of smart grid technology.** To enhance energy efficiency and distribution reliability, Finland should invest in the development and deployment of smart grid infrastructure, with a particular focus on rural and remote areas. Smart grids would enable better integration of renewable energy sources and improve energy access, addressing issues like energy poverty and regional disparities. Expected outcomes may include deployment of pilot smart grid projects in rural and remote areas, improved energy access and reliability for underserved communities, enhanced integration of renewable energy into the grid.

28. **Leverage mining and resource-based industries for green transition.** Finland's critical minerals, especially in East and North Finland, should be maximised for the growing demand in the battery and renewable energy industries. Sustainable mining practices should be implemented to minimise environmental impact, while also developing local expertise in mineral processing and green technology. Expected outcomes may include development of sustainable mining practices, increased local expertise in mineral processing, strengthened linkages between the mining sector and green technology industries.

29. **Invest in digital solutions for circular economy practices.** Finland should promote the use of digital technologies to optimise resource efficiency across industries, particularly through data analytics and high-performance computing (e.g. the LUMI Euro-HPC in Kainuu). Digital tools can play a key role in enhancing waste-to-value systems, especially in regions like Northern Ostrobothnia, by connecting SMEs with circular production networks. Expected outcomes may include increased adoption of smart manufacturing and digital tools for resource optimisation, development of waste-to-value systems linking SMEs with circular economy networks, growth of regional digital ecosystems focused on circular economy practices.

30. **Strengthen industry-academia collaboration.** To stimulate innovation and support the green-digital transition, targeted programmes should be developed to link industries, particularly in forestry and tech sectors, with research institutions. Cross-regional networks, such as North Karelia's bioeconomy ecosystem and Kainuu's CEMIS-Centre for Measurement and Information Systems, should be strengthened to foster collaboration and drive innovation in key sectors. Expected outcomes may include enhanced collaboration between industry and academia, development of new joint research projects in key sectors, strengthened ecosystems for green and digital innovation.

Multilevel governance and cross-border co-operation

31. **Foster cross-border initiatives in green technology with other NSPA regions.** Business Finland could co-ordinate an NSPA-wide Green Technology Taskforce, collaborating with counterparts in Norway and Sweden to share resources and expertise. Through a systemic policy mix, cross-border grants and shared innovation hubs could be used by regional governments and the respective Ministries of Foreign Affairs to align their efforts to pool resources and expertise. A potential goal to be achieved could be the launch of three joint green technology initiatives, promoting shared growth and resilience in the NSPA region. Some of the expected outcomes of this sub-goal could be the: formation of an NSPA-wide

Green Technology Taskforce, cross-border grant programs to support shared green tech projects, development of joint innovation centres focusing on circular economy practices.

32. **Consolidate ongoing territorial reforms into an integrated governance system.** Finland should further integrate ongoing territorial reforms into a co-ordinated regional governance system that promotes decentralised decision-making. This approach will enhance policy efficiency and effectiveness at the local and regional levels, with continuous monitoring and impact assessments to adapt reforms to specific regional contexts. Expected outcomes may include more effective and integrated regional governance systems, continuous monitoring and adaptation of reforms, improved alignment of local and national policies.

33. **Develop a partnership approach to intergovernmental co-operation.** The ongoing reforms provide an opportunity to move away from sectoral, siloed approaches and foster more collaborative intergovernmental partnerships. By facilitating better co-ordination between key ministries at the regional level, a partnership-based approach can better address local development needs and challenges. Expected outcomes may include strengthened intergovernmental co-ordination for local development, enhanced collaboration between ministries and regional authorities, more efficient implementation of regional development projects.

34. **Support innovation in governance through experimentation and monitoring.** Finland should adopt a more experimental and flexible approach to governance, allowing for innovation in policy implementation. This includes utilising a "sandbox" approach where local governments can experiment with reforms, supported by robust monitoring and evaluation systems to facilitate ongoing learning and adaptation. Expected outcomes may include greater openness to policy experimentation and innovation, enhanced local government involvement in governance processes, continuous learning and adaptation based on real-time feedback.

35. **Co-ordinate a strategic action for local development along the border with Russia.** Following the Russian aggression against Ukraine, there is a need for co-ordinated action to address the local impacts on the Finnish NSPA regions bordering Russia. A regional development strategy tailored to these areas should be developed, involving collaboration between local authorities and the central government to ensure a unified response. Expected outcomes may include co-ordinated regional development strategies for areas impacted by the border situation, enhanced local government support in response to geopolitical challenges, strengthened cross-border co-operation in security and local development.

36. **Strengthen the role of the regions in the management of the European Cohesion Funds.** Regional authorities should play a more active role in determining priorities for the management and distribution of EU and national funding, particularly in areas related to green and digital transformation. This decentralisation would ensure that regional needs are better addressed, and that funding is used more effectively to support local initiatives. Expected outcomes may include enhanced regional involvement in EU funding decision-making, improved alignment of EU funds with regional priorities, increased effectiveness of regional projects funded by EU resources.

National and regional (NSPA) levels

Competitiveness and connectivity

37. **Expand broadband access in rural and remote areas.** To address digital divides, the Ministry of Transport and Communications could oversee the implementation of government-subsidised broadband expansion programs, with a goal of 95% broadband coverage in rural areas. This sub-goal would involve public-private partnerships with telecom providers and local governments, leveraging subsidies for telecom investments. The funding needed to implement this sub-goal could partially come from the EU Digital Europe Programme to ensure comprehensive digital access across the region. Some of the expected outcomes of this sub-goal could be the: increase in public-private partnerships for broadband expansion,

new broadband coverage targets within regional regulations, establishment of rural digital equity programs to ensure equal access.

38. **Improve east-west transport connectivity.** Upgrading transport infrastructure is essential for integrating the NSPA region with national and international markets. The Finnish Transport Infrastructure Agency could collaborate with regional transport authorities and construction firms to secure EU funding (i.e. structural funds) for critical road and rail infrastructure projects. Possible policy instruments contributing to this sub-goal could rely on regulatory and economic instruments such as public procurement for infrastructure projects, and the EU Connecting Europe Facility co-ordination. This sub-goal would target regional transport authorities, construction firms and local (i.e. municipal) governments, requiring the co-ordination among these. This upgraded transport infrastructure could have a positive impact on existing logistical challenges, reducing transit times, and improving the overall economic integration of Finnish NSPA regions. Some of the expected outcomes of this sub-goal could be the: launch of regional transport committees to monitor infrastructure progress, development of cross-border transport regulations and frameworks supporting public procurement for innovation, creation of regulatory guidelines for infrastructure sustainability in remote regions.

39. **Support digital transformation in traditional sectors.** Recognising the transformative potential of digitalisation for manufacturing industries, forestry and tourism, Business Finland, the Finnish Agency for Rural Affairs and the Ministry of Finance could implement targeted training and resource support for these sectors. This sub-goal would mobilise local vocational training centres and technology providers, in addition to SMEs and family firms. A potential target could be that 60% of SMEs in these traditional sectors would adopt digital tools, fostering their competitiveness and internationalisation. In addition to training programs, other economic incentives, including innovation vouchers and digital transformation grants, could be provided to ease this transition. Some of the expected outcomes of this sub-goal could be the: implementation of SME digitalisation training programs, creation of technology adoption networks for traditional sectors (e.g. tourism, forestry), introduction of public grants and innovation vouchers for digital tools in traditional industries.

NSPA level

Competitiveness and connectivity

40. **Facilitate collaboration between SMEs, universities, and research institutions**. To drive cross-sectoral innovation, Finnish Regional Councils could establish regional innovation hubs to connect SMEs with academic and research institutions. These hubs could be supported through voluntary collaborative frameworks and financial incentives, such as innovation vouchers, and would serve as key platforms for enhancing knowledge exchange and fostering the commercialisation of research outputs. This approach aims to create a foundation for sustainable regional growth, with a target of establishing at least three fully operational innovation hubs by the end of 2030. Key outcomes of this initiative could include: (i) the creation of innovation hubs or competence centres focused on SME collaboration; (ii) the establishment of formalised networks between academia and industry (e.g. advisory committees, joint R&D consortia); (iii) the development of regional guidelines to standardise SME-university partnerships. Currently, Regional Councils lack the legislative authority to grant innovation vouchers. Amending the Regional Development and Financing Act would enable them to provide direct financial support to businesses. This is especially relevant given the discontinuation of Business Finland's innovation vouchers. Empowering Regional Councils in this way would strengthen their role in supporting business and RDI co-operation, aligning with Finland’s upcoming reforms, including the transition from ELY Centres to “Elinvoimakeskus” (EVK) networks and the establishment of employment areas starting in January 2026.

41. **Develop sustainable forestry and land use practices.** With an emphasis on sustainability, the Finnish Forest Centre could implement pilot projects promoting sustainable land use and forestry practices for SMEs. Supported by regulatory frameworks (e.g. sustainability standards) and economic incentives

(e.g. subsidies, grants), this program could ensure that 50% of forested areas adopt sustainable practices. The implementation of this sub-goal would require the involvement of forestry associations, local governments and landowners, in addition to sectoral SMEs. Some of the expected outcomes of this sub-goal could be the: introduction of regional forestry sustainability standards and certifications, creation of forestry management guidelines and training programs, establishment of sustainable land use committees involving key stakeholders.

Green transition and environmental challenges

42. **Enhance renewable energy diversification and capacity expansion.** Prioritise the development and deployment of onshore and offshore wind farms, coupled with large-scale solar photovoltaic (PV) investments. Address radar compatibility issues for wind power through targeted technological and policy solutions. Focus on integrating renewable energy projects near consumption points to reduce transmission losses.

43. **Promote low-carbon transport solutions.** Expand electric vehicle (EV) charging infrastructure, introduce incentives for EV adoption, and integrate hydrogen fuel technologies and biogas for heavy transport. Support public transport and shared mobility options through subsidies and improved regional connectivity to reduce reliance on fossil fuels in transportation.

44. **Ensure early and inclusive community engagement.** Develop frameworks for involving local populations in planning and decision-making processes for green energy projects. Foster trust through transparent communication and by ensuring tangible local benefits, such as revenue-sharing schemes and job creation tied to renewable energy installations.

45. **Protect biodiversity and indigenous peoples' livelihoods.** Implement policies to balance industrial development with the preservation of biodiversity and the rights of indigenous communities. Support reindeer herders and other traditional livelihoods through compensation schemes and skill-building programs tailored to emerging green industries.

Multilevel governance and cross-border co-operation

46. **Invest in skills and capacity for policy development at all levels.** The transition to new forms of governance resulting from the reforms implemented in recent years necessitates the development of autonomous regional authorities endowed with substantial capacity and skilled staff. This requires the implementation of a more strategic and long-term competence development strategy, accompanied by the allocation of dedicated resources, at the municipal and regional levels (Regional Councils, Wellbeing Counties and employment regions).

47. **Promote horizontal strategic co-operation across the Finnish NSPA.** The evolving contexts necessitate the development of novel approaches and solutions for regional and local development. It is imperative to enhance the efficacy of collaboration between NSPA regions, as some challenges cannot be addressed through isolated efforts. The regional development strategy of each NSPA should be articulated in a manner that is mutually reinforcing with those of neighbouring regions, thereby facilitating critical mass and leveraging existing common assets. Furthermore, the exploration of innovative solutions and co-ordinated governance mechanisms is essential to facilitate such collaboration.

48. **Stimulate innovation through new and stronger synergies between local actors.** New innovation pathways must be pursued through increased collaboration through public-private partnerships, supported by the public sector. This can be achieved through the so-called triple helix dynamic, which involves testing new approaches, building on existing assets and local potential.

49. **Break new ground in local governance through institutional innovation.** It is recommended that new methods of service delivery and promotion of growth in the Finnish Arctic regions be explored,

particularly with a view to leveraging innovation in the provision of local public services with a view to maintaining or even enhancing the high quality of these services.

50. **Develop new visions and perspectives for international co-operation.** The Finnish NSPAs, with their extensive experience in cross-border co-operation, are well-positioned to address the challenges arising from Russia's invasion of Ukraine. To boost regional competitiveness and economic integration, it is crucial to leverage geographical advantages, establish stable trade links, and foster innovation networks. This requires a rethinking of international co-operation strategies, focusing on new territorial co-operation programmes that build resilient trade relations and innovation hubs. Key stakeholders, including the Finnish NSPA Regional Councils, the NSPA Network, and the Ministry of Economic Affairs and Employment, should lead the development of European Territorial Co-operation programmes to meet the region's evolving needs.

51. **Manage the geopolitical risk across the region.** In addition to the aforementioned point, it would be recommended to establish a task force across the NSPA with the objective of navigating and mitigating geopolitical risks, thereby ensuring economic stability and regional security in collaboration with the national government.

Recommendations for Norway and the Norwegian NSPA

National level

Competitiveness and connectivity

52. **Support SMEs in green and digital innovation**. Recognising the need for digital transformation, Norway's Ministry of Trade, Industry, and Fisheries could establish regional innovation support centres, for example, in maritime and green technology, to guide SMEs through digital and sustainable practices. In addition to SMEs, vocational training centres and technology providers could also be participating in this initiative. Economic incentives, including innovation vouchers, and soft instruments, such as training programs could be used to reach this sub-goal. A potential target to be achieved could be to help 50 SMEs adopt green and digital solutions, promoting sustainable economic growth. Some of the expected outcomes of this sub-goal could be the: creation of innovation support centres with a focus on green and digital technology, regulatory incentives and subsidies for green business practices among SMEs, new training and mentorship networks for SMEs in digital transformation.

53. **Foster cross-sectoral partnerships between large firms and SMEs**. By encouraging collaboration between SMEs and larger firms, the Research Council of Norway and Innovation Norway could aim to create cross-sectoral partnerships between SMEs and large firms in R&D. With public procurement and tax incentives supporting this collaboration, three partnerships per cluster could be aimed at by 2030, strengthening Norway's NSPA regions in green technology and maritime innovation. Some of the expected outcomes of this sub-goal could be the: establishment of partnership frameworks and joint R&D programs, launch of a collaborative funding scheme for SME-large firm partnerships, development of industry-specific committees to oversee cross-sector partnerships.

54. **Increase investments in renewable energy projects.** To support Norway's green transition, the Norwegian Water Resources and Energy Directorate could develop public-private partnerships to scale-up wind and hydroelectric projects. Through the provision of economic incentives (i.e. grants, subsidies) and the implementation of public procurement for innovation, energy companies and R&D institutions could participate in renewable energy production in the region. A potential target could be to have an increase of 30% in renewable energy production by 2027, supporting both local sustainability and energy security. Some of the expected outcomes of this sub-goal could be the: creation of public-private renewable energy task forces, introduction of renewable energy production guidelines and tax incentives, development of funding programs for sustainable energy projects.

55. **Develop cross-border green technology initiatives with Finland and Sweden**. To enhance cross-border collaboration, Innovation Norway could form an NSPA Green Innovation Taskforce with Finnish and Swedish counterparts, including industry clusters and research institutes. Systemic instruments such as cross-border funding and the development of shared infrastructure projects could be used with the ambition of launching two joint projects by 2030, aiming at fostering shared innovation in sustainable energy, driving regional economic and environmental goals. Some of the expected outcomes of this sub-goal could be the: formation of an NSPA Green Innovation Network, joint funding mechanisms for cross-border green projects, launch of shared infrastructure and resources for green technology.

Green transition and environmental challenges

56. **Scale up renewable energy investments.** With Nordland already achieving 100% renewable energy in electricity production and Troms and Finnmark nearing this milestone (88.15% renewables), the region should expand investments in hydropower and wind energy. Addressing seasonal energy deficits—an energy surplus in summer and a deficit in winter—requires developing additional renewable projects and balancing energy needs with biodiversity preservation. Regional efforts must also focus on integrating energy policies across municipalities to enhance land use planning and avoid conflicts.

57. **Enhance low-emission transportation systems.** Transportation is a major source of greenhouse gas emissions, and transitioning to low- and zero-emission options is critical. The electrification of ferries, such as hydrogen-based solutions for maritime routes like the Bodø-to-Lofoten ferry, must accelerate. Urban centres like Tromsø are leading the way with electric buses and zero-growth targets in car usage. Expanding these initiatives to rural and regional transport systems will require investments in hydrogen and EV infrastructure, as well as long-term standardisation efforts for extended transport routes.

58. **Strengthen energy infrastructure and smart grids.** Northern Norway must modernise its energy grid to address increasing energy demands driven by electrification and industrial growth (e.g. green steel, battery production). Smart grids can reduce inefficiencies and facilitate energy storage and transmission. The planned pilot project on Senja Island is an excellent starting point, combining smart grids with renewable energy applications for fishing and residential use. Scaling these systems across the region will support the transition to a sustainable and resilient energy future.

59. **Advance green hydrogen production and utilisation.** Green hydrogen, derived from renewable energy, and blue hydrogen, utilising carbon capture, present significant opportunities in the region. With suitable climatic conditions, expertise, and access to storage facilities, Finnmark is a natural site for hydrogen development. Tromsø, as a hub for research and innovation, can lead the phase-in of hydrogen solutions for both offshore and onshore applications. These initiatives should be supported by strategic investments in infrastructure and partnerships to position Northern Norway as a leader in hydrogen energy exports.

60. **Strengthen industrial collaboration and workforce development.** A shortage of skilled workers in emerging green industries like hydrogen and renewable energy poses a significant challenge. Universities and vocational institutions should collaborate with the private sector to develop tailored programs and training. Partnerships should also focus on increasing patent intensity and innovation indices in the region, aligning workforce skills with the demands of green industrial development.

61. **Promote innovation in aquaculture.** The salmon farming industry in Norway is one of the most advanced globally, leveraging novel technologies like offshore and onshore systems to reduce the environmental impact of traditional open-pen methods. To maintain this leadership, Northern Norway should continue to develop sustainable production methods, such as cell-based seafood technologies. Regulatory frameworks that encourage growth while minimising environmental degradation are critical to ensuring a balance between economic expansion and ecological protection.

62. **Implement inclusive governance for green transitions.** Economic benefits from the green transition must be equitably distributed. Indigenous and marginalised communities should receive targeted support to build capacity and participate in new economic opportunities. Programmes that foster cultural and social inclusion will help ensure a fair and sustainable transition, addressing the socio-economic disparities that often arise during periods of rapid change.

63. **Integrate indigenous cultural interests.** Indigenous peoples' culture and traditional livelihoods are deeply connected to the natural environment and face threats from industrial expansion. Policies must safeguard and promote Sámi heritage through inclusive planning and economic initiatives. This includes supporting Indigenous peoples' enterprises that incorporate traditional knowledge into green transition projects and ensuring cultural considerations are prioritised in energy and industrial development plans.

Multilevel governance and cross-border co-operation

64. Consolidate recent local, regional and rural reforms by supporting them through an integrated and co-ordinated system of regional and local governance. The objective of greater localisation of state policy through its agencies offers a good opportunity to consolidate an inter-institutional local partnership approach and co-operation, both vertical and horizontal. With regard to the NSPAs and their specificities, it is recommended to adapt the reforms to these specific contexts in order to ensure effective place-based policy making.

65. Strengthen co-ordination between national and regional development strategies. Vertical integration of policies is considered to be mutually beneficial for the government and the regions and to make the policy framework more coherent. Complementary horizontal policy integration is sought by further supporting and incentivising co-operation between the three NSPAs.

66. Improve the co-ordination of the policies of the different ministries in the territories. The recommendation is to facilitate the co-ordination of actions of key ministries and agencies within the Norwegian NSPA by directly involving their local governments and embedding their specificities. In addition, mechanisms for involving national sectoral ministries in regional and rural development planning and decision-making should be strengthened.

67. Encourage innovation in governance, enabling conditions and policy delivery instruments. It would be beneficial to utilise existing local partnership experience as a platform for the creation of pilot and case studies of novel collaborative governance strategies across diverse governmental levels, with the active involvement of regional stakeholders. Where feasible, this could be achieved through the implementation of the sandbox approach to governance innovation.

68. Strengthen cross-border and transnational co-operation between the three NSPA countries. It is recommended that the government reinforce the political action and resources allocated to supporting and opening new spaces for Nordic co-operation between the NSPAs in the three countries. In doing so, consideration should be given to the emerging common defence interests and the opportunities presented by Finland and Sweden's association with NATO.

National and regional (NSPA) levels

Competitiveness and connectivity

69. **Boost broadband penetration in rural and remote areas**. The Norwegian Communications Authority, in partnership with telecom providers and local governments, could implement government-funded broadband projects to expand broadband access to achieve 90% coverage. By awarding subsidies and implementing public-private partnerships, this initiative could aim to improve digital connectivity, enabling remote communities to participate in the digital economy. A potential means to implement this sub-goal could be the EU Digital Europe Programme. Some of the expected outcomes of this sub-goal

could be the: enhancement of subsidy programs for telecom providers, creation of digital inclusion committees to oversee rural connectivity goals, introduction of local regulations for telecom investment incentives.

70. **Strengthen transport infrastructure to improve east-west connectivity.** To support trade and regional integration, the Norwegian Public Roads Administration could focus on developing strategic infrastructure projects in road and rail. These improvements could directly enhance logistical efficiency, reduce travel times, and support the growth of local industries while integrating them into broader markets. Regional governments could introduce regulatory incentives and public procurement initiatives to encourage construction companies to achieve this goal. Expected outcomes may include: the implementation of regulatory guidelines for cross-border transport projects, the creation of a regional transport advisory board for infrastructure oversight, and the launch of public procurement frameworks for sustainable transport solutions.

71. **Support digitalisation among local SMEs.** With a focus on providing digitalisation grants for SME transformation in maritime and energy sectors, Innovation Norway could interact with regional SME clusters and technology providers. Through economic incentives (i.e. digitalisation grants) and regulatory incentives, a potential target to be achieved could be that 80% of targeted SMEs are expected to adopt digital solutions, significantly enhancing their productivity and competitiveness. Some of the expected outcomes of this sub-goal could be the: establishment of digital training centres and technology partnerships for SMEs, provision of digitalisation grants and innovation vouchers for technology adoption, development of formalised networks to facilitate SME digital growth.

NSPA level

Competitiveness and connectivity

72. **Develop cluster projects in high-potential sectors**. Innovation Norway could lead efforts to enhance regional clusters in sectors like maritime, mining, and aquaculture. Through financial incentives such as grants and loans, and cluster-building as a systemic policy instrument, five sectoral clusters could be strengthened or scaled-up in prioritised sectors. The stakeholders required for the effective implementation of this sub-goal are local industry associations and R&D institutes. These clusters would be expected to facilitate knowledge-sharing, support new business ventures, and improve market competitiveness. Some of the expected outcomes of this sub-goal could be the: establishment of sector-specific clusters (e.g. aquaculture, maritime technology), implementation of standardised guidelines for cluster development, launch of sector-focused cluster funding and innovation support programs.

73. **Encourage sustainable practices in forestry and fisheries.** The Norwegian Forest Owners Association could launch a certification program and resource management programs promoting sustainable forestry and fisheries. Regulatory instruments (i.e. certifications) and soft instruments (i.e. training programs) could be used to reach forestry companies, local governments and industry associations. A potential target could be to aim for 70% of industry compliance by 2030. Some of the expected outcomes of this sub-goal could be the: establishment of sustainable resource management certifications, creation of training programs for sustainable practices in key industries, development of regulatory frameworks for forestry and fisheries sustainability.

Green transition and environmental challenges

74. **Develop and implement regional climate resilience strategies.** Northern Norway faces significant climate vulnerabilities, including impacts on agriculture, coastal industries, and traditional livelihoods. The region should implement targeted strategies to enhance resilience, such as fortifying essential services, mainstreaming climate considerations in municipal planning, and integrating climate adaptation efforts into sectoral policies. For example, the "Se Nord" plan and participation in the EU's

"mission climate adaptation" project could be scaled to address sector-specific challenges more comprehensively.

75. **Support emerging green industries.** The region's Smart Specialisation Strategies have identified potential growth sectors, including battery production, green steel, and hydrogen. Leveraging comparative advantages such as abundant natural resources, low power costs, and Arctic conditions, these industries can provide a foundation for sustainable economic development. Co-ordinating investments in these sectors while ensuring alignment with global sustainability goals will foster long-term regional competitiveness.

76. **Expand green tourism initiatives.** Northern Norway's spectacular Arctic coastal landscapes and cultural heritage present opportunities to strengthen eco-friendly tourism. The pandemic and geopolitical issues have significantly impacted the sector, particularly in remote areas like Eastern Finnmark. Strategies should focus on creating diverse, year-round tourism offerings that encourage longer stays, reduce the dependency on cruise traffic, and integrate sustainability into every aspect of tourism development. This will require investment in infrastructure, promotion of small local businesses, and environmental stewardship.

77. **Resolve land use conflicts through enhanced planning.** Industrial activities, Indigenous reindeer herding, biodiversity preservation, and recreational uses often conflict in Northern Norway. Resolving these conflicts requires updated spatial plans, which many municipalities currently lack due to resource and expertise shortages. Targeted capacity-building efforts, combined with streamlined licensing processes, can ensure land use planning addresses diverse stakeholder needs while facilitating sustainable development.

78. **Advance just transition principles in smart specialisation strategies.** Integrating responsible research and innovation principles into Smart Specialisation Strategies ensures that the green transition is not only economically viable but also socially inclusive and environmentally sustainable. These principles should guide decision-making to prevent unintended consequences, such as exacerbating inequality or undermining traditional livelihoods.

Multilevel governance and cross-border co-operation

79. **Build capacity for better local policies.** It is recommended that a competence development strategy be designed to address training and capacity-building measures. These can be more effectively organised not individually, but as a co-operation between municipalities and regions, based on a structured training needs analysis and leveraging on the wealth of initiatives at the local and regional level on skills development for local officers in the Norwegian NSPA regions.

80. **Open local strategies and planning tools to new challenges such as population decline.** The conventional approach to development planning and strategies, which has historically prioritised growth and expansive development, must be reoriented to address the present reality of population decline in NSPA. This necessitates a shift towards sustainable land use, scalable infrastructure and service provision that is responsive to changing demographics. The objective is to ensure that the region is adequately prepared to navigate both current challenges and future opportunities.

81. **Promote horizontal strategic co-operation across the Norwegian NSPA**. Although the challenges faced by the NSPA have a number of specificities, they also exhibit many commonalities. Consequently, the development of regional strategies should be pursued through a process of linkages with other regions, with a view to establishing new forms of collaboration and governance.

82. **Strengthen local partnerships for innovation**. The ongoing structural reforms provide an opportunity for institutional innovation and the testing of new solutions. This requires the building and maintenance of strategic synergies between public and private actors, or even the invention of new forms

of public-private partnerships. Furthermore, it necessitates the experimentation with new ways of delivering services and the promotion of development in the Arctic regions.

83. **Expand international co-operation**. The ongoing conflict between Russia and Ukraine has resulted in the suspension of numerous cross-border programmes and projects with Russian partners. This has had a particularly pronounced impact in Eastern Finnmark. In light of this, it is imperative that the international co-operation of NSPA regions undergoes a comprehensive rethinking and reorientation. This should be done in a way that capitalises on geographical advantages to foster the development of robust trade links and innovation networks.

84. **Manage geopolitical risk across the region**. This point is supplementary to the preceding one and proposes the constitution of a task force across the NSPA with a view to navigating and mitigating geopolitical risks, thereby ensuring economic stability and regional security. This would be achieved through co-operation between the regions and the national government.

Recommendations for Sweden and the Swedish NSPA

National level

Competitiveness and connectivity

85. **Enhance SME digital and green innovation capacity.** The Swedish Agency for Economic and Regional Growth could provide support for SMEs in digital and sustainable practices by launching training programs for SMEs, either by providing grants or through regulatory support (e.g. standards for green practices). A potential target could be to match 100 SMEs with their corresponding technology providers, to integrate digital tools and sustainable practices, advancing the region's competitiveness in high-growth sectors. Some of the expected outcomes of this sub-goal could be the: creation of digital innovation centres focused on SME transformation, regulatory support for green innovation and tax incentives, new funding mechanisms for digital and sustainable tech adoption in SMEs.

86. **Support cross-sectoral partnerships.** By developing joint R&D initiatives in ICT, bioeconomy, and forestry, the Swedish Research Council could strengthen cross-sectoral collaboration. Through a mix of systemic policy instruments such as tax incentives and public-private partnerships, regional clusters, universities and research institutes could be mobilised to foster synergies between diverse industries, promoting resilience in Sweden's NSPA regions. A potential target could be to establish three new R&D partnerships across industries by 2030. Some of the expected outcomes of this sub-goal could be the: establishment of multi-industry clusters and partnership frameworks, launch of cross-sectoral innovation funds for R&D partnerships, development of cross-sector co-ordination guidelines.

87. **Support digital transformation in local industries. The Swedish Agency for Economic and Regional Growth** could implement digital training programs and offer grants for SMEs in key sectors like tourism, forestry, and mining. By bringing together SMEs and technology providers, it could be possible to bring digital adoption to 80% of targeted SMEs, improving their productivity and adaptability in a rapidly digitising global market. Some of the expected outcomes of this sub-goal could be the: establishment of industry-specific digital training programs, provision of digital transformation grants for key sectors, creation of digital adoption benchmarks for traditional industries.

Green transition and environmental challenges

88. **Reinforce local, regional, and national power grids.** Build and upgrade power supply infrastructure, focusing on smart grids to address capacity limitations and to optimise energy distribution. East-west power line reinforcements should also be prioritised to match emerging industrial demands.

89. **Decarbonise high-emission sectors.** Facilitate the transition of the steel and metal-processing industries to low- or zero-carbon technologies. Support innovations in carbon capture and storage (CCS) and expand funding mechanisms for these green initiatives.

90. **Expand renewable energy sources and diversify the energy mix.** Increase investments in wind, solar, and hydrogen energy, along with smaller-scale renewable sources like geothermal and tidal energy. This will enhance energy security and diversify energy production, reducing dependency on current technologies such as hydropower.

91. **Establish risk sharing facilities for large industrial investments in small community settings**. Sweden's green industrialisation in northern municipalities has imposed significant financial and social challenges on local governments. These municipalities bear substantial costs for infrastructure and services to support new industries and workers, while the majority of tax revenues flow to the national government. To promote equitable development and sustainable growth, the Swedish government should establish national-level risk-sharing mechanisms. Such a system would ensure a fair distribution of financial risks and rewards between the national and local governments, supporting municipalities hosting large industrial investments.

92. **Compensate local communities for industrial and renewable energy development.** Introduce benefit-sharing models, such as reinvestment of wind farm or industrial profits into local development funds earmarked for community services, schools, and infrastructure projects.

Multilevel governance and cross-border co-operation

93. Leverage the adopted territorial reform to enhance a more integrated and co-ordinated system of regional and local governance with clear responsibilities and mandates between the levels and authorities. Conduct a structural evaluation of the regional reform currently in place, focusing specifically on lessons learned from its implementation across the NSPA regions. The goal is to assess the reform’s effectiveness, identify areas for improvement, and determine whether further consolidation or adaptation is necessary. The analysis should include: (i) an evaluation of the effects and the long-term viability of the reform; (ii) a review of lessons learned from the NSPA experience, gathering feedback from each region on factors such as economic development, infrastructure, service delivery, social cohesion, and environmental sustainability. Based on the evaluation’s findings, adjustments may be required by expanding or refining certain aspects of the reform, or tailoring it more closely to the specific needs of each region.

94. Recalibrate fiscal equalisation and enhancing NSPA attractiveness. To promote long-term economic development and sustainability in Sweden's NSPA, a recalibration of the fiscal equalisation system is essential, taking into account that the local and regional level not able to tax the natural resources that are exported from the regions, complemented by measures that directly address the region's specific challenges. The current fiscal equalisation mechanism, while designed to ensure equitable public services, creates distortions that discourage population retention and regional growth in the NSPA. A revised formula should reflect the unique demographic and economic characteristics of these regions, including a more favourable sparsity calculation to provide better fiscal terms for northern municipalities. In addition, a structured revenue-sharing model for industries such as natural resource extraction and energy production should be implemented. This model would ensure that municipalities hosting these industries receive a fair share of the economic benefits through exploitation fees or taxes, particularly for raw materials and energy exports. Expanding on existing initiatives like wind turbine levies, the policy should encompass a broader range of energy and raw material sectors to directly benefit local communities.

95. **Support innovation in governance to create better conditions for local development**. The regional reform has constituted a significant opportunity for innovative governance practices between local, regional and national government in Sweden. In the NSPA, this offers a window of opportunity for experiments that could prove beneficial in further consolidating regionalisation in the northernmost regions.

Such consolidation could also be facilitated by testing EU cohesion innovative instruments (e.g. Integrated Territorial Investments) and the wider adoption of the Community Led Local Development approach.

96. **Evolve the role of the regions in the future management of the European Cohesion Funds**. The EU Cohesion Funds in Sweden are managed by a centralised authority at the ministerial level, with only partial devolution of implementation to the regional level. It would thus be advisable to consider a further move towards a fully regional approach to EU cohesion funds for the next programming period after 2027. This transition would prompt the regions to collaborate closely with the municipalities in order to facilitate a unified, concerted action. This would entail conferring full decision-making power on the regions, in particular the NSPA, not only in the implementation phase but also in the initial stages of programming.

National and regional (NSPA) levels

Competitiveness and connectivity

97. **Create partnerships between SMEs and universities.** Sweden's innovation agency (Vinnova), could establish regional innovation hubs that connect SMEs with local academic institutions, relying on regional SME associations as intermediary organisations facilitating these partnerships. By creating voluntary collaborative frameworks and providing financial support such as innovation vouchers, these hubs could enhance knowledge transfer and accelerate commercialisation within key sectors. A potential target could be to count with five operational innovation hubs by 2030. Some of the expected outcomes of this sub-goal could be the: establishment of regional innovation hubs to support SME-academia collaboration, development of guidelines for SME engagement in university-led projects, introduction of innovation vouchers for research collaboration.

98. **Expand high-speed broadband in remote areas.** The Swedish government, through the Swedish Post and Telecom Authority (PTS), in collaboration with local governments and telecom providers, could intensify efforts to ensure comprehensive high-speed broadband coverage in the NSPA, particularly in the most remote and underserved areas. The focus must shift to bridging the connectivity gap in the areas that are economically unviable for commercial investment but critical for regional equity and inclusion. This effort could involve funding broadband expansion projects through partnerships between the PTS, local governments, and telecom providers, emphasising targeted interventions for the most challenging areas. Public-private broadband expansion partnerships would play a key role in driving this transition towards full digitalisation. This can be pushed forward by the establishment of rural broadband coverage targets, integrated within regional and national policies, the creation of robust public-private partnerships to facilitate broadband infrastructure expansion, and the introduction of targeted rural digital literacy programmes to enhance digital inclusion and utilisation of broadband services.

99. **Enhance east-west transport corridors.** The Swedish Transport Administration could lead efforts to develop transport projects improving connectivity across Sweden's NSPA regions, focusing on essential east-west links. Construction companies and regional governments could be mobilised through public procurement initiatives. This sub-goal project could leverage EU funds from the Connecting Europe Facility to upgrade road and rail infrastructure, enhancing economic activity and regional integration. Some of the expected outcomes of this sub-goal could be the: development of infrastructure guidelines for cross-border transport, creation of transport investment programs leveraging EU funds, launch of inter-regional transport committees.

100. **Invest in the missing links and bottlenecks regarding the North-South corridors**. Address the deficiencies in the north-south transport corridors to align with EU TEN-T (Trans-European Transport Network) standards and enhance national competitiveness. These corridors are vital for linking Swedish industries to EU markets but face significant challenges, including missing links, outdated rail infrastructure, and poorly maintained roads. Key issues such as low-speed rail segments, limited freight capacity, and substandard road conditions threaten Sweden's ability to meet the EU's 2030 completion

deadline. While the north-south corridors should remain the primary focus, enhancing north-south routes will strengthen regional connectivity and support industries dependent on both domestic and international markets.

101. **Incentivise renewable energy and green R&D.** The Swedish Energy Agency, in co-operation with energy firms and R&D institutions could establish grants and tax incentives and define a set of regulatory incentives to stimulate R&D in bioenergy and wind energy. Through this sub-goal Swedish NSPA could aim to increase renewable energy projects and strengthen the region's green innovation ecosystem. Some of the expected outcomes of this sub-goal could be the: launch of grants and tax incentives for renewable energy projects, establishment of guidelines for green R&D investment, formation of public-private partnerships for green infrastructure.

102. **Promote sustainable land use and forestry management.** In Sweden's NSPA, effective land use and forestry management must balance economic development, environmental sustainability, and cultural preservation. Forestry plays a crucial role in the local economy, providing jobs and renewable resources while intersecting with agriculture, energy, and tourism. Rising demand for timber and biomass heightens pressure on forest resources, threatening biodiversity and ecosystem resilience. Stakeholders, including forestry companies, environmental organisations, local landowners, and Sámi communities, often have competing priorities. To address these challenges, the Swedish Forest Agency could implement a certification programme to promote sustainable land use practices. By offering regulatory measures (e.g. certifications) and economic incentives (e.g. subsidies for sustainable practices) to associations and landowners, the programme could aim to ensure resource sustainability while supporting economic growth.

103. **Develop cross-border circular economy initiatives.** The Swedish Innovation Agency (Vinnova) could help regions establishing a cross-border green innovation network with partners in Finland and Norway, focusing on the circular economy. By fostering shared resource management between regional governments, NSPA clusters and existing innovation labs, two cross-border circular economy projects could be implemented by 2030. Some of the expected outcomes of this sub-goal could be the: creation of a regional circular economy network with NSPA partners, launch of shared green innovation hubs across the NSPA, establishment of cross-border project funding for circular practices.

Green transition and environmental challenges

104. **Balance industrial growth with biodiversity and cultural preservation.** Implement stricter regulations and monitoring of externalities like water pollution, carbon emissions, and biodiversity loss. Simultaneously promote eco-tourism and traditional land-use activities like sustainable forestry to create alternate revenue streams for affected communities.

105. **Integrate Indigenous and local community interests into decision-making.** Institutionalise mechanisms to include Indigenous peoples' perspectives in environmental impact assessments and planning processes. Establish funding parity for reindeer husbandry comparable to agricultural subsidies to support their economic resilience.

106. **Promote sustainable transportation infrastructure.** Develop a robust rail network for both passenger and freight transport. Complement this with extensive EV charging networks and investments in alternative fuels like biogas, hydrogen, and biofuel. Foster urban walkability and cycling while exploring on-demand transport solutions for rural areas.

107. **Promote industrial diversification and high-value green products.** Use the natural resources of biomass in the regions to support biorefining technologies, creating bio-based high-value products. This can reduce dependence on volatile resource extraction industries while boosting the local economy.

108. **Address workforce shortages in green industries.** Develop targeted training programmes and university-industry partnerships to build a skilled workforce for green industries such as battery production,

green steel, and renewable energy technologies. Provide incentives for talent attraction and retention in the region.

NSPA level

Green transition and environmental challenges

109. **Integrate green manufacturing hubs with regional resources.** Align the expansion of industries like fossil-free steel and battery manufacturing with the availability of local resources and environmental capacity. This ensures the long-term sustainability of industrial hubs while minimising socio-environmental impacts.

Multilevel governance and cross-border co-operation

110. **Strengthen capacity for policy development through strategic capacity building frameworks**. In Sweden, responsibility for capacity development of regional and municipal staff is largely delegated to individual authorities. However, the absence of a structured, long-term framework results in fragmented and short-term training efforts. This lack of a comprehensive, forward-looking strategy significantly limits the ability of local authorities to effectively address the increasingly complex challenges NSPAs will face in the future. At the subnational level, the primary obstacle to implementation capacity is the scarcity of human and financial resources—both in terms of the number of qualified staff and the funding available for sustained development. To overcome these challenges, regions and municipalities must move beyond sporadic actions and adopt a strategic, long-term framework for fostering capacity in policy design and implementation. This framework should establish clear goals, prioritise needed skill development, and ensure a continuous pipeline of well-trained public officials throughout their careers, thus enhancing local governance capacity in a sustainable manner.

111. **Create conditions for innovative ecosystems.** The NSPAs of Sweden are characterised by a considerable degree of diversity in terms of experience and receptivity to systemic innovation. While each region demonstrates some capacity for innovation that is either fully utilised or partially underdeveloped, there is also a considerable degree of internal disparity across the same region. Consequently, a concerted and sustained effort is required to enhance the performance of underdeveloped areas through the dissemination of innovation and knowledge sourced from the regional dynamic centres.

112. **Promote place-based development and address regional disparities.** This recommendation builds upon the previous one, emphasising the need for a tailored approach to regional development. In light of the unique structural challenges faced by NSPA, it is crucial that development strategies be designed and implemented in a way that reflects the specific strengths and needs of each sub-regional and local community. This includes leveraging successful models like LEADER or similar bottom-up initiatives, which empower local communities to drive their own development. In addition to fostering local action, it is essential that the national government plays an active role in creating enabling conditions through an improved regulatory framework. The effective promotion of place-based development requires a co-ordinated, multi-tiered approach, where both national and local levels of government are engaged in addressing regional disparities and supporting weaker municipalities.

113. **Develop a comprehensive strategy for strategic co-operation and networking between the regions and stakeholders across the NSPA.** It is recommended that a consistent vertical and horizontal networking strategy be developed and implemented across the levels of government. This strategy should be based on the strengthening of links with local universities, businesses, research centres, local authorities and civil society, with a particular focus on the most remote areas. The objective of this strategy is to facilitate the further development of existing networking and collaboration across the NSPA.

114. **Strengthen interregional and cross-border co-operation.** It is recommended that the EU projects and initiatives, in addition to other national and international sources (e.g. the Nordic Council), be employed for long-term co-operation, with a perspective that extends beyond the immediate scope of the individual project. Indeed, it is advised that inter-municipal co-operation and partnerships between NSPA regions in Sweden be strengthened, as well as those with neighbouring regions in Finland and Norway. This is believed to be an effective method of increasing the economic influence and resilience of each region.

115. **Manage geopolitical risk across the region.** In addition to the aforementioned point, it would be recommended to establish a task force across the NSPA with the objective of navigating and mitigating geopolitical risks, thereby ensuring economic stability and regional security in collaboration with the national government.

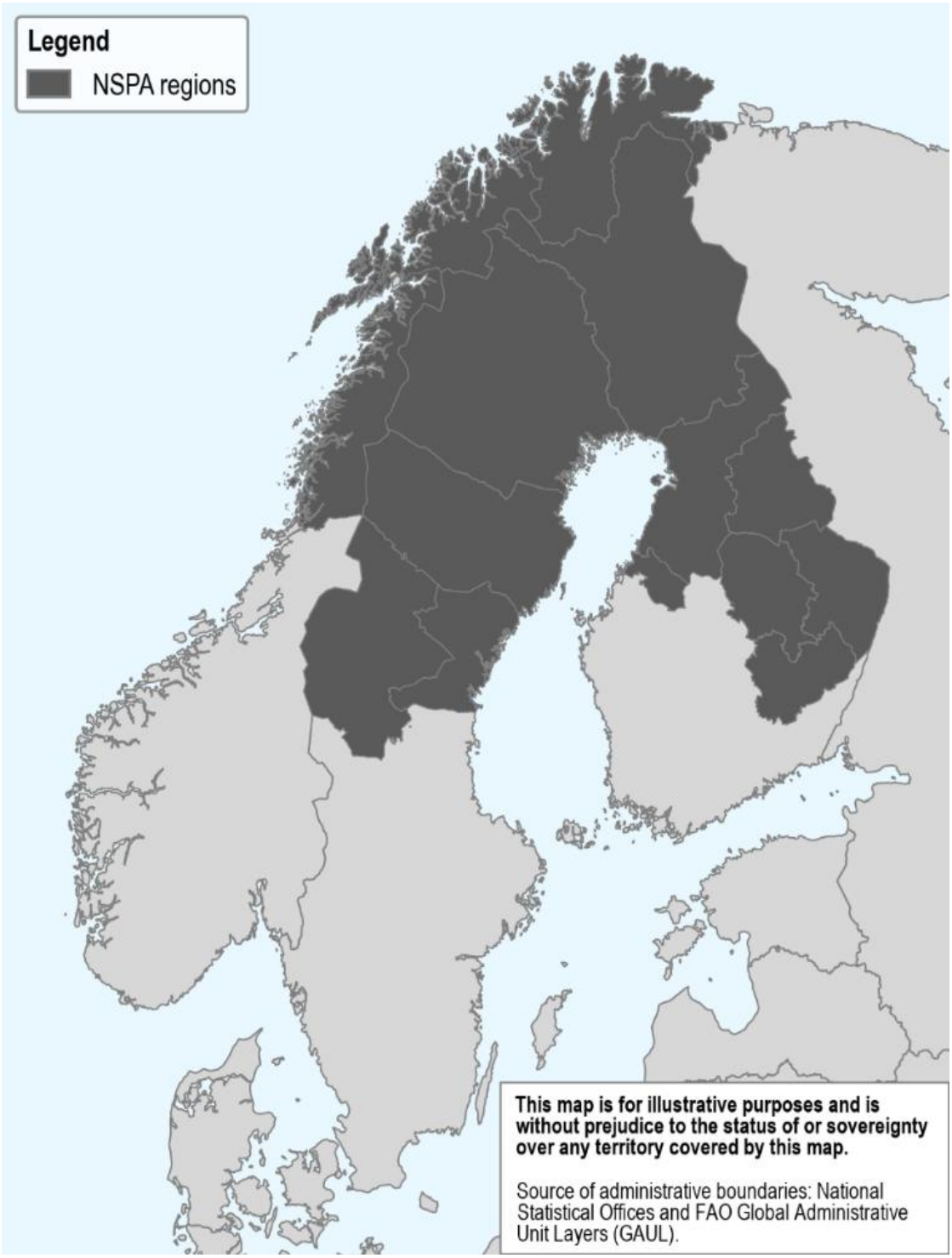
NSPA Regional Diagnostic

The NSPA regions are experiencing growth and leading in innovation and the green transition, despite challenges like population decline and ageing demographics. Key strengths include a rising younger, educated workforce, growing GDP per capita, and improved labour productivity in sectors like agriculture and professional services. Innovation and exports outperform OECD benchmarks, with trade surpluses and advancements in digital accessibility. The green transition is strong, with low GHG emissions and renewable energy dominance. However, challenges remain, including slow overall productivity growth, low firm density, and uneven digital progress. Addressing these requires targeted, place-based policies to enhance competitiveness, manage demographic shifts, and ensure equitable resource access.

The Northern Sparsely Populated Areas (NSPA), 14 regions located in northern Finland, Sweden and Norway, is a collaborative Network established in 2008 with the aim to raise awareness within European Union (EU) institutions regarding the shared challenges and circumstances encountered by these regions (Figure 1).[2] The NSPA Network is composed of two key bodies: the Steering Committee and the Co-ordination Group. The Steering Committee includes the political leaders (chairs) of the regions within the network. The Co-ordination Group is made up of three European Offices based in Brussels: the East and North Finland EU Office, North Norway European Office, and North Sweden European Office.

[2] Small administrative regions refer to the classification of territories based on Territorial Level 3 (TL3) regions elaborated by the OECD that is aligned with the Nomenclature for territorial units of statistics 3 used by Eurostat. Further information on the classification of small administrative regions is available in Box 1.

Figure 1. Map of the NSPA



Note: The NSPA regions are indicated in grey in the map.
Source: OECD Author's elaboration based on official administrative boundaries.

Box 1. The Northern Sparsely Populated Areas (NSPA) and the OECD Regional Typology

The Northern Sparsely Populated Areas (NSPA) includes:

- the seven northernmost and eastern regions of Finland (Lapland, Northern Ostrobothnia, Central Ostrobothnia, Kainuu, North Karelia, Pohjois-Savo and South-Savo),
- the four northernmost regions of Sweden (Norrbotten, Västerbotten, Jämtland Härjedalen, and Västernorrland), and
- the three northernmost regions of Norway (Nordland, Troms and Finnmark).

The OECD regional typology streamlines the comparability of regional data across OECD countries. It categorises geographic units into two levels within each member country: i) large regions (TL2), typically representing the primary administrative tier of subnational government; and ii) small regions (TL3), which aggregate local administrative units. TL3 regions are further divided into regions with varying accessibility according to the functional urban areas (FUA) framework. They include Metropolitan Regions (MR) and Non-metropolitan Regions (NMR) that are further classified into 5 sub-categories:

- Large metropolitan regions (MR-L) with a FUA that is greater than 1.5 million inhabitants.
- Metropolitan mid-sized regions (MR-M) with a FUA that is between 250 000 and 1.5 million inhabitants.
- Non-metropolitan regions near a mid-sized or large FUA (NMR-M) with more than 250 000 inhabitants.
- Non-metropolitan regions near a small FUA (NMR-S) with between 50 000 and 250 000 inhabitants.
- Non-metropolitan remote regions that are far from a FUA (NMR-R).

According to this definition, of the 14 NSPA regions, eleven are defined as NMR-R (Lapland, Central Ostrobothnia, Kainuu, North Karelia, South-Savo, Norrbotten, Jämtland Härjedalen, Västernorrland, Nordland, Troms and Finnmark), while three are defined as NMR-S (Northern Ostrobothnia, Pohjois-Savo, Västerbotten).

Source: Brezzi, M., L. Dijkstra and V. Ruiz (2011), "OECD Extended Regional Typology: The Economic Performance of Remote Rural Regions", OECD Regional Development Working Papers, No. 2011/06, OECD Publishing, Paris, https://doi.org/10.1787/5kg6z83tw7f4-en. Fadic, M., et al. (2019), "Classifying small (TL3) regions based on metropolitan population, low density and remoteness", OECD Regional Development Working Papers, No. 2019/06, OECD Publishing, Paris, https://doi.org/10.1787/b902cc00-en

In addition to the 14 NSPA regions, there are 38 non-NSPA regions in Finland, Sweden and Norway (excluding Svalbard and Jan Mayen). NSPA are distinct from other regions in Finland, Norway and Sweden (i.e. non-NSPA) and OECD regions with similar regional characteristics. On average, NSPA regions are larger than non-NSPA regions and similar to non-metropolitan OECD regions. They also tend to have a relatively lower average population.[3] For instance, the average land cover surface area of the NSPA regions is close to 41 000 000[4], as compared to close to 32 000 000 for the average non-metropolitan

[3] Depending on the region, the NSPA regions can either be classified as an NMR-S or an NMR-R region. More information on this classification is available in Box 1.

[4] The NSPA regions have a total land area of close to 533 000 km2 and non-NSPA regions have close to 483 000 km^2. For consistency and temporal harmonisation challenges in Troms and Finnmark due to the recent administrative changes, the two regions are combined as one region when calculating NSPA regional averages, resulting in 13 units for calculating NSPA regional averages.

region that are far from a function urban area, often considered a remote rural area (NMR-R), and substantially larger than 9 000 000 for the average non-metropolitan region near a small functional urban area (NMR-S) (Table 3). In 2022, the NSPA had a lower density than the average OECD NMR-R and OECD NMR-S region, and in terms of total population, close to 2.5 times lower population than non-NSPA regions and a third less population than the average OECD NMR-S region, despite a marginally larger average population than the most remote regions of the OECD.

NSPA regions face an acute ageing challenge. On average, the NSPA regions have an older population than non-NSPA regions and OECD regions with similar characteristics based on statistics. In the NSPA, the average regional elderly dependency ratio (EDR), or the share of the elderly population over 64 years of age to those between 15-64 years of age, was 42.09 (or 39.71 weighted average) in 2022. This is higher than the EDR of non-NSPA regions of 36.63 (or 31.71 weighted average). The NSPA's average EDR was close to 10 units higher than both the OECD NMR-R regions (32.08 regional average and 34.29 weighted average) and OECD NMR-S regions (31.59 regional average or 32.13 weighted average).

At the same time, there are slightly lower shares of very young people, aged less than 15, in NSPA regions than in non-NSPA and in other comparable OECD regions. For instance, youth dependency is on average lower than in the non-NSPA regions of Finland, Norway and Sweden. In 2022, the youth dependency ratio (YDR) was 26.85 (or 26.94 weighted average) in non-NSPA regions. This was higher than the NSPA youth dependency ratio regional average of 26.02 (or 26.24 weighted average), similar to the OECD NMR-S regional average of 26.24 (or 24.94 weighted average), but lower than the regional and weighted averages of the OECD NMR-R regions (30.73 regional average and 28.17 weighted average).

Table 3. Statistical snapshot of the NSPA regions

	Average NSPA region	Average Non-NSPA region	Average OECD NMR-S	Average OECD NMR-R
Surface (land area)	40 998 km²	12 703 km²	8 930 000	32 155 km²
Population	204 387	493 916	313 788	175 107
Population density	7.33 *(4.99)*	90.26 *(38.89)*	124.93 *(35.14)*	33.84 *(5.45)*
GDP pc (USD)	41 284 *(42 050)*	44 754 *(50 615)*	33 961 *(31 858)*	33 425 *(35 549)*
Elderly dependency ratio	42.09 *(39.71)*	36.63 *(31.71)*	31.59 *(32.13)*	32.08 *(34.29)*
Youth dependency ratio	26.02 *(26.24)*	26.85 *(26.94)*	26.25 *(24.94)*	30.73 *(28.17)*

Note: All statistics are from 2022, except for GDP per capita which is are from 2020. GDP per capita are measured in 2015 USD PPPs (purchasing price parities). Values in parenthesis are weighted averages. In the case of surface, total land mass surface is reported and therefore territory that includes water mass is not included. The elderly dependency ratio is the number of individuals above the age of 65 over the population between 15-64 years of age, and the youth dependency ratio is the number of individuals below the age of 15 over the population between 15-64 years of age. For a discussion on the use of *weighted* versus *unweighted* statistics for use in regional comparisons, please refer to the Box below "Statistical Note on Regional Analysis". NSPA regions are defined in Box 1. Non-NSPA region include all other TL3 regions within the 3 NSPA countries of Finland, Norway and Sweden that are not one of the 14 TL3 NSPA regions. For consistency and temporal harmonisation challenges in Troms and Finnmark due to the recent administrative changes, the two regions are combined as one region when calculating NSPA regional averages, resulting in 13 units for calculating NSPA regional averages. The NMR-S classification refers to non-metropolitan regions (TL3) near a small FUA (NMR-S) with between 50 000 and 250 000 inhabitants. The NMR-R classification refers to non-metropolitan remote regions that are far from a FUA (NMR-R).
Source: OECD Regional Statistics

Statistical Note on Regional Analysis

In general, there are two main methods of calculating regional averages: one gives the same weight to each region (regional averages, or unweighted averages), while the other takes into account the relative size, e.g. weighted by population, of each region (weighted averages).

Regional averages or unweighted averages are calculated by simply averaging the values from different regions, without considering the size or importance of each region. This method gives equal treatment (or weight) to each region, regardless of its population or economic size. *Weighted averages*, on the other hand, take into account the size or importance of each unit (in this case, each region) by assigning different levels of importance (weights) to the values from different regions.

The choice of method can lead to different estimates. Benchmarking using weighted averages, results in a comparison that is skewed towards the more densely populated or significant areas, which are often capital regions. For instance, in Finland, Helsinki-Uusimaa is the region that includes the capital city and accounts for over 30% of the national population and close to 40% of the national GDP. The regional average of GDP per capita Finland is USD 39 532, while the weighted average is USD 44 671. The upward bias of the weighted estimate is due to the strong performance of the capital region (which can be considered as an outlier, beyond the 99th percent confidence interval.) For example, the GDP per capita of Helsinki-Uusimaa is USD 57 607. The second highest performing region is Kymenlaakso at USD 42 955 GDP per capita. The second highest performing region is below the weighted average estimate, whereas the unweighted average is closer to the median value. The use of an unweighted regional average allows a comparison to be made between regions rather than with the more densely populated regions, which tend to have higher levels of production and population.

As such, unweighted averages can often offer a more relevant view of regional comparisons, as they are not influenced by the larger size or economic output of major urban areas.

Both statistical choices are complementary and provide useful information. However, for the purpose of the focus on regional development, a priority has been placed on regional comparisons. Weighted statistics are provided only in the introductory table for reference.

The larger distances and lower density of NSPA regions, relative to similar regions, also comes with opportunities. For instance, economic activity per capita seems to be remarkable high as compared to similar OECD regions. The GDP per capita, is a little over USD 41 000 (USD 42 000 in terms of weighted averages). It is higher in NSPA regions than on regional averages in OECD NMR-S and OECD NMR-R. Furthermore, based on regional analysis, natural resource-based activities and transition towards the green transition are prominent in the areas. Indeed, in most cases land-use planning prioritises nature-based activities including nature conservation and traditional husbandry activities, while indicators of the green transition such as the emissions of greenhouse gases (GHG) are declining in NSPA regions, more than in non-NSPA regions. There are also notable opportunities in the growing services sectors in several of the NSPA regions, despite only a handful of NSPA regions attaining top levels of high-tech innovation performance in the region.

This chapter considers the NSPA as a single unit, while drawing on examples of specificities in the 14 regions. All references to non-NSPA regions refer to the rest of the TL3 regions in the NSPA countries of Finland, Norway and Sweden, that are not included as the 14 designated NSPA regions. The rest of this chapter will focus on thematic areas including demographic, economic, competitiveness, social indicators, accessibility and the green transition.

Population and age-based demographics in the NSPA

The NSPA region has a relatively low population. In 2022, the population in the NSPA regions was on average 2.5 times lower than in non-NSPA regions, and a third lower than OECD NMR-S regions (Table 3). In addition to a relatively low population, over the last two decades, the NSPA region is also declining in population. From 2001 to 2022, the NSPA population observed an aggregate decline of close to 2%, or a 0.01% decline in compound annual growth rates (Figure 2, panel A). In comparison, all other benchmark regions increased in population size. The non-NSPA regions observed an aggregate growth rate of close to 12% (or a 0.76% increase in terms of compound annual growth rate, CAGR), while OECD NMR-S regions grew by 10% (or a 0.31% CAGR), and the OECD NMR-R regions grew by 8% (0.43% CAGR).

The population decline in the region coincided with changes in the age demographics in the NSPA region. In 2003, the prime working age population (35 to 49 years of age) accounted for a third of the population (33%), while the older group of working age individuals (50 to 64 years of age) [5] accounted for 30% of the population (Figure 2, panel B). The youngest, post-secondary school, working age population (20 to 34 years of age) accounted for 27% of the population. The remaining secondary school and early post-secondary aged group (15-19 years of age) accounted for the remaining 10% (not pictured).[6]

Over the course of close to two decades, from 2003 to 2022, the NSPA observed a quasi-reversal of the age hierarchy. This emerged primarily through a relatively large loss of the prime age working population and a relatively steady share, despite some limited growth, of older working age individuals. By the end of 2022, the prime working age population, 35 to 49 years of age (29%), accounted for the lowest share of the age-based distribution. The prime working age population dropped 3 percentage points from 2003 to 2022. This age group also observed the highest fall in terms of annual changes, reaching 0.1% decline in the compound annual growth rate (CAGR). The age group declined over the majority of the period from 2003 to 2022 but demonstrated a more recent reduction in the negative growth starting 2018, leading to positive growth only in the 2021 to 2022 period. While this is the largest change to the age composition of NSPA, this trend was also occurring in other regions. The prime age working group (35 to 49 years of age) saw declines in most of the benchmarked regional groups. For instance, in the non-NSPA regions, the share of the prime aged working group (35-49) decreased from 32% to 31%, in the OECD NMR-R regions the share decreased from 33% to 30%, whereas the share remained the same in the OECD NMR-S regions (32%) (Figure 2, panel B). This demographic shift also coincided with a sharp rise in the Elderly Dependency Ratio (EDR). In 2002, the NSPA and non-NSPA regions had nearly identical EDRs, with around 26 people aged 65+ per 100 working-age individuals (15-64). Over time, however, the NSPA aged more rapidly, with an average CAGR of 2.4%, reaching 42 in 2022, while non-NSPA regions saw a slower increase (1.7% CAGR), ending at around 37 (Figure 2, panel C).

Unlike in 2003, the largest share of the working-age population in 2022 was the older group (50–64 years), making up 32% (Figure 2, panel B). This group became the largest after its share increased by 2 percentage points since 2003. It occurred despite a negative annual compound growth of 0.03% of the older aged working population (Figure 2, panel C), and can be explained in part by a relatively smaller fall in the total number of older aged individuals than on average in the rest of the population. The trend of increasing shares of older working age individuals was also observed in OECD NMR-S, NMR-R regions as well as to a smaller extent in the non-NSPA regions. In the OECD NMR-S regions, the share of older working age individuals increased from 25% in 2003 to 31% in 2022. In the OECD NMR-R regions, the share of the older working age individuals increased from 26% in 2003 to 32% in 2022. However, the share

[5] The older worker category is reflective of the general retirement age trends in OECD countries, but the actual retirement age varies from country to country with the NSPA (and often by occupation and sector).

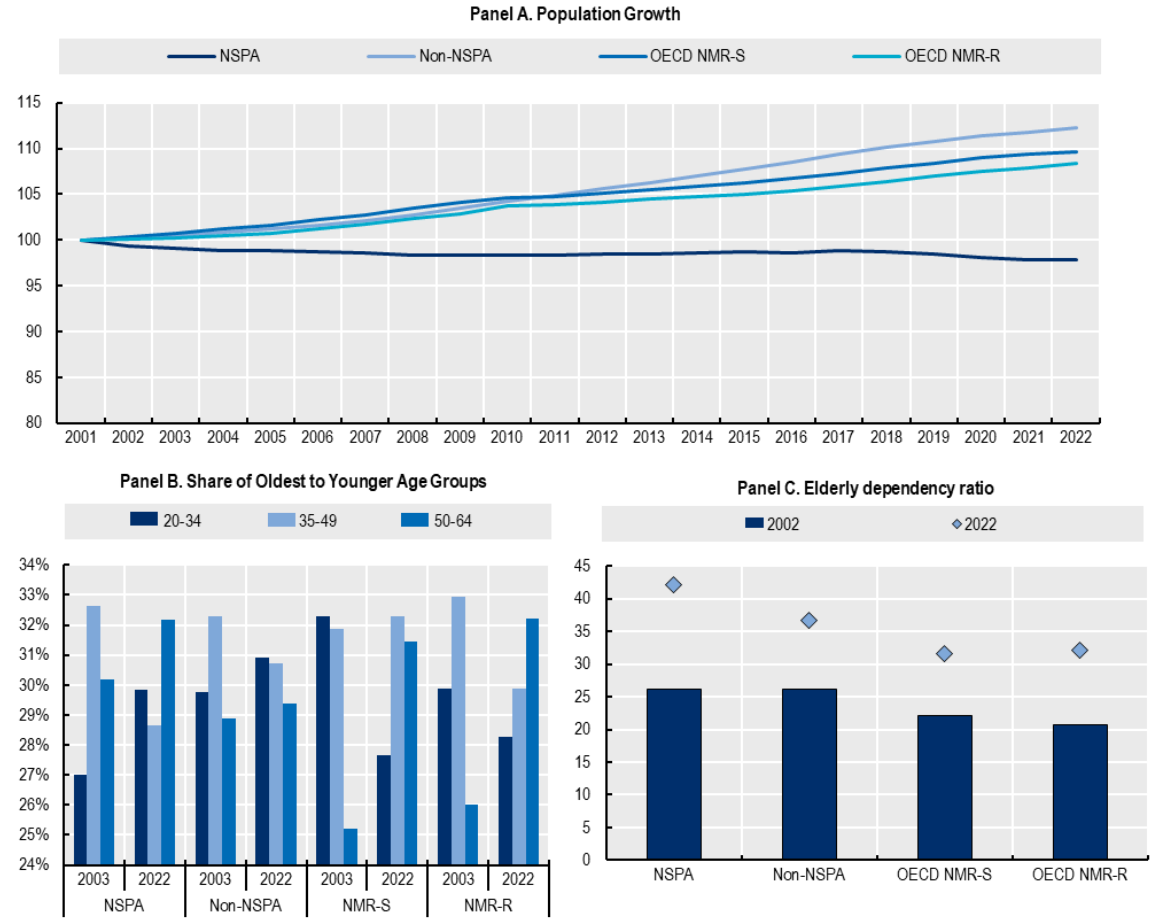
[6] While this is relatively low as compared to the rest of the age groups, it also accounts for individuals in 5 years of age, whereas the other comparison groups, included 15 years.

of the older working age individuals in non-NSPA regions increased only by 0.5% (from 28.9% to 29.4%) (Figure 2, panel B). The NSPA also experienced faster population aging compared to its benchmark regions. In 2002, OECD NMR-S and NMR-R regions had lower EDRs, starting at roughly 22 and 21, respectively. By 2022, these had risen to around 32 in both regions, still trailing behind both the NSPA and non-NSPA regions (Figure 2, panel C).

Contrary to the falling growth rates of the oldest and prime age populations, the share of the younger post-secondary school working age individuals increased from 2003 to 2022 by 3 percentage points, from 27% to 30% (Figure 2, panel B). This change amounted to the only absolute increase in the number of individuals in the age group observed among the NSPA age groups. The number of 20-34 year olds increased by 0.15% annually, amounting to an aggregate period increase of 3% (Figure 2, panels B and C). The positive growth in terms of year-on-year changes in this age group occurred only between the years of 2009 and 2017, with relatively smaller losses that the other age groups in the remaining years in the period between 2003-2022. This increase was stronger than the increase observed in non-NSPA regions (1 percentage point, from 30% in 2003 to 31% in 2022 or 0.78% annual increase). The NSPA and non-NSPA regions increases came in opposition to trends in the wider OECD non-metropolitan regions. The OECD NMR-S and NMR-R regions observed a decline in the share of this age group, from 32% to 28%, or -0.73% annually in NMR-S and from 30% to 28%, or -0.21% annually in NMR-R.

Figure 2. Population growth and EDR in NSPA and benchmark regions

Average population growth (Base=2001) and shares of age groups among working age population (15-64)



Note: Panel A in the figure above shows the aggregate annual population growth of regions from 2001-2022, from the base year of 2001. The OECD average (36 countries) is presented and broken down by regional typology. All averages give equal weight to each individual region, regardless of the country in which it is located. In addition, Svalbard and Jan Mayen in Norway were excluded from the analysis. Panel B shows the share of the different working age groups, including the oldest (50-64 years of age), the middle (35-49 of age) and the youngest (20-34 years of age) age groups as a portion of the total population in the working age group (between 15-64 years of age) in the region. The youngest group (15-19) is excluded due to the fact that a larger share of this age population is still in schooling years in many OECD countries. Totals are used. Panel C shows the Elderly Dependency Ratio (EDR) for NSPA and benchmark regions.
Source: OECD Regional Indicators

Most non-NSPA regions are observing annual population increases over the period of 2003 to 2022, along with an increase in the share of elderly population (65+, relative to the working age population 15-64 years of age), as illustrated in Figure 3. The relationship between an increase in the annual population change and an increase in the elderly population rate is negative, based on the weighted linear regression fitted to regional observations in Figure 3. This means that population decline is also associated with an ageing population. The lower regional population growth rates are associated with higher regional ageing trends.[7]

The double challenge of a decreasing and ageing population is also observed in NSPA regions. As population declines, the population gets older, or in other terms, has relatively higher shares of individuals aged 65 and over. However, regional performance in the NSPA demonstrates additional challenges. NSPA regions have i.) lower population levels (size of weighted co-ordinates in Figure 3), ii.) population growth that is more often negative or at lower levels than in non-NSPA regions (Figure 3, quadrant II)[8], and iii.) increases in elderly population ratios is often more positive than in non-NSPA regions (Figure 3, quadrant I and II).

Only 6 NSPA regions our of 14 (46%) are growing in terms of population over the period of 2003 to 2022, where are there are 34 out of 38 (89%) non-NSPA regions are growing in terms of population. South Savo experienced the biggest decrease in population with a compound annual growth rate of -0.81% from 2003-2022, while the region with the highest population growth in the NSPA was Northern Ostrobothnia with a compound annual growth rate of 0.49% from 2003 to 2022. In comparison, the largest decline in the population growth was in Kymenlaakso with 0.51% decline from 2002 to 2022, and the highest growth was in Oslo with a 1.52% increase in population over the same period.

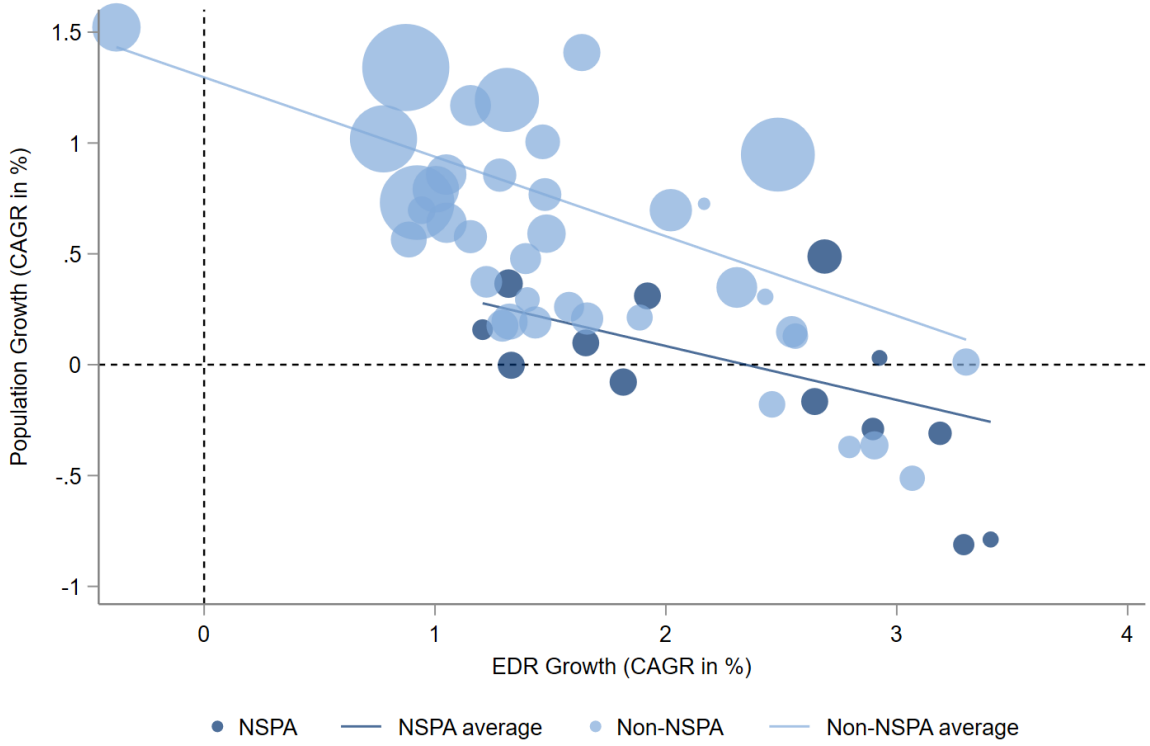
In terms of ageing trends, on average both NSPA and non-NSPA regions saw an increase in the elderly age population (65+), however, NSPA regions saw a larger increase of the ageing population. In NSPA regions, the largest increase in the elderly age population was in Kainuu with a 3.41% increase over the period of 2003-2022, while the lowest was in Jämtland Härjedalen that saw an increase of the elderly age population of 1.21% (which was close to the median increase of regional EDR rates of non-NSPA regions). On the other hand, in non-NSPA regions, one region, Oslo, showed a 0.38% decline in the elderly age population rate (jointly with the highest positive population growth), while the median region observed an increase of the elderly age population of 1.45%, and the highest regional increase was in Päijät-Häme (3.30%).

[7] The figure shows trends, but the correlation is relatively low and spurious, or statistically weak and noisy. It provides general trends, but does not account for many other factors that impact population and aging trends.

[8] The quadrant numbering refers to the placement on the x-y coordinate plane in Figure 3. Positive values for both the x and y axis refer to quadrant I. Positive values for the y, and negative values of x axis refer to quadrant II. Negative values for both x and y axis refer to quadrant III. Positive values for x, and negative values of the y axis refer to quadrant IV.

Figure 3. Population and age-based demographics for working age population (2003-2022)

Weighted regional correlation between annual changes in population and older-to-younger age ratios (TL3)



Note: Data points on the TL3 level are represented in either NSPA or non-NSPA groups. Fitted lines and circle size are weighted by population in 2022. The y-axis represents the compound annual growth rate (CAGR) of population from 2003 to 2022. Values above the 0 line on the y-axis reflect an increase in the annual population growth of TL3 region in the period. The x-axis represents the compound annual growth rate (CAGR) of the elderly dependency ratio from 2003 to 2022. The elderly dependency ratio is the number of individuals above the age of 65 over the population between 15-64 years of age.
Source: OECD Regional Statistics

In sum, there are 4 distinct patterns in the shift of demographics that are notably unique to the NSPA regions as compared to other regional groupings.

- First, the NSPA region has a relatively low population, and is declining while other regions such as non-NSPA, OECD NMR-S and OECD NMR-R regions are increasing.
- Second, there was a relatively strong fall in the prime working age group (35-49 years of age) in the NSPA regions. However, a similar trend was also observed in non-NSPA and OECD NMR-R regions, while the share of the prime working age group in the OECD NMR-S regions remained the same. The age group declined over the majority of the period from 2003 to 2022, but showed progress with an upward trend starting with reduction in the negative growth in 2018 resulting in positive growth only in the 2021 to 2022 period.
- Third, the share of the oldest working age group (50-64 years of age) is the highest and increasing relative to other age groups in the NSPA regions, making it the group representing the largest share of working age individuals in 2022. This increase is similar to trends in non-NSPA regions and OECD NMR-S regions, albeit to a larger extent, and lower than increases in OECD NMR-R regions.

- Fourth, contrary to trends in other benchmarked regional groups, the younger working age group (20-34 years of age) is increasing in the NSPA regions relative to other age groups. This is stronger than increases in the share of the age group in non-NSPA regions, and in other OECD NMR-S and NMR-R regions. It is due to an absolute increase in the number of individuals in the age group, which amounted to a 0.15% annual or 3% aggregate increase from 2003 to 2022. This was the only increase in the number and share of an age group observed in the NSPA.
- Lastly, with the exception of Oslo, all regions in NSPA and non-NSPA are facing demographic challenges related to an ageing population. However, more NSPA regions are also facing population decline, lower or negative population growth and stronger ageing trends than non-NSPA regions. In NSPA regions, a higher share of regions are jointly losing population and ageing underling that the double challenge of demographic change is more critical for NSPA regions than non-NSPA regions.

The analysis suggests that population decline and ageing is a challenge for NSPA regions. Based on age-based analysis, the fall in the population is primarily due to a loss in prime working age individuals over the last 2 decades in both NSPA and non-NSPA regions, but more so in NSPA regions. For non-NSPA regions as the workforce ages, it can more easily replenish itself through a higher level of population growth.

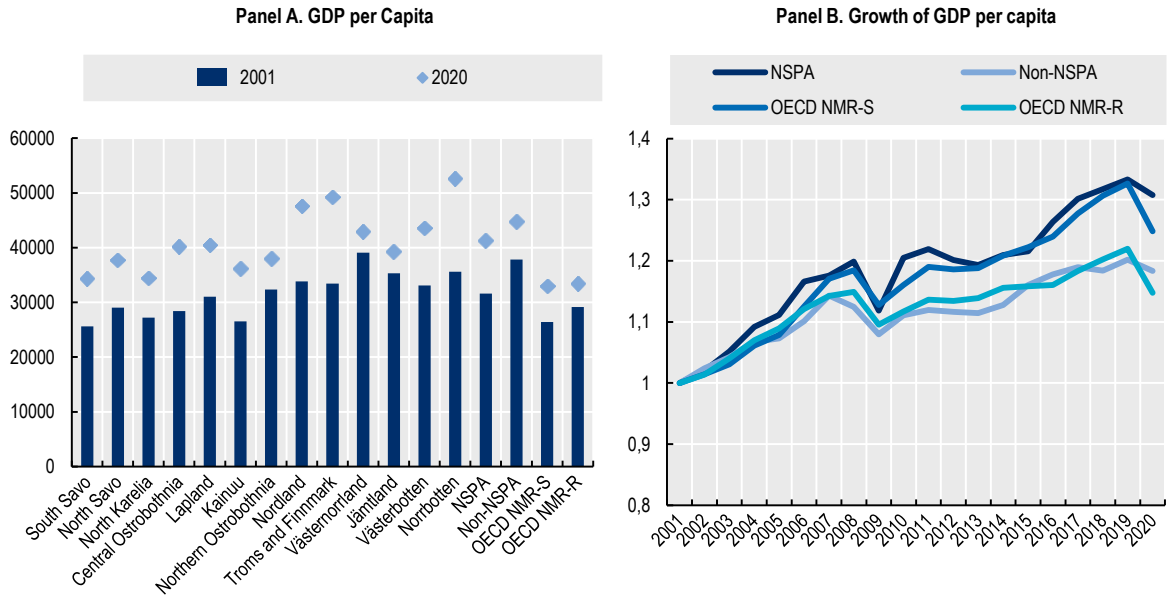
Yet there are positive signs of growth in the NSPA population over the last few years. In particular, this is due to increases in the upturn in the prime working age in the last few years, and increases in the young working age groups, which outperforms non-NSPA and other OECD regions. As such, despite the fact that the NSPA is still in population decline, relatively old, and has higher (and increasing) elderly dependency ratios (beyond the older age working categories), the working age population can potentially rejuvenate itself if it provides enough opportunities for the younger working age groups in the region. While there are signs of growth of prime and young working age groups, the NSPA regions still need to consider demographic changes and challenges associated to delivering services in the context of a shrinking population with higher levels of older workers and elderly dependency ratios.

The Economic outlook: GDP per capita and productivity trends

The NSPA region, as a whole, has a relatively strong economic performance. The regional average GDP per capita in the NSPA amounted to USD 41 284 in 2020, an increase of over USD 10 000 from the regional GDP per capita average in 2001 (Figure 4, panel A). The GDP per capita in the NSPA was higher than those in similar OECD NMR-S and NMR-R regions, despite remaining lower that the non-NSPA average. The regions within the NSPA with the higher GDP per capita were Norrbotten, Troms and Finnmark and Nordland. The regions within the NSPA with the lowest GDP per capita were South Savo, North Karelia and Kainuu.

In addition to strong GDP per capita in 2020, the NSPA also observed higher growth per capita than other comparable OECD and non-NSPA regional averages. From 2001 to 2020, the NSPA region grew an aggregate 30%, or a 1.35% annual growth from 2001 to 2020 (Figure 4, panel B). This was a higher growth than any other regional average, including those from non-NSPA regions. The non-NSPA region grew an aggregate 18%, or 0.85% annual growth from 2001 to 2020, the OECD NMR-S grew an aggregate 25%, or 1.12% annual growth, and the OECD NMR-R grew an aggregate 15%, or 0.69% annual growth.

Figure 4. GDP per capita and GDP per capita growth



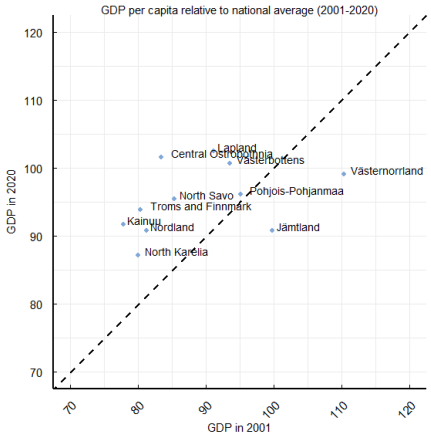
Note: Panel A shows the total regional GDP per capita (USD per head, constant prices, constant PPP, base year 2015) from 2001 to 2020 for all NSPA regions as well as the average for NSPA, non-NSPA, OECD NMR-S and OECD NMR-R. The OECD average includes over 25 countries, broken down by regional typology. All averages give equal weight to each individual region, regardless of the country in which it is located. In addition, Svalbard and Jan Mayen in Norway were excluded from the analysis. Panel B shows the trend over the whole period for the selected benchmarks.
Source: OECD Regional Indicators

In addition to aggregate increases, most NSPA regions saw an increase in their national ranking in terms of GDP per capita (Figure 5, panel A). As compared to GDP per capita in 2001, GDP per capita in 2020 in all but 2 NSPA regions increased relative to national regional averages. This suggests that the relative inequalities between regions within countries, in terms of regional GDP per capita, has decreased for NSPA regions. Only Jämtland Härjedalen and Västermorrland saw a decrease in their relative national ranking (despite having higher levels in 2020, than 2001 as depicted in Figure 5, panel A). However, in the case of Västermorrland, the region was over-performing as compared to the national regional average in 2001 by 10%, and in 2020 the region is now at the average regional GDP per capita in 2020. In the case of Jämtland Härjedalen, a strong tourism region, the year of 2020, when travel and tourism became restricted because of the COVID-19 pandemic may have impacted the performance substantially that year. A few regions over-performed in terms of national regional averages. Lapland, Central Ostrobothnia and Vasterbottens moved from having a GDP per capita that was lower than the national regional average GDP per capita by between 10-16% in 2001, to a GDP per capita that was higher than the national regional average, by 1-2.5% in 2020.

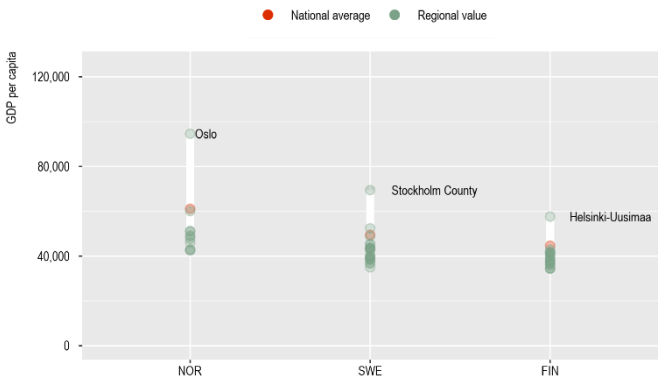
While changes in regional average differences suggest a positive outlook for NSPA regions, comparisons with the national weighted averages reflect substantial differences between NSPA country TL3 regions and capital regions (Figure 5, panel B). In part, this is due to substantially larger economies in capital regions. As many NSPA and non-NSPA regions still remain below national weighted regional averages, there is still room to reduce inequalities within NSPA countries (for both NSPA and non-NSPA regions).

Figure 5. Regional GDP per capita

Panel A. Within Country deviation of GDP per capita



Panel B. GDP per capita in NSPA countries

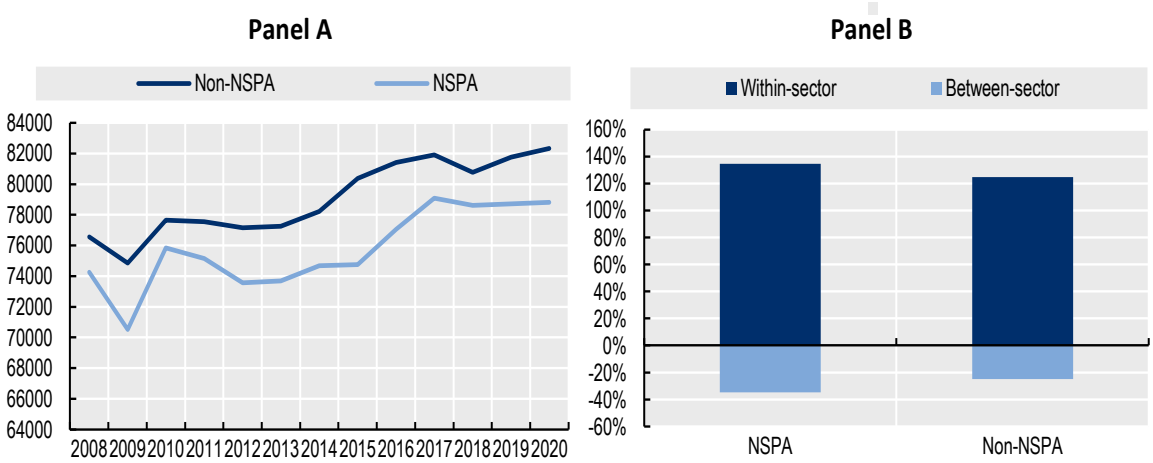


Note: Panel A shows the deviation in GDP per capita of NSPA regions from the respective national average in 2001 and 2020. Panel B presents the regional values for 2020 across all regions in Norway, Sweden, and Finland, with the weighted national average highlighted.
Source: OECD Regional Indicators

Along with growth in GDP, labour productivity is increasing over time in NSPA regions and non-NSPA regions. Aggregate average regional productivity grew by 0.46% in NSPA regions from approximately USD 74 000 in 2008 to USD 79 000 in 2020 (Figure 6, Panel A). In comparison, aggregate regional productivity grew more in non-NSPA regions, by 0.56% between 2008 and 2020, from approximately USD 76 600 in 2008 to USD 82 000 in 2020. Productivity gains between 2008 and 2020 in both the NSPA and non-NSPA regions, were primarily due to upgrading of products and processes within sectors rather than increasing reallocation of resources (such as labour and capital) between sectors. The upgrading and upskilling of resources within sectors is depicted by the positive increases associated with the *within* factor of the productivity growth decomposition, found in Figure 6 (Panel B) . This growth is in opposition to the losses associated with the *between* factor of the productivity growth decomposition. In the NSPA region, the relocation of resources *between* sectors has a relatively stronger downward pressure on productivity than in the non-NSPA regions.

Figure 6. Labour productivity and growth decomposition (2008-2020), by region group

Labour productivity (in USD) and Labour productivity growth (in %)



Note: The figure illustrates labour productivity increases and the contribution of within-sector versus between-sector shifts to overall productivity gains in NSPA and non-NSPA regions.
Source: OECD Regional Indicators

Productivity growth trends grew differently by sector in NSPA and non-NSPA regions. The agricultural (A), real estate (L), professional services (M-N), mining (B, D, E), information and communication (J), construction (F) and financial services (K) sectors all showed positive productivity growth (Figure 7, panel A). On the other hand, other services (R-U) sector observed no growth, while the trade and accommodation sector (G, H and I), public administration (O-Q) and the manufacturing sector (C) all contributed negatively to productivity growth. In comparison to non-NSPA regions, the directional (positive and negative) trends were relatively similar, albeit at different levels of growth (Figure 7, panel B).

The highest increases in overall productivity were due to improvements in the upgrading and upskilling of resources in the agricultural, forestry and fishing sector (Figure 7, panel A). This sector, alone contributed to a +50% improvement of productivity from 2008 to 2020. However, these productivity growth increases in gross value added happened at the same time as decreases in employment, suggesting that productivity increases in this sector were likely in part due to labour-substitution. In comparison, in non-NSPA regions, the agriculture, forestry and fishing sector contributed positively to productivity growth, but to a lesser extent (+6%) (Figure 7, panel B). Likewise, productivity growth was likely due to labour-substitution effects as labour decreased with increases in gross value added.

The professional services sector was the second highest positive contributing sector to productivity growth (+42%), if we exclude the real estate sector (Figure 7, panel A)[9]. Most of this growth was due to increasing reallocation of resources, such as capital investments or labour to sector, however, additional resources into the sector were also productivity increasing. Indeed, productivity growth was labour-inducing and

[9] The second highest sector was the real estate sector. However, the real estate sector is excluded from this analysis. Even though real estate activities contribute substantially to positive increases in productivity, this sector often consists of lumpy profits that reflect multiple years rather than one, and the high-speculation dimension of the sector also suggests that it does not function in the same way as activities in other sectors, making the consideration of it within the context of productivity analysis less relevant. For instance, the real estate activities sector often involve heavy investment in a specific year and can be used as a financial instrument that is highly sensitive to national financial markets. Outside of this argument, it is also a sector that functions through local market population pressures that are not a reflection of higher efficiency in the production or processes within the sector.

output enhancing for this sector between 2008 and 2020 and largely aligns with the increasing trend of tertiarisation of OECD regions. In comparison, in non-NSPA regions, the professional services sector also grew due to similar reasons, but to a lesser extent than in NSPA regions (+30) (Figure 7, panel B).

The mining[10] sector is a relatively important industry in the NSPA regions that contributed to a +37% improvement in the overall productivity growth of the NSPA region from 2008 to 2020 (Figure 7, panel A). This sector's growth was primarily due to reallocation of resources to the sector which aligned with an increase in both employment and gross value added. The mining sector similarly increased in non-NSPA regions, but to a larger extent (57%), and demonstrated that more of the productivity growth was due to upgrading and upskilling within the sector, at the same time as employment and gross value added increased (Figure 7, panel B).

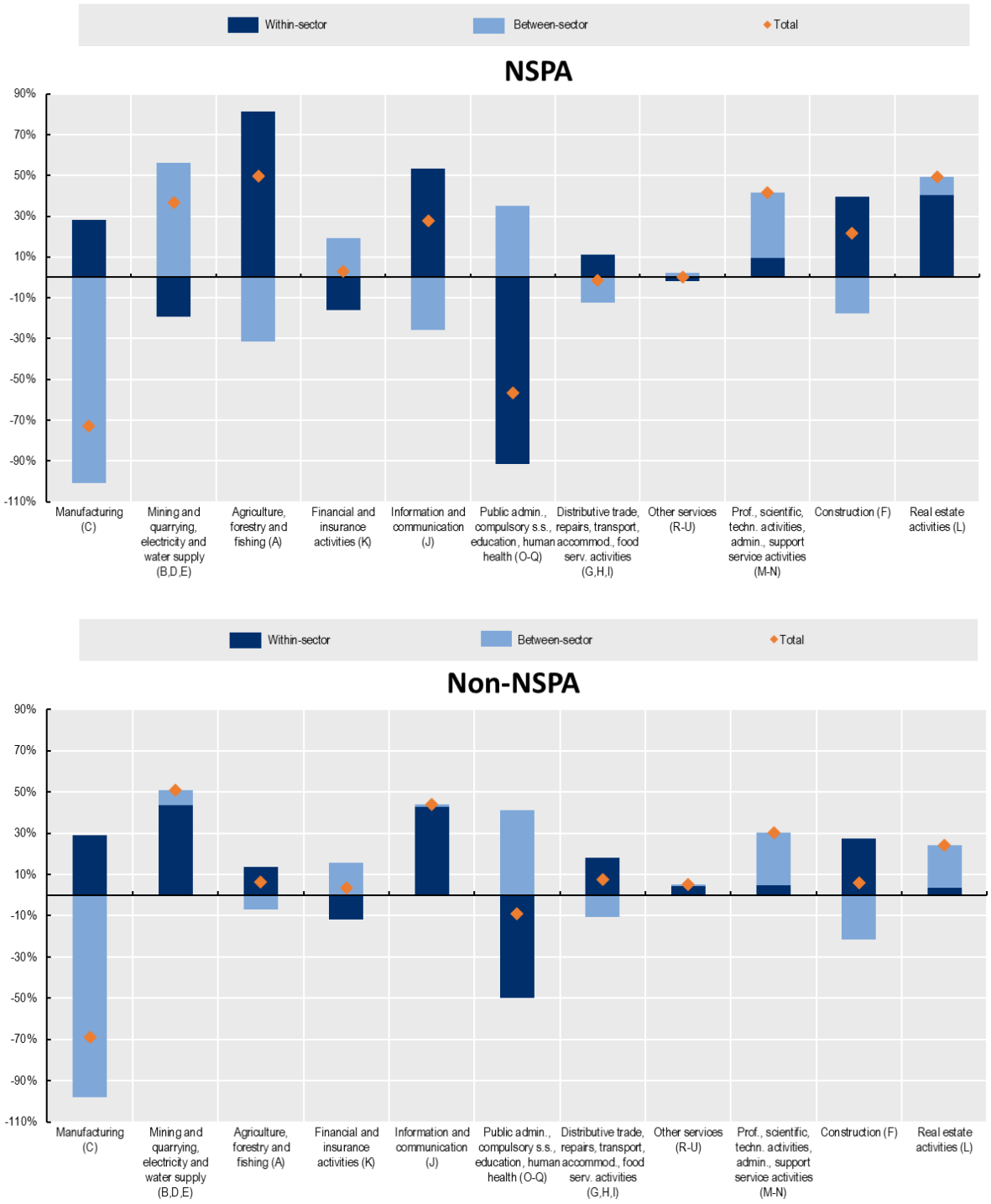
The other notable sectors of growth include the information and communication sector, that observed a +28% aggregate growth from 2008 to 2020 (Figure 7, panel A). This sectors growth was primarily due to increases in the upgrading of resources or upskilling of labour, and coincided with a decline in employment and an increase in gross value added, suggesting labour-replacing processes leading to productivity gains in the sector. In comparison, in non-NSPA regions, the information and communication sector contributed by +44% to overall productivity growth, primarily driven by upgrading and upskilling within the sector (Figure 7, panel B).

There were two notably strong losses in terms of labour productivity in NSPA regions. The strongest was in the manufacturing industry. The manufacturing industry contributed negatively (-73%) to productivity growth between 2008 and 2020 (Figure 7, panel A). This decline occurred because of a strong loss of resources in the sector (between component). The decrease in productivity came with strong losses in employment and strong losses in gross value added in the sector, aligning with a transition away from the manufacturing sector. In the non-NSPA region, manufacturing similarly contributed negatively to productivity growth (-69%) and occurred similarly due to strong losses of resources in the sector, and a drop in employment and gross value added (Figure 7, panel B).

The second notable sector that contributed negatively is the public sector, with a -56% contribution to total productivity growth (Figure 7, panel A). The sector itself is a particularly relevant sector for NSPA regions because of the large number of workers it employs and the fact that delivering public services often costs more in remote and sparsely populated areas. However, gross value added in the sector is calculated differently than the private sector (based on public expenditures or wage bills), and as such it does not respond directly to market forces. The increased cost of providing services to sparsely populated regions also explains the high costs and the large number of workers. Over the period of 2008 to 2020, the decline in the ratio of public expenditures to workers was due primarily to less allocation of resources to the sector, and coincided with less expenditure (lower value added) but more employment. This may suggest that some cost cutting measures (or privatisation) may have taken place either in terms of infrastructure or in terms of personnel costs to compensate for the large increase in employment. These cost cutting measures could have compensated for increasing costs in new hires. In comparison, the non-NSPA regions, also saw a decrease in public sector productivity, but to a much lower extent (-9%). This was also primarily due to losses of efficiency within the sector, and coincided with a large increase in employment and a much smaller increase in value added, or expenditures (Figure 7, panel B).

[10] While the mining sector's profits and value added may indeed be a result of improvements in extraction processes and equipment, the price of most extractive resources related to energy, such as fossils fuels are set internationally, which do not reflect regular market mechanisms for setting prices based on market demand and supply. The interpretation of productivity in this sector, therefore, does not have the same implications as they would in other manufacturing and services sectors.

Figure 7. Productivity growth decomposition (2008-2020), by region group and sector



Note: The figure illustrates the contribution of within-sector versus between-sector shifts to overall productivity gains in 11 sectors in the NSPA and non-NSPA regions.
Source: OECD Regional Indicators

In sum, there are 3 main trends observed in the NSPA regions when it comes to general and sectoral economic trends:

- GDP per capita is high and is growing strongly in the NSPA regions. The region performs better than other OECD benchmark regions, in both levels and growth from 2003 to 2020.
- Aggregate productivity increased in NSPA regions between 2008 to 2020, but less than the increase in non-NSPA regions. Between 2008 to 2020, productivity increases were due in a larger part to improvements associated with upgrading or upskilling within the NSPA region, rather than additional reallocation of resources between sectors in the NSPA region.
- On a sectoral level, the strongest improvements came from the agricultural, forestry and fishery sector. However, productivity growth in this sector was labour-substituting. This trend was stronger than in non-NSPA regions. There were also strong improvements in the professional services sector. On the contrary to the improvements in the agricultural sector, improvements in the professional services sector were labour-inducing, meaning that it came along with an expansion of employment. Lastly, the manufacturing sector observed a decline in productivity that was due to losses in resources, as well as efficiency. It coincided losses in employment and gross value added. As a note, the public sector saw a drop in productivity, however its output is only measured by its increases in wage bills, and reflects lower expenses despite higher employment. These sectoral trends went in a similar direction as those in non-NSPA regions —meaning positive growth in agriculture and professional services, and negative in manufacturing— despite differences in terms of levels of change.

The analysis suggests that the NSPA region is growing both in terms of GDP per capita and in productivity. However, the productivity growth in the region is associated more with advances within the sectors, than the introduction of new resources in the region. This is the case for both NSPA and non-NSPA regions, but to a greater extent in NSPA regions. It implies that productivity growth so far is driven by upskilling and upgrading resources within the region and its sectors, given the amount of resources that are already available to the region.

On the other hand, the decline of labour resources and other resources in the NSPA is also contributing negatively to productivity growth, to a larger extent than in non-NSPA regions. This jointly suggests that the NSPA is going through a catching up effect, but would benefit from additional labour and capital resources to the region, in particularly to the sectors that are growing in value added, such as the professional services and agricultural sectors. Furthermore, the sectoral analysis suggests a hollowing out of the manufacturing sector towards the agricultural and services sectors but with different driving factors. In the agricultural sector, increases in productivity are associated with labour-substituting advances, which are useful given the demographic decline the region is facing. On the other hand, in the services sector, increasing resources and increasing efficiency suggests that the regions is going through tertiarisation rather than a transition or development of the manufacturing sector.

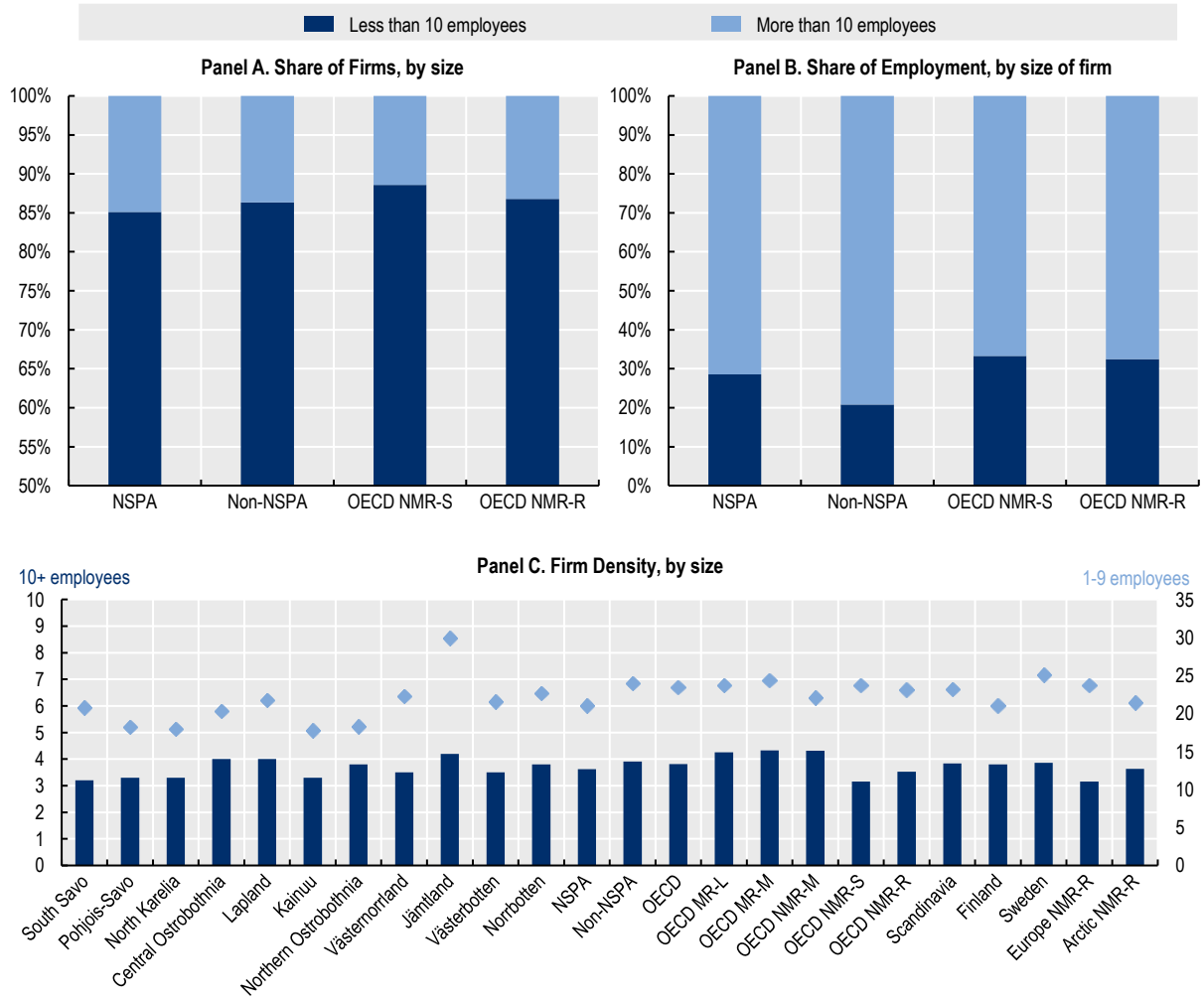
Competitiveness, innovation and trade linkages

Firms in the NSPA region are faced with competition on both national and international markets. For the most part, NSPA regional governments have strategies to support innovation and entrepreneurship that work on promoting the competitiveness of firms. Most of these strategies have a specific focus on supporting small and medium sized firms, which characterise the larger share of firms in NSPA regions. This section provides descriptive information on the relevance of small firms in NSPA regions, and trends in innovation and exports, two indicators of competitiveness of regions.

Firm size

Smaller firms (1-9 employees) account for a larger share of the economy than firms that employ 10 or more workers. In the NSPA regions, they account for 85% of all firms, with employees (Figure 8, panel C). In comparison, firms with between 1-9 employees account for 86% of firms in non-NSPA regions, and 87% in OECD NMR-R regions, and 89% of OECD NMR-S regions.

Figure 8. Density of firms, by size



Note: Norwegian firms are not included due to lack of data. Density is per 1000 population.
Source: OECD Regional Indicators.

While the largest share of firms are smaller firms (1-9 employees), these firms employ only 28% of total employment in the NSPA regions (Figure 8, panel B). The low share of employment for such a large share of firms is also commonly observed in OECD NMR-S and NMR-R regions, however, NSPA regions seem to have a larger share than non-NSPA regions, whose smaller firms only account for 21% of total employment. Despite containing a larger share of employment, the share of employment for firms with 1-9 employees in NSPA regions is still behind those in OECD NMR-S and NMR-R regions, suggesting that there maybe a stronger distribution of firms with a lower average number of workers in NSPA regions as compared to the OECD regional equivalents.

Smaller firms (1-9 employees) are relatively more prevalent than firms with more than 10 employees in NSPA and non-NSPA regions, when firm density is measured as a ratio of number of firms to the population (Figure 8, panel C). On average, NSPA regions have a smaller firm (1-9 employees) density of 21 firms per 1 000 individuals, as compared to 3.6 larger firms (10 employees and over) per 1 000 individuals. This trend is also observable in non-NSPA and OECD metropolitan and non-metropolitan regions.

However, there are less firms per inhabitant in NSPA regions as compared to non-NSPA regions for both firm size categories (Figure 8, panel C). The NSPA density of smaller firms is less than the non-NSPA's density by close to 3 firms per 1 000individuals (24 firms per 1 000 in non-NSPA, versus 21 firms per 1 000 in NSPA). Similarly, the NSPA has a lower share of larger firms than in non-NSPA regions, however this discrepancy is much smaller (0.3 firms per 1 000 individuals). Similarly, OECD NMR-S and NMR-R regions tend to have a lower density of both types of firms than other region types.

Jointly, the analysis on firm size suggests first that while smaller firms are more prevalent than larger firms in NSPA regions, there are less firms (of any size) per individuals in NSPA regions than in non-NSPA regions. At a first level, it underlines the importance of continuing to support small firms within the NSPA regions. On a second level, the relatively lower density of both sizes of firms suggests that there are still barriers to both small and larger firms in NSPA regions. Lastly, it is likely that competitive forces between firms within the NSPA region may be more limited than in non-NSPA regions, however, as firms do not only compete locally, but a more global analysis should also be taken into consideration. At the bare minimum, governments should not only continue to support competitiveness of small firms, but also continue to increase support for start-ups and small firm growth.

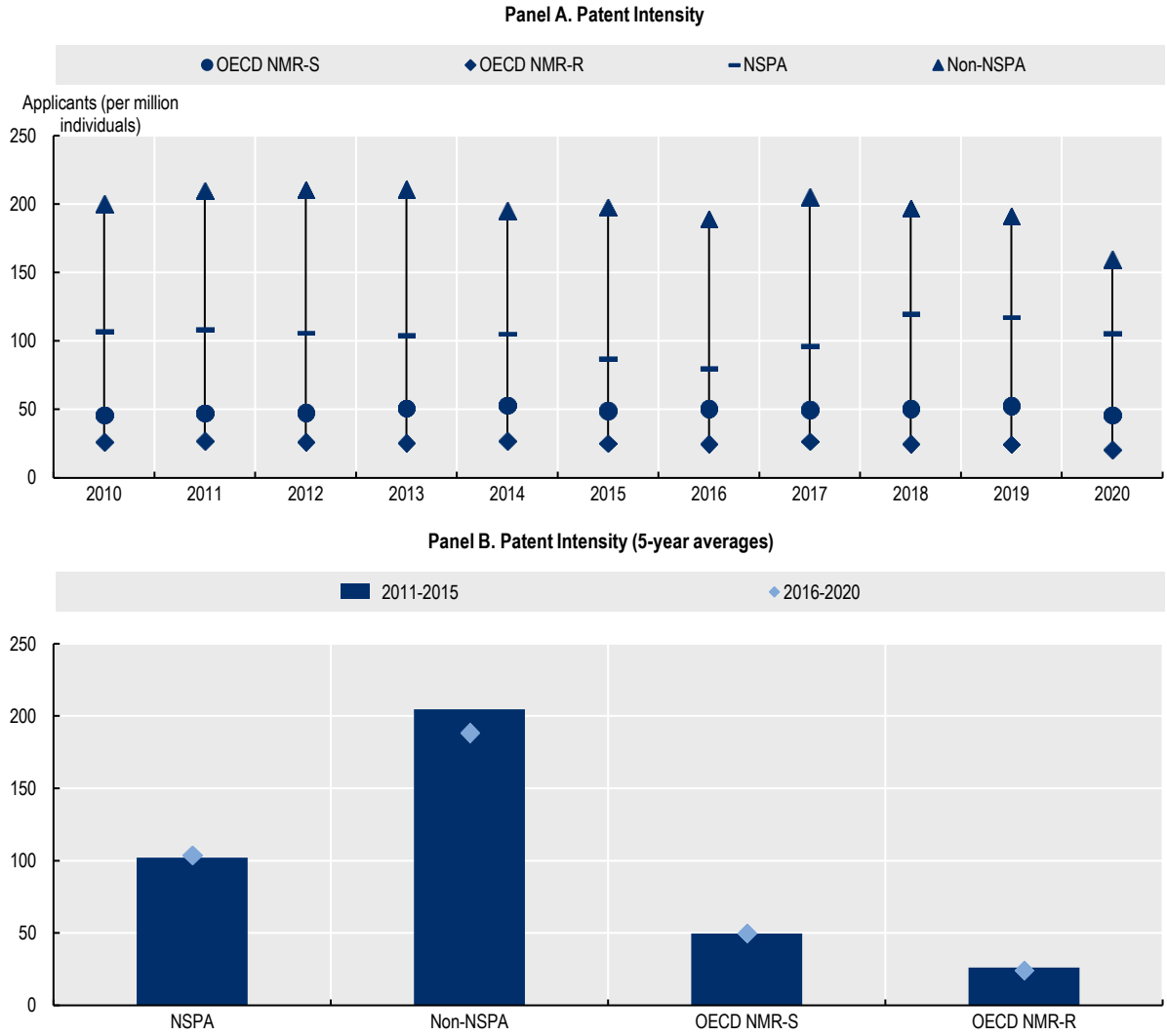
Innovation

The NSPA region is relatively innovative, despite its lower performance compared to other non-NSPA regions. In 2020, the NSPA had an average of 106 patent applicants per 1 million individuals (Figure 9, panel A). This average was lower than the non-NSPA regional average of 159 patent applicants, but substantially higher than the OECD regional averages for the NMR-S (46) and NMR-R (21) regions. This suggests that the high-tech innovation, as proxied by this metrics, is on a whole higher in NSPA countries, and, despite the fact that NSPA regions are lagging behind non-NSPA regions, their performance is better than regions with similar characteristics across OECD countries.

Over the last decade, the innovation performance of NSPA regions increased marginally, while it fell in non-NSPA regions, and OECD NMR-R regions, but remained the same in OECD NMR-S regions (Figure 9, panel B). For instance, the average patent intensity for the NSPA regions in the 5-year period from 2016-20 was 104 patent applicants per 1 million individuals, a small increase from the average patent intensity of 102 patent applicants in the 2011-15 period. In comparison, non-NSPA regions saw a fall from 205 patent applicants in the 2011-15 period to 188 patent applicants in the 2016-20 period. In comparison, the OECD NMR-S regions had an average of 50 patent applicants per 1 million individuals in both periods, while the OECD NMR-R regions saw a decline between the periods, from 26 patents per 1 million individuals in the 2011-15 period to 24 patents per 1 million individuals in the 2016-20 period.

Figure 9. High-tech innovation (2010-2020)

Patent applicants per million individuals.



Source: OECD Regional indicators.

The implication of the analysis suggests that the high-tech innovation performance of the NSPA region is relatively strong as compared to similar OECD regions, despite being behind national non-NSPA averages. Furthermore, this particular innovation performance is growing despite a stagnant or backward trend in benchmark regions from the beginning to the end of the 2010's. However, analysis from regional profiles suggests that there are still quite a bit of differences within the NSPA region, and as such innovation diffusion is still an important policy goal to pursue.

Innovation is often both an output and an input of competitive environments and an analysis of the innovation performance of firms in regions should ideally look at both dimensions. For regions within OECD countries, often innovation analysis falls short as it fails to either capture innovation process of firms due to challenges in measurement, or overlooks the relative nature of innovation when using evaluation metrics that are relevant to the structure of the economies, which often have different trends in firm characteristics based on size, sector and access to externa resources. While this analysis provides some information on innovation outputs, further work on innovation inputs, in particular, on innovation that goes beyond the

high-tech sectors is relevant to supporting innovation, competition and regional development. For example, in the Swedish NSPA regions, there is a divide between the more urban, research-driven innovation near universities and the more sparsely populated inland areas, where innovation is driven by incremental entrepreneurship. It would be beneficial to better integrate and cross-fertilise these innovation ecosystems to scale up research and innovation closer to the market across all these regions. However, there is a lack of reliable statistics to capture the actual innovation outcomes needed to build on. This issue affects large parts of the NSPA.

Trade

One of the NSPA's defining characteristic is sparsity, and with it, often distance to networks for trade. In many cases, maritime trade routes are considered major trade ports, but within region physical access to trade routes may sometimes be a challenge, as in many remote rural areas.

The value of total exports from the NSPA region is relatively low as compared to non-NSPA regional averages. In 2020, export values reached close to USD 2 billion (Figure 10, panel A). This was similar to export values in OECD NMR-R regions, but lower than the average of OECD NMR-S regions (USD 2.6 billion), and less than half of the average of non-NSPA regions (USD 5.5 billion).

Despite a relatively weak export performance, exports are increasing on average in the NSPA region. Increases are growing at a faster aggregate growth rate than any other benchmark group. From 2015 to 2020, aggregate growth in export values increased by 21% in the NSPA (Figure 10, panel B). This growth was higher than the increase in the regional averages of non-NSPA (10%), OECD NMR-S (9%), and OECD NMR-R (4%). In terms of compound annual growth rates, the NSPA grew 3.3%, almost twice the rate of non-NSPA regions (1.7%), and over two times the rate of OECD NMR-S and NMR-R regions (1.5% and 0.7%, respectively).

Figure 10. Exports and export growth

Source: OECD Regional Indicators. Trade balance figures refer to exports (X) minus imports (M). Numbers for NSPA regional growth in trade surplus were inverted to reflect negative trends. This was chosen to facilitate interpretation and avoid logarithmic transformation which would be inconsistent with the approaches for all positive value changes in the rest of the report.

Despite having lower export values, NSPA regions have higher trade surplus than non-NSPA regions, and are relatively higher than similar OECD regional averages in the NMR-S and NMR-R regions (Figure 10, panel C and D). This means that the value of exports were substantially higher than the value of inputs to the region. While some values may not adequately reflect regional outputs, due to standard issues with regional analysis, including the headquarter bias, as well as challenges related to intermediary trade companies, the trends nevertheless also demonstrate a trade surplus for NSPA regions, while trends (Figure 10, panel C and D) seem to indicate, that despite these measurement challenges, there is an upward trend with more value being exported than values imported. More granular and harmonised data using trade-in-value added would be a more targeted approach used in further research on trade balances.

In sum, there are 3 main observations related to the context of the competitiveness of the NSPA regions:

- Firm intensity is low in NSPA regions. While there are more firms that are smaller (1-9 employee) in NSPA regions than other sized firms, the region could use support in promoting more start-up and scale up activities in the region to boost competition.
- High-tech innovation is relatively well performing in the NSPA regions, despite a relatively weak performance as compared to non-NSPA averages, and variations between regions within the NSPA. The NSPA region is outperforming OECD regions with similar characteristics, and is showing signs of improvement while all other benchmarks are either declining or remaining the same. However, additional analysis on other forms of innovation is also needed to support competitiveness in the region.

- Exports are relatively low in the NSPA region, but there is a trade surplus. Export values in the NSPA region are similar to export values in the average OECD NMR-R region, but lower than the average non-NSPA region, and OECD NMR-S region. Nevertheless, the export values and trade surplus is increasing in the NSPA region at a faster rate than in other benchmark regions.

The analysis jointly suggests that the context for competitiveness of the NSPA region has some strengths and weaknesses. With low firm intensity, strong high-tech innovation performance, it's likely that competitive pressures between firms are not driving innovation performance as is often the case in more dense regions. Competitiveness of firms in the NSPA are more likely driven by different factors that may allow for experimentation and innovation despite low firm competition within the same region. The fact that exports are low but growing, jointly with high-innovation performance and low firm intensity, suggests that firms may be increasingly innovating to improve exports or increasingly upgrading production of goods to more high-value goods, however further analysis on the drivers of export growth are needed to establish the causal direction of these trends. While support for more start-ups and scale-ups is still needed in the region, the competitiveness of firms the region, based on this analysis, comes from its capacity to innovate and increase exports despite in a low regional competition environment.

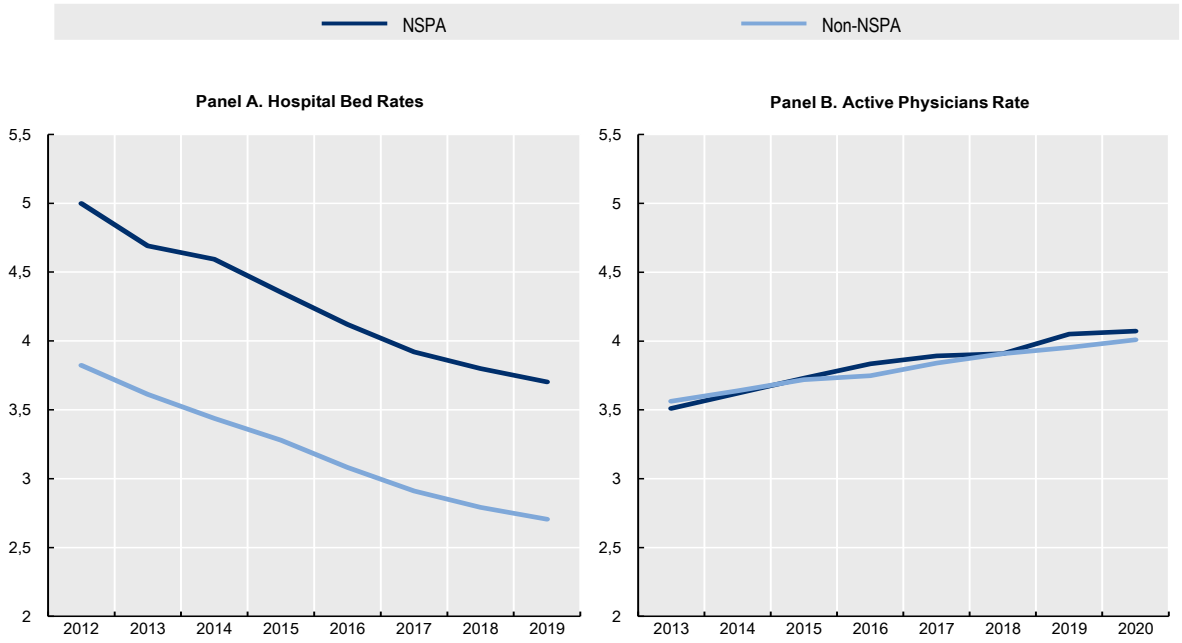
Social indicators of health-related services

The NSPA region jointly face challenges related to a large older and elderly age population, and in many cases, challenges related to delivering public services in places with low density and long distances to urbanised areas. While further analysis is needed on a range of social indicators, one example is the provision of health-related services.

Across the NSPA and in non-NSPA regions, trends in the availability of public health facilities and practitioners are changing. In NSPA regions, as in non-NSPA regions, access to urgent care, as proxied by hospital beds per person is falling. In 2012, there were 12 hospital beds per person, whereas in 2019, there was 3.7 beds per person (Figure 11, panel A). However, there are still more hospital beds per person in NSPA regions than there are in non-NSPA regions, and non-NSPA regions also saw a fall in the number of hospital beds per person. In 2012, there were 3.8 hospital beds per person in non-NSPA regions and in 2019, this ratio went down to 2.7 hospital beds per person. This may indeed be explained by the higher demand due to a relatively larger share of older aged workers and elderly. Further analysis with NSPA harmonised statistics on age-adjusted older age dependency could help determine whether it is the demand of hospital beds, that is leading to higher rates, or whether there is another reason why there are more hospital beds per person in NSPA regions.

Trends in NSPA and non-NSPA were also similar in terms of active physicians per person (Figure 11, panel B). In 2012, NSPA regions had 3.5 physicians per person, slightly fewer than 3.6 in non-NSPA regions. In 2019, the active physical rate increased relative to 2012, and was slightly higher in NSPA regions with 4.1 active physicians per person in NSPA regions, versus 4.0 active physicians per person in non-NSPA regions. Despite similar trends, and slightly higher rates at the end of the period (2019) in NSPA regions, given the relatively higher rate of expended demand from older populations in NSPA regions, it is necessary to do further analysis to better accounts for ageing trends in the provision of physician care services.

Figure 11. Access to health services



Source: OECD Regional Indicators.

In summary, access to social services like health care suggests similar changes in the system across NSPA and non-NSPA regions. While the regional profile reports demonstrate some heterogeneity between regions, the average regional trends suggest that it may rather be national trends may be a stronger determinant of regional trends, and that at least in terms of access to urgent care some adjustment has been made for the relatively older population. More information on age adjusted statistics would help to support further analysis on whether the supply of urgent care facilities provided are at least remaining constant with ageing trends. On the other hand, the increase in active physician rates is occurring across the board in NSPA and non-NSPA regions, and it is if anything, relatively more concerning that there is not a higher rate in NSPA areas, that are likely to have a higher demand for physician services with an ageing population.

Accessibility

The vast geography and dispersed population of the NSPA region present distinct challenges in terms of ensuring physical accessibility. With residents spread out over large distances, often far from urban centres, it's vital to assess how easily they can access essential services. A useful metric in this regard is the drive time to the nearest large city, which can provide valuable insights into how easily residents can reach employment hubs, educational institutions, healthcare facilities, and other vital services.[11] Extended

[11] The data used are based on the DEGURBA definition, which identifies settlements from clusters of adjacent 1 square kilometre (km2) grid cells with medium or high population density. These clusters are defined as a city if they have a minimum population density of 1 500 per km2 and a minimum population in the cluster of 50 000. An advantage of using the DEGURBA definition is that it avoids the identification of multiple urban centres for a single city and helps with international comparability. However, DEGURBA defines settlements such as cities in terms of their population density, excluding the surrounding commuting areas. For furthermore

drive times can reflect substantial barriers, potentially limiting economic opportunities and diminishing the overall quality of life.

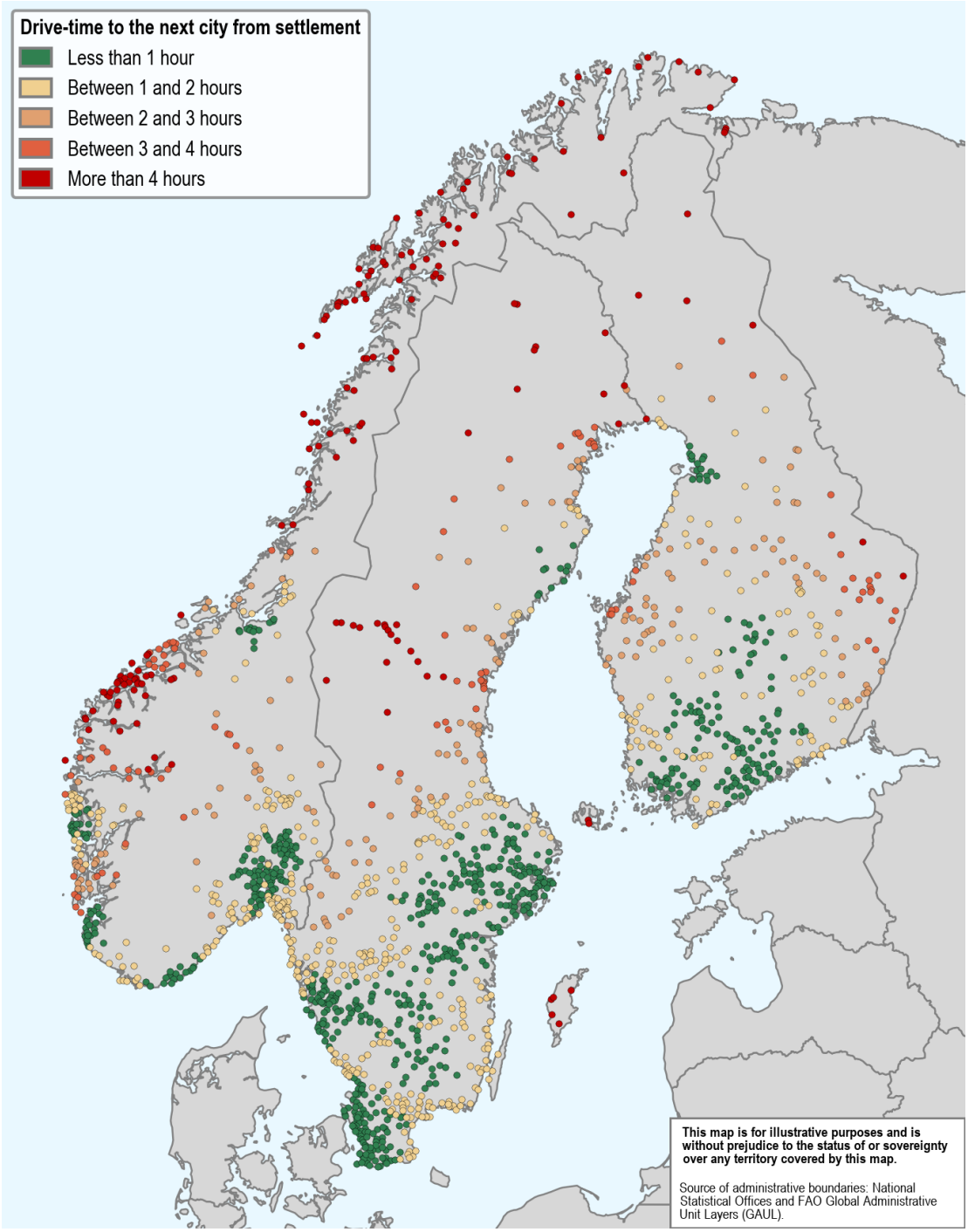
When comparing the NSPA to non-NSPA regions, a clear pattern emerges: while southern Norway, Sweden, and Finland are home to the majority of large cities, the northern parts of these countries – where the NSPA is located – have far fewer urban centres. This gap makes drives to the nearest large city longer in NSPA than in non-NSPA regions (Figure 12). The increased travel distances in the North highlight the logistical challenges faced by these communities, reflecting the geographic and infrastructural differences that characterise the NSPA region.

These challenges are further compounded by the lack of comprehensive railway connections across the NSPA, which forces a heavy reliance on road transport. However, road networks in the region are often narrow, of low standard, and subject to frequent bottlenecks. These limitations restrict both passenger and freight movement, leading to inefficiencies that hinder economic growth and increase environmental impacts. Moreover, while the drive time data reflects car travel, it does not capture the full scope of transportation dynamics in the region. In many NSPA areas, air travel plays a critical role in connecting remote communities, therefore collecting more data on this could support more comprehensive and accurate analyses.

information please see OECD (2024), "Services in towns and villages", in Getting to Services in Towns and Villages: Preparing Regions for Demographic Change, OECD Publishing, Paris, https://doi.org/10.1787/48fe743e-en.

Figure 12. Accessibility of NSPA regions

Average drive time (in hours) from settlements to the next city (with at least 50 000 people)



Note: The map in the figure above represents the average drive time, in hours, of individuals from a population settlement to the next city with at least 50 000 people with a population density threshold of 1 500 per squared kilometre, within the same country. The figure is population weighted for each settlement. It is based on DEGURBA definition of settlements. In Finland, the cities are identified as Oulu, Jyväskylä, Tampere, Lahti, Helsinki and Turku. The delineation of regional boundaries are based on boundaries from 2021.
Source: OECD Regional Statistics.

In NSPA regions, geographical distances present significant challenges for connectivity. However, advancements in digital infrastructure can help mitigate these barriers by improving access to high-quality internet. Despite ongoing progress, many rural areas within the NSPA continue to face limited internet availability. Even among those with access, residents in more remote locations tend to experience lower-quality connections.

According to OECD estimates from Q4 2023, national average fixed broadband download speeds stood at approximately 140 Mbps in Norway and Sweden and 105 Mbps in Finland.[12] Progress across NSPA regions has been uneven, with disparities narrowing in most, though not all, regions (Figure 13, panel B). Among the 14 NSPA regions, seven reported user-reported internet speeds exceeding their respective national averages in Q3 2023. The highest relative exceedances were recorded in Central Ostrobothnia (13.3%), Northern Ostrobothnia (13.2%), the regions of Troms and Finnmark (11.4%), Lapland (8.5%), Kainuu (5.9%), and Pohjois-Savo (5.6%).Conversely, several regions reported below-average speeds, including Nordland (-1.1%), North Karelia (-7.0%), Västernorrland (-8.9%), Jämtland Härjedalen (-14.1%), Norrbotten (-16.6%), Västerbotten (-27.5%), and South Savo (-29.8%). While disparities have generally decreased over time, four of the six regions with below-average speeds in Q4 2021—South Savo (7.7 percentage points), Västerbotten (2.6 p.p.), Norrbotten (3.0 p.p.), and North Karelia (4.7 p.p.)—saw their gaps widen further.

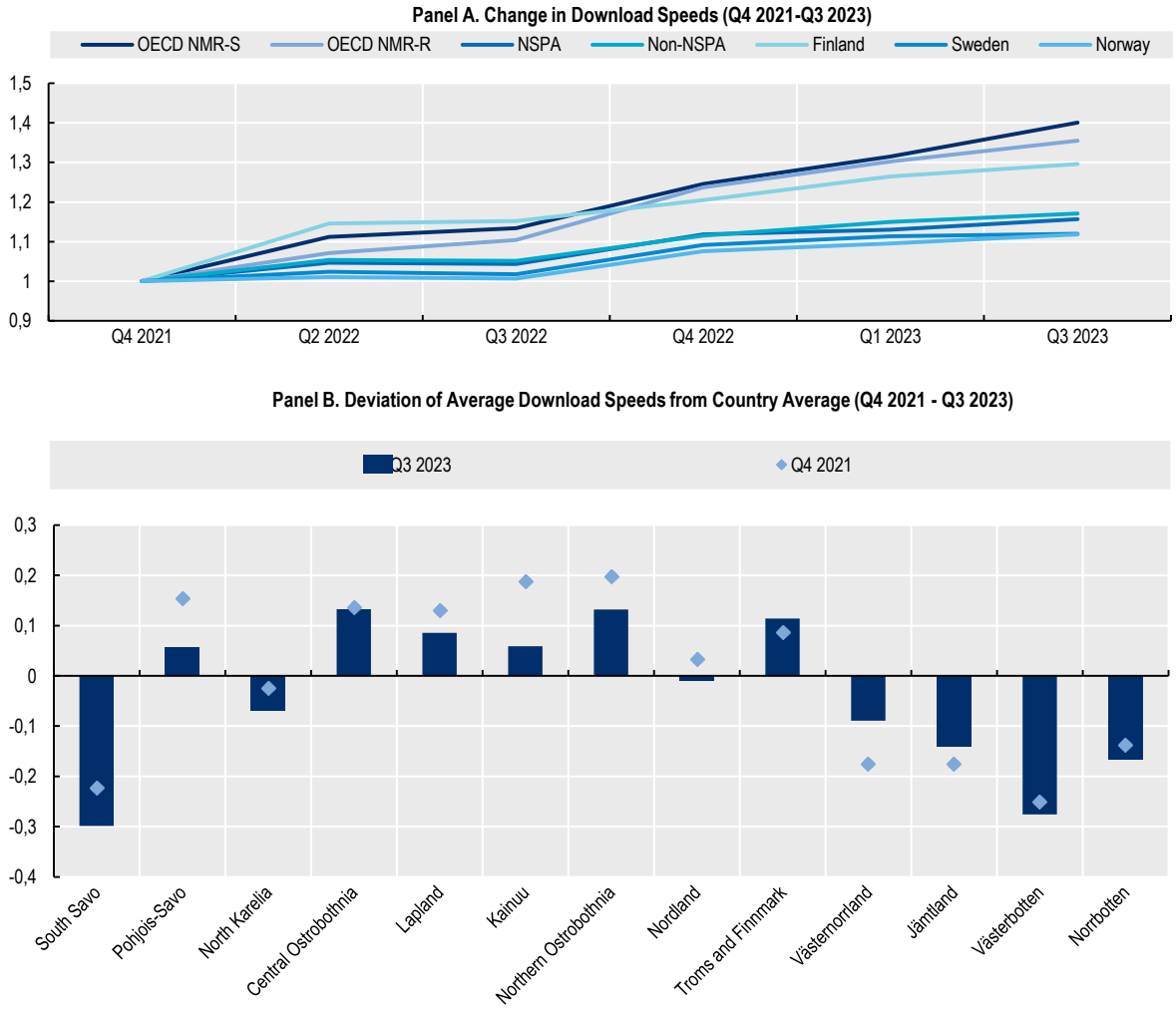
In areas with at least basic internet coverage, fixed broadband download speeds have improved across OECD, NSPA, and non-NSPA regions. Between Q4 2021 and Q3 2023, speeds increased by 15% in NSPA regions, 17% in non-NSPA regions, 35% in OECD NMR-R regions, and 40% in OECD NMR-S regions (Figure 13, panel A). However, NSPA regions experienced comparatively slower growth. This is partly because regions with lower initial speeds, such as OECD NMR-R and NMR-S, had more potential for improvement, leading to higher percentage gains.

A similar trend is evident at the national level. In Finland, Sweden, and Norway, where initial internet speeds were already relatively high—particularly in Sweden and Norway—growth has been more limited. Between Q4 2021 and Q3 2023, fixed broadband speeds in Finland increased by 30%, while Sweden and Norway recorded growth rates of 12% and 11%, respectively—both below the OECD average (Figure 13, panel A).

These trends highlight the importance of continued investment in digital infrastructure to reduce regional disparities and ensure equitable access to high-speed internet across NSPA regions.

[12] OECD (forthcoming), Bridging connectivity divides, OECD Publishing, Paris.

Figure 13. Access to high-speed digital internet



Source: OECD Regional Indicators.

The green transition

The NSPA regions, with a relative advantage in natural endowments are uniquely positioned to invigorate initiatives in the green transition. With nature conservation as an issue that may NSPA regions value, concrete advancements in emission reductions and transition to renewable energy sources are vital for NSPA regions.

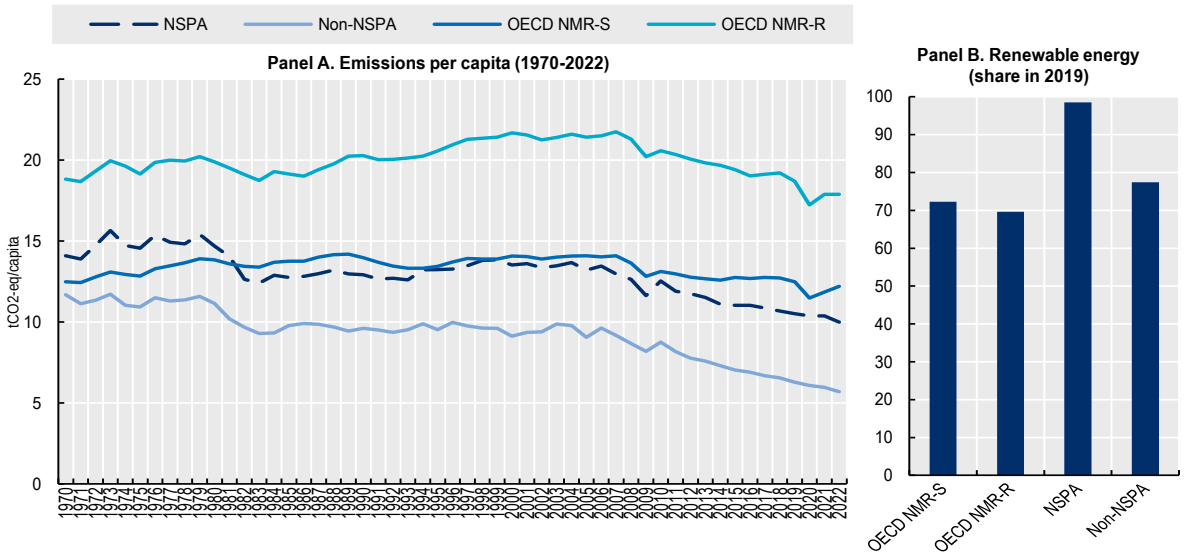
On this front, production-based statistics on reaching net-zero targets in the NSPA regions are advancing substantially. In terms of greenhouse gas (GHG) emissions reductions[13], the NSPA regions on average observed a fall in emissions reductions over the past 5 decades (Figure 14, panel A). From 1970 to 2022,

[13] GHG emissions are one form of measuring the progress towards net-zero but has many flaws. While it is possible to do harmonized analysis with this data, when it is regionalised it suffers both from headquarter bias, as well as only measures a production-based approach, which does not take into account where goods produced that emit GHG are consumed. While harmonized consumption-based indicators are currently in development, emissions based measures nevertheless provides some understanding of general trends.

greenhouse gas emissions per capita in terms of CO_2 equivalent fell from 14 to 10 tons of emissions per capita. This is substantial progress, as estimates from comparable OECD regions were less promising. In OECD NMR-S regions, the emissions remained at close to 12 tons from 1970 to 2022, while in OECD NMR-R regions, GHG emissions fell from 19 to 18 tons per capita. However, improvements in the NSPA region were behind, both in terms of levels, and progress, of non-NSPA regions, suggesting that progress within Finland, Norway and Sweden were occurring on as well. In the non-NSPA regions, GHG emissions halved over the same period of time, from 12 tons per capita in 1970 to 6 tons per capita in 2022.[14]

Despite relatively higher per capita emissions, overall emissions are lower in the NSPA regions than in non-NSPA regions. In 2022, the NSPA regional average emissions was 3.26 tons of CO_2 equivalent. On the other hand, in the non-NSPA regions, the regional average emissions amounted to 4.32 tons of CO_2 equivalent. While the NSPA has lower levels of average emissions per region, average emissions increased in the NSPA region, whereas it fell in non-NSPA regions. In 1970, the NSPA region emitted 2.89 tons of CO_2 equivalent, whereas the non-NSPA regions emitted 4.93 tons of CO_2 equivalent. In 2022, emissions in the NSPA regions grew to a regional average of 3.26 tons of CO_2 equivalent, while they fell to 4.32 tons of CO_2 equivalent in non-NSPA regions.

Figure 14. Emissions per capita and renewable energy



Source: OECD Regional Indicators.

In addition to improvements in the reduction of GHG emissions, the NSPA region is exemplary in its use of renewable energy overall and as compared to other benchmark regions. In 2019, the NSPA's share of renewable energy in electricity production was at 99% (Figure 14, panel B). In comparison, the share of renewable energy in electricity production was 77% in non-NSPA regions, and even lower in OECD NMR-S (72%) and NMR-R (70%) regions.

In sum, there has been much progress and increasing potential for the green transition to continue in the NSPA regions. In particular, GHG emissions are falling in NSPA regions, and are lower on aggregate than in non-NSPA regions. Secondly, the NSPA region is exemplary for its pivot towards renewable energy

[14] The relatively stronger growth of the population in non-NSPA regions and decline in the NSPA regions impacts the indicator.

sources and could be considered an example for non-NSPA regions to better learn from. Further analysis, based on energy consumption data could help direct policy makers in understanding whether to better target consumption reduction measures of households and firms, or continue to focus on reduction of emissions due to production statistics that may be more concentrated in oil and natural resource extraction regions.

Box 2. Measuring Greenhouse gas emissions

Greenhouse gas (GHG) emissions at the subnational level were estimated using the using the Emissions Database for Global Atmospheric Research (EDGAR) version 8.0 developed by the EC JRC and IEA (EC JRC and IEA, 2023[1]). EDGAR provides annual sector-specific grid maps for the four GHGs (CO_2, CH4, N2O and F-gases) at a 0.1° spatial resolution (~11 km). The different sectors and subsectors covered are:

- **Energy**: Power generation.
- **Industry**: Combustion in manufacturing industry, oil refineries and transformation industry, chemical processes, fuel exploitation, iron and steel production, non-energy use of fuels, non-ferrous metals and non-metallic minerals production, solvents and products use.
- **Transport**: Ground transport: road, trains and off-road transport. Shipping and aviation are excluded in the subnational GHG estimates for the transport sector.
- **Building**: energy for buildings
- **Agriculture**: Agricultural soils, agricultural waste burning, enteric fermentation, manure management, indirect N2O emissions from agriculture
- **Waste**: Solid waste incineration, landfills, waste water handling

Emissions from Land Use and Land Cover Change (LULCC) are not included. National GHG emissions are disaggregated by using subsector-specific geospatial proxies. GHG emissions are expressed in CO_2 equivalents using 100-year global warming potential from the IPCC 5th Assessment Report (AR5), i.e. 28 for CH4, and 265 for N2O.

While emissions data provides valuable insight to production-based activities contributing to climate change, it does not account for the usage or consumption of goods or services that may occur outside of where the goods are produced. However, emissions-based data is widely available both geographically and historically and nevertheless provide insight on attainment of climate change reduction goals.

Note: [1] EC JRC and IEA (2023), "EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database: IEA-EDGAR CO_2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0", European Commission, JRC (Datasets).
Note: [2] Land Use and Land Cover Change (LULCC) refers to the transformation of the Earth's surface due to human activities and natural processes. It includes changes in how land is used (e.g. agriculture, urban development) and changes in land cover (e.g. deforestation, desertification).

Takeaways and conclusions

The statistical diagnostic of the NSPA regions reveals a picture of a region that is growing despite challenges in terms of population, and furthermore, providing important contributions both to innovation and to the green transition. Table 2 provides a summary of strengths and areas of policy attention from the NSPA regions.

Table 4. Challenges and opportunities for the socio-economic development of the NSPA

Category	Challenges	Opportunities
Economic Structure	- Low population density and declining population in many regions, leading to reduced economic activity.	- High GDP per capita and increasing labour productivity, particularly in sectors like agriculture, fishing, and services.
Industry and Employment	- Manufacturing sector has seen declines in productivity, with both value added and jobs decreasing.	- Growth in productivity in agriculture, fishing, forestry, and professional services sectors despite employment decline.
Labour Market	- Population decline, especially in prime working-age individuals, leading to labour shortages.	- Growth in the younger, post-secondary working-age population, providing potential for future labour force expansion.
Demographics	- High elderly dependency ratio and a relatively larger share of older working-age population.	- Opportunities to leverage younger working-age population growth and invest in skills development and upskilling.
Innovation and R&D	- Firm intensity is low, especially among smaller and larger firms. Innovation diffusion is limited, especially outside of high-tech sectors.	- Innovation in NSPA regions is higher compared to OECD averages, with potential for further growth, especially in exports and emerging sectors.
SMEs and Business Development	- Limited firm density and inadequate support for start-ups and scale-ups, constraining the growth potential of local enterprises.	- High innovation potential in smaller firms, especially in emerging green and digital sectors, offering growth opportunities for SMEs.
Tourism	- Lack of strong tourism infrastructure and services to support growth in the sector.	- Growing potential for eco-tourism and cultural tourism, leveraging NSPA's green transition and unique natural assets.
Environmental Sustainability	- Per capita GHG emissions tend to be higher in NSPA due to low population density and population decline, which can complicate sustainability assessments despite the region's strong reliance on renewable energy.	- NSPA leads in renewable energy production and low GHG emissions, offering a competitive advantage in the green transition.
Regional Collaboration	- Regional disparities in digital accessibility persist, exacerbated by long distances and traditional north-south and east-west connectivity constraints, hindering the full potential for collaboration and integration.	- Opportunities to leverage existing collaboration within the NSPA platform to strengthen regional and stakeholder co-operation, facilitating the exchange of best practices, particularly in digital and green transitions.
International Connectivity	- Geographic remoteness and infrastructure limitations increase transport and logistics costs, posing barriers to fully capitalising on export growth and expanding international trade..	- Increasing export growth and trade surplus, indicating a strong foundation for expanding international trade and partnerships.

Source: Own elaboration

In conclusion, the NSPA face significant challenges, including declining populations, labour shortages, low firm density, and regional disparities in digital accessibility. Economic activity is hindered by a shrinking working-age population, low innovation diffusion outside high-tech sectors, and infrastructure limitations that increase logistics costs and limit trade expansion.

However, the region has substantial opportunities for growth. High GDP per capita, increasing labour productivity, and a growing younger working-age population provide a foundation for economic expansion. Innovation potential is strong, particularly in emerging green and digital sectors, offering growth prospects for SMEs. The region also leads in renewable energy production, which can be leveraged to strengthen its competitive edge in the green transition. Expanding eco-tourism and cultural tourism could drive further economic benefits, provided tourism infrastructure improves.

To address these challenges and capitalise on opportunities, the NSPA must enhance digital connectivity, invest in skill development, and support start-ups and scale-ups. Strengthening regional co-operation

within the NSPA platform can accelerate best practice sharing, particularly in green and digital transitions. By strategically investing in key sectors and infrastructure improvements, the region can mitigate demographic and economic constraints while reinforcing its position in global trade and sustainable industries.

2 Sustainable Development in the NSPA During a Period of Demographic Change

The NSPA regions face challenges from climate change adaptation and demographic decline, shaped by its welfare model, harsh arctic environment, low-density economies, and isolated labour markets. Despite these constraints, strengths in natural resources like forestry, mining, and renewable energy are critical for the green transition. Workforce shortages, skill mismatches, and rising public service costs due to ageing populations are pressing issues. Economic resilience relies on resource productivity, regulatory support, and labour market participation. Collaboration, innovation, and targeted investments are essential for navigating these challenges and ensuring long-term success.

Introduction

Building on the analysis presented in the previous chapter, this chapter examines how climate change and demographic shifts collectively influence labour markets and service demands in the Northern Sparsely Populated Areas (NSPA) of Europe, which include 14 regions in Norway, Sweden, and Finland. These transformations impact workforce opportunities and require governments, the voluntary sector, and firms to adapt their roles in service provision.

The NSPA faces both challenges and opportunities as it implements the Green Transition amidst demographic change. With a population density 2.5 times lower than non-NSPA regions and an elderly dependency ratio of 42 compared to 32 in OECD benchmark regions, sustaining economic growth and public service delivery requires targeted policies and innovative labour market solutions. While the region is experiencing overall demographic decline and labour shortages, the 20–34 age group is the only growing segment, increasing from 27% to 30%. This trend offers potential for revitalisation through strategies that attract and retain skilled workers, particularly in emerging green and digital industries.

Over the past two decades, the NSPA's economy has shown both progress and challenges. GDP per capita has grown by 30%, outpacing the 18% increase in non-NSPA regions, yet it remains below national averages. The region has leveraged its rich natural resources, particularly in forestry, fishing, mining, and renewable energy, but its economic productivity and export performance continue to lag behind other benchmark regions. Transitioning toward knowledge-intensive industries—such as renewable energy, ICT, biotechnology, and cold-climate technologies—can be crucial for maintaining long-term competitiveness.

Sustainability remains central to the NSPA's economic evolution. The region has significantly reduced emissions over the past 50 years and has achieved nearly 100% renewable energy production. However, recent increases in overall emissions and regional disparities highlight the need for further investment in energy efficiency, circular economy practices, and green innovation.

Despite advancements in renewable energy, the NSPA remains economically dependent on natural resource sectors—including agriculture, fishing, forestry, mining, and energy—which contribute significantly to Gross Value Added and exports. This creates tensions between environmental sustainability and economic reliance on resource extraction, particularly as the demand for minerals rises to support green technologies. If managed effectively, however, the Green Transition presents significant opportunities through bioeconomy expansion, green manufacturing, and nature tourism.

Addressing labour shortages and ensuring workforce resilience are critical for sustainable development. This chapter underscores the need for substantial investment in retraining the existing workforce and reorganising education systems to prepare workers for careers in green and digital industries. Additionally, public and private services must adapt to demographic, and workforce shifts to ensure access to healthcare, education, and digital infrastructure. Strengthening both physical and digital connectivity will be essential to overcoming geographic and demographic constraints, integrating the NSPA into broader economic networks, and enhancing its global competitiveness.

The following chapters will explore key dimensions shaping the NSPA's future:

- Competitiveness. Strategies to enhance economic resilience by fostering innovation, supporting SMEs, and transitioning to high-value industries.
- Green Transition. Policies to accelerate sustainability efforts, including leveraging renewable energy, reducing emissions, and promoting climate adaptation.
- Multi-level Governance. The role of policy co-ordination, cross-border collaboration, and local engagement in aligning the NSPA's sustainable development with national and international priorities.

By addressing these interconnected themes, this report provides a comprehensive framework for navigating the opportunities and challenges that will define the NSPA's trajectory in the years ahead.

Table 3 identifies opportunities for regional collaboration based on shared characteristics, such as natural resource industries, educational strengths, and energy capacity. Key priorities include addressing demographic decline, aligning labour markets with shifting skill needs, and adapting services to support both communities and economic development.

Table 5. Mapping potential collaborations across NSPA regions

Opportunities of collaboration		Atlantic Coast	Baltic Coast	Interior	Borders Russia	Strong Higher Education	Forestry Imp.	Mining Imp.	Strong Hydro capacity	Sámi Population	Larger City	Medium City	Current International Tourism Destination	Non-Local Summer Homes
Finland	Central Ostrobothnia		x				x							
	Kainuu			x	x		x							
	Lapland		x		x			x		x			x	
	North Karelia			x	x	x	x	x				x		
	Northern Ostrobothnia		x		x		x				x			
	Pohjois-Savo			x							x		x	
	South Savo			x			x							x
Norway	Finnmark	x			x			x		x				
	Nordland	x						x	x					
	Troms	x				x			x			x		
Sweden	Jämtland Härjedalen			x			x		x	x		x	x	x
	Norrbotton		x			x	x	x	x	x		x		
	Västerbotten		x			x	x		x	x	x			
	Västernorrland		x				x		x	x		x		x

Source: Own elaboration

Demographic Trends and Policy Challenges in the NSPA Region

The demographic decline in the NSPA region closely aligns with trends observed in other rural and remote areas across the OECD. As highlighted in the NSPA analysis, key concerns include low fertility rates, urban migration, and aging populations, which together threaten the long-term sustainability of local economies and social structures. Population growth is increasingly concentrated in capital cities and large urban hubs, while smaller and remote municipalities struggle with significant decline.

A major challenge identified in the analysis is the imbalance between the number of youth entering the workforce and the growing proportion of elderly retirees, exacerbating labour shortages in key industries. The NSPA also faces an outmigration of young people and workers, driven by limited local job opportunities and the perceived economic advantages of urban centres. Additionally, the low inflow of immigrants, despite efforts to attract new residents, further compounds demographic challenges.

To counter these trends, the NSPA analysis underscores the need for multi-faceted policy responses, in line with OECD recommendations, to retain youth, attract workers, and strengthen labour market participation:

- Reducing youth outmigration, a key issue in the NSPA, requires creating local career opportunities through regional internships, technical education, and strong school-industry partnerships to align educational pathways with local labour market needs.
- Retaining elderly workers is vital, given the region's aging demographic profile. The NSPA highlights the need for flexible work options, age-inclusive employment policies, and improved workplace conditions to encourage older workers to remain in the labour force longer.
- Attracting new residents is central to reversing depopulation, with NSPA regions such as North Karelia actively marketing the region to potential newcomers. Financial incentives, investment in tourism-linked employment programmes, and regional branding are strategies gaining traction.

- Encouraging immigration is another crucial strategy, with the NSPA analysis stressing the importance of cultural integration efforts and leveraging existing immigrant networks to facilitate long-term settlement and workforce participation.

Furthermore, labour market strategies within the NSPA focus on increasing participation rates, particularly by reducing unemployment, providing retraining programmes, and minimising long-term workforce exclusion due to disability or early retirement. For example, Norrbotten's accelerated retraining initiatives demonstrate how local governments can respond to skill shortages.

A critical theme in the NSPA analysis is the role of housing availability and quality of life in workforce retention and attraction. Local governments in Lapland and Finnmark are addressing this issue through initiatives such as affordable rental housing projects, particularly in high-demand sectors like healthcare, energy, and tourism. These efforts emphasise that without adequate housing and essential amenities, labour attraction policies will be insufficient in reversing demographic decline.

Consequences of Demographic Decline

Demographic decline reduces economic growth by shrinking the workforce, necessitating productivity gains to maintain output. Key strategies include increasing labour force participation, particularly among women and older workers, attracting immigrants, and reducing youth outmigration. Retaining youth, especially women, could also modestly boost fertility rates, though migration to more productive regions may sometimes be beneficial. Larger NSPA cities have been more successful in attracting migrants, leaving smaller, remote settlements at risk of abandonment.

A shrinking workforce will require higher skill levels and investments in technology. Rural regions, with historically limited skill development and higher numbers of social assistance recipients, must improve training programs to boost labour engagement and wages. Access to affordable childcare can further enable female participation.

Fertility declines in rural areas also affect military recruitment, which often draws disproportionately from these regions. As NATO countries expand military forces, rural areas near borders could see economic activity from new military bases. Maintaining rural populations is also strategically important for territorial integrity, but it requires viable employment opportunities.

Local and national governments face challenges in adapting to a smaller, older workforce while maintaining essential services, especially in rural areas where costs are higher due to lost economies of scale. They must identify funding for infrastructure, housing, and public services, while restructuring local economies. National governments may need to provide additional financial support and authority to facilitate these transitions.

Economic changes, accelerated by e-commerce and shifting career demands, highlight the need for both deep, specialised skills and transferable skills to adapt to evolving jobs. The COVID-19 pandemic has further altered perspectives on globalisation and urban living, potentially creating new opportunities for rural areas. Realising these opportunities will require significant investments in people, infrastructure, public services, and sustained marketing efforts to attract new residents.

National Support for Local Government Adaptation Efforts

While national governments provide the overarching framework, funding, and resources for adapting to demographic decline, local governments lead the delivery of support to communities, businesses, and individuals. The specific approach must reflect each region's unique needs, with co-ordination among municipalities essential to prevent harmful competition, such as restricting worker mobility.

Tax policies can play a role in encouraging movement to northern regions by offsetting higher living costs. For instance, Norway offers tax relief, while Sweden's higher taxes in the north undermine this. Implementing tax credits, especially for lower-income workers, could help attract and retain labour.

National governments must avoid scaling urban-focused solutions to rural areas or presenting generic "best practices" without local input. Effective adaptation requires local ownership, as only community members can drive meaningful change. The OECD's evolving rural development strategies emphasise devolving authority and resources to local levels, recognising the importance of tailored, community-driven solutions.

In Nordic countries, national governments define policies while relying on regional and municipal bodies for implementation. For example, Finland is shifting public employment services to municipalities, aligning them with local labour markets. Norway's National Unemployment Agency collaborates with schools to assist unemployed youth, while Västerbotten faces challenges like labour "poaching" driven by rapid industrial growth.

National governments must address the broader impacts of demographic decline, which affect economic activity, social cohesion, and national well-being. Public policy must distinguish between unavoidable rural transformations that should be supported and situations where interventions can improve outcomes, such as enhancing economic capacity, quality of life, and local governance.

Labour Market Dynamics In the NSPA

In addition to demographic decline, national and regional economies in OECD countries face pressures from climate change mitigation, the rise of the internet economy, a shift toward service-based industries, and the ongoing impacts of COVID-19. These forces are reshaping industries globally, but rural regions experience unique challenges compared to metropolitan areas.

Rural areas face longstanding issues such as youth outmigration—especially among educated women—and difficulties attracting foreign immigrants. Businesses contend with capital market limitations, high transport costs, and limited supplier access. Rural economies, heavily tied to nature, are also more exposed to climate change effects like droughts and mitigation measures like carbon taxes. COVID exacerbated these challenges, with fewer remote work opportunities and limited healthcare access.

National governments play a key role in labour markets, developing policies to increase the supply and skills of workers, stimulate demand for labour, and improve worker-employer matching. These policies must be spatially sensitive, as rural and urban labour market issues require tailored solutions. Remote rural areas, with their "low-density economies" characterised by small, isolated labour markets, face additional difficulties: job fluctuations often necessitate migration since commuting between settlements is typically unfeasible.

Effective economic development strategies for rural regions like the NSPA must target local labour markets (LLMs). Collaboration among regions can add value, but strategies must also account for significant internal variations in settlement size, connectivity, and core industries. For example, the largest NSPA cities—Luleå, Oulu, Tromsø, and Umeå—share urban development opportunities due to their resources and connectivity, but these benefits spill over only marginally to smaller, more distant settlements.

Other NSPA regions exhibit differences between interior and coastal settlement patterns. Coastal regions are more concentrated, while interior regions have dispersed populations with weak transport links, making it difficult to form larger LLMs. Ultimately, tailored, spatially aware economic development strategies are critical to addressing demographic challenges and promoting growth in rural and remote areas.

Local Strategies for Labour Market Development

To implement these Active Labour Market Policies (ALMPs) effectively, it is crucial to have tailored local strategies that align with the specific challenges and opportunities within each Local Labour Market (LLM). These strategies should be adapted to address immediate needs while also preparing for longer-term growth and sustainability. The following short-term and medium-term strategies are designed to boost labour market performance, tackle demographic decline, and enhance the attractiveness and resilience of rural regions, especially in the face of external challenges like climate change and economic shifts.

Short-Term Strategies

- Increase labour force participation by reintegrating long-term disability recipients, incentivising older workers to stay or return through job-sharing, part-time roles, and adjusted pensions, and maintaining female participation with improved elderly care.
- Enhance job matching to reduce underemployment and improve workforce utilisation.
- Encourage skill development for workers and firms to boost productivity and satisfaction.
- Attract newcomers with spousal hire programs and national/Nordic job-matching initiatives.

Medium-Term Strategies

- Expand market-rate housing at various price points, including apartments and single-family homes.
- Improve the quality of public services to attract and retain residents.
- Adapt local school curriculums to highlight career opportunities and retain youth through better childhood experiences.
- Develop tailored training programs to meet firms' skill demands.
- Strengthen linkages between nearby LLMs to facilitate shared development strategies and improve commuting options.
- Enhance road connectivity to reduce commuting costs and expand the reach of local labour markets.

Each Local Labour Market (LLM) is unique, shaped by its specific set of employers, workforce skills, and evolving economic conditions. Over time, changes occur as firms adjust their technologies, new businesses emerge, older ones close, and workforce composition shifts due to retirement, migration, and new entrants. While governments cannot control these dynamics, they can implement Active Labour Market Policies (ALMPs), which rest on three pillars:

- Supporting labour demand. Encourage firm expansion, entrepreneurship, and attract external businesses. This includes minimising regulatory barriers, improving infrastructure and transport, and supporting tailored workforce training programs.
- Improving labour supply. Ensure workers have opportunities to upgrade skills, provide quality education for future workers, and support individuals currently outside the workforce.
- Enhancing worker-job matching. Reduce unemployment by formal and informal processes. In rural LLMs, informal networks are common, but formal mechanisms (e.g. linked to unemployment insurance and job subsidies) remain essential.

In rural LLMs, despite an overall decline in workforce availability, there may still be a surplus of low-skilled workers. Because firms require a mix of skill levels and substitution among skill groups is limited, ensuring sufficient medium- and high-skilled workers is critical to facilitate employment opportunities for the less skilled, who are least likely to relocate.

Effective ALMP implementation requires a tailored mix of support mechanisms suited to each LLM's needs. The challenge lies in building local capacity to identify and capitalise on economic opportunities. This process involves collaboration among local governments, business organisations (e.g. Chambers of Commerce), EU LEADER groups, trade unions, and civic leaders. National and regional governments play a key role by providing technical assistance and financial support for both planning and implementation processes.

Isolated Local Labour Markets

In remote rural regions, particularly those characterised by low-density economies, local labour markets are often small and isolated due to sparse settlements and poor road connectivity. Unlike denser regions with interconnected market towns and good transport networks, remote areas face significant commuting challenges, particularly for low-wage jobs. Long distances, marginal infrastructure, high commuting costs, and low wages make daily travel infeasible, typically beyond the upper limit of a 60-minute one-way commute.

In the NSPA, municipalities often cover vast areas with populations concentrated in a few settlements. While some regions, like Jämtland Härjedalen, have more evenly distributed populations, most municipalities function as isolated LLMs with little internal commuting. Although some regions may have 2-4 municipalities connected into a single LLM, or even larger urban-cantered LLMs spanning multiple municipalities, most NSPA municipalities operate independently as isolated LLMs. This isolation can lead to simultaneous labour shortages and high unemployment due to skill mismatches that are difficult to resolve without commuting options.

Old Jobs, New Jobs, and Demographic Decline

In OECD countries, economic shifts toward services and advanced manufacturing have diminished the role of natural resources in GDP. While urban regions thrive in post-industrial economies, remote rural regions, such as those in the NSPA, remain dependent on natural resource sectors. These industries have mechanised over time, reducing unskilled jobs but increasing demand for medium-skilled workers and capital investment. However, environmental pressures and green transition policies are reshaping these sectors, requiring workers to adapt to new production methods and technologies.

Old Jobs in resource sectors and local services have declined due to technological change and reduced labour needs. Public sector and tourism jobs have partly offset this, but many remain seasonal, low-wage, and part-time. Climate policies will further alter natural resource production, potentially reducing employment and income. Existing workers will need upskilling to meet new demands, supported by public investment to smooth the transition, as exemplified by Sweden's "Just Transition Fund" for the Luleå steel plant.

New Jobs must sustain rural economies, particularly in export-oriented industries. Green energy production, such as wind and solar, creates limited direct jobs but attracts energy-intensive industries like server farms, hydrogen production, and battery manufacturing, which require skilled workers. The rise of advanced manufacturing in rural areas relies on renewable energy, cold climates, and available land but places significant strain on local labour markets, housing, and public services, as seen in the Northvolt and H2 Green Steel projects in Sweden.

Three options exist to meet labour demands:

- Rising wages may attract local workers, increase participation rates, or cause firms to automate or shut down.
- Internal migration depends on wages, relocation costs, housing availability, and improved quality of life, but rural areas face challenges in public services, spousal employment, and social activities.

- International migration is particularly difficult due to cultural and climatic barriers, language limitations, and integration challenges. Efforts to integrate newcomers require community support, streamlined immigration processes, and infrastructure like worker housing.

To adapt, rural regions must balance workforce development and housing needs, facilitate local retraining, expand transport connectivity, and attract workers while preserving existing industries. Successful strategies require co-ordinated local and national efforts to address labour shortages, skill gaps, and the challenges of integrating new workers.

Broader Labour Market Implications of Demographic Decline

Remote rural regions will likely remain competitive in traditional industries but will face significant changes due to demographic decline and the Green Transition, which require adapting production methods and addressing workforce shortages.

- Higher wages and productivity. Scarce labour will drive wages up, forcing firms to either close, invest in productivity-enhancing technologies, or train workers to use new systems. Increased productivity may allow firms to maintain output with a smaller, better-paid workforce.
- Increased labour force participation. Higher wages may attract workers currently inactive—such as those on disability or informal work—and encourage older workers to postpone retirement through job-sharing, part-time work, and workplace modifications.
- Impact on seasonal industries. Seasonal sectors like tourism, agriculture, forestry, and fishing will remain critical but face challenges as workers shift to higher-paying full-time jobs. The Green Transition may reverse mechanisation trends, increasing demand for seasonal labour while posing income challenges during the off-season.
- Higher costs of production. Demographic decline and climate-related policies could drive up production costs. Without protective border tariffs EU firms may lose competitiveness to foreign producers with lower environmental standards, who could capture market share. .
- Winners and losers. Local economies must transition to smarter specialisation strategies, focusing on resource strengths, workforce capabilities, and firm adaptability. Communities that fail to adjust may disappear, while successful ones will thrive.
- Skills mismatch. The shift to jobs requiring moderate-to-high skills, particularly with ICT proficiency, may leave a surplus of unskilled workers. Gradual transitions offer opportunities for public policies to align skills with employer needs, but delayed action risks creating crises.

The Green Transition remains uncertain, with unclear regional impacts and consumer responses. This makes it difficult for firms, workers, and governments to prepare effectively. Strategic, long-term planning is crucial to navigate the changes, but uncertainty may delay critical actions until challenges become acute.

Service Provision Challenges in the NSPA

The service sector plays a crucial role in rural regions, including the NSPA, but faces unique challenges compared to urban areas. Rural services—public, private, and voluntary—are less complex, with limited competition and choices. For example, rural banks focus on basic services, while urban areas offer sophisticated options. Some services, such as public transit or higher education, may be entirely unavailable. Unlike urban regions, where professional services generate revenue from outside markets, rural services primarily serve the local population and rely on government support or firm earnings.

Despite these limitations, services are critical in rural regions. They support exporting firms and create environments conducive to worker well-being through public services (infrastructure, healthcare,

education) and private services (retail, housing). The voluntary sector plays a significant role in filling service gaps by organising community activities, youth programs, and senior support services.

Demographic decline exacerbates service provision challenges. An ageing population increases demand for senior services while reducing the need for youth services. Labour force shortages further strain service delivery, as many roles are low-paying and unattractive in tight labour markets. In regions with economic decline, finding people willing to work may be less challenging, but paying for services becomes difficult. Conversely, in growing rural areas, recruiting workers for low-paying service jobs to sustain the economy is a significant challenge.

In the NSPA, specific shortages are observed in critical roles such as medical workers, childcare and elderly care providers, and teachers. Addressing these issues is vital for sustaining rural services and supporting both economic activity and quality of life.

Social Impacts of Demographic Decline

Demographic decline has significant social impacts, especially in rural areas where family ties are stronger, and families often provide essential services that, in urban settings, are delivered by governments or purchased privately. Increasing female labour force participation reduces women's capacity to provide unpaid family-based services, such as childcare, elder care, and voluntary work. While fewer children are born, the ageing population requires more services over time, as elderly needs increase with age, unlike those of children.

In wealthier economies, the service sector is a major economic component, but rural areas face challenges in accessing these services. Low demand prevents providers from achieving economies of scale, leading to higher per capita costs and limited options for residents. Geographical isolation results in high transportation costs for users or providers, further inflating service costs. Additionally, limited demand often results in few providers, restricting competition and choice.

Access to services is now crucial for quality of life and a region’s ability to attract migrants and business investment. While governments may subsidise rural services for equity and social cohesion, private firms will only operate if profits justify their presence. Consequently, the voluntary (third) sector often plays a larger role in rural areas, filling gaps in social service provision. For this sector to function effectively, strong social cohesion and funding mechanisms are essential to support volunteer efforts and ensure necessary resources.

In summary, rural areas face unique challenges in service delivery due to demographic decline, with greater reliance on governments and the voluntary sector to maintain well-being and economic viability.

Core Public Services

The demographic and economic realities of the NSPA call for targeted public service strategies. Adapting education, healthcare, social services, and housing to rural challenges involves weighing various options, each with its own opportunities and constraints. Striking the right balance will be key to sustaining livable and resilient rural communities.

Education

Rural schools in the NSPA often struggle with small enrolments, limited funding, and fewer learning opportunities than urban counterparts. High dropout rates, particularly among boys, weaken educational foundations, leading to poor skills, low workforce attachment, and social exclusion. As demographic decline reduces student numbers, a strong education system becomes even more critical. Modern workplaces, especially in resource-based industries like agriculture and forestry, increasingly demand

numeracy, critical thinking, and analytical skills, replacing low-skilled labour with technology and innovation.

Several approaches could help address these challenges. Regional school networks can consolidate resources while preserving local access, while distance learning and digital classrooms can expand course offerings and alleviate teacher shortages. Vocational training programmes in partnership with industries may better align education with regional workforce needs. Efforts to reduce dropout rates could include mentorship initiatives or alternative learning pathways tailored to student needs. Each approach carries trade-offs in cost, accessibility, and long-term workforce outcomes.

Health Care

The ageing population in the NSPA is driving increased demand for specialist and geriatric healthcare, while the remoteness of many communities further limits access, as advanced care is typically concentrated in urban centres. Ensuring equitable healthcare across dispersed populations requires decentralised and technology-driven solutions.

Potential strategies include expanding telemedicine to improve specialist access without long-distance travel, deploying mobile healthcare units and community-based nurse practitioners for local service delivery, or implementing targeted recruitment and retention programs to attract medical professionals to rural areas. Specialised transport services could also help patients reach urban healthcare facilities. Each approach presents trade-offs in infrastructure, workforce distribution, and patient outcomes.

Social Services

Demographic changes in the NSPA alter the demand for social services. Ageing populations require increased elder care, housing, and welfare support, while the need for job counselling and active recreation facilities declines. Wealthy regions may face delays in restructuring services, while poorer rural areas face significant challenges due to limited resources. Historically, families provided many social services, but increased work responsibilities and fewer family members able to help exacerbate the issue. This can lead to social exclusion, family stress, and lower labour force participation rates when families are overburdened with care responsibilities.

Various approaches could help address these changes. Expanding home-care services and community-based elder support can promote senior independence, while adjusting workforce policies—such as flexible leave or financial support—could ease caregiving burdens. Integrated service models that combine healthcare, social care, and housing may offer a more holistic solution. The feasibility of each approach depends on local resources and community needs.

Social Housing

Housing mismatches in the NSPA create barriers to both economic stability and demographic renewal. Older residents require specialised housing to support aging in place, while younger families and migrant workers need affordable housing options in areas where tourism and seasonal employment drive up costs. In some regions, depopulation has led to surplus housing, but much of it is unsuitable for modern needs.

Several strategies could address these challenges. Adaptive reuse of existing housing stock could help convert underused properties into senior-friendly or affordable housing units. In areas where housing costs are rising, public-private partnerships might facilitate the development of workforce housing. Another approach is to introduce housing mobility programmes, allowing seniors to relocate to more suitable housing while making space for younger families. Each of these approaches comes with different financial and logistical considerations, requiring careful alignment with local conditions and demographic trends.

Enhancing the Provision of Social Services

Core social services are essential for quality of life, supporting labour force participation and worker retention. While national governments provide services like basic education and healthcare, rural areas face challenges as service locations shrink and territories expand, increasing travel distances for residents. Local governments provide basic services such as emergency response and road maintenance, but limited budgets and higher unit costs make delivering services in rural areas more expensive compared to urban regions. Private firms struggle with profitability due to low population density, while the volunteer (third) sector plays a larger role in rural service delivery.

The effectiveness of the volunteer sector varies widely, influenced by factors like social cohesion. For instance, rural co-operatives like those in Jämtland Härjedalen offer vital daycare support but face closure due to increasing administrative demands. Improved social services have dual benefits: enhancing quality of life and responding to demographic decline. For example, introducing formal childcare and elder care facilities can boost labour force participation, particularly among women, by alleviating caregiving burdens.

Volunteers also contribute to community well-being by organising activities such as youth sports leagues or community cleanups, which make rural areas more attractive and help retain or attract workers. Similarly, youth programs can positively influence young residents, encouraging them to stay or return after gaining education or work experience.

In rural areas, innovative approaches are often needed to deliver services effectively. Examples include:

- Using structured wetlands for sewage treatment instead of conventional plants,
- Establishing tele-health cabins with nurse-practitioners in isolated areas,
- Forming volunteer fire brigades,
- Creating co-operative daycare facilities,
- Developing social enterprises for senior housing,
- Repurposing vacant facilities, like cinemas, for community programs (e.g. youth theatre).

However, national regulations often lack the flexibility to accommodate alternative service delivery methods, even when they meet or exceed desired outcomes. Governments should focus on setting outcome-based goals rather than rigid delivery mechanisms to enable innovation.

When local governments lack the capacity to provide all basic services, they should support the voluntary sector, fostering its growth and encouraging community engagement. Small initial successes can build capacity for larger initiatives, leading to improved services over time. Even imperfect services are a step forward, as they provide solutions where none previously existed, while growing demand can drive further improvements.

Third Sector or Civil Society

The third sector, which sits between government and for-profit firms, plays a crucial role in rural areas by providing goods and services that are otherwise unavailable. These include co-operatives, social enterprises, associations, and community organisations. The third sector thrives in rural regions because government and private firms often fail to meet local service needs. For example, a volunteer fire brigade may replace paid firefighters, and a co-operative grocery store can emerge in a village lacking commercial food sources. These organisations are often viable because members contribute capital and labour without requiring market-rate returns, benefiting directly from the services provided.

Demographic decline increases the need for third sector solutions even as it weakens the local capacity to provide them. As populations shrink, private service providers often withdraw due to reduced profit opportunities. This can shift demand—for instance, competitive swimming pools may decline while pools

for therapeutic exercises gain popularity. However, existing providers may struggle to adapt, and new firms may not enter the market, leaving a gap that the third sector can fill.

Local governments also face financial constraints from shrinking populations, forcing them to cut programs or shift funding to areas like senior care. Services such as park maintenance, while lower in priority for government, are vital for attracting workers, visitors, and businesses. Volunteer groups may step in to maintain parks out of personal benefit and a sense of public responsibility. However, as rural communities age and shrink, their capacity to organise and sustain volunteer efforts diminishes.

In summary, while the third sector plays an essential role in offsetting gaps left by government and private firms, its ability to respond is challenged by demographic decline and a reduced pool of community members able to engage.

Innovations in Rural Service Delivery to Improve Access to Services

Rural municipalities are increasingly adopting innovative service delivery approaches to address challenges arising from climate transition and demographic change. Climate adaptation in northern regions involves high costs for infrastructure development, such as maintaining roads in permafrost areas, retrofitting community heating systems with low-carbon energy, and integrating renewable energy into systems critical during winter. Economic growth from green transition opportunities further increases demand for infrastructure and housing, particularly where new firms require significant labour force expansions.

Several innovative approaches across the NSPA regions provide examples of how local governments, businesses, and volunteer groups are adapting:

- Health Tech Innovations: Universities and hospitals in cities like Oulu, Kuopio, and Umeå are leading advancements in health care that can be applied across rural areas.
- Workforce Training: Norrbotten encourages local SMEs to provide worker training, reducing reliance on external public sources. The region also focuses on increasing the participation of women in underrepresented careers like management and entrepreneurship.
- Childcare Initiatives: Jämtland Härjedalen explores prioritising unemployed parents of small children for childcare facilities to boost labour force participation.
- Regional Collaboration: Finmark has formed Intermunicipal Political Councils to identify joint opportunities and improve service delivery.
- Community Engagement: South Savo aims to engage seasonal residents—who own many local homes—encouraging them to invest in the community.
- Local Strategies: Lapland has devolved aspects of its smart specialisation strategy to municipalities, empowering them to leverage local opportunities.
- Support for SMEs: All regions are implementing measures to support and expand local SMEs, recognising their role in economic and service development.

These innovations demonstrate how rural regions can adapt to economic, demographic, and climate challenges through collaborative governance, targeted workforce development, and local infrastructure investments, fostering stronger communities and improved access to services.

Balancing the Needs of the Elderly with the Needs of the Young

Demographic changes, such as fewer children and more elderly, create financial pressures on governments to increase spending on both education and elderly care. Reduced funding for either group has consequences: underfunded education undermines future workforce productivity, while inadequate elderly care places burdens on families, reducing labour force participation.

Schools and Training

As school-age populations shrink, improving education quality becomes even more critical to prepare young people to contribute effectively in the future. While school consolidation (closing local schools and centralising students) is a common response, it has significant drawbacks:

- Longer school days due to extended bus travel, especially hard for younger students.
- High investments in non-electrified buses for long rural routes.
- Decline in a community's desirability for residents and migrants.
- Reduced social cohesion and lower chances of students remaining in their communities.

Modern technology offers a solution, allowing students to remotely access specialised classes without traveling long distances. Lessons learned during the COVID-19 era can guide the integration of traditional and electronic teaching methods. Additionally, schools can better engage with their communities by involving local residents in the educational process, exposing students to local career opportunities and motivating them to invest in education.

Improving core skills is vital as smaller cohorts enter the workforce, emphasising productivity. While education should not solely focus on job-specific skills, it cannot ignore workforce needs. For post-secondary education, rural areas often lack facilities, limiting skill development opportunities. Solutions include:

- Mobile training units that provide intensive, hands-on technical training.
- Blending distance learning for theory with practical components delivered by local firms.

Elderly Care

An ageing population, combined with smaller families and greater workforce participation, increases the need for formal elderly care facilities. In the past, extended families shared the responsibility for elderly care, but modern rural families are smaller and busier with formal work. High-quality elderly care facilities allow families to fully engage in the labour force while ensuring their relatives receive proper care.

Key benefits of elderly care facilities include:

- Relieving families of caregiving pressures, improving labour force participation.
- Strengthening family attachment to the community, reducing relocation for better job prospects.
- Increasing housing availability by transitioning elderly residents into specialised senior housing.

For elderly individuals requiring 24-hour care—such as those with dementia—group homes are easier to staff and manage than leaving individuals in their original homes. Providing services like meal delivery and home health care also supports independent living for as long as possible, but facility-based care becomes inevitable over time.

Balancing the needs of the young and elderly requires innovative approaches to both education and elderly care. For education, integrating modern technology, mobile training solutions, and community engagement can improve quality and relevance. For elderly care, establishing specialised facilities supports families, strengthens communities, and enhances workforce participation, ensuring sustainable solutions for rural demographic challenges.

Alternative Delivery of Private Services

In rural regions, the private service sector faces challenges such as higher operating costs, smaller local demand, and limited access to finance, which reduce the number of viable for-profit firms. This leads to

gaps in services, making communities less attractive to residents and businesses. Social enterprises offer a solution to address these challenges.

Social enterprises sell products or services but do not distribute profits, allowing them to operate in environments with higher costs. They can fill service gaps often covered by government in urban areas, such as providing shuttle services where public transport is unavailable. They also support local entrepreneurs through co-operative models, helping small firms:

- Obtain inputs at better prices, or
- Jointly market products to secure higher returns.

In very small municipalities, where for-profit businesses are no longer viable, community shops staffed by volunteers may be the only option for local access to essential goods.

Social enterprises also facilitate public-private partnerships by creating cost-covering entities without a profit motive. Similarly, private firms can collaborate through social enterprises to develop shared services they cannot afford independently, ensuring fair pricing and collective ownership.

Social enterprises play a crucial role in rural regions by filling service gaps left by for-profit firms, supporting local businesses through co-operatives, and enabling cost-effective public-private partnerships. These entities help sustain essential services and economic activity in communities where traditional business models are less viable.

Conclusions

Challenges and Opportunities in the NSPA

The Northern Sparsely Populated Areas (NSPA) face persistent economic challenges, intensified by demographic decline and the Green Transition. A shrinking population reduces the labour force while increasing demand for services, particularly elderly care. At the same time, the shift to renewable energy necessitates structural changes, raising adaptation costs in these remote, energy-intensive regions. However, advancements in green technology also create new economic opportunities.

Labour market imbalances are emerging as skilled workers benefit from the transition, while isolated and lower-skilled workers risk exclusion. To mitigate these disparities, a tailored Active Labour Market Policy (ALMP) is essential to align workforce development with economic transformation.

Adapting Policy to the NSPA's Unique Socioeconomic Structure

The NSPA's distinct geographic, economic, and political characteristics require customised policy solutions. While rural areas across OECD countries share some common structural limitations, broad regional development programmes may not yield effective results in these territories.

The Nordic welfare state, traditionally ensuring full employment through ALMPs and social services, is under strain due to demographic shifts, urban-cantered economic growth, and increased immigration. Rural areas are particularly affected by youth outmigration, disguised unemployment, and rising service costs.

Unlike many rural regions globally, the NSPA is not primarily agricultural. Instead, resource extraction industries—mining, forestry, and hydroelectric energy—form the backbone of local economies. This reliance makes communities vulnerable to resource depletion, high transport costs, and global market fluctuations. While tourism offers diversification potential, it remains a supplementary sector rather than a standalone economic solution.

The Arctic and semi-Arctic climate further complicates development, increasing costs for businesses, households, and governments, particularly in infrastructure maintenance and energy use. However, climate change presents both risks and opportunities, such as expanded possibilities for green technologies and energy.

Low population density limits the benefits of urban-style economic agglomeration, necessitating alternative growth strategies. High transport costs and limited ICT infrastructure further challenge economic development. Specialisation in high-value tradable goods, supported by a strong civil society and local initiatives, is essential for ensuring economic resilience and service provision.

Modern Labour Markets and Workforce Adaptation

As labour markets evolve, policies must adapt to demographic decline and the Green Transition. Traditional full-time employment is shifting toward self-employment, gig work, and seasonal jobs. Rising wages—driven by a shrinking workforce—offer some relief, but structural factors such as fixed working hours and part-time preferences among older workers complicate labour supply adjustments.

Geography further constrains rural labour markets, with limited commuting feasibility and skill mismatches. Unlike agricultural regions where seasonal farm work supplements employment, the NSPA lacks such flexibility. Additionally, financial disincentives—such as the loss of social benefits when transitioning to full-time work—discourage participation.

To enhance workforce participation, ALMPs must be modernised and localised, addressing barriers such as mobility constraints, limited training opportunities, and skill mismatches. While urban centres benefit from robust job networks and infrastructure, rural communities require targeted economic development.

Refreshing Active Labour Market Policies

ALMPs have historically played a key role in sustaining workforce participation in Nordic countries. However, they must now adapt to demographic and technological shifts. Earlier criticisms highlighted their outdated focus on traditional industries rather than emerging green sectors. Recent OECD research underscores the importance of transitioning workers from declining “brown jobs” to new “green jobs,” though the ease of transition varies by sector and region.

For ALMPs to succeed in the NSPA, they must address:

- Skill mismatches
- Limited job opportunities
- Worker mobility constraints

Localised ALMP strategies are already emerging in Finland, Norway, and Sweden, tailored to regional economic conditions. Given the spatial separation of rural labour markets, a one-size-fits-all approach is inadequate—flexibility is crucial for sustainable economic development.

Tailoring Economic Development to Local Labour Markets

Every Local Labour Market (LLM) is distinct, shaped by economic cycles, technological progress, and demographic trends. For example, in Jämtland Härjedalen, remote work opportunities have reduced commuting pressures and attracted high-skill jobs. Governments can support LLMs by stimulating labour demand, enhancing labour supply, and improving job matching. Expanding local businesses, fostering entrepreneurship, and attracting external firms are vital for job creation, while skill development initiatives ensure workforce readiness.

Labour imbalances in the NSPA, where lower-skilled workers have limited mobility, present a long-term challenge. Businesses require a mix of skill levels, making it essential to support medium- and high-skilled workers. ALMPs should be adaptable to each LLM's needs, integrating flexible national and regional policy frameworks with strong local engagement. Collaboration among local governments, businesses, trade unions, and community leaders is key, supported by financial and technical resources from national and regional authorities.

Addressing Demographic Challenges through Integrated Policies

To counter demographic decline and foster economic resilience, communities must implement targeted economic and social policies. Key economic measures include labour market assessments, skill development programmes, workforce risk analyses, and initiatives to extend workforce participation. Mentorship programmes can facilitate intergenerational skill transfer, while recruitment strategies must go beyond employment support to enhance local attractiveness through housing, cultural amenities, and newcomer integration.

Equally important are social policies that strengthen community sustainability. Expanding education, healthcare, childcare, and eldercare services improves residents' quality of life and contributes to workforce retention. Housing strategies, such as senior-friendly developments and social housing initiatives, can further accommodate demographic shifts.

By integrating economic and social support strategies, local economies can become more resilient, competitive, and attractive, ensuring long-term sustainability in the face of demographic and environmental transitions.

Facilitating Co-ordination and Collaboration

The 14 members of the NSPA share enough commonality to act as a collective unit for policy co-ordination. However, for more effective policy implementation, the region can be grouped into overlapping sub-groups based on geographic, economic, and strategic characteristics:

- Coastal regions (Baltic vs Atlantic). Baltic regions benefit from dense coastal settlements, stronger rail links, and potential for fishing, tourism, and trans-shipment. Norwegian Atlantic regions have linear settlement patterns along fjords, with maritime connections often faster than road travel.
- Border regions with Russia. Previously benefitted from economic integration with Russia, but now face security challenges as part of NATO's frontier. Defence investments offer economic opportunities, such as attracting returning soldiers post-service.
- Interior regions. Lacking maritime borders, these regions face connectivity challenges, relying on road networks. Settlement patterns are more evenly distributed but lead to smaller, less interactive communities with limited services.
- Regions with strong forestry sectors. Opportunities exist for collaboration to strengthen wood product supply chains, improve forest management in slow-growth environments, and develop bio-economy initiatives.
- Regions with mining potential. The green energy transition and secure resource demand offer growth opportunities. Focus areas include improving mining technologies for northern climates and managing mining waste.
- Sámi population regions. Sámi communities, spanning borders, require integrated approaches to foster partnerships in development while addressing past tensions.
- Regions with larger cities. Home to universities, healthcare facilities, and professional services. These cities can collaborate to form urban clusters, especially along the Baltic, with improved east-west air connectivity.

- Regions with universities. Five regions host research universities, vital for smart specialisation and innovation. For example, Tromsø excels in fisheries, while the University of Eastern Finland leads in forestry research.
- Tourism-focused regions. International tourist destinations can expand offerings. Other regions could "piggyback" on this through extended visits and collective marketing. Norwegian regions benefit from cruise ships and Hurtigruten routes.
- Regions with hydro-electric production. Increased manufacturing interest creates opportunities for integrating large plants and improving east-west power grid connections.

Through strategic co-operation in these sub-groups, the NSPA can enhance regional development, optimise resources, and effectively address shared challenges, ensuring long-term economic resilience and sustainability.

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3 Competitiveness, Connectivity, and Regional Development in the NSPA

The NSPA regions hold great potential for sustainable development, requiring targeted policies and regional collaboration to address shared challenges. Key priorities include advancing renewable energy, fostering the green transition through incentives and infrastructure, supporting SMEs and start-ups, and improving digital, transport, and education systems. Financial tools like venture capital funds and loan guarantees are essential to drive innovation and economic growth. Tailored strategies addressing each country's specific needs, combined with co-ordinated efforts, aim to achieve sustainable and inclusive economic progress across the region.

Introduction

In a rapidly evolving global economy, competitiveness and connectivity are essential for economic prosperity, innovation, market adaptation, and environmental sustainability. Within the European Union (EU), competitiveness involves building a dynamic, innovative economy capable of meeting technological and market demands, while connectivity—especially in digital and transport infrastructure—ensures inclusive growth, integrating even remote areas into the European and global economy (European Commission, 2024).

Regions enhancing competitiveness attract investment, drive innovation, and generate high-quality jobs (Storper, 1997). Effective policies must address macroeconomic factors, such as fiscal and monetary policies, as well as microeconomic concerns, including R&D, workforce development, infrastructure, and trade (Greenwald and Stiglitz, 2013). Europe's strategy emphasises adapting to global market changes

through productivity, advanced technologies, research capabilities, and fostering high-tech industries (Fuest et al., 2024). Additionally, environmental sustainability now plays a key role in competitiveness, as green policies and technologies not only mitigate climate change but also unlock economic opportunities (Lubin and Esty, 2010; Constantini and Mazzanti, 2012).

The growing importance of digitalisation places connectivity at the centre of economic prosperity, requiring its integration into policy frameworks to support sustainable growth (Dabbous et al., 2023). Place-based policies must balance the unique needs of regions and their broader geographical contexts, as their effectiveness depends on local, national, and global economic conditions (Ketels, 2013).

The EU's innovation strategies, including the Regional Innovation Valleys, Partnerships for Regional Innovation, and the European Startup Village Forum, aim to address disparities and foster interregional collaboration. These initiatives build on the Smart Specialisation Strategy (S3) framework but seek to overcome challenges like regional concentration of R&D and weak interregional co-operation (Uyarra et al., 2018). The new mission-oriented approach emphasises inclusivity, green and digital transitions, and cohesive regional innovation ecosystems (Kattel et al., 2024). However, administrative capacity and alignment with existing frameworks remain critical challenges.

The NSPA faces significant barriers to competitiveness due to geographical isolation, harsh environmental conditions, and limited infrastructure. Despite rich natural resources and potential for sustainable energy, these areas struggle with connectivity, skilled labour recruitment, and access to finance and advisory networks (Phillipson et al., 2019). Improved digital and transport infrastructure can unlock their economic potential and support competitiveness objectives.

Moreover, the economic development of the NSPA holds strategic geopolitical and environmental importance due to their Arctic location, contributing to socioeconomic goals while preserving traditional lifestyles, heritage, and mitigating climate change (Galloway, 2007; Tate, 2010; Fieldsend, 2013). Policies targeting connectivity, talent retention, and sustainable energy are crucial for addressing these unique challenges, aligning with broader European objectives to build a cohesive and innovative economic landscape.

The analysis in chapter one highlights that the NSPA outperforms other rural OECD regions in GDP and productivity growth, though it faces sectoral shifts and structural disparities. The economy is dominated by SMEs, with small firms (1–9 employees) making up 85% of businesses but accounting for only 28% of employment, indicating limited job creation capacity. Firm density is lower than in non-NSPA regions, with 21 small firms per 1 000 individuals compared to 24 per 1 000 elsewhere.

Innovation remains a concern, with 106 patent applications per 1 million people in 2020, lower than non-NSPA regions (159) but significantly higher than other OECD rural areas. Despite moderate innovation growth, its diffusion between urban and rural areas remains a challenge.

Trade performance presents a mixed picture. While exports reached USD 2 billion in 2020—lower than non-NSPA (USD 5.5 billion)—the region's export growth (21% from 2015 to 2020) outpaced all comparison groups. Its 3.3% annual growth rate nearly doubled that of non-NSPA (1.7%). However, accessibility remains a major constraint, as gaps in physical and digital infrastructure limit economic opportunities and overall quality of life.

This chapter examines competitiveness as a key factor shaping the NSPA's future, emphasising innovation, SME support, and high-value industry transitions. Subsequent chapters will explore the Green Transition (sustainability policies, renewable energy, and emission reduction) and Multi-Level Governance (policy co-ordination, cross-border collaboration, and local engagement) as additional dimensions crucial to fostering a cohesive and innovative economic landscape.

Trends and policies for competitiveness and connectivity in the NSPA

The NSPA face unique challenges due to remoteness , high transport costs, shrinking and ageing populations, and a reliance on natural resources. Despite these constraints, the regions benefit from substantial renewable energy generation and high life satisfaction among residents, particularly in environmental and housing aspects, though income and service accessibility lag behind national averages. Addressing these structural issues while leveraging geographic advantages is crucial for competitiveness and connectivity (OECD, 2019).

Competitiveness in the NSPA

The NSPA regions are experiencing significant demographic shifts, with an ageing population and youth outmigration. These trends result in a shrinking labour force and challenge the possibility of sustaining local economies. Often, the youth, in spite of their high educational attainment, tend to migrate to other geographic areas, mostly in the Nordic region, reducing the local talent pool. As a result, the NSPA is being very active in the definition of (immigration) policies that help revert the previous demographic trends, attract talent that could contribute to the growth of local SMEs and or create new ventures in the region.[15] At the same time, better integration of Indigenous Sámi communities into regional development strategies is required, as their rights are affirmed by law.[16] Their traditional knowledge and involvement in sustainable land use, agriculture, and tourism can significantly contribute to regional competitiveness (OECD, 2019).

To respond to these challenges, the NSPA regions are diversifying beyond traditional sectors such as fishing, forestry, and mining to include ICT, tourism, green energy and niche high-tech manufacturing. SMEs are seen as vital for local employment and innovation, and hence, the NSPA region shows a strong focus on fostering SMEs and creating new (technology-based) start-ups. Targeted venture capital funds, the promotion of business incubators and innovation hubs, and the co-operation with universities and research organisations is thus fundamental to consolidate these ambitions.[17] This collaboration is also essential to identify and invest in (potentially new) areas of relative comparative advantage to the region

[15] See for example the new rules for labour immigration that have been discussed in the Swedish context to promote the immigration of highly qualified labour. Available (in Swedish): https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2024/02/sou-202415/. See also the Sweden assignment to national agencies to attract and retain international competence. Available (in Swedish): https://www.regeringen.se/pressmeddelanden/2024/03/myndighetsovergripande-satsning-for-att-attrahera-och-behalla-internationell-kompetens/

[16] It is stipulated by law that the government, state administrative authorities, regions, and municipalities must consult Sami representatives before making decisions in matters that may have particular significance for the Sami population. Available (in Swedish): https://www.riksdagen.se/sv/dokument-och-lagar/dokument/svensk-forfattningssamling/lag-202266-om-konsultation-i-fragor-som-ror-det_sfs-2022-66/

[17] The fourteen regions that comprise the NSPA include the following universities: (a) Finland: Kainuu (Kajaani University of Applied Sciences), , Central Ostrobothnia (Centria University of Applied Sciences), North Ostrobothnia (University of Oulu), Lapland (University of Lapland, Lapland University of Applied Sciences), North Karelia (Karelia University of Applied Sciences, University of Eastern Finland), South Savo (South-Eastern Finland University of Applied Sciences, Mikkeli University Consortium), North Savo (Savonia University of Applied Sciences, University of Eastern Finland); (b) Norway: Finnmark (The Arctic University of Norway), Nordland (Nord University),Troms (The Arctic University of Norway); (c) Sweden: Jämtland Härjedalen (Mid Sweden University, Swedish University of Agricultural Sciences), Västernorrland (Mid Sweden University), Norrbotten (Luleå University of Technology), Västerbotten (Skellefteå Universities Alliance, Umeå University, Swedish University of Agricultural Sciences).

(European Commission, 2006), due to its unique strengths, in areas such as renewable energy, cold climate technologies[18], and the blue economy (i.e. aquaculture, maritime tourism).

Public service delivery is also a major concern in the NSPA region. The use of new technologies is being promoted to enhance the effectiveness and efficiency of public services, and to mitigate the challenges posed by vast distances and low population density. Here too, cross-border co-operation between the public sector, private companies, and community organisations is encouraged to improve service delivery and infrastructure maintenance.

As a result of the missions undertaken by the OECD in the NSPA regions between 2023 and 2024 and the information gathered in them, Table 4 identifies the main trends and policies for competitiveness in the NSPA region as a whole, and in each of the three countries constituting it, respectively. The NSPA region faces a series of demographic and economic challenges, prompting tailored policy responses to enhance its competitiveness. To counter demographic issues, particularly the challenges of an ageing workforce, policies are focused on retaining and attracting youth, improving educational attainment, and addressing regional disparities in workforce participation, particularly among underrepresented groups in specific sectors, such as STEM (i.e. Science, Technology, Engineering, and mathematics). Tailored immigration initiatives also aim to incentivise younger workers to settle in the region.

Economic diversification is at the core of the region's growth strategy, with policies designed to foster innovation in high-value sectors like ICT, tourism, bioeconomy, green energy, and niche high-tech manufacturing. Support for SMEs and start-ups is being enhanced through funding initiatives, incubators, and the promotion of entrepreneurship, aiming to build resilient industries with potential for high returns. In addition, there is a strong focus on promoting industries with existing absolute advantages—such as minerals, renewable energy, fisheries, aquaculture, and tourism—to boost export-oriented growth. By capitalising on these natural strengths, the region seeks to position itself as a key player in international markets.

To improve public service delivery, particularly in healthcare and education, policies emphasise the adoption of new technologies and the development of partnerships among the private, public, and community sectors. This collaborative approach aims to enhance public value and efficiency across the region. Lastly, efforts are being made to link Indigenous communities, especially the Sámi, with regional development plans. Policies are promoting educational and vocational training tailored to the needs of local industries, thereby reducing skill mismatches and fostering greater capacity within regional and local institutions. This inclusive approach not only enhances economic resilience but also ensures that regional development benefits are shared broadly across all communities.

Table 6. Main trends and policies for competitiveness in the NSPA

Trend	Policy initiatives
NSPA region as a whole	
Demographic challenges	Policies aiming to retain and attract youth, improve educational attainment, address the challenges associated to an ageing workforce, particularly targeting underrepresented groups such as young females, and through tailored immigration policies and incentives for younger workers.
Economic diversification and innovation in high-value industries	Policies supporting innovation and entrepreneurship through (venture) funding, incubators, and the promotion of SMEs and start-ups in sectors like ICT, tourism, bioeconomy, green energy and niche high-tech manufacturing industries, which have potential for higher returns.

[18] Cold Climate Technologies refer to a range of scientific and engineering solutions specifically designed to function effectively in cold environments. These include, among others, thermal insulation, heating systems, durable materials, energy efficiency, and cold-resistant transportation.

Growth in export-oriented sectors	Policies and strategies focusing on industries with absolute advantages such as minerals, renewable energy, fisheries and aquaculture, and tourism to drive export growth.
Public value and effectiveness	Policies promoting new technologies and aiming to develop partnerships between private, public, and community sectors to improve service delivery efficiency, especially in healthcare and education.
Building capacity and linking Indigenous communities with regional development	Policies enhancing educational and vocational training to meet the specific needs of local industries and reduce skill mismatches. Strengthening the capacities of regional and local institutions for effective policy implementation. Integrating Sámi communities into regional development plans.
Finland	
Labor market	Policies aiming to attract young talent and encourage immigration to counteract demographic challenges.
Skill development	Policies enhancing education and vocational training tailored to regional economic needs, especially in remote areas.
Innovation in key sectors	Policies emphasising investment in innovation and research, particularly in areas with strong potential like renewable energy and ICT.
Export-driven growth	Policies focusing on sectors like paper, pulp, technology, and services that are integral to Finland's export economy.
Norway	
Energy and maritime sectors	Policies utilising natural resources effectively and promoting innovation in the maritime, fisheries and offshore energy sectors.
Rural and regional development	Policies focusing on enhancing the viability of rural economies through targeted support and investments.
Human capital investment	Policies strengthening educational institutions and training programs to meet the needs of emerging industries.
Tourism as an economic driver	Policies developing tourism, particularly eco-tourism and adventure tourism, as a major economic activity.
Sweden	
Economic diversification	Policies encouraging diversification away from traditional industries to more knowledge-intensive activities.
High-tech and green technologies	Policies promoting growth in sectors like advanced manufacturing and sustainable technologies where Sweden has a competitive edge.
Cluster development	Policies supporting the development of business clusters in biotechnology, ICT, and other innovative sectors, building “networked clusters” that include a physical location and a cluster management organisation acting as a central hub, as well as a digital platform for collaboration.
Workforce upskilling	Policies prioritising lifelong learning and skills development to keep pace with technological advancements.
Regional economic integration	Policies strengthening economic ties within and between regions to foster economic stability and growth.

Source: Own elaboration

The main trends impacting competitiveness in Finland's NSPA include demographic challenges such as an ageing population and youth outmigration. As a response, policies are being implemented to attract young talent, encourage immigration, and enhance higher education and vocational training. Additionally, there is a strong focus on fostering innovation and entrepreneurship to diversify the economy, particularly in areas with strong potential to strengthen the export economy of the Finnish NSPA. The Finnish government is addressing these issues through regional reforms that grant more autonomy to NSPA regions, allowing for tailored policy adaptations. Funding from the European Regional Development Fund (ERDF) and European Social Fund (ESF) is also crucial for supporting SMEs and enhancing innovation in the Finnish NSPA.

Norway's NSPA deal with the dual challenges of remote locations and severe climatic conditions, which have a direct impact on physical connectivity. On the one hand, policies focus on enhancing transport infrastructure to ensure reliable connections and support economic activities in these remote areas. On the other, digital connectivity initiatives, as well as investments in broadband and new digital technologies are also a significant part of the strategy to improve access to services and economic opportunities. Policy initiatives are also being implemented to support innovation and to achieve a sustainable management of natural resources in key industries, where Norwegian NSPA regions show competitive advantages, such as offshore energy, maritime and fisheries, eco-tourism and adventure tourism. To meet the demands of these emerging industries, policies are also aiming to strengthen education institutions through the development of new training programs oriented to respond to the previous demands.

Sweden's NSPA face trends of economic diversification and show significant regional variations in development strategies. In particular, there is a strong focus on promoting smart specialisation to enhance regional competitiveness in rural areas.[19] As a result, policies promoting growth in high-tech manufacturing industries, ICT, biotechnology and green technologies, where Swedish NSPA regions have a competitive edge, are being implemented.[20] Policies are also focusing on the development of lifelong learning and skills development, so as to keep pace with technological advancements in these industries, as well as on promoting STEM education at the university level.[21] The integration with other national policies, particularly in transport and innovation, is also critical to addressing competitiveness issues of the Swedish NSPA. The European Structural and Investment Funds (ESIF) also play a key role in supporting these initiatives.

Connectivity in the NSPA

The geographical and climatic challenges in the NSPA region pose significant obstacles to connectivity, with long distances between urban settlements and tough weather conditions. Improved physical and digital infrastructure is thus essential for enhancing accessibility, economic integration, and overall quality of life. The NSPA suffers from weak transport connections, long distances between settlements, and challenging geographic settings. Significant investment is thus needed to enhance physical infrastructure, improving road, rail, and air transport to reduce travel times, making it easier for people and goods to move across the region, and integrate the NSPA region with national and international markets.

As regards digital connectivity, high-speed broadband is essential, particularly in remote and sparsely populated areas, to support economic activities and the access to public services, such as telemedicine and online education, which can mitigate the disadvantages of physical remoteness. Policies are therefore crucial for ensuring that residents and businesses in the NSPA can access digital services and participate in the digital economy.

Cross-border collaboration is vital to address these shared challenges. Harmonising regulatory frameworks and improving cross-border infrastructure planning can enhance connectivity and regional integration. Joint initiatives between NSPA regions and neighbouring countries can facilitate better infrastructure development and economic integration.

[19] See the bill proposed by the Swedish government for a rural policy that leads to long-term sustainable development, and which considers the promotion of entrepreneurship, work, housing and welfare. Available (in Swedish): https://www.regeringen.se/rattsliga-dokument/proposition/2018/03/en-sammanhallen-politik-for-sveriges-landsbygder--for-ett-sverige-som-haller-ihop/

[20] See for example the national strategy for sustainable regional development for the period 2021-2030. Available (in Swedish): https://www.regeringen.se/rattsliga-dokument/skrivelse/2021/03/skr.-202021133

[21] For more details on the Swedish STEM strategy, see (in Swedish): https://www.skolverket.se/download/18.582d622c190768c7a0820/1720018140659/MSV%20skrivelse%20till%20STEM%20240626.pdf

Sustainable and smart infrastructure development is also a key focus. Investment in renewable energy infrastructure, such as wind and hydroelectric power, supports sustainable development and reduces environmental impact. Developing smart transport systems that use innovative technologies are also essential to improve efficiency and reduce costs, making these infrastructure investments sustainable and supporting long-term regional growth.

Table 7. Main trends and policies for connectivity in the NSPA

Trend	Policy initiatives
NSPA region as a whole	
Improving physical infrastructure	Policies supporting investment in infrastructure to improve transport connectivity, particularly as regards East-West connectivity through road, railway and air, to better integrate the NSPA with national and international markets and reduce travel times, also addressing the unique geographic and climatic challenges.
Digital connectivity	Policies expanding digital infrastructure, high-speed broadband and the inclusion of digital technologies to enhance accessibility, and support e-government and service delivery (e.g. telehealth services).
Cross-border collaboration and integration	Policies enhancing cross-border collaboration to leverage shared opportunities and address common challenges effectively. This includes policies improving infrastructure planning and investment, but also harmonising policies and regulations, and facilitating the movement of goods and people.
Sustainable and smart infrastructure	Policies promoting sustainable infrastructure development, including renewable energy projects, infrastructure to connect regional energy production with national grids, smart transport systems that improve access to national and international markets, including ports and rail networks, to improve overall connectivity and reduce environmental impact.
Finland	
Transport infrastructure	Upgrading transport links, particularly road and rail networks.
Digital infrastructure	Extensive investment in broadband to enhance digital connectivity across remote areas.
Cross-border initiatives	Strengthening ties with neighbouring countries through infrastructure projects and digital collaborations.
Energy independence	Developing renewable energy sources to reduce dependence on imports and improve energy security.
Regional transport planning	Integrating regional transport needs into national planning to improve accessibility and connectivity.
Norway	
Arctic route development	Exploiting geographic advantages to develop the Arctic shipping routes for better global connectivity.
Rural broadband expansion	Extending high-speed internet to rural and remote communities to reduce the digital divide.
Transport and logistics hubs	Developing regional hubs to improve logistics and transport efficiencies across northern Norway.
Cross-border co-operation	Enhancing infrastructure links with the EU to support economic and social interactions.
Renewable energy networks	Expanding the infrastructure for hydroelectric and wind power to bolster energy connectivity and sustainability.
Sweden	
Digital infrastructure	Extensive investment in broadband to enhance digital connectivity across remote areas.
Advanced digital networks	Leading in the deployment of 5G networks and services to enhance digital connectivity and innovation.

Sustainable transport systems	Investing in green transport solutions, including electric and hybrid vehicles for public transportation systems.
Northern transport corridor	Enhancing East-West and North-South transport corridors linking northern regions with major urban centres in Sweden and beyond, also ensuring sea-to-sea connectivity, which is highlighted as high priority by the national armed services in Sweden, Norway and Finland given the new security situation.
Smart city initiatives	Implementing smart city technologies in urban areas to improve efficiency and connectivity.
Energy grid modernisation	Upgrading the energy infrastructure to support the integration of renewable energy sources.

Source: Own elaboration

The main trends impacting connectivity in the Finnish NSPA focus on upgrading transport and digital infrastructure, cross-border initiatives, energy independence, integrating regional transport into national planning and enhancing digital connectivity. The Finnish government is working on long-term infrastructure plans that align with regional development strategies to address these issues. Strengthening cross-border co-operation with neighbouring countries is also crucial for improving overall connectivity in the Finnish NSPA.

Norway's NSPA focuses on developing Arctic shipping routes, extending rural broadband, creating transport and logistics hubs, enhancing cross-border co-operation, and expanding renewable energy networks. There is still substantial potential in improving digital connectivity through investments in broadband and other digital technologies to reduce the digital divide, to enhance the digitalisation of local SMEs, to promote the creation of new start-ups, to improve access to services and to stimulate the creation of new economic opportunities.

The Swedish NSPA struggles with fragmented transport infrastructure, requiring better integration with other northern regions and national transport planning. The focus is on developing sustainable transport solutions that are environmentally friendly and cost-effective. Policies aim to integrate regional transport networks implementing smart city technologies in urban areas and green transport systems. Sustainable infrastructure development includes renewable energy and its associated grid modernisation, and the development of advanced digital networks to enhance digital connectivity and innovation. However, this requires the basic digital infrastructure as broadband needs to be out in place first.

Competitiveness and connectivity in Finland’s NSPA

As regards the competitiveness of Finnish NSPA regions, their current needs consist of improving collaboration between businesses and educational institutions to foster innovation and technology transfer, access to finance and venture capital for the growth of innovation-driven ventures, particularly in technology sectors, strengthening regional clusters and innovation hubs and enhancing digitalisation and innovation among SMEs. Support policies being currently considered and implemented include regional development programs, innovation alliances and EU funding to foster green and digital transitions, develop renewable energy projects and sustainable land use practices, and facilitate the export orientation of Finnish SMEs. Financial support is currently being provided through ERDF, ESF+, and other EU funds.

Future gaps and opportunities highlight the need for better integration of SMEs into innovation ecosystems as a key lever to drive economic growth, and the development of high-value-added sectors and export-oriented activities in key industries in which Finnish regions count with absolute comparative advantages. To reach this potential economic transition expanding digital and green skills among the workforce is regarded as a crucial lever. New policy areas requiring further support emphasise the need for targeted policies to promote entrepreneurship, venture capital access for SMEs, particularly in technology-driven

sectors, education and training programs to retain youth and attract skilled workers, and incentives for R&D investments and sustainable practices in key sectors like forestry, mining, and bioeconomy. Policies are also needed to promote innovation linkages and better integrate SMEs into regional economic strategies. Potential is sought for the implementation of public procurement for innovation initiatives.

Table 8. Competitiveness and connectivity in Finnish NSPA regions

Current needs	Current support policies	Future gaps and opportunities	New policy areas requiring further support
Competitiveness			
Improved collaboration between businesses and educational institutions	Regional development programs, innovation alliances, and EU funding for green and digital transitions	Enhanced integration of SMEs into innovation ecosystems	Support for entrepreneurship and venture capital access for SMEs, particularly in technology-driven sectors
Access to finance and venture capital for innovation-driven ventures	Programs supporting SMEs in green transition and export facilitation	Need for comprehensive policy co-ordination and better execution of digital connectivity strategies	Policies promoting innovation linkages and better integration of SMEs into regional economic strategies Potential role for public procurement for innovation
Strengthening of regional clusters and innovation hubs	Financial support from ERDF, ESF+, and other EU funds	Development of high-value-added sectors and export-oriented activities	Enhancement of education and training programs to meet local industrial demands and retain youth
Enhanced digitalisation and adoption of advanced technologies by SMEs	Support for renewable energy projects and sustainable land use practices	Expanding digital and green skills among the workforce to meet economic transition needs	Incentives for R&D investments and sustainable practices in key sectors like forestry, mining, and bioeconomy
Connectivity			
Improved transport infrastructure, particularly road conditions and cross-border links	Ongoing projects to improve road, rail, and broadband infrastructure	Enhanced broadband coverage and smart grid infrastructure	More cohesive and targeted policy implementation for digital and transport connectivity
Increased broadband penetration and digital capabilities in rural and remote areas	Initiatives supporting the digitalisation of SMEs and extending broadband access	Better co-ordination of policies to fully utilise EU funds for digital and transport infrastructure	Development of necessary infrastructure for smart grids to integrate renewable energy sources efficiently
Development of necessary infrastructure for smart grids to support renewable energy integration	EU initiatives like the Just Transition Fund supporting green energy and digital connectivity projects	Addressing challenges in achieving widespread digital transformation among SMEs	Policies focusing on extending high-speed internet access to rural and remote areas
Enhancements in cross-border transport links to	Regional and national policies	Aligning local infrastructure	Support for transport infrastructure projects to

support export industries and economic activities	promoting sustainable transport and energy practices	developments with broader EU priorities to enhance economic resilience and competitiveness	improve connectivity within regions and with neighbouring countries

Source: Own elaboration

As regards the connectivity of Finnish NSPA regions, the current needs are related to improvements in transport infrastructure, especially in rural and remote areas, increased broadband penetration and digital capabilities to support the digital transformation of SMEs, and the development of infrastructure for smart to support the integration of renewable energy sources. Support policies being currently considered and implemented include ongoing initiatives to improve road, rail, and broadband infrastructure, initiatives to support the digitalisation of SMEs and extend broadband access, and EU initiatives like the Just Transition Fund to support green energy and digital connectivity projects.

Future gaps and opportunities call for the need to enhance broadband coverage and smart grid infrastructure, achieving widespread digital transformation among SMEs and aligning local infrastructure developments with EU priorities. These future demands request more cohesive and targeted policies for digital and transport connectivity, extending high-speed internet access to rural and remote areas to bridge the digital divide, the development of smart grids to integrate renewable energy sources, and a better co-ordination of policies to fully utilise EU funds for digital and transport infrastructure.

These aspects are critical for driving regional competitiveness and connectivity, ensuring sustainable economic growth, and enhancing resilience against external shocks. Addressing these needs and gaps through targeted policies will foster innovation, improve digital and transport infrastructure, and support the green transition in Finnish NSPA regions.

Competitiveness and connectivity in Norway's' NSPA

The current needs dealing with the competitiveness of Norwegian NSPA regions focus on improving collaboration between businesses and educational institutions, integrating SMEs into local and global value chains, access to finance and venture capital to support the growth of high-tech and innovative industries, strengthening regional clusters and innovation hubs and enhancing digitalisation and innovation among SMEs. Current support policies include regional development programs and EU funding to foster green and digital transitions, the development of innovation hubs, business networks, and regional funds to support local SMEs and the creation of new start-ups while facilitating technology transfer and commercialisation of research, and the implementation of programs supporting green energy projects, sustainable land use practices, and digital transformation.

Future gaps and opportunities related to competitiveness highlight the need for better integration of SMEs into innovation ecosystems and the development of high-value-added sectors related to the green transition. This diversification also presents significant opportunities for regional growth. To reach these goals it would be necessary to expand digital and green skills among the workforce. New policy areas requiring further support emphasise the need for targeted policies to promote entrepreneurship, innovation linkages, and better integrate SMEs into regional economic strategies. Support for high-tech industries and the commercialisation of research, particularly in technology-driven sectors like biotech and aquaculture, should be enhanced, what also requires venture capital access, education and training programs, and incentives for R&D investments and sustainable practices. Potential is sought for the implementation of public procurement for innovation initiatives.

Table 9. Competitiveness and connectivity in Norwegian NSPA regions

Current needs	Current support policies	Future gaps and opportunities	New policy areas requiring further support
Competitiveness			
Improved integration of SMEs into local and global value chains	Regional development programs and EU funding (Horizon Europe, European Arctic Strategy)	Enhanced integration of SMEs into innovation ecosystems and green transition strategies	Support for high-tech industries and commercialisation of research, particularly in technology-driven sectors like biotech and aquaculture
Access to finance and venture capital for high-tech and innovative industries	Innovation hubs, business networks, and regional funds supporting SMEs and entrepreneurship	Development of high-value-added sectors and diversification of the economy (e.g. green energy, sustainable tourism)	Policies promoting innovation linkages and better integration of SMEs into regional economic strategies, particularly in remote areas Potential role for public procurement for innovation
Strengthening of regional clusters and innovation hubs	Financial support from Innovation Norway, Siva, and EU programs	Need for comprehensive policy co-ordination and better execution of green and digital connectivity strategies	Enhancement of education and training programs to meet local industrial demands and retain youth
Enhanced digitalisation and adoption of advanced technologies by SMEs	Programs supporting green energy projects, sustainable land use, and digital transformation	Expanding digital and green skills among the workforce to meet economic transition needs	Incentives for R&D investments and sustainable practices in key sectors like forestry, mining, and bioeconomy
Connectivity			
Improved transport infrastructure, particularly road conditions and cross-border links	Ongoing projects to improve road, rail, and broadband infrastructure	Enhanced broadband coverage and smart grid infrastructure	More cohesive and targeted policy implementation for digital and transport connectivity
Increased broadband penetration and digital capabilities in rural and remote areas	Initiatives supporting the digitalisation of SMEs and extending broadband access	Better co-ordination of policies to fully utilise EU funds for digital and transport infrastructure	Development of necessary infrastructure for smart grids to integrate renewable energy sources efficiently
Development of necessary infrastructure for smart grids to support renewable energy integration	EU initiatives like the Just Transition Fund supporting green energy and digital connectivity projects	Addressing challenges in achieving widespread digital transformation among SMEs	Policies focusing on extending high-speed internet access to rural and remote areas
Enhancements in cross-border transport links to support export industries and economic activities	Regional and national policies promoting sustainable transport and energy practices	Aligning local infrastructure developments with broader EU priorities to enhance economic	Support for transport infrastructure projects to improve connectivity within regions and with neighboring countries

		resilience and competitiveness	

Source: Own elaboration

Regarding connectivity, the current situation in the Norwegian NSPA calls for improved transport infrastructure, especially in rural and remote areas, increased broadband penetration and the development of digital capabilities to support the digital transformation of SMEs and enhance overall regional connectivity, and the development of smart grids to support the integration of renewable energy sources and improve energy efficiency. To respond to these needs, there are a number of ongoing projects aiming at improving road, rail, and broadband infrastructure, the digitalisation of SMEs and enhancing regional connectivity. In turn, future gaps exist as regards the alignment of local infrastructure developments with broader EU priorities, what requires better policy co-ordination to improve the execution of green and digital connectivity strategies and maximise their impact, and to fully utilise EU funds for digital and transport infrastructure, ensuring cohesive and strategic development.

Competitiveness and connectivity in Sweden's NSPA

The current competitiveness needs are related to improving collaboration between businesses and educational institutions, improving the integration of SMEs into local and global value chains, access to finance and venture capital for the growth of high-tech and innovative industries, strengthening regional clusters and innovation hubs and enhancing digitalisation and innovation among SMEs. Current support policies include regional development programs and EU funding to foster green and digital transitions, sustainable land use practices, and digital transformation.[22] Policies are also targeting the development of innovation hubs, business networks, and regional funds to support SMEs and new start-ups, facilitating technology transfer and commercialisation of research.

Future gaps and opportunities highlight the need for better integration of SMEs into innovation ecosystems and the development of high-value-added sectors to diversify the economy, particularly in those cases in which the SMEs are located away from the urban areas of the region. This diversification also requires the introduction of new skills among the workforce to meet the future potential demands of the Swedish NSPA regions.[23] New policy areas requiring further support for competitiveness emphasise the need for targeted policies to promote entrepreneurship and innovation, such as public procurement for innovation, promote innovation linkages and better integrate SMEs into regional economic strategies. Support for high-tech industries (e.g. biotech, bioeconomy, advanced manufacturing and renewable energy) requires venture capital access, education and training programs to retain youth and attract skilled workers, and incentives for R&D investments and sustainable practices.

Table 10. Competitiveness and connectivity in Swedish NSPA regions

Current needs	Current support	Future gaps and	New policy areas

[22] See the green acceleration office created by the Swedish government to increase the pace of the industry's transition. Available (in Swedish): https://www.regeringen.se/pressmeddelanden/2024/06/gront-accelerationskontor-ska-oka-takten-i-industrins-omstallning/

[23] The policies dealing with skills supply and lifelong learning are defined in a collaborative manner, including: the Swedish Public Employment Service, the Swedish Agency for Higher Vocational Education, the National Agency for Education, the Swedish ESF Council, the Swedish Agency for Economic and Regional Growth, the Swedish Higher Education Authority and the Swedish Council for Higher Education. The annual report for year 2023 is available (in Swedish): https://assets.myh.se/docs/publikationer/rapporter/arsrapport-msv-2023.pdf

	policies	opportunities	requiring further support
Competitiveness			
Improved integration of SMEs into local and global value chains	Regional development programs and EU funding (European Regional Development Fund, Just Transition Fund)	Enhanced integration of SMEs into innovation ecosystems and green transition strategies	Support for high-tech industries and commercialisation of research, particularly in technology-driven sectors like biotech, bioeconomy, advanced manufacturing and renewable energy
Access to finance and venture capital for high-tech and innovative industries	Innovation hubs, business networks, and regional funds supporting SMEs and entrepreneurship	Development of high-value-added sectors and diversification of the economy (e.g. green energy, sustainable tourism)	Policies promoting innovation linkages and better integration of SMEs into regional economic strategies, particularly in remote areas Potential role for public procurement for innovation
Strengthening of regional clusters through the establishment of cluster management organisations that act as innovation hubs	Financial support from regional programs, public-private partnerships, and EU programs	Need for comprehensive policy co-ordination and better execution of green and digital connectivity strategies	Enhancement of education and training programs to meet the industrial demands of local firms (new and traditional firms) and retain youth
Enhanced digitalisation and adoption of advanced technologies by SMEs	Programs supporting green energy projects, sustainable land use, and digital transformation	Expanding digital and green skills among the workforce to meet economic transition needs	Incentives for R&D investments and sustainable practices in key sectors like forestry, mining, and bioeconomy
Connectivity			
Improved transport infrastructure, particularly road conditions and cross-border links	Ongoing projects to improve road, rail, and broadband infrastructure	Enhanced broadband coverage and smart grid infrastructure, and North-South and East-West connectivity harmonisation	More cohesive and targeted policy implementation for digital and transport connectivity, and targeted investments to modernise North-South rail connections
Challenges associated to regional air connectivity	Significant financial burden on small municipalities to maintain and develop air connections, with only minor state-supported air links	Promote partnerships for innovation in sustainable aviation technologies, investing in ongoing projects in electric and biofueled flights	Advocate for a national strategy to support small airports and regional air routes, with cross-border air connections with Finland and Norway
Increased broadband penetration and digital capabilities in rural and remote areas	Initiatives supporting the digitalisation of SMEs and extending broadband access	Better co-ordination of policies to fully utilise EU funds for digital and transport infrastructure	Development of necessary infrastructure for smart grids to integrate renewable energy sources efficiently
Development of necessary infrastructure for smart grids to support renewable energy integration	EU initiatives like the European Green Deal and Horizon Europe supporting green energy and digital connectivity projects	Addressing challenges in achieving widespread digital transformation among SMEs	Policies focusing on extending high-speed internet access to rural and remote areas

Enhancements in cross-border transport links to support export industries and economic activities	Regional and national policies promoting sustainable transport and energy practices	Aligning local infrastructure developments with broader EU priorities to enhance economic resilience and competitiveness	Support for transport infrastructure projects to improve connectivity within regions and with neighboring countries

Source: Own elaboration

As regards connectivity, the identified current needs are related to transport infrastructure, especially in rural and remote areas, the need for an air transport strategy, increased broadband penetration and digital capabilities, and the development of infrastructure for smart grids to support the integration of renewable energy sources and improve energy efficiency. Ongoing projects are currently targeting road, rail, and broadband infrastructure, supporting the digitalisation of SMEs and fostering sustainable regional development. Future gaps still remain as regards the alignment of local infrastructure developments with broader EU priorities. The current state of North-South rail infrastructure is inadequate to support the growing demands of freight and passenger transport. This deficiency hinders economic integration, restricts mobility, and limits the region's ability to fully leverage its resources and industries for national and international markets. In addition, there is a need for a national strategy for northern Sweden, ensuring strategic investment in small regional airports and air routes critical to business and economic growth, while also establishing direct flights to northern Finland and Norway, supporting the economic development and international integration of northern Sweden. This requires better cross-border policy co-ordination to fully utilise EU funds for digital and transport infrastructure.

Conclusions

The NSPA regions have significant potential for sustainable development. They share many challenges, which can be addressed through targeted policies and enhanced multi-level governance that aim to establish a smart growth strategy for a new rural economy based on education, knowledge, research and innovation (Fieldsend, 2013). In particular, strong collaboration could be implemented across the three countries in a number of needs (current or future) and policy areas that are common to all NSPA regions.

First, sustainable development is a priority to combat climate change and ensure long-term economic growth. While the willingness to invest in renewable energy projects is high, public opposition remains a significant barrier, particularly among municipalities, landowners, and residents living near power production sites. To address this challenge, policies should focus on creating incentives that directly benefit local stakeholders and foster public acceptance. Additional policy interventions could consider the implementation of circular public procurement and public-private partnerships for large-scale green infrastructure projects, so as to accelerate the transition to green energy production and distribution in the NSPA regions. Second, and to provide support for SMEs and innovative start-ups, grants could be provided for existing SMEs or for entrepreneurs to access accelerator programs, public procurement for innovation projects could be launched, and innovation clusters could be created or enhanced to help SMEs and new ventures to scale and compete globally. Third, digital infrastructure is crucial for modern economies and opens infinite possibilities for diversification and the creation of new business models. Hence, investing in broadband and providing digital literacy programs could help bridge the digital divide and support business transformation. Fourth, efficient transport infrastructure is necessary to support economic activities and regional integration. Here, infrastructure development funds and cross-border projects could ensure smooth movement of goods and people across the NSPA regions. As regards the needs concerning education and workforce development, NSPA regions could align and co-ordinate their education systems with industry needs, for example, using partnerships between industries and educational institutions to

help meet labour market demands. Fifth, financial support is essential for innovation. Creating inter-regional venture capital funds and offering loan guarantees could provide necessary capital for start-ups and SMEs to grow and to extend their goods and services to the whole of the NSPA region.

Table 11. Common policy areas to all NSPA regions

Policy area	Description	Policy interventions
Sustainable development and green energy	All regions emphasise the importance of sustainable development, focusing on green energy production, renewable energy projects, and reducing carbon footprints.	- Create incentives and support mechanisms that address public opposition and engage local stakeholders, such as municipalities, landowners, and nearby inhabitants in renewable energy production. - Potential role for circular public procurement. - Develop public-private partnerships for large-scale green infrastructure projects.
Support for SMEs and innovation	There is a common emphasis on supporting SMEs, enhancing innovation capabilities, and fostering entrepreneurship through regional development programs and innovation hubs.	- Establish SME/entrepreneur innovation grants and accelerator programs. - Potential role for public procurement for innovation. - Create regional innovation clusters, digital platforms promoting collaboration and networking events.
Digital infrastructure and connectivity	Enhancing digital infrastructure, improving broadband access, and supporting the digital transformation of SMEs are key priorities across all regions.	- Invest in high-speed broadband for rural and remote areas. - Provide digital literacy programs for SMEs.
Transport infrastructure	Improving transport infrastructure, including roads, railways, and cross-border connectivity, is critical for economic development and regional integration.	- Launch infrastructure development funds for road and rail improvements. - Develop cross-border transport agreements and projects.
Education and workforce development	All regions highlight the need for targeted education and training programs to align with industry demands, particularly in green and digital skills.	- Develop industry-specific training programs and apprenticeships. - Partner with educational institutions for tailored curriculum development.
Access to finance and venture capital	Access to finance and venture capital for high-tech and innovative industries is a common challenge, with various regions seeking better financial services and support mechanisms.	- Create regional venture capital funds and angel investor networks. - Offer loan guarantees and microfinance options for startups and SMEs.

Source: Own elaboration

However, naturally, there are also some country-specific needs, which would require specific policy interventions, either by regional authorities or by the NSPA region as a whole.[24] In the case of Finland, enhancing SME integration into value chains could boost innovation and competitiveness. Innovation vouchers could be used to reach this goal, and participation in trade expos could be promoted to provide

[24] In turn, many of these policy areas require a strong coordination and alignment with national policy priorities in the three countries.

exposure and opportunities for growth. Existing clusters could be instrumental in both cases. Second, strengthening collaboration between research and educational institutions and industry would facilitate meeting industry needs, fostering innovation, practical skill development and talent retention. Finland could implement joint research centres between industry and academia, and co-operative education programs that place students in local businesses (e.g. dual education) to facilitate this collaboration. As regards the green transition and the development of sustainable practices, Finnish NSPA regions could develop new regulatory frameworks for sustainable forestry and mining (among other industries) as well as and inject funding for sustainable technologies to support this transition.

Table 12. Policy areas specific to Finland

Policy area	Description	Policy interventions
Integration of SMEs into innovation ecosystems	Focus on enhancing the integration of SMEs into regional and global value chains, particularly in high-value-added sectors like bioeconomy, forestry, and digital technologies.	- Establish innovation vouchers and subsidies for SMEs. - Facilitate SME participation in international trade fairs and expos.
Education-industry collaboration	Emphasis on strengthening collaboration between businesses and educational institutions to foster innovation and meet local industrial demands.	- Create joint research and development centres. - Implement co-operative education programs that place students in local businesses.
Green transition and sustainable practices	Policies promoting sustainable practices and innovation in key sectors like forestry, mining, and renewable energy, aligning with the green transition goals.	- Develop regulatory frameworks for sustainable forestry and mining. - Fund research into new sustainable technologies and practices.

Source: Own elaboration

In Norwegian NSPA regions and considering the scale and scope of Norway's natural resources, sustainable aquaculture, and marine biotechnology could promote economic growth. Grants for sustainable aquaculture projects and R&D support in marine biotechnology and sustainable fisheries could drive innovation in these sectors. Second, increasing energy autonomy through renewable projects could ensure energy security. Here a national strategy could be developed for alternative energy production (e.g. hydrogen) and subsidies could be awarded to support the development of green energy sources such as wind and hydropower. Third, and to respond to existing workforce shortages, retraining and lifelong education programs could be offered, and incentives could be implemented for migrant workers to help meet labour demands in high-demand industries.

Table 13. Policy areas specific to Norway

Policy area	Description	Policy interventions
Marine and aquaculture industries	Focus on enhancing the innovation and value-adding in fisheries and aquaculture, with significant emphasis on sustainable practices and biotechnology.	- Introduce grants for sustainable aquaculture projects. - Support R&D in marine biotechnology and sustainable fisheries.
Energy autonomy	Emphasis on increasing energy autonomy	- Develop a national

and green Energy production	through investments in renewable energy projects like wind and hydropower, and exploring hydrogen production.	strategy for hydrogen production. - Increase subsidies for wind and hydropower projects.
Addressing workforce shortages	Specific focus on reducing dropout rates, integrating migrants, and addressing workforce shortages in healthcare, transport, and tourism sectors.	- Offer retraining programs for adults in key sectors. - Implement incentives for migrant workers in high-demand industries.

Source: Own elaboration

Finally, as regards Swedish-specific needs, a strong focus on renewable energy production could be adopted, through the establishment of regional competence centres and the introduction of incentives to support green energy and sustainable forestry. Developing sustainable tourism and supporting cultural heritage could also lead to the promotion of economic diversification and cultural preservation in Swedish NSPA regions. Here, community-based initiatives could be implemented, and heritage projects could be financed to enhance tourism offerings. Finally, digital and physical infrastructure could be integrated, for example, in the field of transport and logistics.

Table 14. Policy areas specific to Sweden

Policy area	Description	Policy interventions
Renewable energy and sustainable practices	Strong focus on renewable energy production, particularly through hydropower and wind energy, and integrating sustainable practices in forestry and manufacturing.	- Establish regional centres for renewable energy research and innovation.
Tourism and cultural heritage	Emphasis on developing sustainable tourism relying on natural landscapes and cultural heritage, with efforts to involve local communities like the Sámi.	- Create community-based tourism initiatives. - Fund cultural heritage preservation projects linked to tourism.
Integration of digital and physical infrastructure	Need for more co-ordinated efforts to develop both digital and physical infrastructures in tandem to support economic and social activities.	- Launch integrated infrastructure development plans. - Fund joint digital and transport infrastructure projects.

Source: Own elaboration

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4 Green Transition, Environmental Challenges, and Regional Development in the NSPA

The NSPA regions have made significant progress in renewable energy, reducing emissions, and developing green industries. However, some regions still face challenges, particularly those dependent on energy-intensive industries or reliant on energy imports. It is essential to create region-specific solutions that consider local economic conditions and available resources. A major concern is the potential decline of traditional industries, which necessitates a "just transition" approach, which ensures fair support for workers and communities. Achieving a balanced transition involves integrating environmental, economic, and social objectives, promoting inclusive governance, investing in infrastructure, and implementing policies that protect local communities and Indigenous peoples' rights while fostering sustainable growth and economic diversification.

Introduction

The urgency of global warming and environmental degradation necessitates rapid transitions to zero-emission and green societies. These transitions require system-wide changes to ensure economic, social, and environmental sustainability (OECD, 2015). Green transitions are driven by expanding coalitions,

compelling discourses, rapid technological advancements, and policy shifts that influence technology adoption (Sovacool et al., 2020).

In the European Union (EU) and Nordic countries, the European Green Deal (EGD) sets ambitious targets for 2030 and aims for climate neutrality by 2050. It goes beyond traditional climate and energy policies by addressing green industrial policies and social sustainability (EEA, 2020). However, governments face challenges such as managing complex systemic policies, accommodating diverse regional conditions, and meeting the urgency of climate goals. This is particularly evident in peripheral regions like the NSPA, where territorial disparities heighten resistance to green transitions (EU, 2024).

Effective green transitions require comprehensive socio-technical reconfigurations across key sectors such as energy, transport, housing, and agriculture. These transformations involve not only new technologies but also changes in markets, practices, policies, cultural discourses, and governance structures (Geels et al., 2017). Existing socio-technical systems, or "regimes," are resistant to change due to their path-dependent nature, which reinforces established configurations and limits innovation. Change typically begins in "niches," which serve as protected spaces for radical innovations, experimentation, and learning. These niches can challenge dominant regimes as they evolve.

To scale and mainstream niches, three governance processes are crucial (Smith & Raven, 2012):

- *Shielding*. Protecting niches from the pressures of dominant regimes, either passively through isolated environments or actively via policies, private sector strategies, or civil society initiatives.
- *Nurturing*. Supporting niche development by articulating visions, building networks, and fostering social learning, often through experiments such as pilot and demonstration projects.
- *Empowering*. Enabling niches to compete with or transform existing regimes. This can involve a "fit-and-conform" approach (working within the regime) or a "stretch-and-transform" strategy (altering the regime's selection pressures in favour of the niche).

These processes highlight the potential of regions to act as protective spaces for fostering green innovation and driving systemic transformation.

NSPA regions have successfully reduced per capita greenhouse gas (GHG) emissions from 14 to 10 tons of CO_2 equivalent between 1970 and 2022, outperforming OECD NMR-S and NMR-R regions. However, their progress lags behind non-NSPA regions in Finland, Norway, and Sweden, where emissions were halved from 12 to 6 tons per capita. Despite having higher per capita emissions, NSPA regions maintain lower total emissions than non-NSPA areas, averaging 3.26 tons per region in 2022 compared to 4.32 tons. However, unlike non-NSPA regions, where emissions have declined, NSPA regions have seen an increase in total emissions over time (from 2.89 tons in 1970 to 3.26 tons in 2022).

A key strength of NSPA regions is their leadership in renewable energy adoption—99% of their electricity production came from renewable sources in 2019, surpassing non-NSPA regions (77%) and OECD NMR-S and NMR-R regions (72% and 70%, respectively). This underscores their critical role in the green transition.

Following discussions on demographic challenges and competitiveness, this chapter examines the green transition as another key factor shaping the NSPA's future. It explores strategies to enhance sustainability, expand renewable energy adoption, and reduce emissions. The final chapter will address Multi-level Governance, focusing on policy co-ordination, cross-border collaboration, and local engagement.

Accelerating, broadening, and deepening green transitions

The gap between current emissions trajectories and net-zero targets demands accelerated, broadened, and deepened socio-technical changes (Dahl Andersen et al., 2023). These changes span technological, institutional, and actor dimensions:

- Technological Dimensions
  - Performance improvements. Advances in low-carbon technologies through R&D and learning processes.
  - Cost reductions. Achieved via economies of scale and learning-by-doing.
  - Supporting assets. Availability of necessary skills, materials, finance, and complementary infrastructures enhances user adoption.
- Institutional Dimensions
  - Policy support. Tools like subsidies, grants, and infrastructure investments, alongside phase-out regulations for legacy technologies.
  - Social norms. Shifts that influence user preferences toward low-carbon solutions.
  - Net-Zero visions. Development of societal goals and practices that align with sustainable futures.
- Actor Dimensions
  - Business reorientation. Increased investments and belief in green technologies.
  - Consumer adoption. Driven by cost reductions, performance improvements, and evolving social norms.
  - Coalition formation. Collaborative pressure from stakeholders advocating for policy change.

Traditionally, green transitions have focused on energy and transportation systems (e.g. solar-PV, wind turbines, EVs). However, addressing broader net-zero challenges necessitates attention to diverse systems, such as aviation, shipping, mining, and construction. Differences in capital intensity, innovation potential, and the need for new infrastructures (e.g. for CCS and hydrogen) pose additional challenges (Wesseling et al., 2017). Scarcity of resources like lithium, crucial for EV production, further complicates upscaling efforts.

The financial sector plays a pivotal role in cross-sectoral transitions. Investigating its influence and whether transformations within finance are required is critical for systemic green transitions. Importantly, while technological change is essential, achieving net-zero goals also demands deep societal transformations to avoid breaching planetary boundaries. Examples include shifts toward circular economies, shared ownership models, and "sufficiency" logics, which challenge norms of mass consumption and private ownership to align with ecological and social limits.

Depths of actor reorientation:

- Routines. Changes in daily practices, such as EV charging habits.
- Capabilities. Development of new skills by industries, like automakers.
- Values and mindsets. Fundamental shifts in societal perspectives, essential for degrowth paradigms that prioritise collective over individualistic practices (Dahl Andersen et al., 2022).

Though deep changes across all dimensions are not always necessary, successful examples like the diffusion of EVs and renewables show that targeted shifts in mindsets and capabilities can enable rapid technological adoption without radically altering user practices (Geels & Turnheim, 2022).

Green transition policy

Green transition policies have evolved into what Schot and Steinmueller (2018) describe as "third-generation" research, technology, and innovation policies, emphasising the use of science and innovation to address societal challenges. These policies, sometimes referred to as the "normative turn" (Uyarra et al., 2019), highlight the directionality of innovation, focusing on achieving desired outcomes rather than mere technological progress. The mission-oriented innovation policy exemplifies this approach, tying

innovation funding to societal challenges such as climate change and food poverty while recognising innovation's value beyond economics (Kattel & Mazzucato, 2018).

However, mission-oriented approaches rely heavily on robust government capacities, which vary across regions (Coenen & Morgan, 2019). To address these challenges, transformative innovation policy focuses on overcoming:

- Directionality failures. Inability to guide innovation toward transformative goals.
- Demand articulation. Weak capacity to understand user needs.
- Policy co-ordination failures. Lack of coherence between policies.
- Reflexivity failures. Insufficient monitoring and adjustment of policy impacts (Schot & Steinmueller, 2018; Weber & Rohracher, 2012).

While principles of transformative innovation policy are being integrated into programs (e.g. Sweden's innovation strategies), implementation remains experimental and underdeveloped (Haddad et al., 2022). The OECD highlights the need for systemic innovation policies that mobilise technology, markets, regulations, and social innovations to foster wide-scale transformation (OECD, 2015). Linking different policy areas and strengthening international and local dimensions enable learning and synergies across systems (Serger et al., 2023).

Transformative innovation policies are mixed with and/or hybrids of traditional policy instruments. Table 13 provides an overview of potential instruments for transformative innovation policies (adapted from Kern and Kivimaa (2016).

Table 15. Instruments for transformative innovation policies

Policy objectives	Policy instruments
Knowledge creation, development and diffusion	R&D funding schemes, subsidies for demonstrations; educational policies, training schemes, reference guidelines for best available technology.
Establishing market niches/market formation	Regulation, tax exemptions, certificate trading, feed-in tariffs, public procurement, deployment subsidies, labelling.
Price-performance improvements	Deployment and demonstration subsidies enabling learning-by-doing; R&D support.
Entrepreneurial experimentation	Policies stimulating entrepreneurship and diversification of existing firms, advice systems for SMEs, incubators, low-interest company loans, venture capital; relaxed regulatory conditions for experimenting.
Legitimacy and social acceptance	Innovation platforms, foresight exercises, public procurement and labelling to create legitimacy for new technologies, practices and visions.
Directionality	Goals set and framing in strategies, targeted R&D funding schemes, regulations, tax incentives, foresight exercises, voluntary agreements.
Control	Taxes, import restrictions, and regulations. Carbon trading, pollution taxes or road pricing. Banning of technologies.
Institutional change	Structural reforms in legislation or significant new overarching laws

Network change	Balancing involvement of incumbents in policy advisory councils with niche actors. formation of new organisations or networks to take on tasks linked to system change

Source: Own elaboration.

Regional Approaches: At the regional level, transformative innovation policies are better suited to addressing localised societal challenges (Wanzenböck & Frenken, 2020). This approach enhances inclusivity, legitimacy, and democratic accountability, particularly in regions facing unique environmental and socio-economic pressures (Henderson et al., 2024).

Distributional Justice Concerns: Green transitions risk exacerbating inequalities, with unevenly distributed benefits and costs across EU regions. Core regions prosper, while "left-behind places" face social and economic challenges, fuelling populist politics and undermining progressive climate policies (Rodriguez-Pose & Bartalucci, 2023). Without addressing these disparities, affected regions may reject sustainability goals, highlighting the need for equitable transitions that consider geographical impacts.

Regional green transitions

Regional dimensions are critical in understanding green transitions, as earlier analyses often overlooked the spatial context and multi-scalar dynamics shaping transformative change (Coenen et al., 2012). Green transitions are contingent on place-based factors such as local industrial specialisation, resource endowments, policies, and informal institutions, rather than universal processes (Hansen & Coenen, 2015). Developed regions benefit from agglomeration economies—skilled labour, research institutions, and supporting organisations—leading to a concentration of twin transition technologies (green and digital) in economically advanced areas (Bachtrögler-Unger et al., 2023). These regions are better equipped to achieve green growth by supporting clean-tech clusters through policies such as R&D funding and training programs (Smith, 2007).

Peripheral regions, however, face significant challenges, often functioning as upstream resource providers in renewable energy value chains. This positioning risks limiting their economic benefits and exacerbating environmental and social impacts associated with resource extraction (Vale et al., 2023). Yet, peripheral regions have opportunities if they integrate local capabilities into broader global innovation systems, requiring strong external connections and institutional entrepreneurship (Binz et al., 2016; Boschma et al., 2017; Fuenfschilling & Binz, 2018).

A key critique of green transitions is the insufficient empirical assessment of their sustainability impacts. For instance, while electric vehicles reduce fossil fuel dependency, their production risks depleting lithium reserves by 2050 and causing severe environmental degradation, such as water loss and biodiversity damage (Gong & Andersen, 2024).

The concept of just transitions has gained prominence, addressing disparities in energy distribution, social costs of decarbonisation, and the effects on disadvantaged groups (Newell & Mulvaney, 2013). Accelerated green transitions must balance urban and economic centre development with recognition of peripheral regions and vulnerable industries, workers, and communities. Core-periphery tensions and inclusive decision-making are essential to ensuring socially, environmentally, and spatially just outcomes (Korsnes et al., 2023).

Resistance to green transitions often arises from overlooked socio-economic and cultural concerns. For example, large-scale wind energy projects, like the “Fosen” case in Norway, faced backlash for neglecting the rights of Indigenous Sámi communities (Karam & Shokrgozar, 2023). Greater engagement with local stakeholders and acknowledgment of diverse goals and contestations are necessary to align green transitions with broader justice and sustainability objectives (Skjølsvold & Coenen, 2022).

Green transition and environmental issues in Finland's NSPA

This section provides a policy analysis for South Savo, North Savo, North Karelia, Central Ostrobotnia, Northern Ostrobotnia, Kainuu, Lapland of their climate and energy transition, green industrial transition and just transition. This is followed by an overview of current policies. The section concludes with a summary and policy recommendations.

Climate & energy transition

The NSPA regions in Northern and Eastern Finland are facing significant climate change risks, including warmer temperatures that could lead to more winter precipitation falling as rain, reducing snow cover and increasing flooding risks. These changes pose threats to agriculture and forestry, key sectors of the regional economy. While warmer temperatures may boost vegetation growth and extend the growing season, they also endanger native northern species and ecosystems, negatively impacting biodiversity. Industries such as forestry, fisheries, reindeer husbandry, and tourism will need to adapt to these climate shifts.

At the same time, the Finnish NSPA regions are making progress in their green transition. This shift to renewable energy has contributed to a general decline in greenhouse gas (GHG) emissions per capita across the regions, although this decline is not uniform. Some regions, like Northern Ostrobothnia, have seen sharp reductions, while Kainuu and Lapland have experienced rising emissions. Overall, GHG emissions in Finnish NSPA regions are below both the OECD NMR-R regional average and Finland's national average. These variations are influenced by local industrial activities and transportation patterns.

Bioenergy, particularly from forestry biomass, plays a key role in the climate and energy strategies of the NSPA regions. Finland's path to carbon neutrality relies heavily on increasing carbon removals from land use and forestry, although carbon removal has been declining since 2010. To meet the 2035 climate neutrality target, a substantial increase in renewable energy, particularly from onshore wind and large-scale offshore wind farms, is essential. Wind power, however, faces challenges related to radar compatibility. The deployment of solar photovoltaic (PV) systems is also expected to rise, supported by private and municipal investments. This shift towards distributed energy aims to improve security and address rural energy poverty.

The Finnish government is also focusing on transitioning from fossil fuels in the heating sector to non-combustion technologies such as heat pumps and geothermal energy. Biofuels are driving the adoption of renewable energy in the transport sector, with a biofuel obligation and increasing electric vehicle usage. The government also promotes low-emission hydrogen and hydrogen-based fuels for heavy road transport, maritime transport, and aviation. There is a push to increase biomethane production for transport and heating.

Despite these advancements, the NSPA regions face several challenges. Energy intensity and per capita energy consumption are high due to energy-intensive industries like forestry and mining, as well as high heating demand in the cold climate. Although Finland does not produce fossil fuels domestically, imported fossil fuels still account for over a third of its energy supply. Some regions, such as South Savo, are more dependent on energy imports than others. Historically, Finland relied heavily on Russian energy imports, but following the Russian invasion of Ukraine, the country has stopped receiving most of these supplies. This disruption has accelerated efforts to reduce dependence on Russian energy, increase domestic renewable energy production, and improve energy efficiency.

Industry consumes more than half of Finland's energy, with an even higher share in the NSPA regions. Energy efficiency agreements with industrial players are a key strategy for reducing energy consumption, with mandatory audits for large enterprises and optional ones for SMEs. The government supports SMEs with financial incentives. In buildings, stricter energy efficiency standards and support for replacing heating

systems aim to reduce energy demand. The Finnish roadmap for fossil-free transport seeks to halve transport emissions by 2030 and achieve net-zero emissions by 2045 through measures such as electric vehicle subsidies, increased biofuel requirements, and promotion of public transport and active mobility.

Peat, while categorised as a renewable energy source by some definitions, has significant environmental and climate impacts. In 2021, peat accounted for 2.9% of Finland's electricity generation, particularly in regions like South Savo, North Karelia, Kainuu, and Lapland. The government plans to reduce peat use by at least 50% by 2030, with large-scale peat plants likely to close by 2026. This shift may lead to job losses, particularly in peat-producing areas, prompting the European Commission to propose a "fair transition fund" to support affected communities and diversify regional economies.

Green industrial transition

The green industrial transition in the Finnish NSPA regions is centred around key sectors such as forestry, energy, agriculture, ICT, mining, and, notably in Lapland, “snowtech.” The forest is a vital resource not only for biomass but also for ecosystem services like climate change mitigation, non-wood forest products, biodiversity support, and environmental purification. Over the past 10–15 years, the pulp and paper industry in the region has experienced significant restructuring due to declining international demand for paper, leading to closures of paper mills. Despite this, paper remains the forest industry's top export, while the paperboard sector has seen growth. The focus now is on transitioning towards a sustainable circular bioeconomy, with forest-based companies exploring new products from wood-based biomass, including bioenergy, textiles, nanofibers, biodegradable plastics, and pharmaceuticals. This transition also offers opportunities for decentralised, high-value production. Although companies in the forestry sector are benefiting from innovations in technology and machinery, particularly in North Savo, creating a competitive bioeconomy will require expertise across diverse fields such as pharmacy, nutrition, and bioinformatics. Collaborative links between forest industries, universities, and research institutes are essential. North Karelia has emerged as an internationally recognised centre for forest bioeconomy, bolstered by a strong innovation ecosystem supported by institutions like the University of Eastern Finland and LUKE. In contrast, South Savo faces challenges, including a shortage of skilled professionals and limited local research facilities.

Northern Ostrobothnia, with its vibrant ICT sector, has developed a strong ecosystem for SMEs, particularly in health tech. The region’s capital, Oulu, is an innovation hub where businesses collaborate in circular production models, leveraging infrastructure to transfer waste or side-products to other industries. This collaboration fosters the digital-green "twin transition," with a focus on low-carbon production and circular economy principles. North Karelia also sees a prominent role for SMEs in driving its digital and green industrial transformation, with investments supporting low-emission production, smart manufacturing, and a circular economy. The region has notable expertise in circular practices, especially in mining, and is well-positioned for innovation-driven development, particularly in photonics and international collaboration.

Lapland, known for its mining and quarrying activities, is central to Finland’s green energy transition. The region accounts for over 40% of Finland’s turnover in metal ore mining and contributes a quarter of the total revenue from mining and quarrying. Its rich deposits of critical minerals like nickel, copper, cobalt, and rare earth elements are essential for the green energy transition, particularly for battery manufacturing. Lapland is poised to become a key player in the European battery industry, with substantial investments planned for several new mining projects. Beyond mining, Lapland is also focusing on "snowtech," capitalising on its extreme climate conditions to develop and test innovative technologies such as autonomous vehicles and electric vehicle systems. Despite these strengths, the region faces challenges, including a lack of skilled labour, limited capital, low investment in research and innovation (just 1% of GDP), and vulnerability to global economic cycles.

Just transition

In Finland, the concept of a "just transition" has recently gained attention, particularly in relation to the job losses that may occur due to the eventual phase-out of peat production. However, the core idea of a just transition extends beyond this, encompassing the broader need to support individuals and communities adversely affected by the sustainability transformation and to ensure that the transition is socially equitable for all citizens. A key concern is that rural areas could become mere instruments serving national or international agendas without gaining real benefits for their local populations. This concern was explored through the Nordregio research project, “Just Green Transition on Rural Areas: Local Benefits from Value Creation,” which examined how green transition measures, particularly energy projects like wind power, could bring local benefits to rural communities. Case studies, including one in Northern Ostrobothnia, highlighted the importance of local involvement in the decision-making process.

Land use planning plays a central role in the sustainability transition in Finland’s Arctic regions, with a shift from national to regional decision-making. Regional land use plans guide municipal and more detailed project planning, covering areas such as wind power, mining, and environmental impact assessments. The regional plans set the regulatory framework for these projects and aim to balance competing interests at the local level. Since the 2016 reform of the Land Use and Building Act, regional councils have gained more authority over planning decisions, moving away from national oversight. This has made regional planning more efficient and responsive, helping to resolve complex issues related to infrastructure, energy, and land use.

However, the system also faces challenges, especially in rural areas where public and private interests often conflict. In Finland’s northern and eastern regions, these conflicts include balancing the needs of reindeer herders with the growth of industry and the energy transition. The regional plans aim to reconcile these competing interests, but in sparsely populated areas, municipal guarantees cover only a small fraction of the land, leaving the entire province subject to various land use conflicts.

The Nordregio project emphasises the critical role of local involvement and trust in the success of green energy projects in Nordic rural areas. If local needs are overlooked, communities may resist renewable energy initiatives. To foster trust and ensure a just transition, it is essential to engage local communities early, communicate transparently, and guarantee that projects provide tangible local benefits. While financial incentives are often highlighted, relying solely on monetary rewards can divide communities. A more holistic approach that includes community engagement, environmental benefits, and local ownership of projects helps promote a sense of justice and shared benefit in these transitions.

Current policies

Following Finnish national policy, the aim for the NSPA regions is to be carbon neutral by the year 2035 with at least 80 % of the greenhouse gas emissions reduced from 2007 levels. To this end, various regions have established climate or green deal road maps. These road maps involve stakeholders from various sectors, including government, business, and communities, to ensure a comprehensive and unified approach to sustainability. They often promote green business development through sustainable practices. They contribute to whole-of-government decision making at the regional level but sometimes, local economic interests can over-shadow environmental considerations. The green deal roadmap of Lapland includes the aim to be a full HINKU- region. The Hinku regions and the Hinku communities in each region jointly commit to reducing the region’s greenhouse gas emissions by 80 per cent from the 2007 levels by 2030. To be granted this status, the region’s Hinku municipalities must account for at least 80 percent of the region’s population and the region must, jointly with its Hinku municipalities, commit to the region’s overall emissions reduction target.

Table 14 synthesises the main points from the discussion and provide some recommendations to guide policymakers in implementing strategies to foster sustainable development in Finland’s NSPA.

Table 16. Overview of key Insights and policy proposals for South Savo, North Savo, North Karelia, Central Ostrobotnia, North Ostrobotnia, Kainuu, Lapland.

	Climate & energy transition	Green industrial transition	Just transition
Strengths	Ambitious targets and track record to reduce greenhouse gas emissions. High share of renewables (bio-energy, hydro & wind).	Growth in mining & mineral-quarrying industry. Opportunities for biorefining in forest industry. Opportunities for battery industry Emerging opportunities in 'twin' green-digital transition. Explicit focus on green industry development in Smart Specialisation strategies.	Sustainable forestry practices.
Weaknesses	High energy intensity in industry and energy consumption per capita Reliance on energy imports. High environmental and climate impact of peat extraction	Adoption of biorefinery technologies in pulp and paper industry in practice is limited. Shortage of skilled workers in emerging green energy industries	High susceptibility to climate change impacts on natural resources and traditional livelihoods, especially for Indigenous communities. Maintaining the balance between reindeer herders, growing industry and the energy transition.
Policy recommendations	Expand and diversify green energy production (wind, solar, hydrogen). Develop smart grids. Enhance the provision and access to public transport (railways), enhance the sharing infrastructure & mobility management, expand infrastructure for electric vehicle charging and investing in alternative fuels such as HVO, biogas, and hydrogen.	Enhance green industrial diversification. Stimulate high-value products from biorefining. Support legitimacy and social acceptance of the bioeconomy. Increase co-ordination and collaboration across universities tailored to green industries.	Foster early community engagement, transparent communication, and ensure local benefits are vital in planning green energy transition. Balance industrial development with biological diversity and Indigenous peoples' interests

Source: Own elaboration.

Green transition and environmental issues in Norway's NSPA

This section provides a policy analysis for Nordland, Troms, and Finnmark of their climate and energy transition, green industrial transition and just transition. This is followed by an overview of current policies. The section concludes with a summary and policy recommendations.

Climate & energy transition

Northern Norway faces significant environmental challenges, with the effects of climate change becoming increasingly visible in the form of thinning ice and shifting wildlife patterns that impact traditional livelihoods. However, these challenges also offer the region opportunities to lead in climate adaptation and mitigation, as well as sustainable resource management. The region is actively pursuing energy transition efforts, including the widespread adoption of renewable energy sources.

In terms of emissions, Nordland saw substantial reductions in the 1970s and 1980s, while emissions in Troms and Finnmark increased, plateauing in the mid-2000s. Over time, all regions have seen a gradual decline in emissions, driven by improvements in energy efficiency, a shift away from fossil fuels, and greater public engagement with climate issues. The industrial sectors, particularly oil and gas, remain the largest contributors to greenhouse gas emissions. To meet national goals, all regions have committed to reducing emissions by 55% from 1990 levels by 2030 and achieving net-zero emissions by 2050. While emissions data indicate progress towards these targets, the path forward will require more aggressive measures, as further reductions become increasingly difficult.

Renewable energy is central to the region's energy strategy, with all three counties relying heavily on hydropower, complemented by growing investments in wind energy. Nordland achieves a 100% renewable electricity supply through its 177 hydropower plants and 4 wind farms, while Troms and Finnmark generate 88.15% of their electricity from renewables. Despite these strengths, energy usage in Northern Norway is expected to rise significantly, driven by the electrification of the oil and gas industry, new industrial sectors (such as battery production, hydrogen, and green steel), and growing sectors like data centres, fishing, and fish farming. This growth threatens to erode the region's energy surplus and may result in an imbalance, highlighting the need for new power sources and transmission infrastructure. As these developments unfold, it is essential to balance energy policies with land use considerations to protect natural landscapes and biodiversity. Ensuring that climate action is integrated into all regional and municipal planning will be key to securing a sustainable energy future.

In response to ambitious EU and national climate targets, Northern Norway is also focusing on reducing transport emissions. Key initiatives include electrifying ferries, a major source of regional emissions, and exploring hydrogen-powered alternatives for maritime transport. Electric buses are being introduced in urban centres like Tromsø, Harstad, and Bodø, with plans to expand these solutions to district and regional buses. Tromsø has adopted a zero-growth target to promote sustainable transportation options, such as public transport, cycling, and walking. While electrifying the vehicle fleet is progressing, long-distance solutions remain uncertain and may take several years to implement.

Northern Norway also holds potential for hydrogen production. The region's cold climate, access to carbon storage areas, expertise, and low energy costs make it an ideal location for both green hydrogen (produced from renewable energy) and blue hydrogen (produced from natural gas with carbon capture). Tromsø, home to the Arctic University of Norway, is well positioned to serve as a hub for hydrogen development, with the eastern part of Finnmark suited for green hydrogen and the western part for blue hydrogen production. However, the timeline for large-scale production projects remains uncertain. There is also potential for expanding wind power, with offshore wind becoming a viable option in the next 10-15 years. Although Northern Norway currently lacks smart grids, they are seen as essential for creating a more flexible and efficient energy system. The island of Senja is set to be the first area in the region to implement smart grids, serving both the fishing industry and local homes.

Green industrial transition

Historically, Northern Norway's industrial activities have been centred around primary industries, particularly in fisheries and aquaculture, with a focus on extracting and refining natural resources. Norway is leading the international High-Level Panel for a Sustainable Ocean Economy (Ocean Panel), advocating

for ocean protection and sustainable ocean production, which has fostered political unity and direction in sectors like aquaculture. The Norwegian salmon farming industry, a global leader in technological advancements, has evolved to adopt more sustainable practices. Innovations like offshore and onshore farming systems have been developed to mitigate the environmental impact of traditional, more polluting open-pen farming methods. Cell-based seafood, still a niche technology, holds great potential to diversify the seafood sector and enhance sustainability by enabling highly controlled, animal-free production. However, the industry's growth has been limited by a robust regulatory system designed to ensure its sustainable development (Fløysand & Jakobsen, 2017).

The region is now focusing on green industrial growth, identified through regional Smart Specialisation processes that seek to leverage the area's natural resources and products. This includes supplementing traditional industries with more sustainable processes and technologies, such as in wind power, mining, and petroleum. Nature-based tourism has also become a significant economic pillar, offering activities like hiking and wildlife watching. However, competition for land use between these industries must be considered in regional planning. While central industries are dominated by multinational corporations, the tourism sector consists mostly of small local businesses operating within regional markets.

Initially, regional Smart Specialisation strategies did not specifically address sustainability in tourism, but they did recognise the value of the region's pristine Arctic nature and the opportunity to make tourism more sustainable in environmental, economic, and social terms. Tourism was among the hardest-hit sectors during the pandemic, experiencing layoffs, bankruptcies, and challenges in employee recruitment due to a tight labour market. Post-pandemic, a decline in cruise traffic and the absence of Russian tourists—due to the closure of borders in Eastern Finnmark—further affected tourism in the region's most remote areas. In response, the regional strategy aims to diversify tourism, focusing on longer-term stays and enhancing the overall experience for visitors (Teras et al., 2023).

One major challenge is encouraging industries like fisheries and tourism in coastal communities to embrace innovation, particularly in energy. Northern Norwegian businesses generally exhibit low innovation index results and patent intensity compared to national averages. Nevertheless, the region's Smart Specialisation strategies address energy transformation and the greening of industries, with hydrogen emerging as a key focus. The regional strategies are particularly suited to communities with limited capacity in the conventional power grid, no available batteries, and favourable conditions for wind energy production. In this context, hydrogen offers a viable solution for storing and transporting energy, despite the significant energy required for its production. Finnmark, in particular, has prioritised using wind power to produce hydrogen, which could serve as a means of storing, transporting, and exporting energy (Teras et al., 2023).

Just transition

In Northern Norway, green transitions often conflict with land use planning due to competing interests such as industrial activities, reindeer herding, recreational use, and Indigenous peoples' rights. Resolving these conflicts requires a complex and lengthy process of license processing aimed at balancing these diverse interests. However, many municipalities lack updated spatial plans, which hampers the efficient management of land use. To address these issues, reforms and improvements have been initiated to strengthen the land use planning system, with a focus on providing municipalities with more resources and expertise to overcome obstacles and facilitate development.

A key challenge in land use planning is the continuation and tightening of building bans in the 100-meter shore zone, enforced through the new Planning and Building Act and state planning guidelines for differentiated management. In this zone, special consideration must be given to the natural environment, cultural heritage, outdoor activities, landscapes, and other public interests. The outdated spatial plans in many municipalities, due to a shortage of skilled personnel and resources, further complicate growth and development in the region.

Nature conservation policies in Northern Norway aim to ensure sustainable land and water resource use. These policies have led to the establishment of several conservation areas, with county authorities holding the power to object in specific areas. However, there is a need for clearer guidelines, regional strategies, and plans to better integrate environmental considerations into land use planning, prioritising sustainability over socioeconomic factors. While these policies focus primarily on environmental protection, they may restrict the growth of new industries or expansions, potentially limiting economic development. Nevertheless, efforts are made to balance these environmental priorities with the promotion of sustainable economic growth.

Current Policies

Troms and Finnmark have developed climate plans with two main themes: reducing greenhouse gas emissions and managing climate risk, supported by seven sub-themes that focus on emission reduction, energy transition, climate resilience, and public health. Recognising the urgency of effective climate strategies, the region has embraced several ambitious initiatives, such as the "Se Nord" plan for 2020-2024 and participation in the EU's "mission climate adaptation" project, which aims to drive the green transition in industry. Additionally, the regional transportation plan for Troms (2022-2033) highlights the region's commitment to addressing climate change by integrating climate considerations into broader development policies. The County Governor plays a key role in ensuring municipalities incorporate climate-related policies into their decision-making, offering guidance and support. Furthermore, the "Klimapartnerne Troms og Finnmark" initiative has been established as a collaborative network that unites municipalities, businesses, research institutions, and other stakeholders to promote climate action, share knowledge, and advance sustainable development across the region.

In Nordland, to meet the EU's 2030 burden-sharing target and the 2035 net-zero target, a comprehensive strategy has been developed to reduce greenhouse gas emissions. Key measures include transitioning to fossil-free transportation, optimising the energy supply chain, promoting clean energy production, and prioritising green public acquisitions. To meet the 2030 target, emissions must be reduced by 10% annually, with a particular focus on the transport sector, which accounts for 70% of emissions. The county administration employs climate accounting and budgeting tools to identify emission sources and determine the most effective measures. Additionally, refurbishing existing buildings and prioritising sustainable construction practices are part of the strategy to reduce the region's carbon footprint. All three regional county councils in Northern Norway have incorporated energy transformation and the greening of industries into their Smart Specialisation strategies.

Table 15 synthesises the main points from the discussion and provide some recommendations to guide policymakers in implementing strategies to foster sustainable development in Norway's NSPA.

Table 17. Overview of key Insights and policy proposals for Nordland, Troms, and Finnmark

	Climate & energy transition	Green industrial transition	Just transition
Strengths	Ambitious targets to reduce greenhouse gas emissions. High share of renewables (hydro & wind).	Novel sustainable, technological production methods and advanced regulatory system in aquaculture. Energy transition and the greening of industries integrated in Smart Specialisation Strategies. Opportunities in developing hydrogen-	Integration of SDGs in Smart Specialisation strategies.

		based solutions.	
Weaknesses	Energy usage is expected to increase. Transition to low- and zero-emission transport modes.	Reliance on traditional industries (aquaculture and tourism). Shortage of skilled workers in emerging green energy industries.	High susceptibility to climate change impacts on natural resources and traditional livelihoods, especially for Indigenous communities. Reindeer husbandry, natural diversity, and cultural and natural environments often conflict with industrial development and infrastructure expansion.
Policy recommendations	Implement climate resilience strategies: focus on enhancing resilience in sectors vulnerable to climate change, such as agriculture and coastal industries. Consolidate green energy initiatives: continue advancing renewable energy projects such as wind, solar, and hydropower, tailored to Arctic conditions. Foster collaboration on climate actions, sharing knowledge and experiences across local and regional levels of government. Utilise climate accounting and climate budgeting tools. Strengthen investment and focus on sustainable transport (e.g. electrification of ferries, use of hydrogen, improve EV infrastructure).	Implement sustainable resource management: implement strict regulations to protect the natural environment and encourage sustainable practices in industries like fishing and mining. Promote sustainable tourism: utilise natural landscapes and cultural heritage to expand eco-friendly tourism, creating jobs and promoting environmental stewardship. Prioritise green hydrogen initiatives. Increase co-ordination and collaboration across universities tailored to green industries.	Enhance Sámi cultural integration. Formulate policies that support and promote Sámi culture, ensuring economic development does not compromise cultural heritage. Extend support to Indigenous peoples' enterprises and initiatives that incorporate traditional knowledge and cultural elements in green transition. Sustain cultural and social inclusion. Integrate responsible research and innovation principles in Smart Specialisation Strategies. Foster competence and capacity in land use planning.

Source: Own elaboration

Green transition and environmental issues in Sweden's NSPA

This section provides a policy analysis for Jämtland Härjedalen, Västernorrland, Västerbotten, and Norrbotten of their climate and energy transition, green industrial transition and just transition. This is followed by an overview of current policies. The section concludes with a summary and policy recommendations.

Climate & energy transition

The Swedish NSPA regions are at the forefront of the green transition, transforming their economy historically centred on natural resource extraction, processing, and export. Climate change is already altering the region's environment, with noticeable changes in snow cover, growing seasons, frost patterns, and increased risks of wildfires and vector-borne diseases. These changes underscore the dual necessity

of adapting to climate impacts while decarbonising energy and transport systems. Despite progress, many firms lack understanding of the region's climate risks, highlighting the need for proactive climate risk management to ensure sustainability and competitiveness.

Northern Sweden's abundant natural resources position it as a key player in advancing green development not only for the region but for Sweden and Europe. The region has already achieved carbon neutrality when accounting for carbon sinks from its forests. Renewable energy dominates its electricity and heating sectors, with hydropower, wind power, and biofuel-based cogeneration leading the way. Innovative initiatives, such as biogas and ethanol production from food and forestry residues in Härnösand and Örnsköldsvik, and hydrogen-based steel plants, exemplify the region's commitment to leveraging new technologies. Approximately a third of the region's green electricity is exported, and its electricity surplus offers opportunities for industries reliant on renewable energy.

However, the region faces two major challenges. The first is insufficient grid capacity, which is already impeding new industrial plans due to limited energy supply. Strengthening grid infrastructure, including both north-south and east-west lines, is critical to support growing demand. Although wind power expansion has been significant, conflicts with reindeer husbandry, wildlife, and local communities must be carefully managed, as the Sámi population holds legal rights over land use. Additionally, diversifying renewable energy sources, such as biomass, geothermal, wave, tidal, and solar, could help remote areas access affordable energy. Co-ordination at the municipal level is crucial, yet regional plans for production and distribution remain inadequate. The adoption of smart grids, which use digital technologies to optimise supply and demand, could enhance efficiency and align with the EU's energy strategy.

The second challenge pertains to reducing emissions, particularly from the steel industry in Norrbotten, which relies on coal imports and is Sweden's second-largest greenhouse gas emitter, contributing 15% of the nation's total emissions. Transitioning steel and metal plants to low- or zero-carbon technologies is essential for Sweden's 2045 climate neutrality target. The transportation sector also demands significant transformation, as it remains heavily fossil-fuel dependent. Regional strategies aim to enhance rail infrastructure, public transport, walking and cycling paths, and on-demand mobility solutions in rural areas. Expanding the use of renewable fuels, such as HVO, biogas, and hydrogen, and building infrastructure for electric vehicles are priorities. Encouragingly, 83.3% of public transport vehicles already use non-fossil energy, approaching the national level of 92.2%.

While progress is evident, achieving a fully sustainable and green economy in the Swedish NSPA regions will require addressing these pressing challenges through innovation, infrastructure development, and regional and cross-border collaboration.

Green industrial transition

The Swedish NSPA regions are undergoing a transformative green industrial transition, centred on the forestry, mining, and energy industries. Key innovations, such as fossil-free mining, green steel production, and lithium-ion battery manufacturing, represent some of the most ambitious green developments in decades. These efforts are a collaborative vision of companies and policymakers aiming to reverse trends of population and economic decline, positioning the region as a leader in green technology and sustainable development. Historically, Northern Sweden has been regarded as the "land of the future" and the "natural resource pantry" due to its logging, hydropower, and mineral extraction activities, which have primarily served southern markets and driven Sweden's modernisation (Sörlin, 2023). While these natural resources remain pivotal for job creation, competitiveness, and climate goals, there is an increasing emphasis on moving beyond extractivism to build production and manufacturing capabilities, creating higher-value fossil-free products.

The Swedish NSPA regions exemplify the potential of peripheral, resource-dependent areas to escape development traps through green industrial innovation (Grillitsch and Hansen, 2019). However, industrial

structures and specialisations vary within the territory. Jämtland Härjedalen and Västernorrland rely less on mining and minerals compared to Västerbotten and Norrbotten, where such industries dominate. The former regions, characterised by forest industries and scattered rural communities, face challenges such as declining global demand for paper products and increasing competition. In response, the forestry sector is exploring biorefinery technologies to extract more value from biomass, while simultaneously improving energy efficiency, reducing carbon emissions, and enhancing sustainability.

Norrbotten stands out as a mining powerhouse, hosting all of Sweden's iron ore mines, the world's largest underground iron ore mine in Kiruna, the country's largest copper mine in Aitik, and significant gold mines in Västerbotten. The mining sector has experienced periods of profitability driven by high global demand, followed by economic downturns and rationalisations during market declines. To meet the growing global demand for sustainably sourced minerals, the region is positioning itself as a leader in sustainable mining, with Norrbotten emerging as an innovation hub supported by national and European programs like EIT Raw Materials. The region's mining university, LTU, is globally renowned for its industry-linked research. Despite these advancements, there is a need to diversify the economy to avoid overreliance on mining, mitigate the risks of Dutch Disease, and foster sustainable growth. Leveraging existing strengths in mining and forestry, along with technological advancements, can help create new business opportunities and reduce economic volatility.

The industrial landscape in Norrbotten and Västerbotten is further reshaped by the establishment of hydrogen factories, battery manufacturing plants, and planned fossil-free steel facilities. Companies like Northvolt aim to revolutionise the automobile industry with lithium-ion batteries for fossil-free cars, while tech giants such as Facebook are drawn to the region for its renewable energy and cold climate. SSAB envisions leading the global steel industry's transition to fossil-free production. Similar developments are occurring in Västernorrland, particularly in hydrogen technologies with one of Europe's largest establishments on its way. These industrial expansions necessitate not only an increased supply of green energy but also a robust influx of skilled workers, along with investments in housing, schools, and healthcare to accommodate their families.

The four regional county councils in Northern Sweden explicitly prioritise greening industrial development in their Smart Specialisation strategies, signalling a unified commitment to fostering innovation, sustainability, and long-term economic resilience.

Just transition

The concept of a "just transition" in the Swedish NSPA regions involves balancing the economic benefits of mining and other extractive industries with growing concerns about their socio-environmental impacts. As global demand for raw materials is expected to double by 2060, the extractive industry must adapt to the climate crisis by becoming more sustainable. Local support for mining operations is essential for their success, but this requires careful monitoring of externalities, such as water pollution, and measures to reduce their carbon intensity, like adopting intelligent building systems, zero-carbon transport, and engaging in the circular economy. Additionally, the Sámi people, whose traditional way of life is closely tied to snow-dependent activities like reindeer husbandry, face increasing challenges as their lifestyle is disrupted by environmental changes and industrial development. OECD (2022) highlights that the rights of Indigenous peoples are often insufficiently considered in environmental impact assessments, and the Sámi, in particular, lack the same access to agricultural funds that other sectors receive to support their activities. This creates tensions, as industries in the Swedish NSPA regions, particularly mining and forestry, must balance local livelihoods with evolving sustainability goals and biodiversity preservation.

The region's agricultural sector, heavily reliant on machinery, faces obstacles in accessing renewable fuels and affordable alternatives, underscoring the need for urgent support to facilitate the green transition. Agriculture's role in ensuring food security and resilience to future challenges is crucial. Sweden's national policies, particularly since 1909, have heavily emphasised hydropower, which has had significant, at times

negative, consequences for local communities. Resistance to large-scale wind farms has grown, especially when municipalities in southern Sweden, which face energy shortages, also resist wind power development. Local stakeholders often call for compensation systems for land use or for energy production to be more closely aligned with energy needs. An emerging solution is to create innovative business models that generate local legitimacy by reinvesting profits from energy projects into local community development, though current funding levels remain insufficient to create meaningful change. Ultimately, a more inclusive consultation process is needed to ensure fair mechanisms for burden-sharing, as municipalities often bear the financial risks of supporting green industries, while the Swedish state collects the tax revenue from these companies.

According to Swedish legislation, both the County Administrative Board and municipalities share responsibility for nature protection, working closely with Indigenous communities, especially the Sámi. The Sámi have long contributed to ecosystem and biodiversity monitoring through their reindeer herding practices, which are crucial for assessing environmental health. Additionally, the EU's growing concern over biodiversity has put increased focus on sustainable forestry, with new EU policies emphasising a more place-based approach to forest management that aligns with local conditions and traditional methods of preservation. Forests, now seen as key carbon sinks, also provide important economic benefits to municipalities, which rely on them for funding essential services such as schools. The evolving bioeconomy, which shifts from fossil fuel-based materials to wood, presents opportunities for more sustainable forestry practices. Learning from these regions can help shape national and EU policies that foster a richer, more context-specific understanding of sustainability in forest management.

Current Policies

Energy and climate policies across the Swedish NSPA regions share similar overarching goals while also addressing place-specific priorities. All counties take a holistic approach, incorporating technology-based solutions, behavioral changes, and extensive collaboration with local stakeholders. These policies align with Sweden's broader environmental goals, aiming to resolve major environmental issues without exacerbating problems beyond its borders.

Jämtland County's Energy and Climate Strategy focuses on energy transition, including electrification and renewable fuels for transport and machinery, climate adaptation, biodiversity, and a regional water forum. The county's Environment and Climate Council, a platform for collaboration among business, public administration, and interest groups, is tasked with implementing the strategy. Additionally, the municipality of Östersund has its own Climate Programme, which aims for a fossil-free municipal organisation by 2025 and climate-neutral and energy-efficient operations by 2030.

Västernorrland's strategy highlights five key areas: efficient and fossil-free transport, a strong bio-economy, sustainable construction, sustainable consumption, and a future-ready electricity system. Västerbotten's strategy focuses on renewable transport, a sustainable industry and service sector, climate-conscious households, a responsible public sector, and the future of forestry and agriculture. Norrbotten's strategy targets fossil-free transport, world-class production, resource-efficient buildings, and a flexible, robust energy system.

The regional Smart Specialisation strategies also emphasise green transition. Jämtland Härjedalen prioritises green industry development in two areas: the sustainable use of soil, forest, and water resources, and sustainable energy, positioning the region as a potential leader in tackling climate change. Västernorrland's strategy focuses on forest-based bio-economy and renewable energy, particularly in solar, wind, hydro, and bioenergy, capitalising on the region's leadership in renewable energy production. Västerbotten's Smart Specialisation strategy highlights the sustainable hospitality industry, sustainable energy systems, and the forest bioeconomy, alongside its strength in a knowledge-intensive economy bolstered by its higher education institutions and Arctic co-operation. Norrbotten's strategy, centered on smart diversification, seeks to foster new specialisations in space technology, digitalisation, energy

technology, environmental innovation, tourism, and Arctic industries, leveraging the region's strong foundation in natural resource use, particularly mining, forestry, and hydropower.

Overall, the Swedish NSPA regions are deeply committed to a green industrial transition, with each region aligning its energy and climate strategies to both global sustainability goals and local strengths, ensuring that green industry development is integrated into broader regional economic plans.

Table 16 synthesises the main points from the discussion and provide some recommendations to guide policymakers in implementing strategies to foster sustainable development in Sweden's NSPA.

Table 18. Overview of key Insights and policy proposals for Jämtland Härjedalen, Västernorrland, Västerbotten, and Norrbotten

	Climate & energy transition	Green industrial transition	Just transition
Strengths	Impressive track record in achieving carbon neutrality. High share of renewables (hydro, wind & bio-energy).	Growth in mining,mineral-quarrying industry, hydrogen and battery production. Opportunities for biorefining in forest industry. Explicit focus on green industry development in Smart Specialisation strategies	Sustainable forestry practices by manufacturing bio-based products to replace fossil-based ones.
Weaknesses	Future energy usage is expected to increase substantially. Emissions related to the steel industry, the transportation sector and its automobility dependence.	Risk of remaining in extractive development trap for natural resource-based industries. Development of new value chains based on biorefinery technologies is limited. Shortage of skilled workers in emerging green energy industries.	Reindeer husbandry, natural diversity, and (sustainable) tourism sector & agrifood businesses often conflict with industrial development and infrastructure expansion. Opposition to large-scale deployment of (green) energy infrastructure and mining has increased in recent years.
Policy recommendations	Expand and diversify green energy production (wind, solar, hydrogen). Build new and reinforce local, regional and national power supply lines, development of smart grids. Convert steel- and metal-processing plants to low- or zero-carbon technologies. Enhance the provision and access to public transport (railways), enhance the sharing infrastructure & mobility management, expand infrastructure for electric vehicle charging and investing in alternative fuels such as HVO, biogas, and hydrogen.	Enhance green industrial diversification. Stimulate high-value products from biorefining Support legitimacy and social acceptance of the bioeconomy. Integrate forest-based bioeconomy into EU climate and industrial strategies & support infrastructure and knowledge sharing for bio-based transitions Promote sustainable tourism: utilise natural landscapes and cultural heritage to expand eco-friendly tourism, creating jobs and promoting	Integrate interests of Indigenous peoples in environmental impact assessments. Balance industrial development with biological diversity, Indigenous and other local community and economic interests (e.g. tourism and agriculture). Compensate for negative impacts of renewable energy deployment on local communities and nature by re-investing profits in local investment funds earmarked for local economic development

		environmental stewardship. Increase co-ordination and collaboration across universities tailored to green industries.	

Source: Own elaboration.

Conclusions

The NSPA regions of Norway, Sweden, and Finland have made notable strides in their green transition, with a focus on renewable energy, emissions reductions, and the growth of green industries. However, disparities between regions remain, particularly in areas still dependent on energy-intensive sectors or facing challenges related to energy imports. To overcome these challenges, region-specific solutions are necessary to address local economic structures, energy demands, and available resources, while also tackling environmental and socio-economic issues.

A major concern is the potential loss of traditional industries, which underscores the need for a "just transition." This involves supporting workers and communities affected by the shift through retraining, economic diversification, and fair compensation. The success of the green transition relies on a balanced approach that integrates environmental, economic, and social objectives, ensuring that no community is left behind.

In Finland, the green transition is progressing, particularly with reductions in fossil fuel dependence and an increase in renewable energy. However, energy-intensive sectors such as forestry, mining, and transport continue to drive high emissions, requiring targeted policies that reflect regional needs. Opportunities for green growth lie in areas like forestry, ICT, and mining, especially with innovations in the bioeconomy and the growing demand for minerals used in green technologies. The decline of traditional industries, such as peat production, poses a threat to jobs in rural areas, highlighting the need for retraining and investment in new sectors. National climate policies are ambitious, but successful implementation at the local level through regional roadmaps, effective engagement, and balanced economic-environmental policies are critical for achieving goals.

Northern Norway has made progress with renewable energy, particularly in hydropower and wind, but rapid industrial growth, including in battery production and green steel, threatens to strain existing energy infrastructure. The shift towards sustainable industries, such as green hydrogen and offshore wind, offers economic opportunities, but outdated infrastructure and environmental concerns remain significant barriers. A "just transition" is vital to support local communities, especially in traditional sectors like fisheries and tourism. Additionally, disputes over land use and Indigenous peoples' rights in resource management highlight the need for inclusive governance and planning that balances environmental, economic, and social priorities.

Sweden's NSPA regions are well-positioned for the green transition, with ample renewable energy resources. However, rapid industrial expansion, particularly in mining, forestry, and green technologies, presents challenges in managing energy infrastructure while balancing development with environmental and social impacts. To ensure a sustainable transition, investments in smart grids, expanded renewable energy, and diversification away from extractive industries are essential. Furthermore, a "just transition" is needed to support rural communities and integrate the rights of Indigenous Sámi people into regional planning. Successful strategies should prioritise economic diversification, equitable benefit distribution, and inclusive stakeholder dialogue, ensuring the transition is fair and sustainable for all.

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5 Multilevel Governance, Co-ordination and Cross-border Collaboration in the NSPA

The NSPA governance framework emphasises inclusivity and multilevel collaboration, with local and regional governments playing a key role in policy development and service delivery. Subnational governments, empowered with certain degrees of autonomy, engage diverse stakeholders to create policies that meet regional needs. A central focus is the integration of Indigenous peoples' rights, particularly those of the Sámi people, ensuring their perspectives are included in regional planning. Participatory processes, such as public consultations and digital platforms, promote transparency and shared responsibility. Equitable financial mechanisms address regional fiscal disparities, allowing all communities to benefit from regional growth.

Introduction

The analysis of the multilevel governance of the NSPA begins by clarifying the term "region" in this context. The 14 regions under study are classified as Territorial Level 3 (TL3) according to the OECD's classification of geographical units, typically representing smaller regions within larger TL2 regions. This classification

is closely aligned with the NUTS3 level in the EU system.[25] In the countries of Finland, Norway, and Sweden, these regions are commonly referred to as "counties" or "districts" in Norway, and this designation has historical roots that date back for decades, if not centuries, even though the administrative boundaries have often changed. The term “region” may be used interchangeably with “county” to refer to this level, though a distinction will be made when referring to the TL2 regions, particularly in the context of EU cohesion policies.

The multilevel governance within the NSPA reveals both commonalities and specific differences across the three countries. The purpose of this chapter is to explore these similarities and differences, offering insights into the NSPA as a complex and multifaceted system. Any actions taken within this framework must align with the governance structures in place in each country.

A classification system proposed by the OECD (OECD, 2022) divides regional governance models into four categories:

- Regions with legislative power. These regions have their own elected regional assembly which is vested with either primary or secondary legislative powers.
- Decentralised regional governance. Such regions are governed by elected bodies that operate at a higher level than local authorities. This is most prevalent form of regional governance in the OECD and the EU, where regions are governed by elected regional governments.
- Co-operative regions or regional associations of municipalities. The regions under this category are legally constituted, and their establishment necessitates the assent of the constituent municipalities. In general, these entities are governed by regional councils, comprising members elected by municipalities, and a cabinet or executive office responsible for the administration of their activities.
- Planning or statistical regions. These are territorial units established by the central government with the objective of planning at the regional scale and/or providing statistics at the regional level that may prove enlightening in the context of the planning process.

The regions of Norway and Sweden typically fit the decentralised governance model (the second category), where elected bodies govern at a regional level without legislative power. Finland’s regional organisation, on the other hand, aligns more with the third category, representing an association of municipalities. However, a recent reform in Finland introduced elective regions called "wellbeing service counties," which now fall into the second category, similar to the regional models in Norway and Sweden.

Additionally, the OECD classifies regions based on their degree of rurality, which considers proximity to and interconnection with a Functional Urban Area (FUA). Regions are categorised as either Metropolitan Regions (MR) or Non-Metropolitan Regions (NMR), depending on their distance from urban centres. In the case of the NSPA, 11 of the 14 regions are classified as non-metropolitan, remote areas geographically isolated from any FUA, while only three regions are near smaller FUAs. As a result, the NSPA is primarily characterised by its rural and remote nature.

[25] NUTS. Nomenclature of territorial units for statistics (in French *Nomenclature des Unités territoriales statistiques*), is the geographical nomenclature subdividing the economic territory of the EU into regions at three different levels (NUTS 1, 2 and 3 respectively, moving from larger to smaller territorial units). This is based on Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS).

NSPA multilevel governance structure: a cross-country comparative overview

The functions of the municipalities

In the three Nordic countries, which are unitary states, constitutional laws delegate executive powers to municipalities, granting them autonomy and decision-making authority to manage local interests and responsibilities. Municipalities can impose local taxes to fund their operations and public services. A significant portion of their budgets comes from national subsidies, allocated through equalisation mechanisms to ensure that all communities have access to comparable service levels. While the criteria for these equalisation mechanisms may differ across countries, the approach is consistent and particularly relevant for the NSPA. The functions of regional authorities vary more, influenced by national regulations or the autonomy granted to regions, especially in Finland where regions may take on responsibilities from municipalities.

Table 17 presents a summary of the primary functions that national legislation in the three countries attributes to municipalities. While the core services are largely similar across all cases, there is some variation in the additional, non-compulsory services that municipalities may be tasked with, particularly in the areas of economic development, business development and local transportation.

Table 19. Municipal-based functions of government bodies in NSPA

	Finland	Norway	Sweden
Compulsory	Education and Childcare Crisis preparedness Health and Social Services (from 2023 moved to Wellbeing Services Counties) Library operations Public Utilities and Infrastructure Planning and Building Regulation Culture and Recreation Environmental Protection Public Safety and Emergency Services	Education and Childcare Health and Social Services Public Utilities and Infrastructure Planning and Building Regulation Culture and Recreation Environmental Protection Public Safety and Emergency Services	Education and Childcare Health and Social Services Public Utilities and Infrastructure Planning and Building Regulation Culture and Recreation Environmental Protection Public Safety and Emergency Services Crisis preparedness and civil defence Library operations Public housing
Additional	Energy Housing Local business and employment services Public transportation	Economic Development Housing Immigration and Integration Public transport and regional planning (in co-operation with the regions)	Leisure and culture Energy Employment Business development Regional and local public transport (in co-operation with the regions) *In general, the municipalities in Sweden may prioritise other services recognised of public local interest.*

Source: Own elaboration on official data

The growing role of the regions

he role of regional government has been a significant topic in political discussions across the three Nordic countries over the past few decades, driven by a trend towards greater decentralisation and regional autonomy. This shift reflects a broader movement in OECD countries since the 1970s to devolve more responsibilities to regional and local levels (OECD, 2022). As a result, the regions in these countries, typically referred to as counties (TL3) at the local level, now function as a direct elective tier of

administration, positioned between municipalities and central government. This model applies in Norway and Sweden, though in Finland, only recently introduced wellbeing counties are directly elected, and the County Council, which continues to operate at a second administrative level, is composed of representatives appointed by municipalities.

Regions play a critical role in strategic development, planning, and the provision of public services with regional impact, such as transport infrastructure. They are increasingly responsible for delivering services in a more efficient manner, capitalising on economies of scale while remaining close to the communities they serve. This is especially noticeable in areas like local economic development and welfare and healthcare services.

Table 18 provides an overview of the main regionalisation reforms in the three Nordic countries since 1980, confirming a general progressive tendency towards increased regional empowerment.

Table 20. Regional reforms in Finland, Norway and Sweden

Country	Main regional reforms
Finland	2019. The regionalisation project, that had been in the works since 2015 to be effective in January 2019, was abandoned in April 2019 due to political disputes that led to the resignation of the government. 2021. Enactment of a reform for the creation of 21 "wellbeing service counties" across the territory (excluding the capital city of Helsinki, which will have a special status). The first county elections were held on 23 January 2022. As a result the responsibility for organising healthcare, social welfare and rescue services was transferred from municipalities and joint municipal authorities to wellbeing services counties on 1 January 2023. 2022. The reform of the Regional State Administrative Agencies (AVI) and the Centres for Economic Development, Transport and the Environment (ELY Centres) – the central government agencies in the regions - to enhance the responsiveness of these centres to regional needs, improve service delivery, effectively address the diverse needs of different parts of the country and align the functions of these agencies more closely with the government's broader strategic goals. 2024: Employment and economic development services (TE services) reform. These services will be transferred to municipalities on 1 January 2025. The reform creates 45 employment areas or municipalities responsible for organising employment services.
Norway	2002. Recentralisation of the responsibility for hospitals from the counties to the central government in the framework of the national healthcare reform. 2003. New tasks granted to counties: spatial planning, regional development and innovation policy. 2010. New tasks granted to counties: public roads, cultural activities, management of marine resources, operation of vocational schools and environmental protection. 2020. Abolition of the 18 counties which were replaced by 11 larger counties (*fylker*), with new tasks such as the administration of national road networks. Other tasks and instruments will be allocated so that they become "stronger regional community developers": cultural heritage protection, integration (immigrants), broadband development, fishing ports, research and innovation, business development, agriculture and forestry, climate and environment, integration (immigrants), public health. Given the local opposition to the reform, the reform was amended and some of the larger regions split again into smaller ones, as for 1 January 2024 the final number of regions is 15.
Sweden	1997-2007. Experimentation of asymmetric regionalisation. No single model of regionalisation imposed but instead different options available in terms of political representation (directly and indirectly elected) and responsibilities. 2007. Report of the Committee on Public Sector Responsibilities, promoting the extension of the "pilot region" model providing counties with more responsibilities. Since 2007. Sweden has further extended the transfer of regional development competencies to county councils. 2017. Attempt to reduce the number of counties from 21 to 6, which ultimately failed. 2019. End of the gradual, experimental and asymmetric regionalisation process in Sweden carried out since 1997. All counties have the same governance structure (directly elected councils), including Gotland Island, a municipality with county responsibilities. They are now called "regions".

Source: Own elaboration.

The national government in the regions

As a result of recent reforms, both regions and municipalities have taken on greater responsibilities. However, to ensure the implementation of national policies and administrative duties, each country has maintained regional offices staffed by appointees from the national government. In Finland, the AVI and ELY Centres are responsible for ensuring compliance with legislation and the implementation of national policies at the regional level. In Norway, the County Governor, appointed by the central government, represents the national administration at the county level, while in Sweden, the County Administrative Board performs a similar role. These bodies have varying specific functions but are primarily tasked with representing the central government and supervising regional activities.

The co-ordination between municipalities and regional representatives in the NSPA is generally effective, particularly between elected representatives and municipal councils. This success is partly due to the equal status of municipal and regional elected levels in Norway and Sweden, where they are not hierarchical but function as peer entities. This equality is reflected in their terminology, with the municipalities referred to as "primary" and the regions as "regional" municipalities in official documents. Despite this, tensions occasionally arise between these local bodies and national agencies, as the latter are the ultimate decision-makers and may not always align with local needs and expectations, although they are more closely aligned with national priorities.

The strategic planning in Finland, Norway and Sweden

The strategic planning process for regional and local development in all three countries is based on an overarching normative framework set at national level. Formulated by the government, different kinds of guidelines stemming from the law serve as a reference for the development strategies elaborated at the regional and local levels. While the terminology and some connected details vary in each of the cases, the conceptual rationale is common to all countries. The comparative table (Table 19) offers a comparative outlook of the specific national case.

Table 21. The strategic planning process in Finland, Norway and Sweden

	Finland	Norway	Sweden
National Government	Regional Government Decision linked to the Government Programme The decision guides the development activities of the various administrative branches and the regional councils and the co-ordination of the relevant measures. The Regional Development Guidelines 2040 define the key issues for regional development in the future.	National Expectations for Regional and Municipal Planning 2023-2027(every 4 years) The Expectations set out the framework for regional and municipal planning in order to promote sustainable development throughout the country.	National Strategy for Sustainable Regional and Rural Development 2021-2030 The strategy defines the overall strategic framework for regional development in Sweden
Regional (County Council)	Regional development plan (long term perspective 2040) From the plan are then elaborated: Regional strategic Programme Regional Land Use Plan	Regional Planning Strategy (the only legal element in the planning system at the regional level) Under the Strategy the following: Regional plan Regional planning determination	Regional Development Strategy It defines the objectives and priorities for regional development over a medium- to long-term programming period. This varies from region to region (often this strategy looks ahead to 2030 or even 2050),

Source: Own elaboration on official data.

Stakeholder engagement

Stakeholder engagement has been a central feature of the programming and decision-making process in the NSPA, explicitly outlined in national regulations related to planning. Local political and institutional representatives view direct stakeholder involvement as crucial for shaping development policies, particularly due to the challenges posed by vast, sparsely populated areas and the lack of agglomeration effects. These representatives highlight the need for pooling resources and capacities under common strategic objectives to overcome the issue of reaching a minimal critical mass for effective policy implementation.

Various bodies, agencies, and initiatives have been created to ensure ongoing engagement and commitment of stakeholders, including representatives from the economy, academia, and local civil society. As a result, local citizens, associations, businesses, research institutions, and universities play a dynamic role in formulating regional policies.

This engagement has two primary outcomes. First, it fosters a communication loop between local society and political decision-makers. Second, it promotes a participatory attitude among stakeholders, enabling them to advocate for shared interests and collaborate on achieving common goals. For this engagement to remain effective over time, it must be supported by transparent policy processes, decision-making procedures, and implementation mechanisms. In the NSPA, the concept of "social control" and reciprocal commitment is particularly strong, requiring the open and timely circulation of information and access to decision-making processes. While this transparency is a strength of open governance in the region, it faces challenges in maintaining accessibility, especially given the rise of social media, which can efficiently spread information but also pose risks of misinformation.

The Indigenous peoples in the NSPA

A particularly important case within the NSPA is the presence of Indigenous peoples, especially the Sámi, who are the only Indigenous group in Finland, Norway, and Sweden to be granted distinct rights and cultural protections. However, it is also important to acknowledge other local minorities in these regions, such as the Kven people, primarily in Troms and Finnmark (Norway) and northern Finland, and the Tornedalians in the Tornedalen region of northern Sweden, near the Finnish border.

The Sámi are concentrated in the northernmost areas of Lapland (Finland), Finnmark, Troms, Tröndelag, and Nordland (Norway), and Norrbotten, Västerbotten, Jämtland, Härjedalen, Dalarna, and Västernorrland (Sweden). These regions, often referred to as Sápmi, represent the cultural homeland of the Sámi people, encompassing their identity and traditional livelihoods. The Sámi people are also native to parts of the Russian northwestern territories. In all NSPA counties, there is a clear responsibility to provide information, protect Sámi culture and language, and ensure their participation in decision-making, despite varying national legislation and obligations.

The Sámi are recognised as key players in regional and local policies, particularly in spatial planning and in balancing competing land uses. Their role in ensuring sustainability and biodiversity is increasingly significant, with local stakeholders noting that areas with a higher Sámi presence tend to have better natural preservation. This is crucial for protecting traditional Sámi livelihoods, such as reindeer herding and associated rights. Additionally, preserving the Sámi language, culture, and way of life is considered vital.

Sámi representatives hold a unique position in policy-making across the NSPA, with legal recognition of their rights to participate in local decision processes. This is demonstrated by the establishment of three Sámi Parliaments, one in each of the countries, which serve as representative bodies to promote the interests, language, culture, and rights of the Sámi people, including Sámi education.

The funding of regional development and the role of the EU cohesion policy

Regional development strategies, programmes, and projects are primarily funded through a mix of public resources, with significant contributions from local and national budgets. Each Nordic country has compensation and equalisation mechanisms designed to ensure equitable distribution of public funds across regions, particularly addressing areas with lower tax revenue capacity. These mechanisms are generally applied at the municipal level but also extend to regions, particularly in countries like Sweden and Norway where regions have taxation authority. A detailed account of these mechanisms is provided in the country-specific sections of the paper.

In addition to national funds, European Union (EU) funding, particularly through regional development and cohesion funds, plays a critical role in supporting regional and local development in Finland and Sweden. As EU member states, both countries benefit from these funds, alongside other European programs accessible to regional and local entities, businesses, and universities. The LEADER initiative, part of the EU's Common Agricultural Policy (CAP), is particularly relevant in Finland and Sweden. It promotes local governance in rural areas through Local Action Groups, empowering local actors in rural development. Another notable example is the Horizon Europe programme for research and innovation, which is open to Norway as well, even though it is not an EU member. While Norway is excluded from accessing cohesion funds and CAP, it can participate in Horizon Europe's open calls, which form a key part of its regional development efforts.

The governance of EU cohesion funds in Finland and Sweden is complex, with a multilevel approach to their management. In Finland, the national government, through the Ministry of Economic Affairs and Employment, oversees a single programme that includes all EU cohesion funds (ERDF, ESF+, and JTF). However, regional implementation must align with each region's strategies, with intermediary roles played by County Councils and ELY Centres, the latter being decentralised government bodies. In Sweden, the governance of cohesion policies is partially regionalised, particularly for the ERDF programmes. The Swedish Agency for Economic and Regional Growth holds overall authority, while regions, which are larger TL2 regions formed by consolidating smaller TL3 regions, have local Structural Fund Partnerships comprising government representatives and stakeholders. However, recent developments suggest that the role of these decentralised bodies may diminish in future programming, with decision-making potentially centralising within the Agency.

Strategic foresight as a tool for policymaking

The NSPA faces significant social and economic challenges due to megatrends and geopolitical risks, which require immediate governmental action. Foresight, a tool used in future studies, helps policymakers anticipate and address emerging issues. The OECD highlights the importance of prioritising foresight at the regional level to address challenges such as depopulation and green transitions.

Foresight involves anticipating and exploring future developments to guide decision-making, combining data, perceptions, and creative thinking. Strategic foresight, a more advanced approach, integrates these insights into policy and planning by exploring potential future scenarios. The OECD defines strategic foresight as a structured method to help governments make informed decisions in uncertain contexts. Governments increasingly use techniques like trend analysis and policy translation, often through workshops with experts and stakeholders, to address emerging risks and opportunities.

Foresight is most effective when tailored to regional contexts, especially for regions facing interconnected challenges like poverty, climate change, and economic growth. The OECD encourages the integration of foresight into regional development policies through leadership training and innovation in public policy.

Factors to consider when doing regional foresight work are:

- Robust data that delineates the regional story. Regions have unique characteristics in industries, populations, and economies. Foresight should begin by gathering data that reflects these regional differences, such as Finnmark's focus on energy and fisheries, or Norrbotten's specialisation in iron ore, to ensure policies are effective and equitable.
- Contextualising data with trends and change drivers. Megatrends and local drivers (e.g. technological advancements or geopolitical shifts) impact regions differently. The OECD highlights the importance of localised data to understand these effects. For example, regions like NSPA, with ageing populations and limited stakeholder engagement, need tailored foresight to address labour force challenges and innovation gaps.
- Focusing on specific problems. Foresight should tackle urgent regional issues. In NSPA, Kainuu faces challenges like attracting skilled labour, which requires targeted foresight. Complex issues, like labour shortages, should be broken down into subthemes (e.g. wages, education) to develop effective policy solutions.
- Rigorous imagining and blending perspectives. Foresight involves various stages such as data gathering, analysis, and policy planning. Combining top-down (policy-driven) and bottom-up (local) perspectives ensure broad engagement and innovation.
- Multi-layered approach (top-down/bottom-up). A co-designed foresight process involving diverse stakeholders ensures that both local and policy-driven concerns are integrated.
- Co-design the process and engage stakeholders. It is crucial to involve a broad range of stakeholders, from government officials to citizens, using personas to represent different community groups. This ensures that foresight outcomes are user-cantered and address diverse needs.
- Balancing regional and individual perspectives. Successful regional development requires aligning regional goals (e.g. innovation ecosystems) with local priorities, such as affordable housing. Balancing these perspectives is key to ensuring both regional progress and individual well-being.
- Vision setting and policy action development. To convert foresight insights into actionable steps, it's important to understand the roles of implementing entities and consider political and feasibility constraints. For example, cross-border collaboration on labour markets and transportation in NSPA, involving Finland, Norway, and Sweden, requires understanding each country's governance structures. The capacity of regional governments to implement foresight-driven actions will influence the scope and timeline of these initiatives.

Building the capacities for better local governance

In the Nordic countries, the provision of courses and programs aimed at updating and improving the skills and knowledge of local and regional officers directly benefits the NSPA. These initiatives are designed to ensure that both civil servants and political representatives are equipped to tackle the evolving challenges of regional and municipal development. Such capacity-building activities are essential for the long-term, sustainable development of the NSPA, which is known for its unique characteristics and sensitivities.

The approach to capacity building varies depending on the specific region, its unique features, and the prevailing administrative culture. However, several common elements can be identified. Regions and municipalities are responsible for determining the training priorities for their personnel, which requires a proactive approach to designing tailored capacity-building projects. Despite this, small municipalities with limited budgets often consider training and development costs as one of the first areas to cut when facing financial constraints.

Universities in the NSPA are typically committed to developing future-proof capabilities within the local communities they serve. This includes training students who will become the next generation of local development officers, as well as offering continuous training for those already working in municipal and

regional institutions. Additionally, national associations of regions and municipalities play a crucial role in supporting the development and implementation of tailored training programs at all levels.

The establishment of horizontal co-operation—through joint training programs across municipalities, regions, and even between Nordic countries—is recognised as a significant advantage. This co-operation facilitates the exchange of experiences and practices, fostering mutual learning processes. While such cross-border collaboration already exists across the NSPA, its potential for further development remains underutilised, offering room for greater advancement.

The co-operation as a necessary attitude across the NSPA

The NSPA has a rich history of cross-border and transnational collaboration, shaped by the necessity of operating in harsh and extreme conditions. This has fostered co-operative relationships with neighbouring entities, leading to a variety of experiences, projects, and institutions, such as councils, boards, and associations, some of which have been active for decades. The extensive border with Russia, in particular, played a central role in facilitating local-to-local collaboration, especially for neighbouring NSPA regions. However, following Russia's invasion of Ukraine, many of these collaborative initiatives were abruptly halted, forcing a re-evaluation of cross-border structures and institutions. The impact of this shift has varied depending on the regions' proximity to Russia, but overall, there has been a move towards new forms of cross-border co-operation that exclude Russia for the time being.

Despite these changes, regional development policies in the NSPA continue to rely on co-operation as a cornerstone for long-term growth. It remains crucial to reflect on past collaborative experiences and assess their evolution over time. The European Territorial Co-operation programmes, particularly Interreg, offer a framework that can support ongoing collaboration. The Nordic Council also provides valuable resources and instruments to facilitate regional co-operation. Additionally, local initiatives, initially formed to address practical concerns along the borders, have often evolved into integrated local development agencies, further contributing to the region’s co-operative efforts.

Box 3. Strategic foresight as a tool for policymaking

The NSPA faces significant social and economic challenges due to megatrends and geopolitical risks, which require immediate governmental action. Foresight, a tool used in future studies, helps policymakers anticipate and address emerging issues. The OECD highlights the importance of prioritising foresight at the regional level to address challenges such as depopulation and green transitions.

Foresight involves anticipating and exploring future developments to guide decision-making, combining data, perceptions, and creative thinking. Strategic foresight, a more advanced approach, integrates these insights into policy and planning by exploring potential future scenarios. The OECD defines strategic foresight as a structured method to help governments make informed decisions in uncertain contexts. Governments increasingly use techniques like trend analysis and policy translation, often through workshops with experts and stakeholders, to address emerging risks and opportunities.

Foresight is most effective when tailored to regional contexts, especially for regions facing interconnected challenges like poverty, climate change, and economic growth. The OECD encourages the integration of foresight into regional development policies through leadership training and innovation in public policy.

Factors to consider when doing regional foresight work are:

- *Robust data that delineates the regional story*. Regions have unique characteristics in industries, populations, and economies. Foresight should begin by gathering data that reflects these regional differences, such as Finnmark's focus on energy and fisheries, or Norrbotten's specialisation in iron ore, to ensure policies are effective and equitable.
- *Contextualising data with trends and change drivers*. Megatrends and local drivers (e.g. technological advancements or geopolitical shifts) impact regions differently. The OECD highlights the importance of localised data to understand these effects. For example, regions like NSPA, with ageing populations and limited stakeholder engagement, need tailored foresight to address labour force challenges and innovation gaps.
- *Focusing on specific problems*. Foresight should tackle urgent regional issues. In NSPA, Kainuu faces challenges like attracting skilled labour, which requires targeted foresight. Complex issues, like labour shortages, should be broken down into subthemes (e.g. wages, education) to develop effective policy solutions.
- *Rigorous imagining and blending perspectives*. Foresight involves various stages such as data gathering, analysis, and policy planning. Combining top-down (policy-driven) and bottom-up (local) perspectives ensure broad engagement and innovation.
- *Multi-layered approach (top-down/bottom-up)*. A co-designed foresight process involving diverse stakeholders ensures that both local and policy-driven concerns are integrated.
- *Co-design the process and engage stakeholders*. It is crucial to involve a broad range of stakeholders, from government officials to citizens, using personas to represent different community groups. This ensures that foresight outcomes are user-cantered and address diverse needs.
- *Balancing regional and individual perspectives*. Successful regional development requires aligning regional goals (e.g. innovation ecosystems) with local priorities, such as affordable housing. Balancing these perspectives is key to ensuring both regional progress and individual well-being.
- *Vision setting and policy action development*. To convert foresight insights into actionable steps, it's important to understand the roles of implementing entities and consider political and feasibility constraints. For example, cross-border collaboration on labour markets and transportation in NSPA, involving Finland, Norway, and Sweden, requires understanding each country's governance structures. The capacity of regional governments to implement foresight-driven actions will influence the scope and timeline of these initiatives.

Source: Own elaboration . OECD (2021), "Annual Meeting Report", OECD Government Foresight Community: Strategic Foresight for future-ready public policy, https://www.oecd.org/strategic-foresight/ourwork/GlobalForesightReport2021.pdf (accessed on 8 August 2023).

Multilevel governance in Finland

Institutional context

Finland operates as a democratic unitary parliamentary republic, where the President, elected every six years, is independent of Parliament. The President introduces government bills to Parliament and ratifies laws, while also serving as the Commander-in-Chief of the Defence Forces. The unicameral Finnish Parliament (Eduskunta), with 200 members elected every four years, holds legislative authority, approves the state budget, monitors the government, and oversees administration. A government must have the

majority support of Parliament to be formed. The government, composed of the Prime Minister and approximately 20 ministers, administers the state through 12 ministries.

Finland's administrative structure is divided into three levels of government: national, regional, and local (municipal). The country is divided into 19 regions, each managed by a Regional Council, which consists of representatives from municipalities within the region. These councils are not directly elected by the public but are appointed through municipal councils, reflecting regional political preferences. Different regional authorities handle planning, development, and services like healthcare and public transport, but they cannot levy taxes and rely on state grants and municipal contributions for funding.

Central government agencies such as the Regional State Administrative Agencies (AVI) and the Centres for Economic Development, Transport, and the Environment (ELY Centres) operate at the regional level to enforce national policies. These agencies are not elected bodies and are funded by the national government.

At the local level, Finland has 309 municipalities, 108 of which are cities or towns. Municipalities, governed by elected councils, are responsible for providing services such as education, healthcare, and infrastructure, and they have the power to impose taxes. In 2023, a reform introduced 21 "wellbeing counties" for managing public health and social care services. Each county, including Helsinki, has an elected Wellbeing County Council, funded primarily by state subsidies.

In this system, the national government sets the legal framework and allocates resources, ensuring that services are distributed uniformly across the country. The structure is designed to balance central authority with local autonomy, ensuring effective governance and citizen involvement. Despite the unitary state structure, Finland’s system emphasises decentralisation, strong local governance, and co-operative governance between regions and municipalities. This framework supports efficient service delivery and planning while allowing regions and municipalities to collaborate effectively.

Territorial reforms

Three significant ongoing administrative reforms in Finland are reshaping the governance of local and regional policy-making and the delivery of public services. These reforms aim to enhance the efficiency and adaptability of public services in response to societal changes and future challenges. The reforms are: the establishment of Wellbeing Counties, the reform of local employment services, and the restructuring of the AVI and ELY Centres, the regional government agencies.

The first reform, the creation of Wellbeing Counties, was implemented in 2023 and marks a substantial shift in Finland's public service delivery. This reform transfers the responsibility for organising social welfare and healthcare services from municipal authorities to newly established administrative entities. The Wellbeing Counties are designed to improve accessibility and ensure consistent service quality across the country. These counties manage a broad range of services, including primary and specialised healthcare, social services, and emergency care. Funding from the state ensures the equitable distribution of resources, and each county is governed by a directly elected Wellbeing County Council, responsible for decision-making and budgeting.

The second reform concerns the public employment services. Scheduled for completion in 2025, this reform transitions the responsibility for employment services from the regional level (ELY Centres) to the municipal level. Municipalities are required to form co-operation areas for employment services, with a minimum of 20 000 employees per area. This shift aims to better align employment services with local labour market needs, making them more responsive and efficient. By localising services, the reform seeks to improve job matching, support, and counselling, ultimately enhancing employment outcomes and fostering a more inclusive labour market.

The third reform addresses the structure and organisation of the AVI and ELY Centres. This reform is designed to improve the responsiveness of these agencies to regional needs, enhance service delivery, and align their functions more closely with the Finnish government's broader strategic goals. It involves improving co-ordination between the agencies to streamline administrative processes, reduce duplication, and ensure a unified approach to regional governance. The reform is implemented in phases, starting with assessments and planning (2022-2023), followed by pilot projects (2023-2024), and full implementation across all centres in 2024. The reform also involves adjusting the regional scope of these centres to reflect administrative, economic, and demographic realities, potentially reducing the number of regions they serve through consolidation.

The restructuring of the AVI and ELY Centres has territorial implications, including a reorganisation of regions to better match regional needs and optimise resource allocation. The reform aims to balance centralisation and decentralisation, ensuring that services remain standardised while allowing for regional customisation. Additionally, the reform seeks to foster greater regional co-operation, particularly in areas where regional economies or ecosystems are interconnected, which may lead to the creation of shared services or joint initiatives across regions.

Responsibilities across government levels

Finland is a unitary state with a significant transfer of responsibilities to local governments, particularly municipalities, which play a central role in governance. The regional level, while primarily a collaborative body of municipalities, is also undergoing reforms, especially with the creation of Wellbeing Counties. Despite these changes, the authority to levy taxes remains shared between the government and municipalities. Legislative power is centralised at the national level, with no legislative authority granted to lower levels of government. Regional councils, however, play a substantial role by serving municipalities and implementing regional policies. In addition, regional state agencies, such as the AVI and ELY Centres, are responsible for executing national policies at the regional level, tailored to each region's needs.

The Åland Islands are an exception to this structure, enjoying a special autonomous status with its own regional government.

At the national level, the Finnish government establishes overall policy and provides funding for regional development, with key ministries, such as the Ministry of Economic Affairs and Employment, shaping the national framework for development, infrastructure, and economic innovation. These ministries work alongside national agencies to allocate resources and implement programs supporting regional and local initiatives.

The regional level is composed of Regional Councils, which are joint municipal authorities responsible for regional planning and development. These councils create regional development plans, ensuring that local initiatives align with national goals, and facilitate collaboration among municipalities. They also co-ordinate the access to EU funds and national grants for projects that foster economic growth and infrastructure development.

The ELY Centres, which number 15 across Finland, play a key role in regional development by promoting growth, overseeing infrastructure projects, and ensuring environmental protection. They are responsible for executing national policies at the regional level, providing funding and expertise to municipalities and businesses, and aligning regional strategies with national objectives.

Similarly, the regional AVI Centres, totalling six in Finland, are responsible for implementing national policies across various sectors, including health, education, environmental protection, and rural development. They ensure that national regulations are uniformly applied at the local level, promoting legal security and equitable access to public services. AVI Centres also support local businesses, helping to drive sustainable development and economic growth while adapting national policies to local contexts.

At the local level, municipalities are the primary actors in implementing policies and projects tailored to their communities. They manage local services and infrastructure, working closely with Regional Councils to align their initiatives with regional strategies and access national support. Municipalities are responsible for a wide range of services, including education, urban planning, and environmental management.

Multilevel governance has become a key feature supporting public policy-making and service delivery throughout the country. The main functions devolved to local actors are summarised in Table 20 below.

Table 22. Regional-based functions of government bodies in Finland

Municipalities	Regional Councils	Wellbeing Counties	Regional State Agencies	
			AVI Centres	**ELY Centres**
- Healthcare (primary and secondary healthcare); - Dental services; - Social services (social welfare, child day care and services for the elderly and disabled); - Education (pre-school, primary, secondary, vocational training, adult education, library services); - Culture programming; - Sports programming; - Land use planning; - Construct and maintain local infrastructure and the municipal environment including streets, energy, water and wastewater management, and harbours; - Public transportation; - Promote local business and employment.	- Regional development. They formulate regional development strategies and implement programs in collaboration with local, national, and EU bodies to foster economic growth and social cohesion within their regions; - Land use planning. Regional Councils are responsible for spatial planning, including the preparation of regional land use plans that guide the use and development of land in a manner that is sustainable and considers both national interests and local needs; - International co-operation. They engage in international partnerships and projects to promote regional interests, share best practices, and attract investments; - Advisory role. Regional Councils act as intermediaries between local governments and the national government, providing expertise and advice on issues affecting their region.	*Health services* primary health care specialised medical care *Social services* social welfare services for children, young people and families mental health services substance abuse services services for the disabled pupil welfare *Rescue services* In addition, the wellbeing counties are responsible for social welfare and health care centres, hospitals and rescue departments.	- Public safety and health, supervision of healthcare and social services, occupational safety and health; - Education and culture, oversight of educational institutions, cultural services; - Environmental protection, environmental permits and inspections, water and land use management; - Consumer protection and market supervision, consumer rights Enforcement, market surveillance; - Licensing and regulation, issuing licences, making sure everyone's following the rules; - Civil protection and emergency preparedness, organising the emergency response, sharing information with the public; - Administrative appeals and disputes, dealing with appeals; - Supporting regional governance, working with municipalities and other agencies.	- Financing and development services for enterprises, employment-based aid and labour market training, handling of agricultural and fishery issues, management of immigration issues and work with EU Structural Funds projects; - Vocational education, library services, sports and fitness services, and projects involving the education system and youth services; - Road maintenance, road projects, transport permits, traffic safety, public transport and island traffic; - Environmental protection, guidance on the use of land and construction, nature protection, environmental monitoring, and use and management of water resources.

Source: Own elaboration on various official Finnish government sources

Strategic planning

Finland's strategic planning for regional development follows a multi-level governance approach, involving national, regional, and local governments to address regional needs and opportunities. This approach fosters co-operation and ensures that regional development strategies align with national goals while being tailored to local conditions. Key instruments for regional development include the Regional Development Guidelines 2040, the Government Decision on Regional Development, and individual regional development strategies.

The Regional Development Guidelines 2040, prepared by the Ministry of Economic Affairs and Employment with broad stakeholder input, focus on long-term regional development issues. These guidelines highlight three key themes: regional and demographic trends, the transition to a sustainable economy, and the importance of high-quality expertise and education. Climate change, biodiversity loss, flexibility, digitalisation, networks, and security are considered cross-cutting issues that must be integrated into regional development strategies.

The Government Decision on Regional Development sets the national priorities for each government term, guiding the actions of administrative branches, regional councils, and municipalities. The Ministry of Economic Affairs and Employment is responsible for preparing this decision in collaboration with other ministries and regional stakeholders. The current decision, valid from 2024 to 2027, focuses on three main areas: sustainable vitality and investment, healthy populations and communities, and attractive living environments. Cross-cutting themes such as comprehensive security, international orientation, and regional accessibility are emphasised as essential to achieving these priorities.

At the regional level, the regional development strategies align with these national guidelines but are designed to address specific regional challenges. These strategies are developed through inclusive, participatory processes. The regional development plan serves as a long-term steering document, while the regional strategic programme outlines medium-term objectives and projects, typically spanning four years. The regional councils are responsible for preparing these plans, with the support of the ELY Centres, municipalities, businesses, educational institutions, and other stakeholders. The plans are approved by regional assemblies and implemented through annual plans that include financing details and co-ordination of resources.

The Ministry of Employment and the Economy oversees the co-ordination, monitoring, and evaluation of these regional strategic programmes, working closely with regional councils, ELY Centres, and other key actors involved in regional development.

With reference to the NSPA of Finland, Table 21 provides an overview of the regional development strategies currently in place, highlighting the main priorities outlined in the respective strategic documents. The priorities presented in the table are a synthesis of findings derived from the OECD team's site visits, a cross-analysis of various documents, and a review of relevant official websites.

Table 23. Regional Development Strategies of Finnish NSPA

Region (TL3)	Regional Development Strategy Key documents	Main priorities
Kainuu	Kainuu Regional Plan 2040 Kainuu Regional Programme 2022–2025	Vision 2040: *Kainuu – Kainuu is all about freedom and possibilities for a meaningful life close to nature, attracting positive net migration as well as multilocational inhabitants* Priorities: Wellfare and employment, Livelyhoods and know-how,

		Accessibility and regional structure, Green and just transition.[26]
North Karelia	Development Strategy 2040 North Karelia Plan 2040 Regional strategic programme "POKAT 2025"	*Economic competitiveness and innovation*. Fostering more competitive and international businesses, enhancing the operating environment, and leveraging the region's unique strengths; *Human capital development*. Promoting continuous learning and addressing demographic challenges, such as the ageing population, by ensuring the availability of skilled labour; *Social inclusion and welfare*. Enhancing health, well-being, and social services, preventing marginalisation, and ensuring comprehensive community participation; *Environmental sustainability*. Supporting climate resilience, sustainable development, biodiversity preservation, and the green transition.[27]
Pohjois-Savo	Regional plan 2040 Regional programme 2022–2025	*Backbone of the Economy:* Machine and energy technology; Forest Industry; Food production. *Emerging Areas:* Health technology; Intelligent water systems; Biorefining. *Under tapped opportunity:* Tourism industry.[28]
South Savo	Regional Strategic Plan 2030 Regional Programme 2022-2025	*Forest.* Forest growth in South Savo region is 9 million cubic meters per year. Forestry and wood processing is the largest business sector in the area. The forests are perfect for outdoor leisure activities and South Savo is among Finland's topmost holiday areas; *Water.* The lakes in South-Savo are the cleanest in the world. Our high-tech water technologies provide extensive business opportunities. The beautiful nature around Lake Saimaa attract movers from everywhere; *Food.* South Savo nature grows the best and purest tastes. To prepare excellent dishes, we use local ingredients that are produced by regional farmers. Our food expertise is high grade business.[29]
Central Ostrobothnia	Regional Strategy 2040 Regional programme 2022–2025 Growth programme 2024–2025	*Preconditions for sustainable growth, well-being and vitality:* *A carbon-neutral region;* *Acceleration through the Smart Specialisation strategy to develop into a leading region of bio, hydrogen and circular economy, with high-value products and emissions-free energy systems;* *Digitalisation of the public and private sectors with accessibility to all residents of the region;* *A high-quality education system, high employment rate, availability of workforce and competence, continuous learning, customer-oriented employment services and labour immigration to support the private and public sector;* Well-being and inclusion; An attractive, high-quality living and cultural environment.[30]
Northern Ostrobothnia	Regional Strategic Plan 2040 Regional Programme 2022-2025	Mitigating climate change and safeguarding biodiversity; Building sustainable communities with good connections; Innovating business life and accelerating RDI; Making skills and education a resource for regional development; Increasing inclusion and wellbeing and preventing inequality.[31]
Lapland	Regional Strategic Programme 2022-2025	Sustainable growth of the Arctic economy and industry through renewal; *Managing the challenges of population development and workforce adequacy;* *Developing expertise to respond to rapid changes in the operating environment;* *Quality of living environment, well-being, and basic services as essential elements of a good life;* *Mitigating climate change and preserving biodiversity;* Good accessibility as an enabler of competitiveness and growth;

		Ensuring the vitality of Sámi culture.[32]

Source: Own elaborationon various official Finnish government sources

EU cohesion programming

In Finland, as in Sweden, European Union funds for cohesion and regional development are a significant component of regional development policy. These funds, known as the European Structural Funds, were created to reduce disparities between regions and address the backwardness of less-favoured areas, a goal established in the Treaty of Rome. Over half of the EU budget is distributed through these funds, which are managed jointly by the European Commission and the governments of EU Member States. Their main goal is to promote employment, investment, and the development of a sustainable European economy and environment.

For the 2021-2027 programming period, several EU funds are relevant to Finland's National Strategic Planning Area . These include the European Regional Development Fund (ERDF), which aims to strengthen economic, social, and territorial cohesion by addressing regional imbalances and fostering smarter, environmentally-friendly, and inclusive investments; the European Social Fund Plus (ESF+), which supports human capital development and the European Pillar of Social Rights; and the Just Transition Fund (JTF), which helps regions transition towards climate neutrality while preventing exacerbating regional inequalities.

In addition, there are two EU funding sources not directly part of the cohesion policy but highly relevant to regional development. These are the European Agricultural Fund for Rural Development (EAFRD), which supports rural development under the Common Agricultural Policy (CAP), and the European Maritime, Fisheries and Aquaculture Fund (EMFAF), which focuses on supporting sustainable aquatic and maritime industries.

The Structural Funds primarily target areas such as research and innovation, digital technology, low-carbon economies, sustainable management of natural resources, and small businesses. Their implementation in Finland is guided by the Partnership Agreement, which outlines the objectives, resources, and programmes for cohesion policy, and runs through the 2021-2027 period.

EU Partnership Agreement with Finland (2021-2027)

The EU Partnership Agreement with Finland for 2021-2027 is a strategic document detailing the use of around 2 billion euros from European Structural Funds. It focuses on economic, social, and territorial cohesion, with a particular emphasis on green and digital transitions. The Agreement aligns with EU priorities, including the European Green Deal.

Key investment focuses in the Partnership Agreement include:

- Innovation and competitiveness: Approximately €523 million allocated for R&D and innovation to stimulate SMEs and digital transformation.
- Green transition: 40% of investments (funded by ERDF) are dedicated to energy efficiency, climate change adaptation, and resource efficiency, particularly addressing the environmental impacts of reduced peat production.
- Social cohesion: €580 million from ESF+ to enhance skills, employment adaptability, and social inclusion, especially for marginalised groups.
- Resilient fisheries: EMFAF supports innovation and adaptation within the fisheries and aquaculture sectors, including the continuation of Fisheries Local Action Groups (FLAGs).

Regional development Programmes under EU Cohesion

The Partnership Agreement is implemented through two main programmes:

- Innovation and Skills in Finland 2021–2027: Covers all of continental Finland and is funded by ERDF, ESF+, and JTF.
- Åland Structural Funds Programme 2021–2027: Focuses on regional and cohesion action in the Åland Islands.

The Innovation and Skills in Finland programme is the one most relevant for the Finnish NSPA and has the largest share of EU funding. The programme addresses priorities such as R&D, sustainable mobility, energy efficiency, youth employment, and reducing material deprivation. It is structured around seven action lines, including:

- Innovative Finland. Promotes regional business research and innovation, enhancing SME growth and digitalisation (funded by ERDF).
- Carbon-neutral Finland. Supports energy efficiency and climate change adaptation (funded by ERDF).
- More accessible Finland. Develops transport infrastructure in sparsely populated regions (funded by ERDF).
- An employable, competent, and inclusive Finland. Focuses on employment, skills development, and lifelong learning (funded by ESF+).
- Finland of Social Innovation. Aims to improve the welfare of children and young people in child welfare services (funded by ESF+).
- Finland addressing material deprivation. Provides support for vulnerable groups through food and basic material assistance (funded by ESF+).
- Just Transition Finland. Facilitates a regional transition away from peat production, diversifying livelihoods and mitigating negative environmental impacts (funded by JTF).

The programme’s budget totals €3.159 billion, with €1.935 billion from EU sources and €1.224 billion in national co-financing. Funding is distributed by Regional Councils, ELY Centres, and the Finnish Food Authority, following geographical allocations in regions such as Southern, Eastern, Western, and Northern Finland.

Rural development and LEADER

Rural development plays a central role in Finland's regional development strategy, especially within the NSPA, which mostly comprises remote rural areas. The European Agricultural Fund for Rural Development (EAFRD), part of the Common Agricultural Policy (CAP), supports rural sustainability by addressing economic, environmental, and social challenges in these areas.

The LEADER approach, supported by the EAFRD, is crucial for rural development in Finland. LEADER encourages local actors to develop strategies for their regions, fostering collaboration across public, private, and non-profit sectors. Local Action Groups (LAGs), representing these sectors, implement local development strategies that promote competitiveness, business growth, and employment opportunities in rural areas. Since its inception, LEADER has been used across Europe, establishing over 2,800 LAGs and benefiting 170 million rural inhabitants, about 62% of Europe’s rural population.

In Finland, entrepreneurship based in rural areas is supported through business start-up and business development schemes under the CAP Plan, as well as co-operation measures including LEADER. Moreover, the Plan facilitates investment in rural businesses. With CAP support, Finland's 55 Local Action Groups (LAGs) span 95% of rural areas, with the objective of encompassing 100% of the rural population

under the new Plan, relying on a budget of about 100 million Euro allocated to the purpose.[33] Of these, 22 Local Action Groups are situated within the NSPA, covering all the regions.

Resources for regional development

Finland's territorial structure for distributing financial resources ensures that funding aligns with the responsibilities and needs of different government levels, promoting equitable service provision across the country. The system combines centralised funding mechanisms with compensatory measures to address interregional disparities, alongside considerable local fiscal autonomy. This approach allows tailored development and service provision at the regional and municipal levels.

The primary sources of funding for regional and local development in Finland are drawn from three levels: the European Union, national funding programmes, and regional and local initiatives, with the latter largely based on local tax revenues.

European funds

Finland manages EU funds at the regional level through a collaborative model involving the national government and local authorities, including Regional Councils and ELY Centres. This system ensures alignment with EU and national cohesion policy objectives. Strategic priorities are set by the government in co-ordination with the EU, and Regional Councils oversee the planning, distribution, and monitoring of ERDF and JTF funds to promote regional prosperity and social cohesion. Local stakeholders such as businesses, educational institutions, and NGOs are actively involved in the planning process.

The central reference programme is the Innovation and Skills in Finland 2021–2027 programme, which covers a wide range of areas including business, energy, climate, innovation, education, and employment. This programme is supported by the ERDF, ESF+, and JTF funds, and is managed by the Ministry of Economic Affairs and Employment. The funds are distributed at the regional level via public calls for proposals that align with each region's specific strategies and needs.

The ERDF focuses on advancing research and innovation, digitisation, and supporting green transition efforts like energy efficiency and climate change adaptation. The ESF+ funds social cohesion initiatives, focusing on employment access, lifelong learning, and addressing material deprivation. The JTF is targeted at regions heavily dependent on carbon-intensive industries, particularly benefiting areas like North Ostrobothnia, North Karelia, and Kainuu.

In total, the allocation of EU funds for regional development in mainland Finland for 2021–2027 period amounts to approximately €3.159 billion, with €1.935 billion coming from EU sources, as already reported. Of this the ERDF accounts for 47% , followed by 32% from ESF+, and 21% from the JTF.

National resources

At the national level, Finland’s government plays a key role in the distribution of resources through grants, subsidies, and transfers. These funds help reduce fiscal disparities between municipalities and ensure a standard level of public services, such as education, healthcare, and social services. Transfers are calculated based on factors like population size and demographic needs to promote balanced regional development.

Key national bodies involved in funding distribution include ELY Centres, which support regional projects focused on business development, labour, and environmental sustainability, and Business Finland, which offers funding for research and innovation to enhance Finnish industries' competitiveness.

[33] Source: Source: “Finland’s CAP Strategic Plan at a Glance” [https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans_en]

Regional and municipality budgets

At the regional and local levels, municipalities have significant fiscal autonomy. They can impose taxes and manage their finances, which are primarily used to fund basic public services. Revenue sources for local governments include income taxes, corporation taxes, real estate taxes, service charges, and central government transfers.

The central government provides legislative guidance and allocates financial resources to local authorities. It also determines the tax bases and central government transfers to municipalities. Local governments develop budgets and financial plans that typically span at least three years, with the focus on ensuring financial balance. Municipalities may create corporate entities, such as companies or co-operatives, to carry out local functions, guided by the municipal council's strategic objectives.

Local authorities are also involved in industrial policy measures, which are not mandatory but may be adopted to promote municipal vitality. The financial stability of municipalities is assessed using indicators such as annual surpluses and cash flow from operations and investments.

Capability for better public governance across the levels of government

In Finland, the Association of Finnish Local and Regional Authorities (AFLRA) plays a central role in building the capacity of local and regional officials. Similar to other Nordic and European associations, AFLRA advocates for Finnish municipalities and local governments, focusing on local self-government and the modernisation of municipal services. A key part of AFLRA's approach is continuous training and capacity building, which is essential for enabling municipalities and regions to manage their responsibilities effectively, deliver quality services, and adapt to changing societal needs. AFLRA supports municipalities through a range of initiatives, including training, research and development, networking, and advocacy.

Finnish academic institutions, such as the University of Eastern Finland, also contribute to capacity building efforts by promoting continuous learning and the development of public sector employees and working communities.

Additionally, local authorities in Finland's Nordic-South Baltic Area (NSPA), along with other NSPA regions, benefit from capacity building initiatives funded by the Nordic Council of Ministers. One notable example is the Nordic-Baltic Public Administration Mobility Programme, which focuses on knowledge exchange, best practices, and the development of networks among Nordic civil servants. This programme also works towards harmonising working standards.

The European Union offers similar opportunities through its Civil Servant Exchange Programme (CSEP), which facilitates exchanges, internships, and networking to promote capacity building and the sharing of best practices.

In conclusion, capacity development in Finland's local government sector is driven by a collaborative and continuous effort involving individual municipalities, organised groups like AFLRA, academic institutions, and international initiatives aimed at enhancing public sector governance and strengthening local authorities.

Multilevel governance in Norway

Institutional context

Norway is a parliamentary democracy and constitutional monarchy, known as the Kingdom of Norway, with a division of power among three branches: the legislative (Storting), the executive (Government), and the judiciary (Courts). The King is the head of state, but in practice, the Prime Minister exercises executive

power with the support of the Storting. The Prime Minister appoints the cabinet, which is assisted by ministries that manage government sectors. Norway's governance operates across three levels: national, regional, and local. As of 2024, Norway has 15 regions (fylke) and 356 municipalities (kommuner), with Oslo functioning as both a municipality and a county authority. Local governments are led by elected councils, with mayors and county mayors overseeing local and regional administration. County Governors, appointed by the King, represent the central government at the local level.

Norwegian citizen participation is promoted through electoral systems that guarantee proportional representation. The Ministry of Local Government and Regional Development oversees participation mechanisms, including public consultations, town halls, and access to government information, reinforcing transparency and democratic engagement.

Territorial reforms

Norway has undergone significant regional and local reforms aimed at improving governance efficiency and sustainability. In 2014, the municipal reform led to the merger of many municipalities, reducing their number from 428 to 356 by 2020, with the aim of improving service delivery, financial stability, and local democracy. In parallel, the regional reform, passed in 2016, aimed to strengthen counties as community developers by transferring certain responsibilities from the national government. This reform reduced the number of counties from 19 to 11, implemented in 2020. The region of Troms og Finnmark was formed from the merger of Troms and Finnmark counties, but faced significant opposition, leading to a split back into two counties in January 2024.

Further, in 2023, the government introduced a white paper outlining a long-term vision for regional and rural policy. Key priorities include giving municipalities more autonomy for planning, enhancing co-operation between municipalities, improving local services, and strengthening infrastructure. The paper also focuses on sustainable business development, including support for agriculture and tourism in northern Norway, and promoting educational opportunities. The policy aims to foster balanced development across Norway, with special emphasis on northern areas, including Sámi communities, and addressing challenges such as the impact of Russia's war in Ukraine and the region's need for skilled labour.

Responsibilities across government levels

Norway's administrative reforms have shifted responsibilities to local governments, particularly counties and municipalities, which are directly elected. Municipalities have significant autonomy in managing local services, including welfare, infrastructure, and regulatory functions. They primarily fund these activities through taxes. Counties manage regional tasks that require co-ordination beyond municipal borders but are not handled by the national government. Although counties can levy some taxes, their budgets depend heavily on transfers from the central government. This multi-tiered governance system ensures co-ordination and local autonomy across various administrative levels.

Table 22 shows how the main functions and responsibilities are shared between counties and municipalities.

Table 24. Responsibilities devolved to the regions and the municipalities in Norway

Responsibilities	Municipality	County
Mandatory	Municipalities are responsible for local services and infrastructure, including: *Education and Childcare* Primary and Lower Secondary Education Kindergartens	The primary role of counties is to manage regional tasks that require co-ordination beyond the municipal level but are not handled directly by the national government. *Education*

	Health and Social Services Primary Healthcare Elderly Care Social Services (Support for individuals and families in need, including financial assistance, housing support, and services for people with disabilities) Child Welfare Services *Public Utilities and Infrastructure* Water Supply and Sewage Local Roads and Transport Waste Management *Planning and Building Regulation* Local Planning Building Permits *Culture and Recreation* Cultural Services Recreational Facilities *Environmental Protection* Local Environmental Management *Public Safety and Emergency Services* Fire Services Civil Protection	Upper Secondary Education Adult Education *Public Transportation* Regional Transport Planning Infrastructure Maintenance *Economic Development and Planning* Regional Development Land Use and Planning *Culture and Cultural Heritage* Cultural Promotion Cultural Heritage Management *Health Services* Dental Services Public Health Initiatives *Environmental Protection* Environmental Management Conservation Efforts
Additional	Economic Development Housing Immigration and Integration	Regional Collaboration: Facilitating co-operation between municipalities within the county Civil Protection and Emergency Planning Social Services (disability support and regional welfare programmes)
Shared	Counties and municipalities often collaborate on projects that cross administrative boundaries, especially in transportation and regional planning	

Source: Own elaboration

Strategic planning process

Norway's regional development is governed by national laws aimed at ensuring balanced growth, sustainable development, and social equity across regions. Two key acts frame this process: the Local Government Act (2018), which defines the roles and powers of municipalities and counties, ensuring local autonomy and fostering regional development, and the Planning and Building Act (2008), which regulates spatial planning and requires municipalities and counties to create comprehensive plans in line with national goals. Over the last decade, significant reforms have strengthened the participatory nature of the land use planning system. A 2014-2018 evaluation of the Planning and Building Act led to changes that promote more inclusive, knowledge-based planning with an emphasis on environmental concerns.

The National Expectations for Regional and Municipal Planning (2023-2027) document outlines the national framework for planning, emphasising co-ordination and collaboration, inclusive planning, welfare, sustainability, and climate goals. This includes objectives such as fostering vibrant communities, promoting green industries, and ensuring climate and environmental sustainability. The regional planning system consists of three core elements: the regional planning strategy, the regional plan, and the regional planning determination. These are adopted by the County Council and guide both regional and municipal planning. Table 23 outlines the regional development strategies of Finnmark, Nordland and Troms.

Table 25. Regional Development Strategies of the Norwegian NSPA

Region (TL3)	Regional Development Strategy Key documents	Main priorities

Finnmark	Development Plan for Finnmark 2024-2028	The status of Finnmark as a county is currently being reinstated, with the new status set to take effect on 1 January 2024. It is anticipated that the new plan will be adopted by December 2024. The regional planning strategy for Finnmark was approved by the Troms og Finnmark County Council in March 2023. The plan is guided by the following principles: The development plan determines which regional plans and other plans and strategy documents will be drafted in the coming years. The development plan will set the strategic direction for community development in Finnmark, outlining long-term goals and strategies. The development plan will facilitate co-ordination among public sector entities in Finnmark. It will be created through a collaborative process involving municipalities, state organisations, institutions, organisations and other stakeholders affected by the planning work. The development plan aligns with national goals, guidelines and expectations.[34] The previous strategy covered both Finnmark and Troms. For details, please see the next point about Troms.
Troms	Regional planning strategy for Troms and Finnmark 2021-2024 | *Se nord - Geahca davás - Katto pohjaisheen* County plan for Troms 2014 - 2025	As of 1 January 2020, the former counties of Troms and Finnmark were amalgamated into a single county. The strategy, which was prepared at the time, covers the entire territory. With regard to the new counties, which came into effect on 1 January 2024, their strategies are currently being prepared. The Regional Strategy for Troms and Finnmark 2021-2024 has been designed to align with 3 long-term development goals (towards 2032): The region's opportunities must be seen and developed from a northern perspective, based on the region's advantages, diversity, business and working life, innovation, infrastructure and sustainability. The objective is to establish Troms and Finnmark as a region that fosters collaboration, knowledge sharing and expertise. This should provide a solid foundation for future development and growth. Troms and Finnmark will serve as the focal point for the development of the Nordic region and its relationship with Russia. This will include a focus on the development of the Sámi and Swedish language, culture and community life. The strategy builds on these goals with 4 areas of focus and one investment area: Climate change Equalisation of social inequalities and reduced alienation Mobility Site development Investment area: a region with strong growth potential. Prior to the 2020 merger, Troms had already elaborated and approved its Troms County Plan for 2014-2025. The main themes of such a plan were: - The northern areas - Industry and competence - Centre strategy - Public health[35]
Nordland	County plan for Nordland 2013-2025	The county plan provides a comprehensive framework for the overall development of Nordland. The Nordland county plan has three target areas, each with a set of corresponding goals. Quality of life Ensure that all residents of Nordland have the opportunity to develop their abilities, skills and interests. Provide residents of Nordland with good living conditions. Viable local communities and regions Regional centres must act as drivers for growth in viable regions

		Nordland must offer attractive and functional local communities and regions Nordland's population must have access to flexible and robust educational offerings. Value creation and competence Increased competence and research and development activity (R&D) Nordland must have a sufficient and competent workforce Nordland must have a competitive, innovative and sustainable working and business life. The three target areas embrace a wide range of subjects, sectors, interests and opportunities. Goals, strategies and measures have been drawn up for each target area. The measures are collated in the action programme of the plan, which must be implemented on an annual basis. The action programme (Development programme Nordland) identifies the responsible parties and collaboration partners.[36]

Source: Own elaborationon various official Norwegian government sources

Successful planning is underpinned by intergovernmental co-operation, ensuring that national policies are adapted to local and regional contexts. The Ministry of Local Government and Regional Development plays a central role in these efforts, supporting regional development to achieve balanced growth and sustainable living conditions.

The regional planning process in Norway is supported by various horizontal co-operative initiatives between public agencies and administrative bodies. One example is the Regionvekstavtalen (Regional Growth Agreements), which fosters dialogue and co-ordination between regions on key community development issues, based on a unified knowledge base. Another significant initiative is the Arktisk Jernbaneforum (Arctic Railway Forum), aimed at building a railway connecting Troms and Finnmark, involving stakeholders from local governments, academia, and industry. Additionally, Klimapartnere Troms og Finnmark was a collaborative network focusing on climate and sustainability issues, although it has since been discontinued following the demerger of Troms and Finnmark.

The Forsvarsforumet (Defence Forum) represents another example of regional co-operation, where local governments and military representatives collaborate on defence-related matters. These initiatives demonstrate the importance of collaboration across local, regional, and national levels to address regional challenges and promote sustainable growth. However, such co-operation often faces challenges, including limited resources, geographical distances, and conflicting stakeholder interests, which require ongoing efforts to ensure successful participation and alignment with regional development goals.

In summary, these co-operative mechanisms aim to enhance regional governance by sharing resources, aligning policies, and promoting sustainable development through active participation from diverse stakeholders, ensuring that regional strategies are tailored to the specific needs of local communities.

European projects and synergies

Although Norway is not a member of the European Union, it maintains close economic and political relations with the EU, primarily through its participation in the European Free Trade Association (EFTA) and the European Economic Area (EEA). Norway’s affiliation with the EEA, formalised in 1994, extends the EU’s single market to EFTA member states, except for Switzerland. The EEA includes 27 EU member states and three EFTA members: Iceland, Liechtenstein, and Norway.

Norway engages with the EU through a range of EEA institutions, such as the EEA Council, Joint Committee, and Parliamentary Committee. While the EEA Agreement covers most policy areas, it excludes certain EU policies, such as those related to agriculture, fisheries, customs, foreign policy, and monetary

union. As part of the agreement, Norway adopts a significant number of EU directives and regulations and actively participates in various EU initiatives, including the Schengen Agreement, which facilitates the free movement of people between Norway and the EU.

Through its membership in the EEA, Norway is involved in 11 EU programmes and 32 EU agencies, contributing financially to these programmes as well as to initiatives aimed at reducing economic and social disparities within the EU, such as the EEA and Norway Grants.

Several EU programmes in which Norway participates have direct implications for regional development, making this an area of particular interest for Norway's Nordic regions. Notably, Norway engages in programmes like Horizon Europe, Erasmus+, Creative Europe, and the EU's Employment and Social Innovation (EaSI) under the European Social Fund Plus (ESF+). Additionally, Norway is adopting the Smart Specialisation Strategy (S3), a bottom-up policy approach for regional innovation, with Nordland County's innovation strategy serving as an example of this EU-driven approach.

The Horizon Troms and Finnmark regional EU network is another example of regional engagement. This network plays a key role in mobilising regional actors and clusters to participate in Horizon Europe, facilitating co-operation between research institutions, innovation bodies, and the private sector. Lastly, Norway's Nordic regions are also involved in cross-border and transnational co-operation through the EU's Interreg programmes, supporting local partnerships across Norwegian, Swedish, and Finnish borders, further fostering regional development and collaboration.

Resources for regional development

Norway's fiscal system is structured to allow the national government, regional county councils, and municipalities to levy taxes, with a high degree of integration across these levels. The system is regulated at the national level by the Storting, which sets annual ceilings in the National Budget. In 2023, out of a total tax revenue of NOK 2,105 billion, over 87% is allocated to the central government, 11% to local governments, and 2% to regional ones. The revenues of counties and municipalities are generated from taxes they levy and funds allocated by the national fiscal budget, which includes a territorial equalisation mechanism to ensure equal access to public services.

The income system is responsible for distributing discretionary income to municipalities and county councils. This system consists of "free income," which includes both framework grants and tax revenues, and represents approximately 70% of municipal income. The system incorporates equalisation mechanisms to balance regional disparities: expenditure equalisation addresses involuntary cost differences, while income equalisation adjusts tax revenue disparities. However, local financial autonomy is limited, as decisions on user fees, such as the government's free ferry policy, can directly impact regional revenues.

The proposed revisions to the income systems have sparked debates, particularly over the perceived benefits to urban areas, like Oslo, while potentially disadvantaging rural areas such as Nordland and Troms.

National resources

The central government significantly influences regional fiscal health through grants, which are based on population size and demographic factors. These grants are redistributed among regions to ensure financial equilibrium, allowing all areas to provide similar levels of public services. The national equalisation system (Inntektssystemet) transfers income from wealthier municipalities to those with fewer resources to guarantee equal access to public services. Redistribution is based on factors like age distribution, socioeconomic characteristics, and geography.

The government also directly finances initiatives supporting counties and municipalities. Notable examples from the 2023 White Paper on regional and rural development include rural housing policy, with increased funding for housing initiatives, and healthcare collaboration between municipalities and hospitals, supported by a NOK 920 million allocation. In 2023, NOK 3 billion was allocated for maintaining county roads and transport infrastructure.

Regional resources

At the regional level, county councils operate under a decentralised budgeting framework, focusing on indicators like net results, fund grade, and debt ratio to determine resource allocation. Significant resources are dedicated to public transportation, including bus, boat, and ferry services, as well as the maintenance of county roads and investments in education.

The county budget is largely funded by framework grants, taxes, state refunds, and user fees such as dental health contributions and transport ticket revenues. For example, in Finnmark, 99% of the county's budget comes from transfers from the central government, including grants and tax redistribution. These funds are allocated by the county council according to regional planning strategies and may be supplemented by EU programme funding, such as from Interreg. However, counties face challenges in managing these funds, including limited time, capital for matching funds, and administrative burdens.

While counties have flexibility in resource allocation, they are bound by national standards to ensure equitable service delivery across municipalities. Financial controls are minimal as long as budgets are balanced and counties are not under financial distress oversight (ROBEK).

Municipal resources

Municipalities' tax revenues are also equalised at the national level through income equalisation. Municipalities derive income from personal income and wealth taxes, as well as taxes on power companies. Since 2005, Norway has implemented a system of symmetrical income equalisation, where municipalities with lower tax revenues per capita are compensated for the difference, while those with higher revenues are subject to a deduction. Currently, the system provides 60% compensation for discrepancies in tax revenue, and municipalities with tax revenues below 90% of the national average receive additional compensation. This system ensures that municipalities with lower tax income can still provide comparable services, with supplementary compensation financed by deductions from higher-revenue municipalities.

Capability for better public governance across the levels of government

Improving skills and abilities is a central element of Norwegian working life, particularly within the public administration, defence, and social security sectors. According to Statistics Norway, these sectors see the highest participation in non-formal learning, with 52% of employees attending courses and conferences in the past year. Non-formal courses and formal lifelong learning are the primary methods used to train local civil servants in Norway. These courses are often organised by municipalities themselves, sometimes in collaboration with other municipalities, county councils, or county governors.

The Norwegian Association of Local and Regional Authorities (KS) plays a significant role in enhancing the capacity of public officials. KS's development initiatives are designed around the needs of local authorities and focus on areas such as community development, innovation, service quality, efficiency improvements, and the growth of local democracies. KS's work is strongly shaped by EU and EEA policies, with its Brussels office offering services and expertise in these areas, as well as co-ordinating co-operation with European sister associations and other international organisations. Norwegian municipalities also participate in international programs like the Nordic-Baltic Public Administration Mobility Programme organised by the Nordic Council of Ministers.

Much of KS's capacity-building efforts are structured through networks and meetings where members with similar challenges can share experiences and knowledge. KS also serves as the secretariat for several clusters that bring together political and administrative leaders. Skills development for local decision-makers occurs through seminars, conferences, and webinars organised within the County Council. These activities aim to improve the skills of local politicians and municipal administrators.

Additionally, the county provides support to enhance planning competence by offering guidance, creating networks for new planners, and making resources like online platforms for sharing knowledge and statistics available. There is also a focus on strengthening regional development competence through collaboration with state administration and involvement in research projects. Civil servants are encouraged to participate in retraining programs and engage in networks that focus on public health, local community development, and environmental management.

Multilevel governance in Sweden

Institutional context

Sweden operates as a constitutional monarchy with a parliamentary system. The Parliament (Riksdag), elected every four years, is responsible for passing laws. Executive power resides with the Government, which is accountable to Parliament. The Government is supported by the Government Offices, consisting of ministries and approximately 400 central government agencies. These agencies function independently according to laws and regulations, without intervention from the relevant ministry. Some administrative tasks may be delegated to regional or local authorities or private entities.

At the regional and local levels, Sweden is divided into 21 counties and 290 municipalities. Four of these counties are part of the NSPA, covering 44 municipalities. There are two types of municipal organisations: primary municipalities (the municipalities) and regional municipalities (the Regions). The Regions operate within the boundaries of counties and are governed by regionally elected representatives.

The Region, formerly known as the County Council until the 2019 reform, is a political entity chosen by the county's inhabitants. The Regional Assembly appoints representatives to its board, directorates, and committees, which handle delegated mandates and responsibilities. Similarly, each municipality has an elected assembly responsible for appointing the Municipal Council, which manages local affairs. Both the Regions and municipalities operate independently, with no hierarchical relationship between them, as Sweden is not a federal state.

Additionally, each county has a County Administrative Board (CAB), which dates back to 1634, making it Sweden’s oldest institution. The CAB implements national policy objectives for the region and manages specific regional tasks. It is led by a county governor and operates as a government agency co-ordinating regional agencies.

Territorial reforms

A regional reform process to establish Regions in Sweden has been discussed for nearly three decades, partly due to Sweden’s EU accession in 1995. As of January 1, 2019, county councils were restructured into Regions, typically corresponding to one county, though exceptions exist. The reform granted the Regions additional responsibilities in regional development.

The 2019 reform was enacted through the Act on Regional Development Responsibility (2010:630), alongside several important legal frameworks:

- The Local Government Act (Kommunallag, 2017:725): This updated law outlines the organisation and powers of municipalities and regions, including the creation of Regional Councils.

- The Health and Medical Care Act (Hälso- och sjukvårdslag, 2017:30): This act transferred more healthcare responsibilities to the newly formed regions to enhance service co-ordination.
- The Act on Regional Development Responsibility (Lag om regionalt utvecklingsansvar, 2010:630): This law expanded the regions' role in economic development, infrastructure, and public transport.
- The Public Transport Act (Lag om kollektivtrafik, 2010:1065): This legislation enables local authorities, including Regions and municipalities, to jointly manage and organise public transport services.
- The Administrative Procedure Act (Förvaltningslag, 2017:900): Though not specifically focused on the regional reform, this act establishes administrative procedures for public authorities, including regional bodies.

These laws and amendments laid the legal foundation for the 2019 regional reform, which was a continuation of a process that began with pilot regions in 1999. Prior to the reform, services like healthcare and public transportation had already been devolved to the regions under the County Councils.

Responsibilities across government levels

As a result of the Swedish government's reforms, municipalities and regions are assigned distinct responsibilities. Municipalities handle a broad range of local services and welfare programs, while regions focus primarily on public health services and regional development, with public health services accounting for approximately 90% of regional expenditures. Public transport responsibilities are typically shared between the Region and the municipalities within a county, unless otherwise specified.

The Local Government Act allows municipalities and regions to take on additional responsibilities that fall within their jurisdiction, provided these tasks are not reserved for the state or another municipality or region. This means the range of responsibilities is flexible and can adapt to the specific needs and priorities of each region or municipality.

Municipalities and regions have the authority to levy taxes, and their operations are primarily financed through these taxes, as well as fees and state subsidies. The national government provides various grants, such as those allocated through the Structural Funds, which support regional development, particularly in sparsely populated areas and in the development of essential public infrastructure.

Municipalities bear significant responsibility for public services, including environmental and health protection, and are required to fulfil these duties uniformly across all municipalities, regardless of their size or population. While municipalities enjoy autonomy in managing and financing services, their powers are often limited, especially for smaller municipalities in rural areas, which face greater financial challenges in meeting legal obligations. The Local Government Act provides the legal framework for the operation of both municipalities and regions.

In contrast, the County Administrative Boards (CAB) function as knowledge-based government agencies with a broad range of responsibilities that involve cross-sectoral issues. These areas include food controls, animal welfare, rural development, infrastructure planning, sustainable community planning, climate and energy, cultural heritage, disaster preparedness, nature conservation, and social integration, among others. While the CAB contributes to regional growth, its role is mainly supportive and analytical, providing expertise to assist the regions.

Table 24 provides a more detailed insight into the responsibilities devolved to local authorities in Sweden.

Table 26. Responsibilities devolved to the regions and the municipalities in Sweden

Responsibilities	Municipality	Region
Mandatory	Social care (elderly and disabled care as well as	Healthcare, including ambulance services

	individual and family care) Pre-school, primary and secondary school and municipal adult education (*komvux*) Plan and construction issues Environmental and health protection Cleaning and waste management Water and sewer Rescue service Crisis preparedness and civil defence Library operations Residences	Dental care Regional development including transport infrastructure planning
Voluntary	Leisure and culture Energy Employment General business development	Culture Training Tourism
Shared	Regional and local public transport	

Source: Own elaboration from SKR, Sweden's Municipalities and Regions

Strategic Planning in Sweden

In Sweden, regional development is guided by key strategic frameworks. The National Strategy for Sustainable Regional Development for the Whole Country 2021-2030 sets the overall strategic direction for the nation, while each region develops its own Regional Development Strategy. This regional strategy, created through an inclusive process, outlines the objectives and priorities for development from 2021 to 2027, often extending to 2030 or 2050. These strategies align with national and European cohesion policy objectives and sustainable development goals.

The national strategy identifies four key areas to address societal challenges, leverage opportunities, and promote sustainable development. These areas are equal opportunities in housing, work, and welfare; skills supply and development; innovation, entrepreneurship, and enterprise; and improved accessibility through digital communication and transport systems. The government emphasises that co-ordinated efforts across these areas will create favourable conditions for implementing regional development, rural policy, and other related policies. Both national authorities and regions are expected to play an active role in the policy's implementation.

Regional development is a mandatory task for regions, which are governed by national legislation and regulatory frameworks. To fulfil this task, regions are required to develop their own strategies, co-ordinate local efforts, and ensure collaboration between municipalities, businesses, educational institutions, and civil society. The role of the region includes developing and prioritising regional development strategies, managing regional development funds, monitoring and reporting on progress, and overseeing specific tasks related to EU Structural Funds. Additionally, regions are responsible for defining transport infrastructure plans.

The Regional Development Strategy is the main policy document for development within each county. Designed by the region's Regional Development Board, it takes into account the region's specific characteristics and challenges, aligning with the national strategy to guide the region's development. In addition to the Regional Development Strategy, each region may also develop sectoral strategy documents addressing areas such as culture, energy and climate, healthcare, skills supply, transport, digitalisation, and tourism, among others.

These regional strategies are the result of an inclusive planning process involving various stakeholders. Following the completion of the strategy, the region collaborates with municipalities and other partners to implement the plan. Local authorities also contribute to the strategic planning process through their own documents, such as sustainable urban development strategies and Local Action Plans for rural development.

The responsibility for regional development in Sweden passed to the regions on January 1, 2019, transferring the task from the government (through the County Administrative Boards, CABs). Regional elections were held in 2022, marking a formal shift from the previous county councils.

Despite this progress, concerns have been raised, especially by municipal representatives, about the capacity of smaller municipalities to participate in the collaborative development process. These municipalities often focus on delivering essential services and may lack the resources to engage in strategic planning. There is also a challenge for civil society organisations to participate effectively in the process, highlighting the need for additional support and incentives to ensure their involvement.

Table 27. Regional Development Strategies of the Swedish NSPA

Region (TL3)	Regional Development Strategy Key documents	Main priorities
Jämtland-Härjedalen	Regional Development Strategy (adopted in October 2024)	*Goal and long-term priorities for the regional development policy in Jämtland-Härjedalen 2024–2050* Long-term goal: "Development power with enhanced local and regional competitiveness for sustainable development in all parts of the county" *Priorities:* Equal opportunities for local development throughout the county Skills supply and skills development throughout the county Innovation and transition, as well as entrepreneurship and business development throughout the county Accessibility throughout the county through digital communication, physical infrastructure, and sustainable mobility *Horizontal Starting Points for regional development* *Development Power* – This is about finding a balance between economic, social and environmentally sustainable development. According to the vision of the regional development strategy, "people are at the centre, ecology sets the boundaries and the economy is both a tool and a prerequisite for sustainable development". The work is therefore based on a solid strategic foundation in these three dimensions of sustainability, including the specific conditions and needs of the Sámi community. *Competitiveness* - Refers to the ability of a business, industry and the county itself to compete successfully with others. *Geography* - Jämtland-Härjedalen is a large geographical area with varying conditions and needs. This requires initiatives to take a territorial perspective, taking into account intra-regional differences, in order to create conditions for both development and competitiveness throughout the county.
Norrbotten	Regional Development Strategy	*Priorities*: *Sustainable Economic Growth* Industry and Innovation Support for SMEs *Infrastructure and Connectivity* Transport and Logistics Digital Infrastructure *Social Cohesion and Quality of Life* Healthcare and Education Cultural and Social Inclusion *Sustainability and Environmental Protection* Climate Action Biodiversity and Natural Resources *Human Capital and Talent Attraction* Education and Skills Development Attracting Talent *Regional Co-operation and Internationalisation* Cross-Border Collaboration

		Global Competitiveness
Västerbotten	Regional Development Strategy 2020-2030	*Overarching Goal* "An Attractive Region Where Differences Drive Development" *Priorities* *Sustainable Economic Growth* - Innovation and Diversification - Natural Resources and Green Transition *Infrastructure and Connectivity* - Transport Infrastructure - Digitalisation *Social Cohesion and Quality of Life* - Healthcare and Education - Cultural Heritage and Social Inclusion *Climate Action and Environmental Sustainability* - Climate Neutrality - Biodiversity and Natural Resource Management *Human Capital and Talent Attraction* - Education and Skills Development - Attracting and Retaining Talent *Regional and International Co-operation* - Cross-Regional Collaboration - International Partnerships
Västernorrland	Regional Development Strategy	*Overarching Goal* "The power of action, the power of life and the power of nature. Together for the growth of people and business, in a healthy living environment for future generations" *Priorities* *Västernorrland position shall be strengthened nationally and globally* Co-ordinated lobbying at national and international level Joining forces to create, attract and retain competence and investment in the county Universities, colleges and research institutes as drivers of innovation and development Bold regional leadership that takes responsibility for the future! *Västernorrland is the place people choose to live in and visit* A growing region with attractive, viable towns and countryside Everyone must have a basic qualification from primary school and upper secondary school. More flexible forms of learning through new methods and ways of working A functional and coherent system for sustainable travel Greater perceived proximity to the outside world, whether physical or digital *Västernorrland is the place where companies and organisations choose to grow* Financing decisions for the implementation of the new Ostkustbanan, Mittbanan and Ådalsbanan. An interconnected logistics system that significantly reduces the climate impact of the county's transport sector A regionally adapted education offer School and working life working together to improve the matching of labour market opportunities Strengths developed through smart specialisation New and growing sustainable businesses and more enterprising residents A developed and coherent finance, business and innovation support system

Source: Own elaborationon the basis of various official Swedish government sources and direct input from local stakeholders collected during and after the OECD field visit

EU Cohesion Programming

EU funds for cohesion and regional development play a significant role in Sweden's regional development policy. These funds aim to reduce disparities between regions, as outlined in the Treaty of Rome. The framework for these funds in Sweden is set by the Partnership Agreement, which defines the objectives, resources, and programmes for cohesion policy, including long-term financial planning for the period 2021-2027. The regions are then responsible for developing regional programmes in line with this framework, detailing the governance structures for fund distribution and implementation.

While rural development is technically part of the Common Agricultural Policy (CAP), it is included in this context due to its relevance for local and regional development, particularly through initiatives like LEADER, which are funded by the European Agricultural Fund for Rural Development (EAFRD) and managed by the County Administrative Boards (CAB).

EU Partnership Agreement with Sweden (2021-2027)

The EU Partnership Agreement for Sweden (2021-2027) outlines an investment strategy worth €2.2 billion, aimed at enhancing economic, social, and territorial cohesion. Funding will come from several EU funds: the European Regional Development Fund (ERDF), the European Social Fund+ (ESF+), the Cohesion Fund, the Just Transition Fund (JTF), and the European Maritime, Fisheries and Aquaculture Fund (EMFAF). The key priorities of this strategy include supporting Sweden's green and digital transitions and fostering a competitive, innovative, and export-oriented growth model.

However, the preparation of the Partnership Agreement deviated from the expected process. It was presented only after the regional programmes had been drafted, resulting in a lack of dialogue between regions and the national level. Consequently, the Partnership Agreement became more of a retrospective compilation than a unified strategic framework.

Strategic objectives and investment priorities under this agreement include:

- A smarter, digital, and connected economy, with significant investments in the circular economy, digitalisation, and broadband.
- A socially inclusive labour market, focusing on lifelong learning and skills development, especially for those at risk of poverty or exclusion.
- A fair green transition, with investments aimed at reducing emissions in key industrial sectors and promoting sustainable practices.
- Additionally, the EMFAF allocates funds for the fisheries, aquaculture, and fish processing sectors, contributing to the green transition.

The Regional Development Programmes under the EU Cohesion

In Sweden, the implementation of ERDF programmes is managed through bilateral co-operation between the Swedish government, represented by the Swedish Agency for Economic and Regional Growth, and the regions. The Agency administers two key EU Funds (ERDF and JTF) and oversees eleven EU programmes for 2021-2027. These programmes target large regions (NUTS2), with specific focus on eight regional groupings of counties. For the Swedish NSPA (Northern Sweden), four TL3 regions are grouped into two larger regions: Middle Norrland and Upper Norrland.

The regional programmes aim to support overarching EU goals, including:

- A smarter Europe, with a focus on innovation, digitalisation, and SMEs.
- A greener Europe, with priorities on energy efficiency, renewable energy, and sustainable urban mobility.

- A more interconnected Europe, particularly for Upper Norrland and Middle Norrland, which focus on developing sustainable transport networks.

The Swedish Agency for Economic and Regional Growth serves as the Managing Authority for these programmes, responsible for planning and fund distribution. Regions prioritise projects based on local needs and strategies, with Structural Fund Partnerships ensuring co-ordination at the regional level. However, these partnerships may be dissolved after 2027, centralising decision-making within the Agency.

Rural Development and LEADER

Rural development is a critical component of regional development, particularly in remote areas of Sweden. Three-quarters of the Swedish NSPA regions are classified as remote rural areas, making rural development initiatives highly relevant. Rural development in Sweden is supported by the European Agricultural Fund for Rural Development (EAFRD) under the CAP, which promotes economic, social, and environmental sustainability in rural areas.

The LEADER approach, a key element of rural development, encourages local actors in rural areas to design strategies for their own development. This participatory process is facilitated by Local Action Groups (LAGs), which represent the collaboration of the public, private, and non-profit sectors. LEADER has been active for nearly three decades across Europe, and in Sweden, 40 LEADER areas have been approved by the Swedish Agency for Agriculture.

For the period 2023-2027, eligible subjects in Sweden's NSPA regions can apply for funding under LEADER. These areas include Norrbotten, Västerbotten, Västernorrland, and Jämtland Härjedalen, with ten local strategies approved across these regions. LEADER is complemented by efforts to expand broadband connectivity and commercial services in rural areas, with funding allocated to support regional growth and development.

In conclusion, rural development in Sweden involves a combination of LEADER initiatives, infrastructure investments, and regional growth strategies. These efforts aim to enhance the attractiveness and sustainability of rural areas, addressing both the specific needs of the population and the broader EU objectives.

Resources for Regional Development

Regional development in Sweden is tailored to the specific needs, challenges, and priorities of each county. This approach is supported by territorial reforms, which allow regions to create regional development strategies and plans that align national policy with the broader European regional framework. Regions are responsible for implementing these strategies, with competitive procedures used to allocate funding for projects that align with regional goals. The main sources of regional development funding in Sweden come from the European Union, the national budget, and regional resources generated through local taxation.

European Funds

Approximately one third of the EU budget is allocated through the European Structural Funds to address regional needs. These funds are jointly managed by the European Commission and the governments of EU member states. In the 2021-2027 programming period, the key EU funds available to Sweden include:

- European Regional Development Fund (ERDF): This fund aims to promote economic, social, and territorial cohesion by reducing regional imbalances and supporting investments in a smarter, greener, and more interconnected Europe. The ERDF also funds European Territorial Co-operation (ETC) programs to foster cross-border regional collaboration.

- European Social Fund Plus (ESF+): The ESF+ focuses on economic, territorial, and social cohesion by investing in human capital, supporting social inclusion, and addressing regional disparities. It plays a key role in the implementation of the European Pillar of Social Rights.
- Just Transition Fund (JTF): Targeting regions most affected by the shift towards climate neutrality, the JTF helps prevent regional disparities by supporting industries in the transition to a greener economy. Notably, this fund is not accessible to the Middle Norrland region, which excludes Jämtland Härjedalen and Västernorrland.

Additionally, two EU funds outside the cohesion policy framework are important for regional development in Sweden:

- European Agricultural Fund for Rural Development (EAFRD): Supports rural development, including the LEADER approach for community-led local development.
- European Maritime, Fisheries and Aquaculture Fund (EMFAF): Aims to foster sustainable fisheries and maritime development.

The Structural Funds in Sweden are primarily directed towards five key areas: research and innovation, digital technology, supporting a low-carbon economy, sustainable resource management, and small business support. The ERDF and ESF+ are the largest funding sources, with the ERDF being regionally programmed into eight large regions, while the ESF+ is managed through a single national program. The Swedish Agency for Economic and Regional Growth is the managing authority for both the ERDF and JTF, while the Swedish ESF Council manages the ESF+.

The Integrated Territorial Investment (ITI) tool, although not eligible in Sweden due to national legislation, has been explored for use in northern regions. If adopted, it could provide a bottom-up approach to funding territorial development strategies, integrating multiple EU funds into a single initiative.

From the ERDF, ESF+, and JTF, Sweden is expected to receive approximately €4.03 billion for 2021-2027, with €1.73 billion coming from the EU, representing 43% of the total. Within the two NSPA regions—Middle Norrland and Upper Norrland—the ERDF allocates €847.3 million, with a significant portion directed toward the "Smarter Europe" objective, focusing on research, innovation, and business development.

The JTF will be available to regions in Upper Norrland, supporting industrial green transition projects aimed at improving sustainability and skills in affected sectors.

National Resources

National resources for regional development come through two mechanisms: compensatory and competitive financing. Compensatory appropriations are based on a 1:1 co-financing principle and are used to support regional projects, particularly in areas facing significant challenges. These funds are allocated primarily for initiatives related to innovation, entrepreneurship, and business support.

Competitive funds are awarded through calls for proposals and managed by agencies like Vinnova (Sweden’s Innovation Agency), the Swedish Agency for Economic and Regional Growth, and the Swedish Energy Agency. These funds support collaborative innovation projects between businesses, universities, and public organisations. Vinnova also administers Sweden's participation in Horizon Europe, the EU’s research and innovation program.

Regional Resources

Regions also contribute to regional development through their own fiscal resources, primarily derived from local taxation. These resources are used to support regional development projects and to meet co-financing requirements for EU and national funding. However, these regional resources are typically smaller in scale compared to the EU and national funds. According to a 2020 survey, the northernmost

regions of Sweden have some of the highest per capita development funds in the country. In addition to public resources, municipalities, local businesses, and civil society organisations can access various funding sources, including state grants, hydropower compensation, and private investments.

The data on total development funds per inhabitant for 2017 and 2018 (SKR Survey, 2020) reveals a clear policy focus on Northern Sparsely Populated Areas (NSPA) in Sweden, with regions like Norrbotten, Jämtland Härjedalen, and Västerbotten consistently receiving the highest per capita allocations. This prioritisation reflects the challenges faced by these regions and the need for targeted investments in infrastructure, services, and economic diversification. The funding aims to address these structural disadvantages while leveraging the regions' strategic importance for Sweden's green and digital transitions.

Capability for Better Public Governance Across the Levels of Government

In Sweden, capacity building for municipal and regional officials is largely determined by the initiatives of individual institutions. This discretionary approach results in uneven availability of training programmes across the regions, with some regions lacking mandatory general training for civil servants. Smaller municipalities, in particular, often face challenges prioritising capacity building due to resource constraints and a focus on essential services such as education and social care. This situation has been identified as a disadvantage for societal transformation, as public sector skills development, particularly in areas like health, care, and education, does not receive the same attention as in the private sector.

In some NSPA regions, however, there are provisions for mandatory training in specific areas. For example, in Jämtland Härjedalen, civil servants are required to undergo basic training programmes tailored to their roles, such as gender equality or knowledge about the Sámi community and language. This reflects the county's inclusion in the Sámi administrative area, which mandates the protection of Sámi culture and the provision of personnel with requisite language skills. This requirement is not universal across Sweden but highlights the importance of tailored skills training to meet specific local needs. Furthermore, a more comprehensive skills development programme, particularly focusing on knowledge of EU policies and the ability to apply for EU funds, would be beneficial for fostering public governance across all regions.

Despite the lack of a universal framework, there are effective programmes and initiatives to enhance the skills of civil servants, particularly in the NSPA regions. Institutions such as Mid Sweden University (MIUN), with campuses in Östersund and Sundsvall, play a significant role in this effort. MIUN collaborates with local municipalities to implement initiatives aimed at providing high-quality education and strengthening local capabilities. Such partnerships underline the university's contribution to regional socio-economic growth and sustainability through research, education, and co-operation with stakeholders.

Additionally, the Swedish Association of Local Authorities and Regions (SALAR) plays a central role in providing training and capacity-building programmes for local governments, similar to its counterparts in Finland and Norway. These programmes address emerging challenges and enhance the competencies of local government officials, ensuring they remain innovative, resilient, and capable of meeting community needs. Training is delivered through various formats, including face-to-face workshops, online courses, and customised programmes tailored to the specific needs of municipalities or regions.

International training opportunities, such as those provided by the Nordic Council of Ministers and the European Union, also contribute to capacity building by offering peer learning and best-practice sharing for local government staff. These initiatives, alongside local programmes, ensure that Swedish local authorities remain equipped to address governance challenges and meet the demands of their communities effectively.

Regional Co-operation Agreements and their governance

The NSPA, due to their unique characteristics and structural setup, are strongly oriented toward collaboration and co-operation, more so than other Nordic regions. This focus is critical for advancing development policies and ensuring long-term viability, as well as addressing complex societal and economic challenges. Co-operation is particularly important because of the weak market forces and market failures that dominate these regions. Unlike areas with functioning market economies, the NSPA does not have the same access to best practices, so solutions from other regions are not directly applicable. Therefore, there is a need for customised, ad hoc solutions tailored to the NSPA, necessitating a collaborative approach.

This collaborative spirit is also evident at the regional level, where governance practices are designed to optimise the use of structures, programs, and initiatives across the NSPA. The collaborative dimension significantly influences development policies in Finland, Norway, and Sweden's northernmost regions, even when viewed from an interregional or international perspective within the broader Nordic context.

Several experiences, initiatives, agreements, and institutions support this collaboration. These co-operative efforts are experienced through various spaces, which can be grouped into four main categories:

- Intergovernmental initiatives: These arise from agreements between governments and typically lead to the creation of intergovernmental organisations and institutions.
- Interregional co-operation agreements and programs: Initiated by regions or municipalities, these are the main drivers of co-operation and action within the NSPA.
- European Territorial Co-operation: This includes the Interreg programs, which are mainly funded by the European Union through its regional development and cohesion policies.
- Instruments and initiatives for policy liaison with European institutions: These initiatives advocate for the NSPA's needs and interests, and promote its position on relevant matters within the European context.

As a result of these diverse initiatives, the NSPA regions have benefited from a variety of co-operation agreements and bodies that have shaped their collaborative attitude over time. The next sections provide a summary of the development of such co-operation.

NSPA/Arctic Co-operation Agreements

Intergovernmental Initiatives

There are three key intergovernmental entities that operate in the Nordic region: Nordic Co-operation, the Arctic Council, and the Barents Council. These initiatives have emerged from the desire to strengthen regional institutional collaboration. While the scope of these entities often extends beyond the NSPA, their actions are directly relevant to the region.

Nordic Co-operation is based on the Nordic Council of Ministers and the Nordic Council, which serve as the main forums for official Nordic co-operation. The Council includes Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland, and Åland. The Nordic Council, founded in 1952, has been an enduring partnership, recognised as the longest-standing such alliance in the world. Its governance structure includes members nominated by national parliaments, with no direct elections. The Council holds two annual sessions—Ordinary and Theme Sessions—to deliberate on issues and urge Nordic governments to take action. The Presidency of the Nordic Council rotates biennially among member countries, and the Council's work is supported by committees and party groups.

The Nordic Council of Ministers co-ordinates intergovernmental co-operation in the Nordic region. It is managed by the Ministers for Nordic Co-operation, with daily operations overseen by the Nordic Committee for Co-operation. The Secretariat, based in Copenhagen, manages the agenda and the implementation of decisions.

The Arctic Council, an intergovernmental forum of eight member states and six Permanent Participants representing Arctic Indigenous peoples, facilitates co-operation on Arctic issues, particularly environmental protection and sustainable development. The Council operates on a consensus basis, and its activities are supported by a Secretariat established in Tromsø, Norway, in 2013. Despite the geopolitical challenges posed by the Russia-Ukraine conflict, Norway has continued its leadership of the Arctic Council since 2023, working to revive co-operation among its members.

The Barents Council represents intergovernmental co-operation in the Barents Region, aiming to address collective challenges that the countries of the region cannot solve alone. Formed in 1993 through the Church Declaration, its dual-level structure includes both intergovernmental and interregional components. The Barents Euro-Arctic Council, made up of foreign ministers, and the Barents Regional Council, composed of regional political representatives, are the core components. This co-operation is further supported by the International Barents Secretariat, located in Kirkenes, Norway. The chairmanship rotates between governmental and regional entities, with Finland and North Karelia currently holding the position.

Interregional Co-operation

Over the past few decades, Arctic regions and municipalities have been active promoters of interregional co-operation, particularly on sector-specific issues like Arctic climate change, scientific collaboration, and security. Many of these initiatives have a narrow thematic focus, but they also address broader social and economic development within the NSPA. A common feature of these initiatives is the involvement of local authorities, which often drive the governance schemes.

These interregional experiences typically involve a three-tiered governance structure. This includes a political assembly with representatives from the regions and municipalities, an executive board, and thematic working groups that combine political and technical expertise. A secretariat, which operates based on the board's mandate, manages the activities. Many initiatives emphasise a bottom-up approach, focusing on local priorities and engaging local actors, especially in relation to minority identities.

These interregional co-operation bodies often have well-established histories and, in some cases, were initially driven by specific needs, such as the creation of a cross-border local labour system. Over time, the scope of these collaborations has expanded. In some instances, they were motivated by a strong local identity or a desire for unified policy to address common challenges.

Interregional bodies often maintain connections with intergovernmental and international organisations, such as the Nordic Council and the European Union, and they frequently receive funding from these bodies. The funding is typically allocated through projects incorporated into multiyear strategies and action plans.

European Territorial Co-operation 2021-2027

The European Territorial Co-operation (ETC) and its Interreg programmes aim to foster integration and collaboration in border regions and cross-border areas, promoting networks between cities and regions throughout Europe. These programmes enhance regional competitiveness, stimulate economic growth, and encourage the exchange of best practices. They also align with the environmental goals of the European Green Deal. The Interreg programme, in particular, focuses on strengthening the economic position of the Baltic Sea Region at both European and global levels, while addressing the challenges of sparsely populated northern areas.

The 2021-2027 EU programming period sees the continuation and expansion of these initiatives. Many of these programmes have been in place since the 1990s and have evolved to include co-operation with non-EU countries, creating a persistent territorial co-operation framework. From 2000 to 2020, 48 ETC programmes involved NSPA regions, funding over 1,700 projects with cross-border or transnational partnerships.

Currently, nine initiatives are operational under the 2021-2027 framework, with three cross-border co-operation programmes (Interreg VI-A), two transnational co-operation programmes (Interreg VI-B), and four interregional co-operation programmes (Interreg VI-C) relevant to the NSPA. These include:

- Cross-border programmes: The Sweden-Finland-Norway (AURORA) programme, the Finland-Estonia-Latvia-Sweden (Central Baltic) programme, and the Sweden-Norway programme.
- Transnational programmes: The Baltic Sea Region programme and the Northern Periphery and Arctic programme.
- Interregional programmes: Interreg Europe, ESPON 2030, Interact, and URBACT IV, which focus on policy exchange, territorial analyses, collaborative practices, and city networks.

In addition, the Arctic Urban-Regional Co-operation programme (AURC), launched in early 2024, offers new prospects for co-operation across the Arctic and between NSPA regions. Although not part of the ETC, the AURC is supported by the European Union's foreign policy instruments. It aims to address shared challenges in the Arctic, including climate change, geopolitical pressures, energy transition, and social issues. The programme connects 15 local authorities across the Arctic from Canada, Greenland, Iceland, Norway, Sweden, Finland, and the USA, to work together and develop local action plans.

Table 28. Territorial coverage of EU Interreg programmes across NSPA

NSPA	Interreg VI-A Finland-Estonia-Latvia-Sweden (Central Baltic)	Interreg VI-A Sweden-Finland-Norway (AURORA)	Interreg VI-A Sweden-Norway	Interreg VI-B Baltic Sea Region	Interreg VI-B Northern Periphery and Arctic
Kainuu		■		■	■
North Karelia		■		■	■
Pohjois-Savo				■	■
South Savo	■			■	■
Central Ostrobothnia		■		■	■
Northern Ostrobothnia		■		■	■
Lapland		■		■	■
Troms and Finnmark		■			■
Nordland		■			■
Norrbotten		■		■	■
Västerbotten		■		■	■
Jämtland Härjedalen		■	■	■	■
Västernorrland		■	■	■	■

Source: Own elaboration from European Commission's official data

Liaison with EU

The northern regions and the NSPA actively engage with European institutions through various initiatives and funding sources, resulting in a dynamic governance landscape. The European Union plays a central role in advancing many of these initiatives by providing significant resources. NSPA representatives

maintain regular communication with EU bodies, advocating for the needs of Arctic regions and ensuring the effective use of EU policies and resources at the local level.

To facilitate this engagement, the NSPA has established three representative liaison offices in Brussels: the North Sweden European Office, the East and North Finland EU Office, and the North Norway European Office (NNEO). These offices help optimise the position of these regions within the broader European context, handling liaison functions and ensuring that local priorities are effectively communicated.

Two case studies illustrate this co-operation in action. The first is the Horisont Troms og Finnmark initiative, which facilitates the involvement of stakeholders from the Norwegian counties of Troms and Finnmark in Horizon Europe, the EU's research and innovation programme. The initiative supports local entities in disseminating information about opportunities, fostering collaboration, and identifying potential partners for research and innovation projects.

The second case involves NSPA participation in the Conference of Peripheral Maritime Regions (CPMR), particularly through the Baltic Sea Commission, which represents regional authorities from the Baltic Sea area. The CPMR serves as a platform for policy-oriented co-operation and lobbying, advocating for the involvement of regional stakeholders in the EU Strategy for the Baltic Sea Region and promoting collective action to address regional challenges.

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