

OECD Rural Policy Reviews

OECD Mining Regions and Cities Case Study

OUTOKUMPU AND NORTH KARELIA, FINLAND



OECD Rural Policy Reviews

OECD Mining Regions and Cities Case Study

OUTOKUMPU AND NORTH KARELIA, FINLAND

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Please cite this publication as:

OECD (2019), *OECD Mining Regions and Cities Case Study: Outokumpu and North Karelia, Finland*, OECD Rural Policy Reviews, OECD Publishing, Paris, <https://doi.org/10.1787/cd72611b-en>.

ISBN 978-92-64-52488-0 (print)

ISBN 978-92-64-92058-3 (pdf)

OECD Rural Policy Reviews

ISSN 1990-9276 (print)

ISSN 1990-9284 (online)

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Photo credits: Cover Illustration © Jeffrey Fisher.

Corrigenda to OECD publications may be found on line at: www.oecd.org/about/publishing/corrigenda.htm.

© OECD 2019

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgement of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.

Foreword

The mining sector is relevant for economic development and for well-functioning societies. Raw materials are essential for the production of goods and services, for the development of new technologies and the global transition towards a low carbon economy. Ensuring access to a stable supply of raw materials is a priority for many countries and regions. As one of the richest countries in mineral deposits in Europe, Finland can play a key role in the raw materials agenda of the European Union. However, mining policy in Finland is spatially blind, and better integration with regional characteristics and local development strategies are needed.

The subnational dimension is critical to understanding how to deliver better policies for economies that are specialised in mining and extractive activities. Unlike other industries, mining activity is geographically located where the deposits are, which creates a particular interaction with local communities and the environment. Mining specialisation generates a number of opportunities including greater investments and technological innovation, higher-wage jobs and participation in global value chains. Yet such specialisation also brings challenges involving vulnerability to external shocks, inflationary effects and environmental and social impacts. These impacts, both positive and negative, are amplified at regional and local scales.

North Karelia Region, in Finland, can be instrumental to support the national mineral strategy. In the region, the small municipality of Outokumpu was known as the key mining area in Finland for most of the 20th century. Since the 1980s, Outokumpu has experienced a long-term transition associated with the closure of a major copper mine. The transition from mining to a manufacturing-based economy has been a positive experience, leading to an economy based on subcontracting and exports of metal technologies and mining services. Yet, currently, North Karelia and Outokumpu face development challenges, particularly in terms of generating a more dynamic business environment and labour market.

Outokumpu has a number of competitive advantages benefitting from a strategic location within the local labour market of Joensuu (the largest in North Karelia), a relatively high share of manufacturing activities with outstanding mining know-how and an enabling socio-political environment for mining activities. Yet, the municipality needs to overcome various bottlenecks to mobilise its assets and attain sustainable growth in the long term. They include a declining and ageing population, mismatches in the labour market, a low share of high-skilled workforce and a declining rate of entrepreneurship with stagnation in the establishment of new enterprises.

This study identifies how Outokumpu and North Karelia can build on its competitive advantages and address challenges by mobilising the potential of its mining value chain, diversifying and developing new sources of economic growth and improving governance co-ordination.

This study is part of the OECD Mining Regions and Cities Project that is focused on supporting countries in the implementation of better regional development policies in a mining and extractive context.

Acknowledgements

This publication was produced in the OECD Centre for Entrepreneurship, SMEs, Regions and Cities (CFE), led by Lamia Kamal-Chaoui, Director, as part of the programme of work of the Regional Development Policy Committee (RDPC).

The report has been conducted in close collaboration with the Municipal Government of Outokumpu, the regional agency Business Joensuu and the North Karelian Regional Council. Special thanks are due to Ilkka Nykänen, Senior Adviser for Business Joensuu, for his support throughout the process. The Secretariat is also grateful to the local review team: Juuso Hieta (Outokumpu Industrial Park) and Raimo Turunen (North Karelian Regional Council).

The OECD team elaborating the report include Chris McDonald, report co-ordinator, with the support of Andres Sanabria, under the supervision of Jose Enrique Garcilazo, Head of the Regional and Rural Policy Unit in the Regional Development and Tourism Division led by Alain Dupeyras. Laura-Sofia Springare drafted Chapter 1 and Andres Sanabria Chapters 2 and 3. The review benefitted from comments by other OECD colleagues, including Enrique Garcilazo (CFE), Ana Moreno-Monroy (CFE), Anna Bolengo (CFE) and Pilar Phillip (CFE), who led the publication process.

Special thanks are due to Jonas Lundström (Region Vasterbotten, Sweden) who provided valuable input and comments and accompanied the team in the development of the review. The OECD is also grateful for the involvement and hospitality of Maija Uusisuo (Ministry of Economic Affairs and Employment), Risto Poutiainen (Mayor of North Karelia), Harri Palviainen (CEO, Business Joensuu), Pekka Suomela (Finnish Mining Association), representatives from North Karelia and the Municipal Government of Outokumpu, including Merja Marin and Päivi Lintumäki, as well as business and civil society representatives met in the context of this review.

Table of contents

Foreword	3
Acknowledgements	5
Abbreviations and acronyms	11
Executive summary	13
Assessment.....	13
Key recommendations	14
Assessment and recommendations	17
Assessment.....	17
Recommendations.....	21
Chapter 1. Drivers of growth and challenges for regional development	25
Introduction.....	28
North Karelia, Outokumpu and the history of mining	29
Demographic and settlement patterns	32
Economic performance	39
Well-being and quality of life	58
References.....	61
Chapter 2. Towards a sustainable development in Outokumpu and North Karelia	63
Introduction.....	66
The institutional environment in Finland and North Karelia	67
Policy strategies to attain sustainable economic development in Outokumpu	74
Notes	106
References.....	107
Chapter 3. Governing mining regions to attain sustained and inclusive growth	111
Introduction.....	114
Towards an integrated regional development policy with mining activities	114
Enhancing governance in Outokumpu to attain sustainable growth.....	124
Note.....	134
References.....	135

Tables

Table 1.1. Population growth and ageing, North Karelia, Finland and select regions, 2001-15	32
Table 1.2. Local labour market.....	33
Table 1.3. GVA by sectors, North Karelia in an EU context, 2015	41
Table 1.4. Productivity in North Karelia, 2015	41
Table 1.5. National specialisation index by economic activity, North Karelia, 2015	41

Table 1.6. Change in output, manufacturing subsectors, North Karelia and Finland, 2007-16	42
Table 1.7. Employment by sector, 2016	48
Table 1.8. Indicators by well-being dimension, North Karelia	59
Table 2.1. Critical raw materials (CRMs) for the European Union, 2017	67
Table 2.2. Finland mining production as a share for the EU, selected minerals and metals, 2012	70
Table 2.3. Finland's regional policy: Priorities and actions	75
Table 2.4. North Karelia's key areas of economic potential	76
Table 2.5. Areas of actions in the North Karelia Regional Strategic Programme 2018-21	77
Table 2.6. Actions and strategies in the Outokumpu Development Strategy	78
Table 2.7. Top 5 occupations in terms of jobs at risk of automation	96
Table 2.8. Selected programmes to support SMEs and entrepreneurs in North Karelia	101
Table 2.9. Promoting an entrepreneurial culture: Policy developments	104
Table 3.1. Stakeholders for the development policy of Outokumpu	116
Table 3.2. Main mining regulatory instrument in Finland	120

Figures

Figure 1.1. North Karelia is the easternmost region in Finland	30
Figure 1.2. Mining activities across Finish predominantly in rural remote regions, 2006-16	31
Figure 1.3. Elderly dependency ratio, North Karelia compared with Finland and select regions, 2015	33
Figure 1.4. Population growth in Outokumpu, 1987-2017	34
Figure 1.5. Population growth in Outokumpu and its local labour market, 2001-07	36
Figure 1.6. Elderly dependency ratio and youth dependency ratio, 2001-17	37
Figure 1.7. Growth in the youth, working-age and elderly populations in Outokumpu	38
Figure 1.8. Ratio of net migration to total population, 2005-17	38
Figure 1.9. GDP per capita trend, 2001-15	40
Figure 1.10. Labour productivity trend, 2004-15	40
Figure 1.11. Financial crisis affected manufacturing negatively	43
Figure 1.12. Growth index, regional output, North Karelia, Finland and select regions, mining and quarrying, 2001-16	44
Figure 1.13. Average size of establishments, 2014	45
Figure 1.14. Density of establishments, 2014	45
Figure 1.15. Employment rate change, North Karelia, Finland and select regions, 2007-14	46
Figure 1.16. Employment in mining and manufacturing in Outokumpu, 1993-2007	47
Figure 1.17. Ratio of industrial jobs to population, 2007-16	47
Figure 1.18. Ratio of net migration to total population by level of education, 2007-15	48
Figure 1.19. Employment in mining and quarrying sector is growing, 2007-16	49
Figure 1.20. Contribution to total employment of the LLM by sector in Outokumpu, 2015	50
Figure 1.21. Outokumpu's business environment is not dynamic	51
Figure 1.22. Outokumpu has a low share of high-skilled employed labour force	52
Figure 1.23. Outokumpu is underperforming in terms of labour market outcomes in reference to the benchmark regions	53
Figure 1.24. Structural unemployment, 2006-17	54
Figure 1.25. Employment is age-dependent	55
Figure 1.26. Share of the population outside the labour force is increasing	56
Figure 1.27. Number of jobs is decreasing, 2000-16	56
Figure 1.28. Local labour market is interlinked	57
Figure 1.29. High-skilled employed labour force is more likely to be employed outside of Outokumpu	57

Figure 1.30. Well-being dimensions, TL2, 2014.....	60
Figure 2.1. Main suppliers of critical raw materials for EU, average from 2010-14	69
Figure 2.2. Mining exploration projects in Finland, 2018.....	71
Figure 2.3. Mineral Strategy of Finland	72
Figure 2.4. Outokumpu’s mining cluster.....	79
Figure 2.5. Mineral deposits around Outokumpu.....	82
Figure 2.6. Backward linkages, the mining sector	89
Figure 3.1. Municipal corporate management team of Outokumpu.....	124

Boxes

Box 1.1. Assessment and Recommendations	26
Box 1.2. Comparable TL3 regions for North Karelia.....	28
Box 1.3. Resource-dependent economies and transition.....	34
Box 1.4. OECD Regional Well-being Indicators	59
Box 2.1. Assessment and Recommendation.....	64
Box 2.2. Critical raw materials for the European Union	68
Box 2.3. The Mining Finland programme.....	73
Box 2.4. Finland’s regional policy framework.....	75
Box 2.5. Involving stakeholders in smart specialisation strategies	84
Box 2.6. Backward and forward linkages in the mining sector.....	89
Box 2.7. Experiences of mine repurposing – Atikokan, Ontario.....	91
Box 2.8. Tourism development for mining rehabilitation	92
Box 2.9. Vocational education and training (VET) for local labour markets.....	95
Box 2.10. Manufacturing and mining are among the top sectors at risk of automation.....	96
Box 2.11. Matching skilled migrants	98
Box 2.12. The relevance of local and external networks for economic transition	103
Box 2.13. Supporting entrepreneurial culture	104
Box 2.14. Changing norms on society for entrepreneurship	106
Box 3.1. Assessment and recommendations	112
Box 3.2. Business Joensuu.....	115
Box 3.3. The European Structural and Investment Funds (ESIF)	122
Box 3.4. Characteristics of small-state public administrations.....	125
Box 3.5. Performance measurement.....	128
Box 3.6. Platform to align views for regional development.....	129
Box 3.7. Contractual arrangements in France and Vancouver, Canada	131
Box 3.8. Mechanisms for regional co-ordination in OECD countries	133

Follow OECD Publications on:



http://twitter.com/OECD_Pubs



<http://www.facebook.com/OECDPublications>



<http://www.linkedin.com/groups/OECD-Publications-4645871>



<http://www.youtube.com/oecdilibrary>



<http://www.oecd.org/oeccdirect/>

Abbreviations and acronyms

CRMs	Critical raw materials
ERDF	European Regional Development Fund
ESIF	The European Structural and Investment Funds
EU	European Union
FUA	Functional urban area
ICT	Information and communications technology
GDP	Gross domestic product
GTK	Geological Survey of Finland
GVA	Gross value added
LLM	Local labour market
MIREU	Mining and Metallurgy Regions of European Union project
R&D	Research and development
REMIX	Smart and Green mining regions of European Union project
RDI	Research, development and innovation
SMEs	Small and medium-sized enterprises
TiVA	Trade in Value Added
TUKES	Finnish Safety and Chemicals Agency
UEF	University of Eastern Finland

Executive summary

Assessment

Mining policy in Finland is space-blind, requiring better integration with regional characteristics and local development strategies. The European Union (EU) has a strategic priority to improve the future reliability of supply for raw materials. As one of the richest countries in mineral deposits in Europe, Finland can play an instrumental role in the raw materials agenda of the EU. The country stands out because of its attractive regulatory environment and mining production. Subnational governments are key to attaining the national mineral strategy and sustainable development of the mining sector, given their capacity to strengthen the social licence to operate (SLO), land use governance and the development of local value chains, among other factors.

Outokumpu, a small rural municipality in North Karelia, was the key mining area in Finland for most of the 20th century. Located in North Karelia, the Finnish easternmost region (3% of the national population), the municipality has since the 1980s experienced a long-term transition associated with the closure of a major copper mine. The transition from mining to a manufacturing-based economy has been a positive experience, leading to an economy based on subcontracting and exports of metal technologies and mining services.

Outokumpu currently has a number of competitive advantages to become an important player in the mining value chain in Finland and the EU. They include: i) a strategic location within the local labour market (LLM) of Joensuu (the largest LLM in North Karelia); ii) a relatively high share of manufacturing activities (33% of municipal jobs) with outstanding know-how on mining; and iii) an enabling socio-political environment for mining activities. The existing mining knowledge has scope to transition into services around mining activities – including a heritage centre and mining education – which makes the mining sector a potential source of income for the municipality and the region.

Nevertheless, the municipality needs to overcome various bottlenecks to mobilise its assets and attain sustainable growth in the long term. They include: i) a declining and ageing population (an elderly dependency ratio 19 percentage points higher than the country average), which translates into a shrinking labour force; coupled with ii) mismatches in the labour market (brain drain). There is also: iii) a low share of high-skilled workforce (28%, 7.9 percentage points lower than the LLM); and iv) a declining rate of entrepreneurship with stagnation in the establishment of new enterprises.

Greater co-ordination among levels of governments and stakeholders will be instrumental to make the municipality a key player in the development of the Finnish mining sector. There is a lack of clarity in the role of the mining sector within the regional economy and the marketing strategies to promote the mining potential. Furthermore, the regional mining strategy does not fully acknowledge the local mining clusters. Thus, the region needs a cohesive long-term vision for regional development that translates into a portfolio of projects. Furthermore, Outokumpu Municipality requires better co-ordination with the priorities of the region and neighbouring municipalities.

Key recommendations

I. Mobilise local assets to make Outokumpu a key player in the mining value chain in Finland and the EU. Strategies to support this recommendation are:

- Better integrate mining in local economic development planning and create a unified vision and priorities for economic development amongst municipalities within the Joensuu LLM (Outokumpu Municipality, Business Joensuu, North Karelia Council and national agencies).
- Strengthen the local mining cluster of Outokumpu and improve the operational environment for mining-related activities. Actions for this are:
 - Identify priorities to maximise the potential of the mining value chain in the region (North Karelia Council and Business Joensuu).
 - Develop a clear mining brand for the region and a strategy to promote it internationally to attract investment (North Karelia Council and Business Joensuu).
 - Enhance inter-regional (Finland and EU) co-operation on smart specialisation and green mining technologies by promoting joint projects with other regions (Business Joensuu).
 - Conduct a flagship project for mining activities to align and spur commercial partnerships among established industries with involvement from the Geological Survey of Finland (GTK), local firms and the University of Applied Sciences in Joensuu (Outokumpu Municipality and Business Joensuu).

II. Diversify sources of economic growth to boost employment and reduce labour market mismatches. Strategies to support this recommendation are:

- Provide targeted support to increase the share of the service sector in the economy by promoting new businesses focused on services embedded in the industrial process of established companies and enhancing linkages with other markets and universities (Business Joensuu).
- Strengthen an entrepreneurial culture by enhancing education programmes and improving information and mentoring (Business Joensuu).
- Improve accessibility of entrepreneurs and small- and medium-sized enterprises (SMEs) in small rural municipalities to regional business development programmes (Business Joensuu).
- Strengthen the regional strategy on tourism to embrace a model where tourism is developed around a collection of experiences leveraging on the special characteristics of each municipality (North Karelia Council).
- Develop a comprehensive strategy to attract and integrate high-skilled migrants (North Karelia Council and Outokumpu Municipality).

III. Strengthen governance co-ordination and the functioning of regional policymaking to create an integrated vision of regional development and link local and national mining strategies. Strategies to support this recommendation are:

- Better link the national mining policy instruments with regional and local development priorities (Ministry of Economy and Employment Affairs).

- Adjust the scope of regional working groups to undertake long-term planning and capacity building (North Karelia Council).
- Develop a strategy that is inclusive of different areas and size of companies within the local labour market. For this, Business Joensuu should better adapt the strategic programmes to reach businesses outside of Joensuu and act as a broker to co-ordinate and integrate municipal assets and companies with regional programmes (Business Joensuu).
- Promote incentives for co-ordination among municipalities in the region including by formalising the implementation of joint projects through contracts among municipalities (Business Joensuu).

Assessment and recommendations

Assessment

Outokumpu has scope to mobilise existing assets to boost economic growth and become a mining hotspot in the country and the EU

North Karelia and Outokumpu have a history of economic transition and have recovered relatively strongly from external shocks

Finland has been hit hard by a convergence of factors over the past decade: the 2009 crisis, technological change in electronics, structural decline in demand for paper pulp, and disruption of trade with Russia. These changes have affected North Karelia negatively as an industrial region that is relatively trade-exposed with a high proportion of the local workforce employed in the public sector. Yet, the regions have recovered. After the 2009 crisis, the gap between the regional and national levels narrowed from 30% (2009) to 24% in (2015). Currently, gross domestic product (GDP) per capita for North Karelia is 76.2% of the national average (2015).

Outokumpu is a small rural municipality in North Karelia that has experienced a long-term transition associated with the closure of a major copper mine in 1989. For most of the 20th century, Outokumpu was the key mining municipality in Finland. The transition from mining to a manufacturing-based economy has been a positive experience, making the municipality one of the most industrialised in the region. Yet, currently, North Karelia and Outokumpu face development challenges, particularly in terms of generating a more dynamic business environment and labour market.

Outokumpu's location, industrial fabric with mining know-how and enabling environment for mining activities are competitive advantages for the municipality

Outokumpu benefits from a good geographic location, with close proximity to the 2 largest urban centres in East Finland (Joensuu and Kuopio) and to the Russian border (less than 120 kilometres). The municipality of Outokumpu is located within the local labour market (LLM) of Joensuu, which concentrates most of the growth in North Karelia because of its size and diversity to attract skills. The municipality is also located in the so-called Outokumpu geological area containing copper, zinc and nickel deposits with ongoing exploration projects.

Outokumpu, as North Karelia, is highly specialised in the industrial sector (e.g. mining and manufacturing) and is one of the most industrialised municipality in North Karelia. The manufacturing sector employs 33% of the working-age population in Outokumpu, far above the share of LLM (16%) and the country average (13%). Over the past two decades, the value of mining activity in the region has increased and the mining value chain (extraction and processing) has become more important to the regional economy. This includes the industrial park of Outokumpu, which hosts knowledge-intensive and globally connected companies in the metal technology sector, and the Geological Survey of Finland's (GTK) mineral processing laboratory.

Furthermore, the social and political environment in Outokumpu is favourable to mining activities. Rooted into the municipality's development history, the community has a positive perception of mining activity, which provided a number of services (schools, health and security) to the municipality during the half part of the 20th century. Furthermore, the municipality has placed the elaboration of a local mining cluster, the Outokumpu Mining Camp, high in its development agenda, aiming to co-ordinate private sector, universities, research centres (GTK) and government to support mining projects in Finland.

Outokumpu can diversify its economy to boost employment and attain sustained and inclusive growth

An ageing and decreasing population has led to a shrinking workforce in the municipality

The closure of the mine in 1989 resulted in a long-term demographic decline as demand for labour at the mine was reduced. The population of the municipality peaked at around 13 000 inhabitants in 1960. After the mine closure, the population declined rapidly, falling below 8 000 inhabitants in 2002. During the last decade, the declining demographic trend in Outokumpu has continued (decreasing by 12.7% between 2001 and 2017), against a relatively stable population trend in the LLM.

Alongside the demographic decline, the share of the elderly population in Outokumpu is higher than in the broader local labour market. The elderly dependency ratio (65 and over to the working-age population of 15-64 years of age) in Outokumpu stood at 51% in 2017, around 6 percentage points higher than in the local labour market and 19 percentage points higher than nationally. Since 2009, this gap has been widening, with the share of elderly people increasing from 35% in 2009 to 51% in 2017. The demographic trend has led to a workforce decline of 4% between 2009 and 2017.

Outokumpu has a lower share of high-skilled labour force than in the broader local labour market

The transition from mining to manufacturing activities during the 1980s left a share of workers with skills that do not match contemporary economic needs. The share of the workforce with higher education (28%) is far below the share in the LLM (36%). Alongside this, most of the people who out-migrated from Outokumpu in the past years have a medium or high educational level, while the average of people who moved into the municipality have a secondary educational level.

While Outokumpu municipality has set the improvement of the secondary education quality high on its development agenda, more efforts need to be undertaken to adapt higher education to market needs. Outokumpu has a vocational college that teaches a variety of degrees with a good scientific component. Yet, its best-known vocational degree is dance, which attracts annually a relatively large number of students from other municipalities but does not fit the demand for labour in the area. Furthermore, at the regional and local levels, there is a lack of granular data on the characteristics of the workers, the unemployed population and the needs of the labour demand side.

The business demography in Outokumpu is characterised by a low level of entrepreneurship and a low number of companies per inhabitant

In 2016, entrepreneurs represented approximately 11% of the employed labour force in Outokumpu, which was 2.9 percentage points lower than the LLM average. In terms of absolute numbers, the number of entrepreneurs decreased from 330 to 246 between 2005 and 2016. A similar trend was identified for the LLM where the number of entrepreneurs

decreased annually by 1.2 percentage points, which was 1.2 percentage points lower than the rate for Outokumpu.

While the number of enterprises has increased in Outokumpu since 2005, this growth is below the trend in the LLM. Between 2005 and 2016, the annual growth of enterprises operating in Outokumpu was 17%, below the growth in the LLM (22%).

Expanding the existing industrial fabric beyond manufacturing can bring new sources of income and strengthen economic resilience

Although the manufacturing industry has brought economic dynamism to the economy and income to the municipality, there is a persistent higher unemployment rate in comparison to the region. The unemployment rate in Outokumpu was at 19.8% in 2016, 1.4 percentage points above the LLM average (18.4%) and 1.8 percentage points higher than the regional average. Since the crisis period, the unemployment in Outokumpu has decreased but has not been able to reach the pre-crisis level of 15.6%. The employment of the youth population was the most affected, falling from 39% (2007) to 31% (2009) and remaining at that level until 2016, contrary to the older population (aged 55-64), whose employment rate rose 3 percentage points during 2009-16 (48% in 2016). This underlines the low level of Outokumpu's workforce matching the labour demand of the industry-manufacturing sector.

While the tourism sector in North Karelia is small when compared with the national average, this sector has the potential to represent an important source of income for the region and Outokumpu. North Karelia is among the 6 regions with the lowest number of overnight stays spent by tourists (456 323 in 2017), which represent 2% of the national total. North Karelia's tourism policy focuses on supporting nature-based tourism and sustainable and responsible tourism. Yet, the current regional tourism strategy lacks integration of municipal characteristics into a single brand. North Karelia needs to conduct a whole-of-government approach for tourism that involves all the municipalities and different economic sectors (e.g. environment and transport).

In Outokumpu, the municipal council has conducted activities to promote tourism based on its mining heritage. Since 2008, the municipality has implemented a strategy to attract tourists to the old mine, converted into a tourism destination. Outokumpu can improve its tourism strategy by diversifying its offer and linking mining tourism activities with other sectors (e.g. agriculture or forestry). The municipality also has scope to upgrade the experience of mining tourism by conducting international partnerships with other stakeholders and museums and diversifying the activities around the mine site.

Greater governance co-ordination can make Outokumpu a key player in the development of Finnish mining sector

Finland's mining policy and regulatory framework lacks a territorial approach and this results in missed opportunities

The EU has set the aim to improve the future reliability of supply for raw materials high on the agenda. As one of the richest countries in mineral deposits in Europe, Finland can play a key role in the raw materials agenda of the EU. Finland is the third-largest European country supplying raw materials to the EU (3% of all the raw materials supplied), after France and Norway. Finland is the largest European supplier of cobalt to the EU (66% of total supply) and provides most of the EU mining production of platinum-group elements and other minor metals, including chromite. The country stands out in the world thanks to

its attractive regulatory and business environment for mining, with the best judicial environment for mining activity according to the Fraser Institute's Mining Survey (2017).

Finland's mining policy and regulatory framework, however, lack a territorial approach and this results in missed opportunities. The policy does not take into account the special characteristics of the region and there are no incentives for municipal or regional co-operation to steer investments or conduct joint mining projects. Subnational governments are key to strengthen the social licence to operate (SLO), land use governance and develop local value chains, among other factors, in view of sustainable development of the mining sector.

There is an opportunity to develop a more cohesive long-term vision for regional development that translates into a portfolio of projects

Despite a comprehensive regional strategic programme, there are some gaps in the execution of the development vision in North Karelia. There is a lack of clarity as to what extent the mining sector can contribute to the regional economy, while the bioeconomy and forestry sectors receive much attention within strategic programmes. The strategic fora (working groups) in the regional council appear to be more focused on accessing EU funds rather than on planning long-term strategies. Furthermore, the region of North Karelia lacks formal incentives for co-ordination among municipalities in the implementation of the regional development plan.

North Karelia council has scope to enhance the use of European Structural and Investment Funds (ESIF) to support the development of the mining sector. The ESIF provide a significant amount of additional resources to North Karelia to invest in productivity-enhancing initiatives and fund pilot projects. These funds can help to mobilise public and private investment in the region, thus promoting co-ordination with other actors. The co-ordinating nature of these funds can be used by North Karelia to enhance the operational environment for mining clusters, especially in areas where it fosters private sector investments and cross-regional/municipal benefits.

Outokumpu municipality is administrated with a strong corporate vision but there is some disconnection with the region and neighbouring municipalities

A pressing issue is its "silo approach" to regional policy. Thanks in part to its history of economic self-sufficiency based on the mining activity, the municipal administration has a vision of relying on its own assets to achieve higher stages of development. This is not unique to Outokumpu Municipality but is a common feature across municipalities in North Karelia, which call for a greater co-ordinating role in the region. The municipal government has developed a comprehensive and detailed Municipal Development Plan with short- and long-term objectives and monitoring indicators. However, given its small size, the ability of Outokumpu municipal government to design and implement development strategies depends ultimately on its capacity to co-ordinate with other levels of governments and stakeholders.

North Karelia Council can improve the interaction among local and private stakeholders to strengthen the implementation of the policies. Some policies are being conducted with a lack of co-ordination with local actors. For example, while University of Eastern Finland has an important role in skills upgrading and research in the region, the university does not fully participate within the working group of extractive industries. Thus, a platform for dialogue meeting regularly under a formalised setting can ensure alignment of the regional development plan and municipal strategies.

Recommendations

I. Mobilise local assets to make Outokumpu a key player in the mining value chain in Finland and the EU

1. **Better integrate mining in local economic development planning and link Outokumpu with Joensuu Local Labour Market.** Actions for this are:
 - Revise the municipality's economic development plan to better define economic objectives based on the existing assets in the territory; particularly, integration within the Joensuu LLM, maximised mineral and metal extraction, and the mining value chain (Outokumpu Municipality).
 - Create a unified vision and priorities amongst municipalities within the Joensuu LLM (Outokumpu Municipality, Business Joensuu, North Karelia Council and national agencies). Actions for this are:
 - Develop the local workforce to meet future industry needs (e.g. skills profile, demand for skills from business, and barriers to mobility).
 - Attract and retaining workers that address critical skills shortages/gaps (current and forecast).
 - Improve infrastructure connectivity and transport services to reduce commuting times.
2. **Strengthen the local mining cluster of Outokumpu and improve the operational environment for mining-related activities:**
 - Strengthen the vision of mining development in the region (North Karelia Council and Business Joensuu). Actions for this are:
 - Identify priorities to maximise the potential of the mining value chain in the region (land use, skills, innovation and internationalisation) and ensure they are reflected in North Karelia's regional planning and smart specialisation strategy.
 - Develop a portfolio of projects linked to these priorities and link them to funding opportunities for national funding and the European Structural and Investment Funds (ESIF).
 - Develop a clear mining brand for the region and a strategy to promote it internationally. The marketing activities should aim to make the Outokumpu mining camp an internationally renowned source of knowledge-based services in mining and ensure this strategy is included within national marketing activities (North Karelia Council and Business Joensuu).
 - Enhance inter-regional (Finland and EU) co-operation on smart specialisation and green mining technologies by promoting joint projects on research and innovation with other regions, and supporting the internationalisation of local businesses (Business Joensuu).
 - Conduct a flagship project for mining activities (e.g. testing of tailings for mines in cold temperatures) to align and spur commercial partnerships among established industries. This should involve an active role of the Geological Survey of Finland (GTK), local firms and the University of Applied Sciences in Joensuu (Outokumpu Municipality and Business Joensuu).

- Lead Outokumpu's mining camp and GTK to take an active role in supporting the regional mining strategy by building a network of experts to support innovation and higher-value-added activities in the sector (Outokumpu Municipality and Business Joensuu).

II. Diversify sources of economic growth to boost employment and reduce labour market mismatches

3. **Provide targeted support to increase the share of the service sector in the economy** by promoting new businesses focused on services embedded in the industrial process of established companies and enhancing linkages with universities and other markets (Business Joensuu).
4. **Strengthen programmes to boost SMEs and entrepreneurial culture** (Business Joensuu). Actions for this are:
 - Improve the link of entrepreneurs and SMEs in small rural municipalities to regional business development programmes. It involves enhancing local and international networks for SMEs to transition toward related higher-value economic activities connected with the green economy (Business Joensuu).
 - Develop a strategy to strengthen an entrepreneurial culture by enhancing education programmes, improving information and mentoring and reducing the negative social consequences of business failure (Business Joensuu).
5. **Strengthen tourism strategy** through a co-ordinated approach and development of partnerships (North Karelia Council and Outokumpu Municipality). Actions for this are:
 - Strengthen the regional strategy on tourism to embrace a model where tourism is developed around a collection of experiences that leverages on the special characteristics of each municipality (North Karelia Council).
 - Enhance partnerships with stakeholders involved in mining tourism and expand the offer of thematic events leveraging on the mining museum (Outokumpu Municipality with Business Joensuu).
6. **Improve programmes and regional co-ordination to enhance vocational, language and IT training** to increase workforce suitability with the current and future needs of the private sector (Business Joensuu, Outokumpu Municipality and North Karelia Council).
7. **Embrace a comprehensive strategy to attract and integrate high-skilled migrants** in order to fill gaps in the labour force demand and boost local business in Outokumpu (North Karelia Council and Outokumpu Municipality).
8. **Develop a strategy to engage the older working-age population** in the economic development of the municipality that is aligned with the priorities of the Regional Council of North Karelia (Outokumpu Municipality).

III. Improve governance co-ordination to make Outokumpu a key player in the development of Finnish mining sector

9. **Strengthen the functioning of regional policymaking** and integration within the mining national framework. Actions for this are:

- Better link national mining policy instruments with regional characteristics (Ministry of Economy and Employment Affairs). Specific actions for this are:
 - Enhance participation of regional councils and municipalities in any future revision of the National Minerals Strategy (2010) and articulate the role of the subnational level in the development of mining in Finland.
 - Work with regions to map local mining clusters to identify their strengths and complementarities in the context of the national policy.
 - Support the development of a network of Finnish mining regions and municipalities to co-operate on joint projects, co-ordinate investment attraction, and share knowledge and good practices.
 - Partner with regions and municipalities in the international promotion of Finland as a destination for mining investment.
- Adjust the scope of working groups to undertake long-term planning and capacity building. Two priority areas are entrepreneurship, and skills and workforce development (North Karelia Council).
- Develop a strategy that is inclusive of different areas and size of companies within the local labour market. For this, Business Joensuu should better adapt the strategic programmes to reach businesses outside of Joensuu (e.g. supporting small businesses to access EU financial instruments) and act as a broker to co-ordinate and integrate municipal assets and companies with regional programmes (e.g. the mining camp in Outokumpu) (Business Joensuu).

10. Enhance the benefits of EU funds to support the future development of the mining value chain:

- Work with the local mining industry and GTK to develop a portfolio of projects that are designed to increase mining investment, promote innovation in mining technology services and address bottlenecks to growth, including land use, skills and specific opportunities associated with photonics and information and communication technology (ICT) (Business Joensuu).
- Develop a cohesive approach to using ESIF funds to implement these projects (North Karelia Council and Business Joensuu).

11. Improve co-ordination and alignment in regional development policies between the regional council, municipalities, universities, industry and other actors:

- Promote a **unified vision of development** for the region and ensures co-operation among municipalities (North Karelia Council). Actions for this are:
 - Create a strategic platform for dialogue between the regional council and municipalities. This platform can serve various purposes, such as developing a common long-term development vision, improving co-ordination, pooling resources and efforts, and resolving conflicts.
 - Formalise the dialogue in order not to depend on occasional meetings or personal relationships. It should be institutionalised to ensure continuity over time.

- Include different stakeholders with equal participation and ownership in the platform.
 - Develop a **monitoring framework** to track and co-ordinate the accomplishment of the objectives in the municipal development plans. The framework should cover all municipalities in the region to help the council benchmark, align and compare the performance of strategic plans (North Karelia Council).
12. **Improve co-ordination among municipalities** with incentives for co-ordination that promote the joint implementation of projects among municipalities (North Karelia Council).

Chapter 1. Drivers of growth and challenges for regional development

This chapter assesses the economy of North Karelia and Outokumpu and serves as a basis for policy recommendations in the following chapters. The chapter contains two parts: the first sets the scene and outlines the most influential national trends that shape the economy of North Karelia and Outokumpu as well as the history of these regions; the second identifies major trends, strengths and bottlenecks to development.

Box 1.1. Assessment and Recommendations

Assessment

North Karelia is an industrial region in northeast Finland that was hit hard by external shocks but has recovered relatively strongly. Finland has been affected by a convergence of factors over the past decade: the crisis, the technological change in electronics, the structural decline in demand for paper pulp and the disruption of trade with Russia. In addition, Finland has an inflexible exchange rate, which has meant adjustments occur through wage restraint and fiscal consolidation. These changes have affected North Karelia negatively as an industrial region that is relatively trade-exposed with a high proportion of the local workforce employed in the public sector. Gross domestic product (GDP) per capita in 2015 for North Karelia was USD 28 900, 76.2% of the national average. After the crisis, North Karelia was able to recover quickly, the gap between the regional and national levels narrowed from 30% in 2009 to 24% in 2015.

Outokumpu is a small rural municipality in North Karelia that has experienced a long-term transition associated with the closure of a major copper mine in 1989. For most of the 20th century, Outokumpu was the key mining municipality in Finland. The extraction of copper ore started the development and industrialisation of Outokumpu. However, mining activities in the municipality ceased completely at the end of 1989. The transition from mining to a manufacturing-based economy has been a positive experience, though not without its problems. Currently, North Karelia and Outokumpu face development challenges, particularly in terms of generating a more dynamic business environment and labour market.

Strengths/competitive advantages in North Karelia and Outokumpu:

The geographical location opens opportunities for the region of North Karelia and the municipality of Outokumpu. Outokumpu is located within the local labour market (LLM) of Joensuu – an important service and manufacturing centre for the region of North Karelia – and its university is a key economic asset for the LLM and the region. Growth in North Karelia is mainly concentrated in the LLM of Joensuu, which is of sufficient size and diversity to attract skills that can support diversification and value-adding in the regional economy. A key issue for a municipality such as Outokumpu is how to further enhance integration both institutionally and through infrastructure connectivity with Joensuu.

- In a European context, North Karelia and Outokumpu are highly specialised in industrial sectors (e.g. mining and manufacturing) and, therefore, these sectors are vital for their economy. In the case of Outokumpu, one-third of the jobs are created in the manufacturing sector with a specialisation in metal product manufacturing that is performing strongly. Over the past two decades, the value of mining activity in the region has increased and the mining value chain (extraction and processing) has become more important to the regional economy. As such, the industry of Outokumpu plays an instrumental role in the smart specialisation strategy of North Karelia. This includes the industrial park of Outokumpu, which hosts knowledge-intensive and globally connected companies in the metal technology sector.

- As a result of long-term specialisation in mining, Outokumpu has developed expertise and infrastructure to extract and manufacture mineral and metal products. This existing know-how can facilitate future opportunities for the municipality in terms of quality of life such as increased employment (including highly skilled workers) and public and private sector investment related to the mining and extractive sectors. Furthermore, existing mining knowledge can be translated into services around mining activities such as a heritage centre and mining education and training.

Bottlenecks for sustainable economic development:

- Like many rural remote regions and communities, North Karelia and Outokumpu face challenges in terms of the size of the potential workforce due to the declining and ageing population. The latter has crucial consequences for a shrinking working-age population, such as higher costs in healthcare and senior services provision combined with a shortage of workers to deliver these services, and decreasing local tax revenues. Key challenges exist for younger people and older workers – a more proactive approach is needed in terms of workforce development and skills with a particular focus on transition pathways for these groups.
- The financial crisis severely affected the employment rates of the young and working-age population while the share of the working-age population outside of the labour force increased. Moreover, Outokumpu is highly specialised in industrial activities. Mismatches in the labour market are jeopardising the competitiveness of Outokumpu since the local industrial sector's labour demand does not match the skills of the local workforce (generally lower-skilled) and the need for specialists (e.g. operators and engineers) is high.
- Alongside these demographic and labour market trends, the lack of diverse employment opportunities in Outokumpu has meant that the high-skilled local population has migrated to areas with greater opportunities for economic development and quality of life (e.g. capital region and Joensuu). This will further magnify the impact of demographic change on the future labour force supply and the fiscal sustainability of the municipality.
- Outokumpu has a competitive industrial sector with international linkages. However, it is not particularly dynamic in terms of new enterprise creation. The municipality has in recent years faced a declining rate of entrepreneurship and stagnation in the establishment of new businesses. Improving the local environment for entrepreneurship will help the municipality achieve its objectives to diversify the economy, develop a more dynamic labour market and improve quality of life.

Recommendations

The analysis in this chapter suggests a small number of future policy priorities for the Regional Council of North Karelia and the municipality of Outokumpu that will be further developed in the following chapters:

- Strengthen institutions that enable prioritisation and co-ordination of policies and resource allocation at the scale of the Joensuu LLM (e.g. workforce development and skills, service delivery, infrastructure planning and investment, business support services and entrepreneurship).
- Promote the role of the mining value chain (minerals and metals extraction, related manufacturing, and mining technology services) as a driver of regional growth and competitiveness (e.g. in the North Karelia Smart Specialisation Strategy, and land use and infrastructure strategies).
- Develop a regional approach to workforce development and skills in partnership with local industry, which includes transition pathways for at-risk groups and a co-ordinated approach to attracting and retaining specialised skills.
- Implement a cohesive approach to supporting local entrepreneurship which is inclusive of small rural municipalities in the region.

Introduction

This chapter diagnoses the performance of the TL3 region North Karelia and the municipality of Outokumpu. It then identifies the main strengths and bottlenecks driving the performance and effects on well-being in the region and in the municipality. Before this analysis, it provides a brief historical overview of the mining sector. Although mining is not a dominating economic activity in the region, contributing to only 4% of regional GDP and the municipality of Outokumpu, it has an important legacy and role in its future.

The analysis benchmarks the performance of the TL3 region of North Karelia against national trends and other comparable TL3 regions. For this task, it benchmarks the performance of North Karelia against regions with the same TL3 classification using the extended OECD typology (see Box 1.2) and it also benchmarks the performance of North Karelia against regions with the same economic profile.

Box 1.2. Comparable TL3 regions for North Karelia

Regional classification

The OECD has developed a regional typology of Territorial Level 3 (TL3) regions to compare regional performance across member countries. Regions are defined based on the population density of municipalities (defined as rural if their population is below 150 inhabitants per km²), the size of their main urban agglomeration, and proximity to a functional urban area. This typology classifies TL3 regions as predominately urban, intermediate, predominantly rural close city and predominantly remote rural region. Using the OECD regional typology, North Karelia is defined as a predominantly rural remote region. There are 486 predominately remote rural regions across the OECD and 7 in Finland (Åland, Central Ostrobothnia, Kainuu, Lapland, Southern Ostrobothnia and Southern Savonia, in addition to North Karelia).

Source: Brezzi, M., Dijkstra, L. and Ruiz, V. (2011^[1]), “OECD Extended Regional Typology: The Economic Performance of Remote Rural Regions”, <https://dx.doi.org/10.1787/5kg6z83tw7f4-en>.

Within a European context, North Karelia has a relatively high specialisation in industry (manufacturing, mining, energy and water), and natural resource-based sectors (particularly forestry). To draw international comparisons, the analysis identifies 14 OECD TL3 regions similar to the characteristics of North Karelia based on 2 characteristics (rurality and industry linked to natural resources). The regions were selected using the following three-step criterion:

1. Each TL3 predominantly rural remote region in the European Union (EU) was ranked according to its sectoral share in industry and locational quotient (the ratio of the regional share in industry to the national share).
2. The population size of each region was compared to North Karelia.
3. Desktop research was used to identify if regions with a similar level of specialisation and population size had current mining activities and/or a legacy of mining.

Based on this procedure the following regions were selected as comparators for North Karelia:

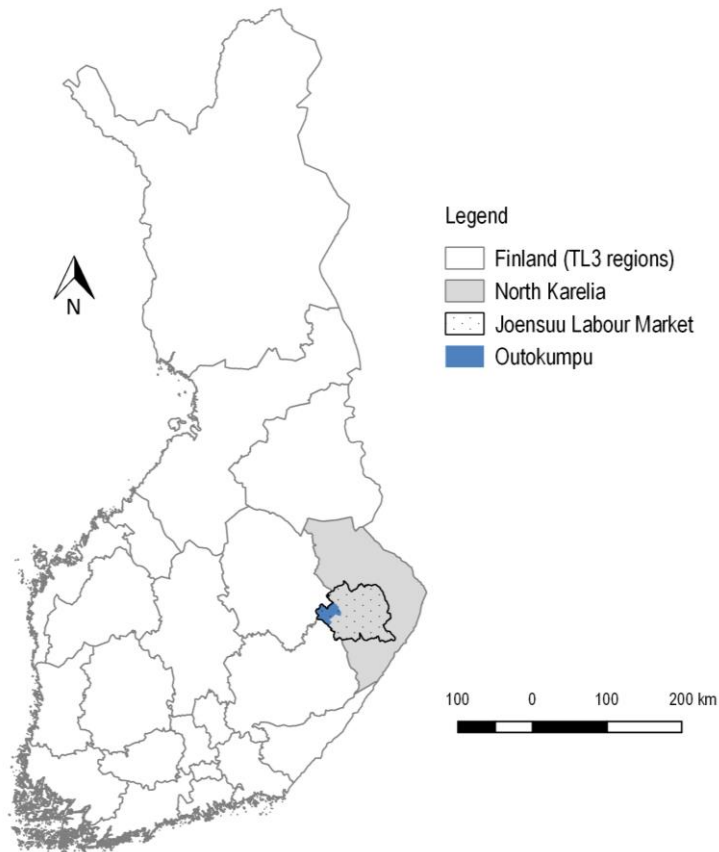
- Liezen, Oberkärnten and Waldviertel (Austria).
- Aveyron, Jura, Mayenne and Vosges (France).
- Finnmark, Nordland and Nord-Trøndelag (Norway).
- Baixo Alentejo, Beira Baixa and Terras de Trás-os-Montes (Portugal).
- Dalarna County (Sweden).

The municipality of Outokumpu is benchmarked against other municipalities in the Scandinavian context and to the local labour market (LLM) in North Karelia. The LLM, as described in subsequent sections, is based on aggregations of contingent and integrated municipalities based on commuting patterns. Outokumpu is part of an LLM along with five other adjacent municipalities.

North Karelia, Outokumpu and the history of mining

North Karelia is Finland's easternmost region. According to OECD TL3 typology, North Karelia is classified as a predominantly rural remote region. It shares around a 296 km frontier with Russia and a regional border with Kainuu, Pohjois-Savo and South Savo. In 2017, North Karelia was home to 162 986 people, which represents 3% of the Finnish population. The region's land area (17 761 km²) represents 5.8% of the total land area of Finland. North Karelia has a population density of 9.2 inhabitants per square kilometre compared to the national figure of 17.94.

The municipality of Outokumpu is located within the region of North Karelia and it is home to around 7 000 inhabitants, which represent approximately 4.3% of North Karelia's population. Due to the relatively small land area of Outokumpu (445.81 km²), it is one of the most densely populated municipalities in the region (population density was 15.7 people per square kilometre compared to the population density of North Karelia of 9.2 persons per square kilometre).

Figure 1.1. North Karelia is the easternmost region in Finland

Source: Author's elaboration

The economy of North Karelia is quite diverse with the following activities:

- It has an important base in forestry and related value-added, and agriculture. Agricultural production is mainly in livestock alongside dairy and cereals, berries and vegetables.
- The structure of the export base has evolved to include a range of manufacturing subsectors. Areas of specialisation for the region include the production of plastic and metal products, mechanical wood processing and the manufacturing of stone products.
- Services have been increasing due to the growth of the university in Joensuu, and the growing demand for health and social services as the population ages.
- Tourism is of less importance to North Karelia than other regions in Northern and Eastern Finland.

North Karelia is also specialised in mining. Mining and quarrying currently employ 3% of the labour force (compared to 1% in Finland). In Outokumpu, 4% of the labour force is employed in mining and quarrying. Mining also has an important historical legacy in the region and in particular for the municipality of Outokumpu.

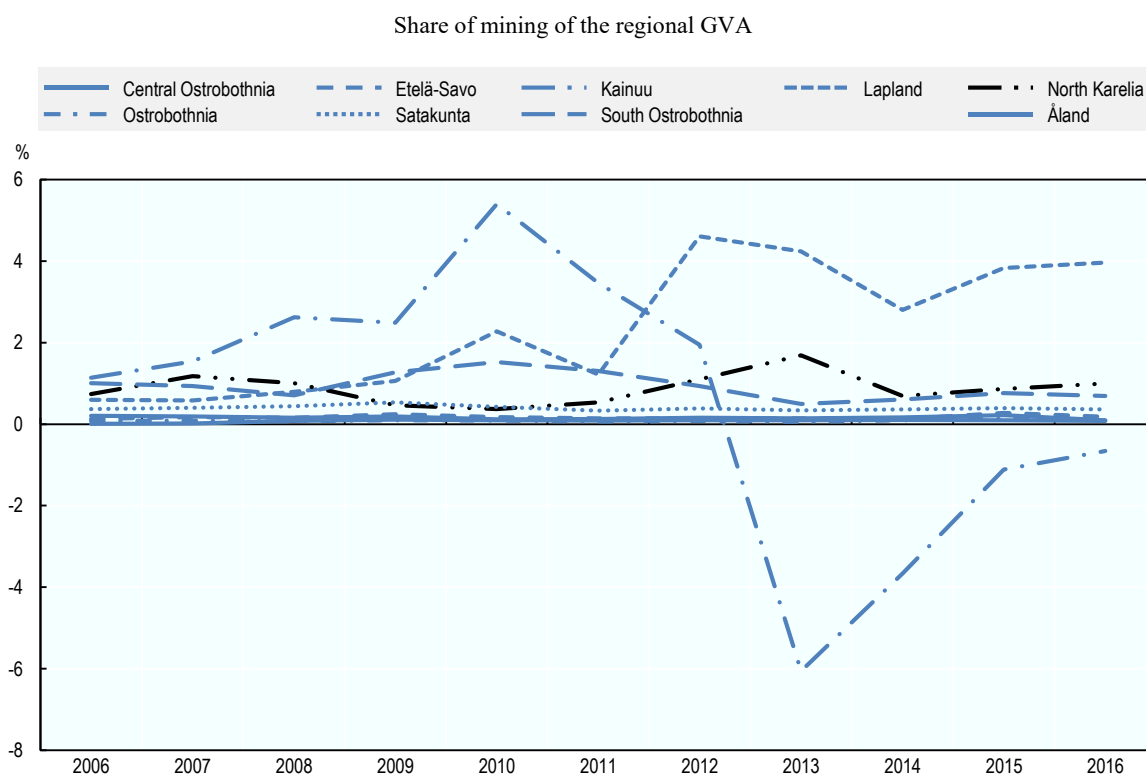
The transformation of mining in Finland, North Karelia and Outokumpu

The Finnish economy industrialised relatively quickly after the Second World War, exploiting its linkages to Western Europe and the Soviet Bloc. During this period, the extraction of minerals and metals declined as a share of the economy whilst the processing of minerals and metals increased.

Finland's economy was hit hard by the recession of the early 1990s, which was compounded by the fall of the Soviet Union and transition of the former eastern bloc countries. Throughout the 1990s, the economy adapted with increasing growth in knowledge-based services. Rising global commodity prices in the 2000s led to an increased interest in mining and exploration.

In recent decades, Finland's economy experienced further shocks including the decline in markets for electronic exports, lower demand for paper and pulp, and the collapse in export markets to Russia. These external shocks had a significant impact on economic performance leaving output in 2015 7% below that of 2007 (OECD, 2016^[2]).

Figure 1.2. Mining activities across Finnish predominantly in rural remote regions, 2006-16



Note: Predominantly rural remote regions, Finland.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The government's economic programme since the global financial crisis has focused on improving the cost competitiveness of Finnish industry and the economy's resilience to change including through wage restraint and fiscal consolidation. In the medium term, exports will be important to the recovery of Finland due to slow household income growth and lower public spending.

Although it only represents 0.4% of national gross value-added (GVA) in 2016, Finland's economy has an important legacy in mining. Currently, there are around 40 active mines and a number of exploitation projects (Mining Finland, n.d.^[4]) scattered unevenly across its territory and regions.

Generally, the share of mining varies from 0.1% to 10% across its TL3 regions. Lapland and North Ostrobothnia have relatively higher specialisation in mining than other regions. Lapland alone contributes to 30% of Finland's value-added in mining. A majority of mineral deposits and new exploration projects are situated not only in Northern Finland but also in Eastern Finland (e.g. North Karelia). North Karelia's share of national GVA in mining is currently 6.4%.

Outokumpu was established in 1913 with the start of copper mining, which was subsequently expanded to include the refining and smelting of copper. Production of copper from the mine increased rapidly from the 1930s and peaked in the 1960s. From this point onwards, the mine entered a long phase of declining production and closure in 1989.

The municipality, located in the Outokumpu geological area that contains copper, zinc, cobalt and nickel deposits, still has unexploited resources and there are a number of mining exploration projects underway (GTK, 2014^[5]). In addition, Outokumpu is in close proximity to two active mines: Kylylahti multi-metal mine in Polvijärvi and Endomines gold mine in Ilomantsi. Overall, there are at least ten known deposits with active permits at less than one-hour's distance from Outokumpu (see Chapter 2 for further discussion).

Demographic and settlement patterns

The population is decreasing in North Karelia as opposed to a national positive growth trend. The population growth in North Karelia over 2001-15 was negative (96.3) when compared to the base year (2001=100), in contrast with the national trend of 105.6. This decrease, albeit slightly lower, is similar to the trend in other Finish rural remote regions (98.4) and the TL3 benchmark regions with a similar characteristic (Table 1.1).

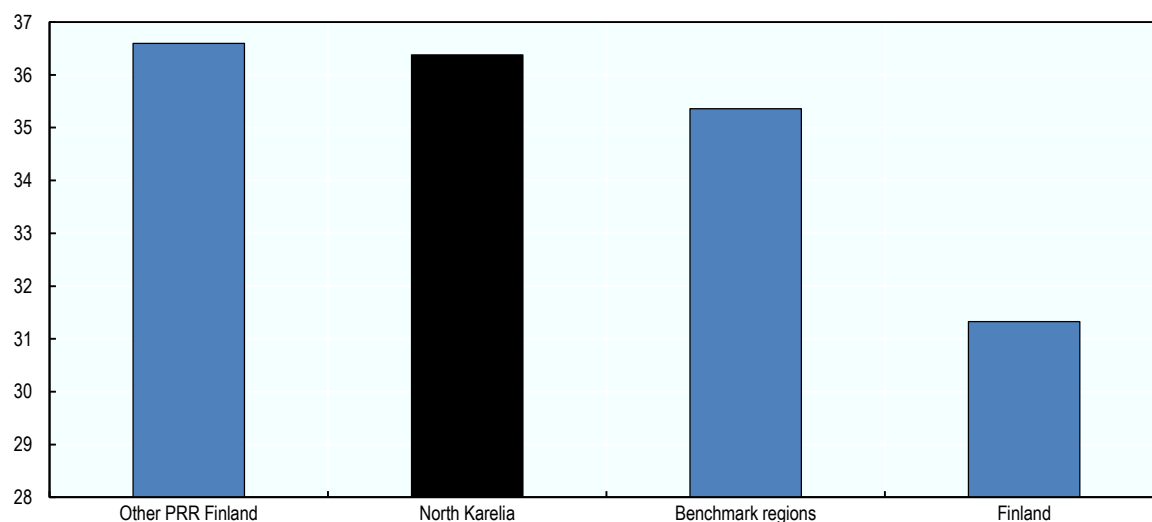
The elderly population dependency ratio is higher in North Karelia than in comparable regions and is growing at a faster pace. North Karelia has a higher elderly dependency ratio (36.3%) against the ratio in benchmark TL3 regions (35.5%) and nationally (31.5%). Over 2001-15, the population was ageing the fastest in Finland (140.4) followed by other rural remote regions in Finland (132.2) and North Karelia (130.2). Notwithstanding these lower trends, the region faces a higher growth rate in elderly population when compared to the benchmark TL3 comparable regions.

Table 1.1. Population growth and ageing, North Karelia, Finland and select regions, 2001-15

	Population growth index	Population aged 65+ growth index
Finland	105.6	140.4
North Karelia	96.3	130.2
Other predominantly rural regions (PRR) in Finland	98.4	132.2
Benchmark regions	98.6	116.2

Note: Growth index calculated based on index year (2001 = 100).

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Figure 1.3. Elderly dependency ratio, North Karelia compared with Finland and select regions, 2015

Note: Elderly dependency ratio, as a percentage of 65 year-olds or more over population aged 15-64.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Outokumpu is a municipality in North Karelia, part of the local labour market and located 50 kilometres from Joensuu, the economic centre of North Karelia. Local labour markets (LLMs) are defined as contiguous municipalities with a significant degree of commuting across municipal borders. In North Karelia, the LLM includes six municipalities (Ilomantsi, Joensuu, Kontiolahti, Liperi, Outokumpu and Polvijärvi), all with different population sizes. Joensuu is the largest municipality of the LLM with a total population of 76 067 inhabitants. Kontiolahti and Liperi are the other 2 municipalities with a population size of over 10 000 inhabitants, followed by Outokumpu with a population of 7 000 and a population density (15.7) above the LLM average of 13.35.

Table 1.2. Local labour market

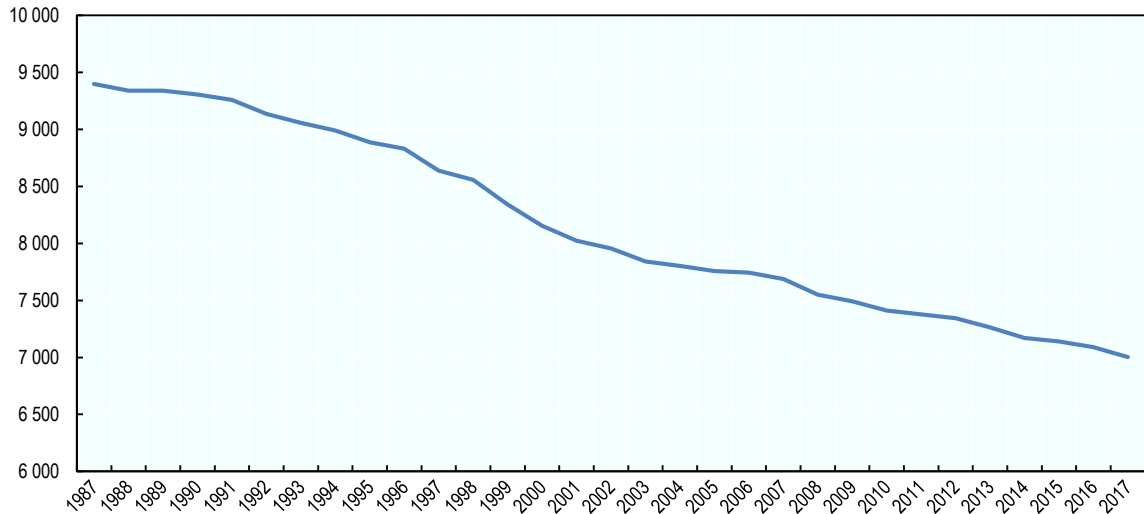
	Population	Density	Share of population living in sparsely populated areas (%)
Ilomantsi	5 128	1.86	45
Joensuu	76 067	31.94	11
Kontiolahti	14 830	18.56	29
Liperi	12 150	16.72	43
Outokumpu	7 003	15.71	32
Polvijärvi	4 414	5.49	68

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Demographic trends in Outokumpu mirror the transition of mining activities. The closure of the mine in 1989 resulted in a long-term demographic decline as demand for labour at

the mine was reduced. The population of the town peaked at around 13 000 in 1960 with relatively slow decline until the closure of the mine in 1989, which led to rapid decline. Outokumpu is a classic example of a resource-dependent economy that has experienced a transition due to the depletion of non-renewable resources (see Box 1.3).

Figure 1.4. Population growth in Outokumpu, 1987-2017



Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Box 1.3. Resource-dependent economies and transition

Rural economies are characterised by low population densities, small internal markets and greater reliance upon exports to drive growth. The abundance of resource endowments (which vary by region) means that growth is largely driven by the extraction and export of raw materials or “staples” (e.g. minerals, metals, timber and food). This export base has a multiplier effect as the income flows into the region and generates additional activity for local suppliers which spend a part of this on additional local consumption. A key challenge for resource-dependent rural economies is capturing greater value-adding opportunities by developing upstream (production and services) and downstream (further processing) linkages.

Specialisation in mining and extractive industries has particular impacts on rural economies. The productivity of this sector tends to be higher and this supports higher wages. Increased spending can drive up prices in the non-traded sectors (e.g. accommodation and food services, construction, housing) and this affects the competitiveness of other tradable sectors (e.g. tourism-related services, manufacturing, food and agriculture). The mining sector also tends to be capital intensive and directly employs only a small share of the workforce. In some regions, this workforce is also increasingly mobile and characterised by “fly-in/fly-out” or “drive-in/drive out” dynamics. Higher wages supported by extractive industries and the capture of benefits by a low share of the population can contribute to higher inequality within regions.

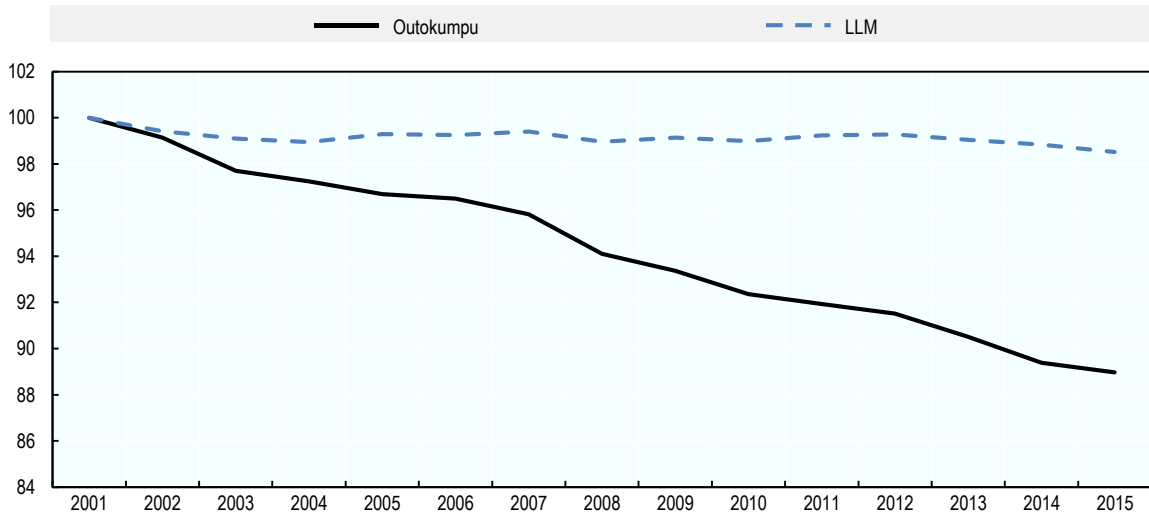
Growth cycles of these regions can differ from national economies due to shifts in commodity markets and the finite nature of non-renewable resources. There are three phases which are:

- The investment phase that can lead to relatively large increases in local economic activity and employment due to the capital investment required to establish new mining and extractive activities.
- The production phase when mines are operational, which creates ongoing business and employment opportunities in the region often at a higher income and wage level than other sectors.
- Decline and closure of mining and extractive operations that can then lead to significant reductions in local economic activity and employment.

A number of factors shape the resilience of resource-based economies to these transitions. The first is the existence of other areas of absolute and competitive advantage, for example, different types of minerals and metals, opportunities for food production, high-quality amenities and access to markets. The second is the level of integration between mining and extractive operations and the local economy. Weak linkages reduce the scope for diversification (whether it be related services and/or manufacturing) and value-added leaving the local economy vulnerable to changes in commodity prices and the depletion of resources. Third, is the size of the local population that influences the diversification of the economy and its capacity to adjust to shocks.

Sources: Stimson, R., R. Stough and B. Roberts (2006^[7]), *Regional Economic Development: Analysis and Planning Strategy*, Springer; Mitchell, C. and K. O'Neill (2016^[8]), "Tracing economic transition in the mine towns of northern Ontario: An application of the "resource-dependency model"", <http://dx.doi.org/10.1111/cag.12238>; Ivanova, G. (2014^[9]), "The mining industry in Queensland, Australia: Some regional development issues", <http://dx.doi.org/10.1016/J.RESOURPOL.2014.01.005>; OECD (2017^[10]), "Mining regions and their cities: Scoping paper", <http://www.oecd.org/cfe/regional-policy/Scoping-paper.pdf> (accessed on 27 March 2019).

Population in Outokumpu is decreasing at a faster pace than in the broader local labour market. During 2001-17, the population decreased (87.3) in the municipality with respect to the base year (2001 = 100), against a relatively stable population trend in the LLM (Figure 1.5).

Figure 1.5. Population growth in Outokumpu and its local labour market, 2001-07

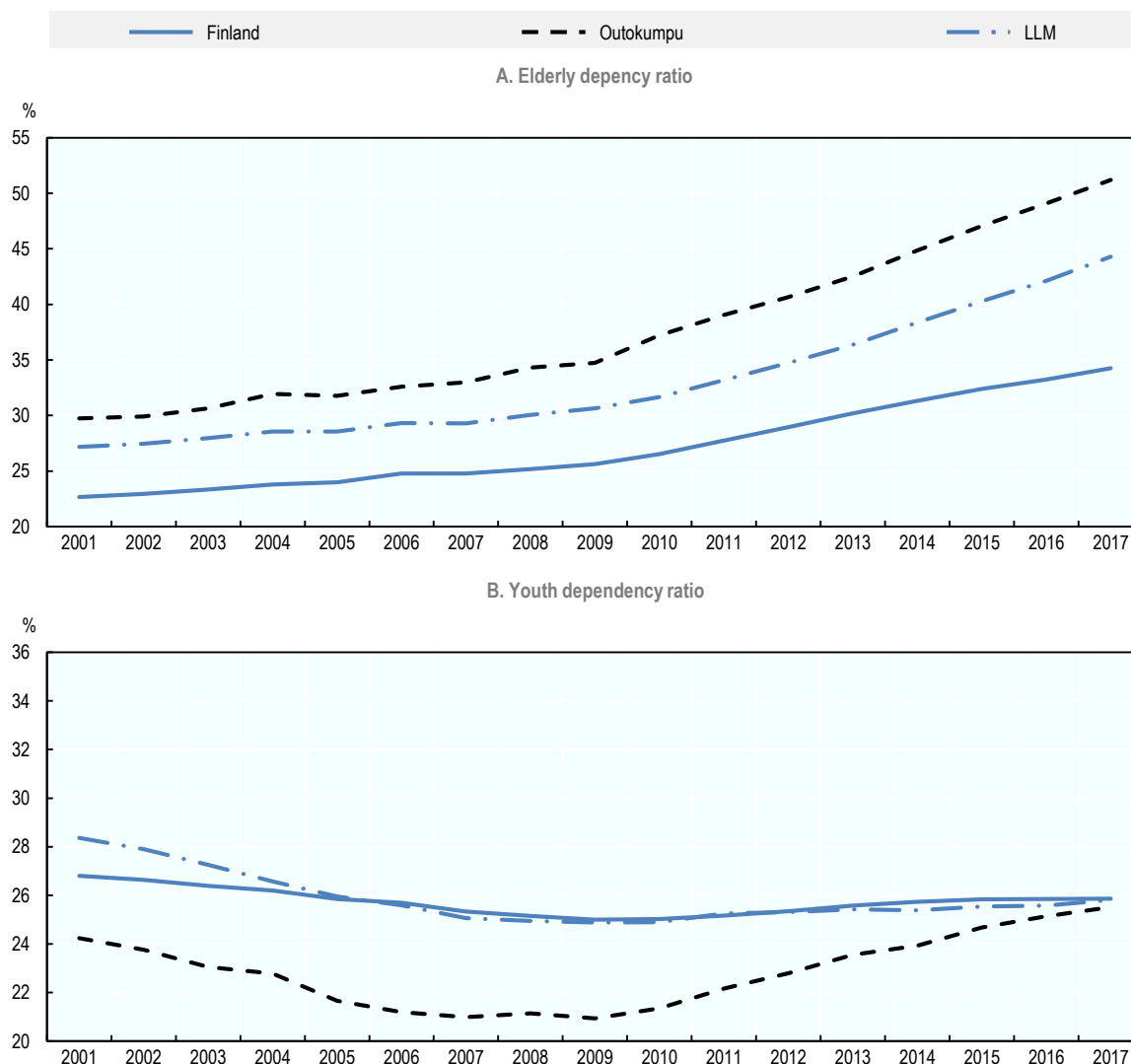
Note: 2001 value = 100.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The elderly dependency ratio (65 and over to the working-age population of 15-64) for Outokumpu was higher than in the broader local labour market: it stood at 51% in 2017, around 6 percentage points higher than in the local labour market and 19 percentage points higher than nationally. Since 2009, this gap has been widening with the growth of the share of elderly people increasing from 35% to 51% in the period 2009-17.

The youth dependency ratio (measured by a ratio of youth population aged 0-14 and working-age population) in Outokumpu is **around the level of the broader local labour market**. The youth dependency ratio decreased from 24% to 21% before the crisis period over 2001-09 and subsequently increased to 26%, the same level as the LLM average.

Figure 1.6. Elderly dependency ratio and youth dependency ratio, 2001-17

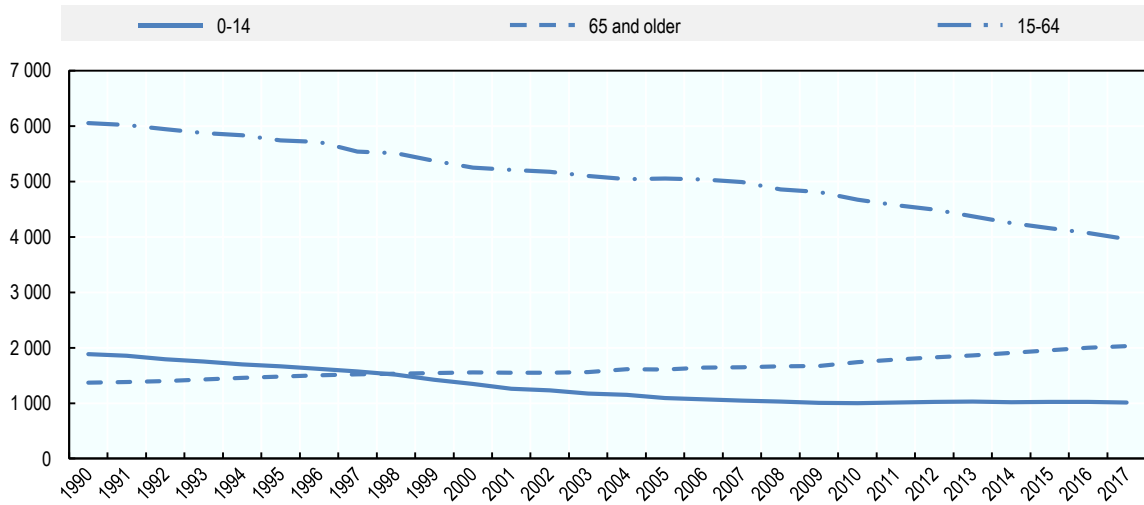


Note: The elderly dependency ratio is defined as the size of the elderly population (65 and over) related to the working-age population (15-64 years old). The youth dependency ratio is defined as the size of the youth population (0-14 years old) related to the working-age population (15-64 years old).

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

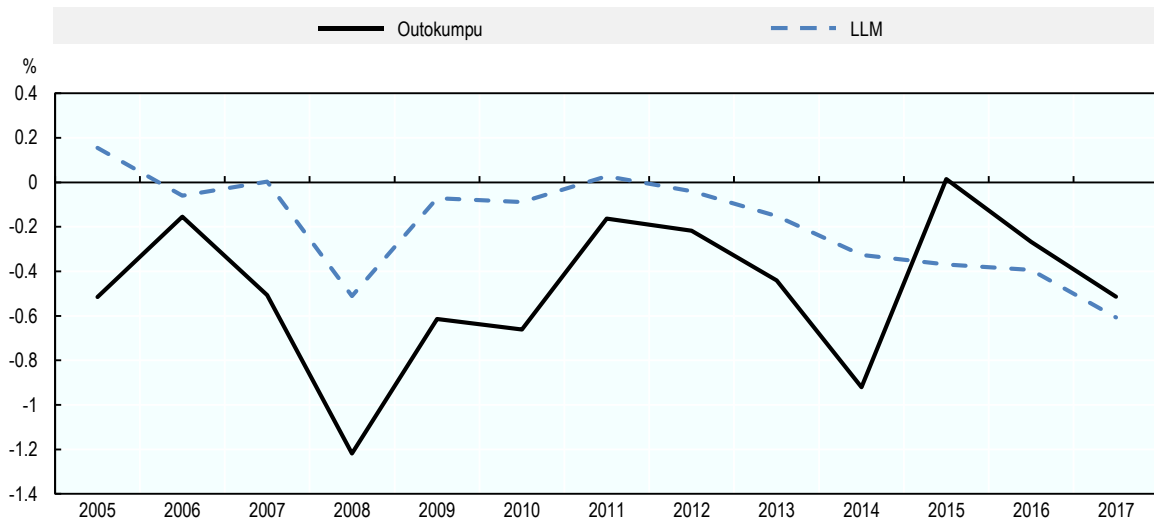
The rise in the elderly dependency ratio is driven by a decline in the working-age population in Outokumpu. In 2017, Outokumpu had about 1 011 young residents aged 0-14, 3 963 working-age people aged 15-64 and 2 029 elderly people aged 65 and over. Since 2009, the decline in the working-age population has accelerated (4% decrease) whereas the youth population has increased marginally (0.04%). Therefore, the high increase in the youth dependency ratio was a cause of the greatly decreasing working-age population (see Figure 1.7). The elderly population experienced the highest growth rate as the population increased by 2%, corresponding to 358 individuals.

Figure 1.7. Growth in the youth, working-age and elderly populations in Outokumpu



Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Figure 1.8. Ratio of net migration to total population, 2005-17



Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The age composition in Outokumpu has been transformed as a result of out-migration mainly by the younger population. Net migration data shows that Outokumpu has lost much more population to other municipalities than the LLM on average in 2005-17. In 2017, the total net migration of Outokumpu was -0.5% of the population.

Summary

A key challenge for North Karelia and Outokumpu is a declining and ageing population that is reducing the size of the potential labour force. This challenge is particularly acute

for Outokumpu where the population has nearly halved in the past 60 years and the out-migration of skilled working-age people has accelerated since the financial crisis. Outokumpu does benefit from its proximity to Joensuu and integration within its LLM. This suggests two key policy priorities for the municipality and region. The first is fostering further institutional and infrastructure linkages within the LLM, and the second is a proactive approach to workforce development and skills that can mobilise the available labour force.

Economic performance

Economic performance of North Karelia

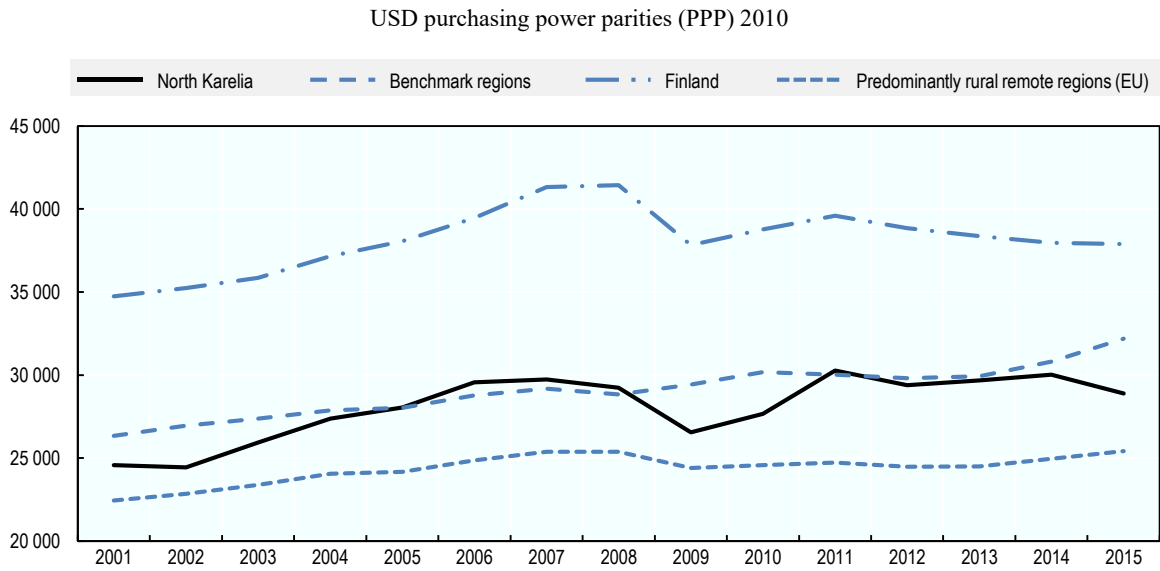
GDP per capita in North Karelia is lower than the national average but higher when compared to TL3 benchmark regions. In 2015, GDP per capita for North Karelia was USD 28 900, which was 76.2% of the national average and 89.8% of the benchmark region average. However, the level of GDP per capita for North Karelia was higher than for the other predominantly rural remote regions in the EU.

North Karelia's economy has been more resilient to the crisis than nationally. The gap in per capita GDP between North Karelia and the country average has narrowed, especially after the crisis. During 2001-15, the GDP per capita gap between North Karelia and the national average declined from 29.3% to 23.7% and the gap to benchmark regions average widened from 6.7% to 10.2%. The gap narrowed due to North Karelia's faster growth rate. During the financial crisis, between 2007 and 2009, GDP per capita decreased by 12% compared to the national average of 9.3%. However, after the crisis (2010-15), North Karelia grew 1.3% compared to 0% for Finland.

Labour productivity in North Karelia is below the national average. Labour productivity, measured as GDP per worker, in 2015 was USD 62 792, which was 12.3% lower than the national average of USD 71 615. Compared to the benchmark regions, North Karelia performed better in terms of labour productivity than other selected regions (the average for predominantly rural remote TL3 regions in Europe [USD 60 147] and the benchmark regions [USD 61 124]).

North Karelia's labour productivity was more resilient to the crisis and the gap with the national level has narrowed. The drop in labour productivity during the crisis period (2007-09) was higher in North Karelia than in Finland on average (-13% compared to the national average of -8.5%). In addition, the decrease was much higher than for the predominantly rural remote regions in Europe average (-3.8%) and the benchmark regions average (-3.4%). However, the recovery of North Karelia in labour productivity between 2010 and 2015 was faster (1.2%) compared with the national average (0%), predominantly rural remote regions (0.8%) and benchmark regions (0.7%). The higher growth rate in labour productivity led to lower the gap with the national level from 14.5% to 12.3% in the period 2004-15.

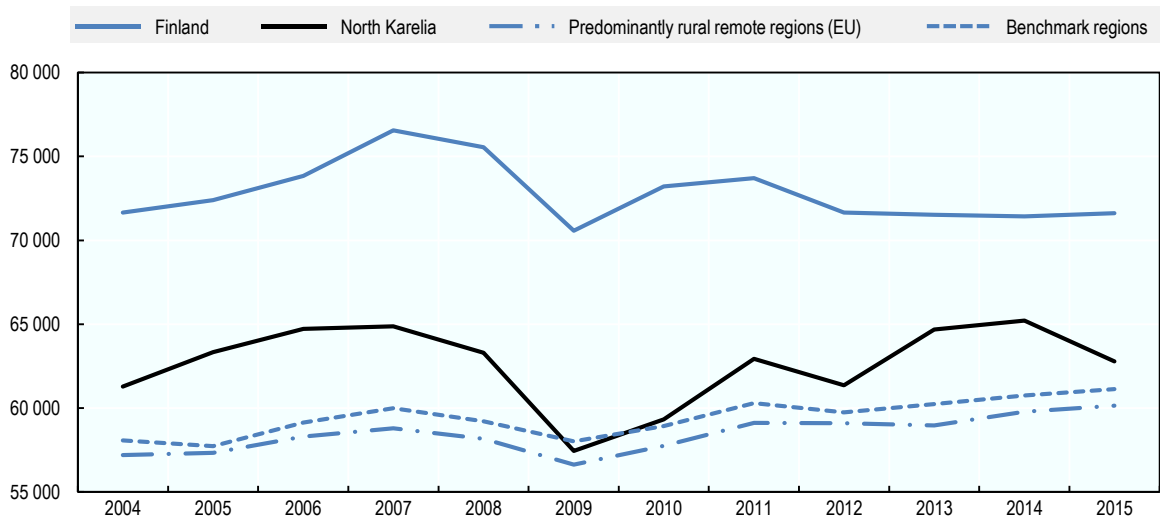
Figure 1.9. GDP per capita trend, 2001-15



Note: USD million, constant prices, constant PPP, base year 2010. Benchmark regions have been identified based on the following criteria: TL3 region classified as predominantly rural remote, similar percentage of GVA in industry of regional economy, current mining activity or mining heritage, and similar level of GDP per capita. They are: Liezen, Oberkärnten and Waldviertel (Austria); Aveyron, Jura, Mayenne and Vosges (France); Finnmark, Nordland and Nord-Trøndelag (Norway); Alentejo, Baixo Beira Baixa and Terras de Trás-os-Montes (Portugal), and Dalarna County (Sweden). There are 175 EU TL3 predominantly rural remote regions included in the sample, which also includes Norway.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Figure 1.10. Labour productivity trend, 2004-15



Note: USD million, constant prices, constant PPP, base year 2010.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

In an EU context, North Karelia's economy is dominated by industrial sectors. The industrial sectors combine forestry, energy and mining with manufacturing. North Karelia had a high level of labour productivity in industrial sectors and the labour productivity was well above the median of EU predominantly rural regions in 2015 (see Table 1.3).

Table 1.3. GVA by sectors, North Karelia in an EU context, 2015

	North Karelia (%)	EU median of PRR (%)
Industry	21.5	18.3
Mining and energy	4.6	3.2
Tradable sector	54.7	48
Natural resource specialisation	12.7	12.4
Tradable services	9.3	9.2

Note: 158 predominantly rural regions (PRR) in the EU.

Source: OECD (2018^[11]), *OECD Regional Statistics*, https://www.oecd-ilibrary.org/urban-rural-and-regional-development/data/oecd-regional-statistics_region-data-en (accessed on 3 December 2018).

Table 1.4. Productivity in North Karelia, 2015

	North Karelia (USD)	EU median of PRR (USD)
Labour productivity	63 792	52 578
Labour productivity - mining	200 330	122 211
Labour productivity - industry	80 894	69 633

Note: 122 Predominantly rural regions in the EU.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

North Karelia is highly specialised in industrial sectors in a national context. The agriculture, forestry and fishing sector scored the highest local quotient both in terms of employment by industry and GVA by industry. Other areas of specialisation are the manufacturing and mining sectors. Real estate and construction are other sectors of specialisation in terms of gross value-added (GVA) and, like the other service sectors, are clustered within the city of Joensuu.

Manufacturing activities were particularly vulnerable to the effects of the financial crisis in Finland and in North Karelia. Manufacturing activities in 2007 contributed to almost 30% of North Karelia's output. This contribution decreased in the aftermath of the crisis by six percentage points over 2007-16. Against this trend, tradable sectors such as the forestry sector, industry (mining and energy) and business services (information and communication technology [ICT] and professional and technical services) in North Karelia experienced growth during the period 2005-15.

Table 1.5. National specialisation index by economic activity, North Karelia, 2015

	Location quotient	
	Employment	GVA
Agriculture, forestry and fishing	2.0	2.8
Manufacturing	1.1	1.0
Industry (excluding manufacturing)	1.1	1.1
Construction	1.0	1.1
Trade, transport, accommodation and food services	0.8	0.8

	Employment	GVA
Information and communication	0.5	0.5
Financial and insurance	0.6	0.6
Real estate	0.9	1.1
Professional services	0.6	0.5
Public administration	1.1	1.2
Other services	1.1	1.0

Note: The locational quotient for each sector is the ratio between the sector weight in the regional gross value-added (GVA)/employment, and the weight of the same sector in the national GVA/employment. A value above 1 implies that the region is more specialised in that sector than the rest of the economy. GVA based on USD PPP constant values (2010).

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Within the manufacturing sector, North Karelia performed well in the manufacture of machinery and equipment, the paper industry, the manufacture of fabricated metal products, the chemical industry and worse in the manufacture of electrical and electronic products and other non-metallic mineral products. The region is highly specialised in the manufacture of rubber and plastic products, as well as the manufacture of food products. Since the financial crisis there have been some changes with:

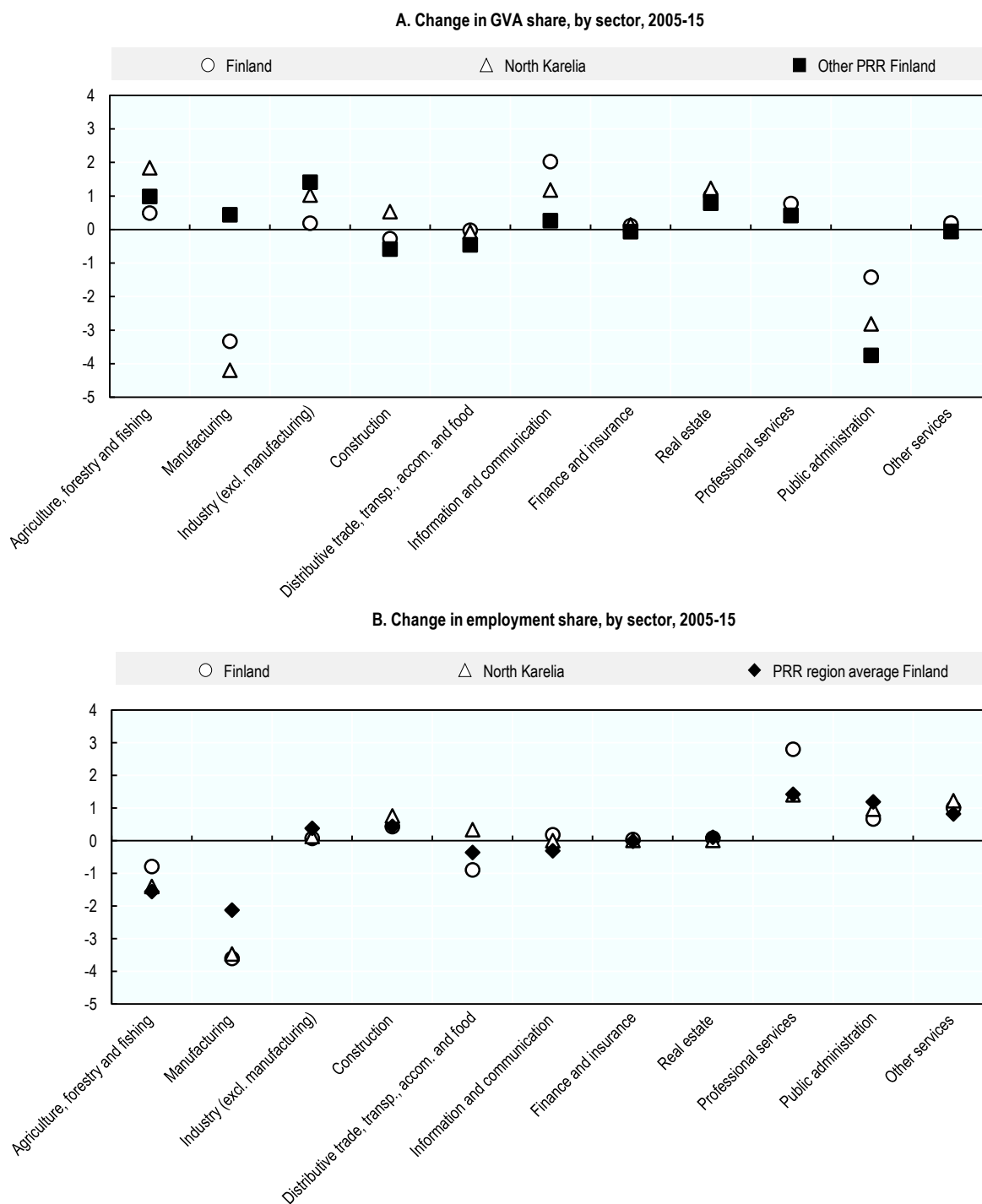
- The most significant decreases in the electrical and electronic products activities (-62.6 percentage points), manufacture of other non-metallic mineral products (-40.5 percentage points) and woodworking industry (-16.4 percentage points).
- Some areas of growth even though manufacturing experienced a drop during 2007-16. These include growth in the manufacture of machinery and equipment (35 percentage points), the paper industry: printing (20.5 percentage points), and in the manufacture of fabricated metal products sector (16.1 percentage points) (see Table 1.6).

Table 1.6. Change in output, manufacturing subsectors, North Karelia and Finland, 2007-16

	Percentage of North Karelia economy (2007)	Percentage point change in output, North Karelia (2007-16)	Percentage point change in output, Finland (2007-16)
Woodworking industry	6.3	-16.4	-20.1
Manufacture of machinery and equipment	4.8	35.0	-5.6
Paper industry: Printing	4.7	20.5	-14.8
Manufacture of electrical and electronic products	4.0	-62.6	-50.4
Manufacture of fabricated metal products	3.6	16.1	-24.7
Chemical industry	2.9	10.3	1.8
Manufacture of other non-metallic mineral products	1.5	-40.5	-13.0
Other manufacturing: Repair and installation of machinery and equipment	1.5	-7.3	0.2
Manufacture of transport equipment	0.2	-1.6	-11.3
Total	29.5	-5.2	-15.3

Note: Current prices.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

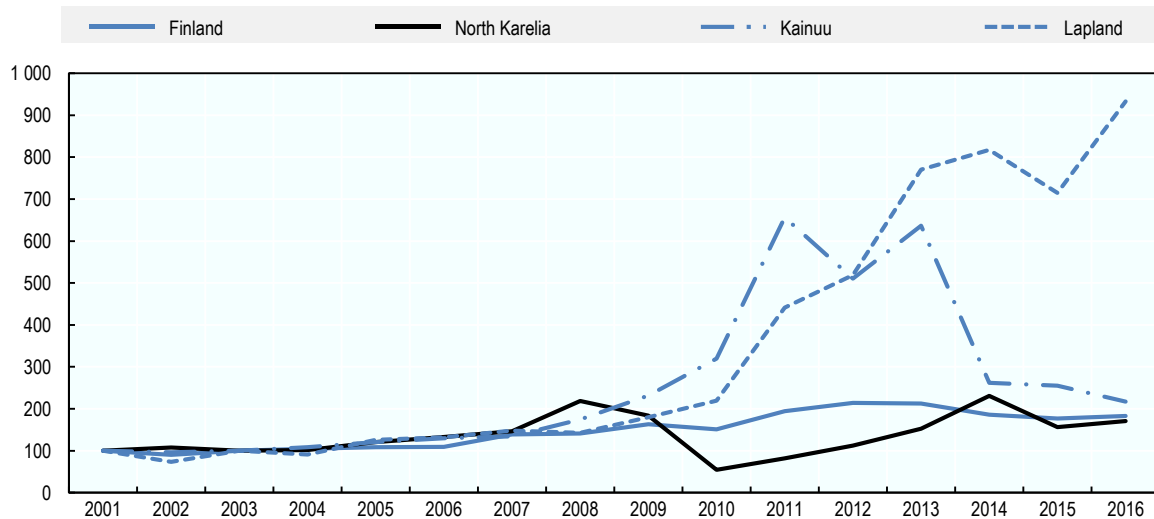
Figure 1.11. Financial crisis affected manufacturing negatively

Note: GVA based on USD PPP constant values (2010). Comparing Finland, North Karelia and other predominantly rural remote regions in Finland.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

The mining sector, alongside energy, was one of the sectors recording positive growth over the 2005-15 period. In real terms, the mining sector has grown by 75% since 2001 in North Karelia. This type of development is consistent with the national average that is mainly driven by the increase in Lapland. Lapland has benefitted from favourable market conditions in mining and quarrying, driving a 10-fold increase over 2001-16 (see Figure 1.12).

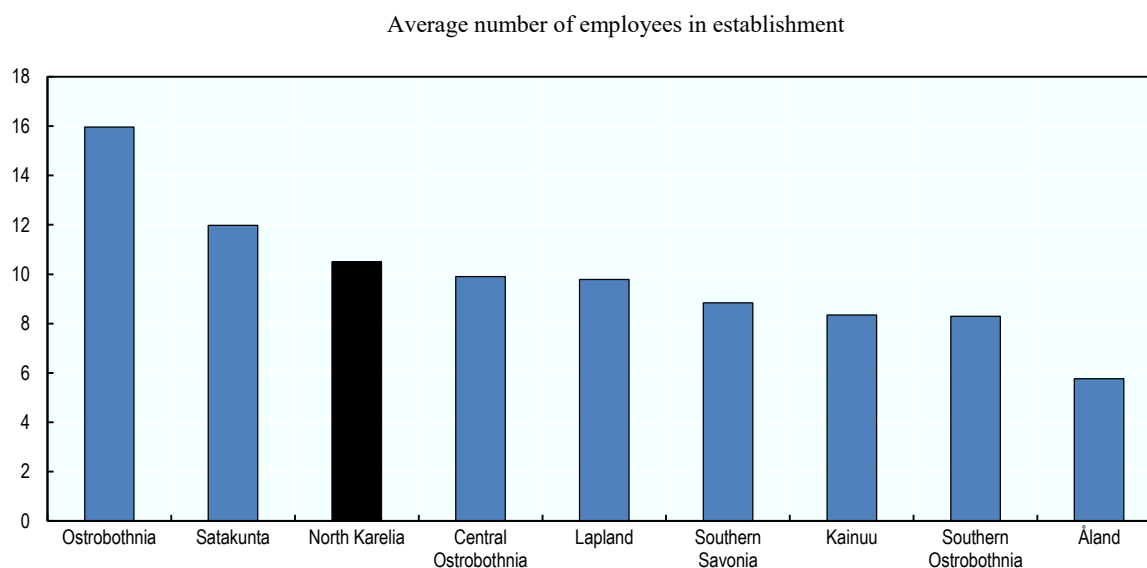
Figure 1.12. Growth index, regional output, North Karelia, Finland and select regions, mining and quarrying, 2001-16



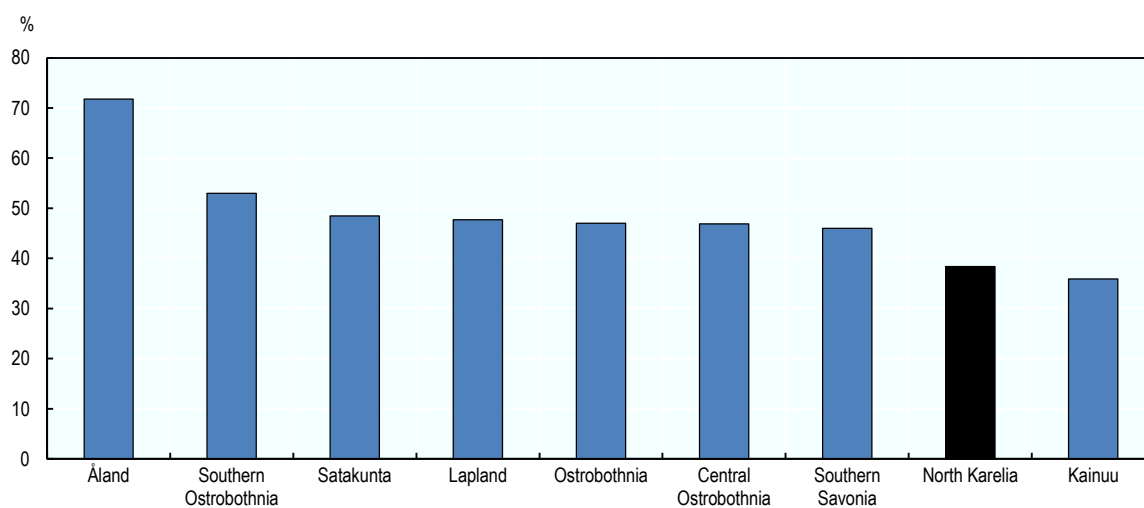
Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

North Karelia has relatively fewer firms that are larger compared to other predominantly rural remote regions in Finland (Figure 1.13, Figure 1.14). Moreover, the start-up intensity is lower than the national average. The number of new enterprises per 1 000 inhabitants was 3.88 in 2014, compared to the national average of 5.27. The absolute number of new enterprises has decreased since 2007 and, in 2013, was 14.5% lower than in 2005. However, the share of entrepreneurs over total employment was higher than the national average in 2013 (13% compared to 11%).

North Karelia has lower employment rates nationally but this gap has been closing. The employment rate in North Karelia stood at 61.5% in 2016, which was 7.1 percentage points lower than the national average of 68.6% (18-64 years old) (Statistics Finland, 2019^[3]). The gap decreased by nine percentage points in the crisis period (2007-09).

Figure 1.13. Average size of establishments, 2014

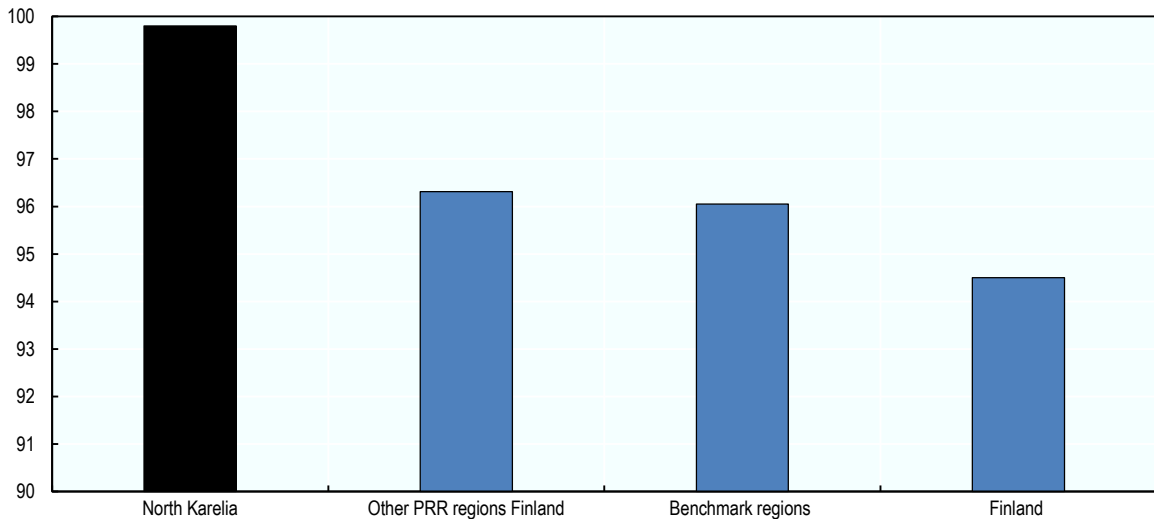
Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Figure 1.14. Density of establishments, 2014

Note: Percentage of establishments per 1 000 inhabitants.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

Unemployment is higher in North Karelia than nationally and the gap has been closing in recent years. In 2016, the unemployment rate was at 18% in North Karelia. This was 4.6 percentage points higher than the national average of 13.6%. The gap in unemployment reduced since the crisis period, from 6.6%.

Figure 1.15. Employment rate change, North Karelia, Finland and select regions, 2007-14

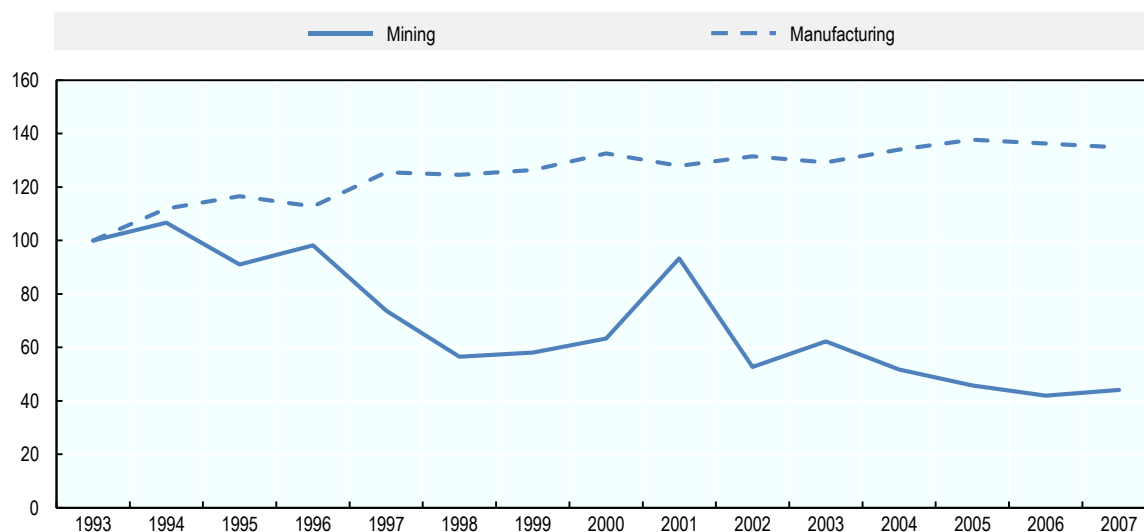
Note: Employment rate growth, 15 years old and over, index 2007 = 100.

Source: OECD (2019^[6]), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019).

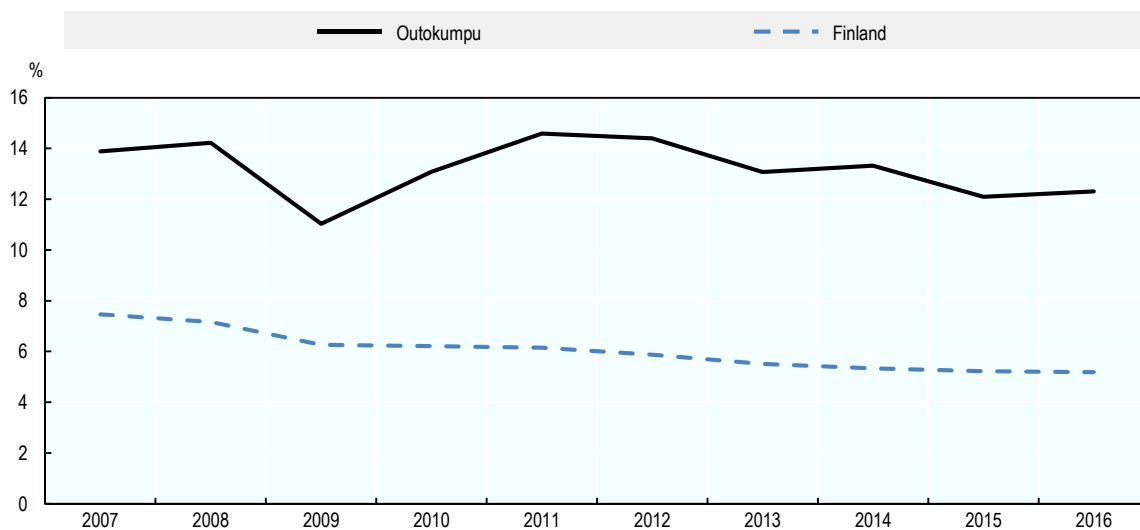
Regional economic performance of Outokumpu

From the 1960s, local leaders in Outokumpu have implemented a strategy to support the transition of the town to reduce its reliance on mining operations. This strategy has been based upon diversifying into mining services and technologies. This shift was also a circumstance of history as the Outokumpu Mining Company had to innovate copper refining methods in the context of World War II, which led to the establishment of its technology division (Outokumpu Mining Oy, 2019^[12]). An industrial estate was set up in Outokumpu in the late 1970s and the government provided specific incentives to attract firms to the town through financial support for the construction of buildings and wage subsidies (over the first three years of operations). The Outokumpu Mining Company started to manufacture mining equipment in the town from the early 1980s and, throughout this decade, manufacturing began to constitute a larger share of the local economy.

Over the past 60 years, Outokumpu has shifted from a mining producing municipality to one based on subcontracting and exports of metal technologies and mining services. This structural shift represented a decline in population (almost half since the peak in the 1960s). The decline and ageing of the population has generated challenges in terms of municipal finances and skills mismatches. However, the town does have a relatively high-performing industrial sector and business ecosystem around its industrial park. The industrial park plays an important role in terms of land and building services and as a platform to coordinate the delivery of business support services. Today, the municipality positions itself as a modern industrial town with a focus on increasing attractiveness, the efficiency of municipal services and improving the well-being of citizens.

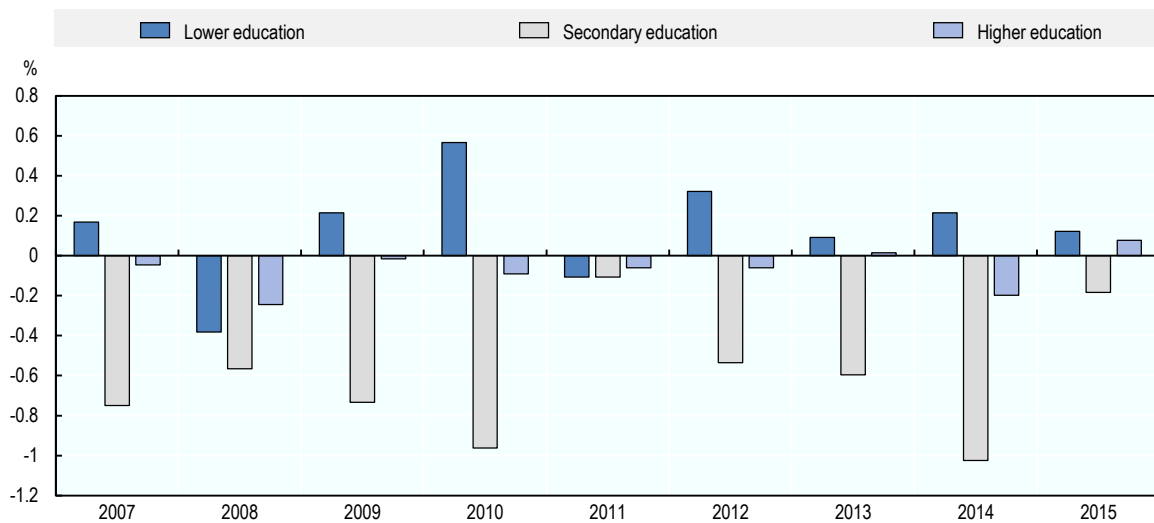
Figure 1.16. Employment in mining and manufacturing in Outokumpu, 1993-2007

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Figure 1.17. Ratio of industrial jobs to population, 2007-16

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The educated population are more likely to out-migrate from Outokumpu. When looking more closely at the profile of those migrating from Outokumpu, the latest evidence shows that population with an upper secondary education or higher are more likely to out-migrate from Outokumpu (see Figure 1.18). In 2014, 1.2% of the population with at least upper secondary education moved away from Outokumpu. Outokumpu is experiencing a brain drain, as the share of the population with higher levels of education are moving out of Outokumpu.

Figure 1.18. Ratio of net migration to total population by level of education, 2007-15

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Outokumpu has a strong industrial sector and a high share of tradable activities. The share of tradable activities measured by total employment in those sectors was 46% in 2016. A large share of this comes from manufacturing, which represents more than one-third of the jobs in Outokumpu. The public sector represents one-fourth of the jobs in Outokumpu, eight percentage points lower than the share in the LLM on average.

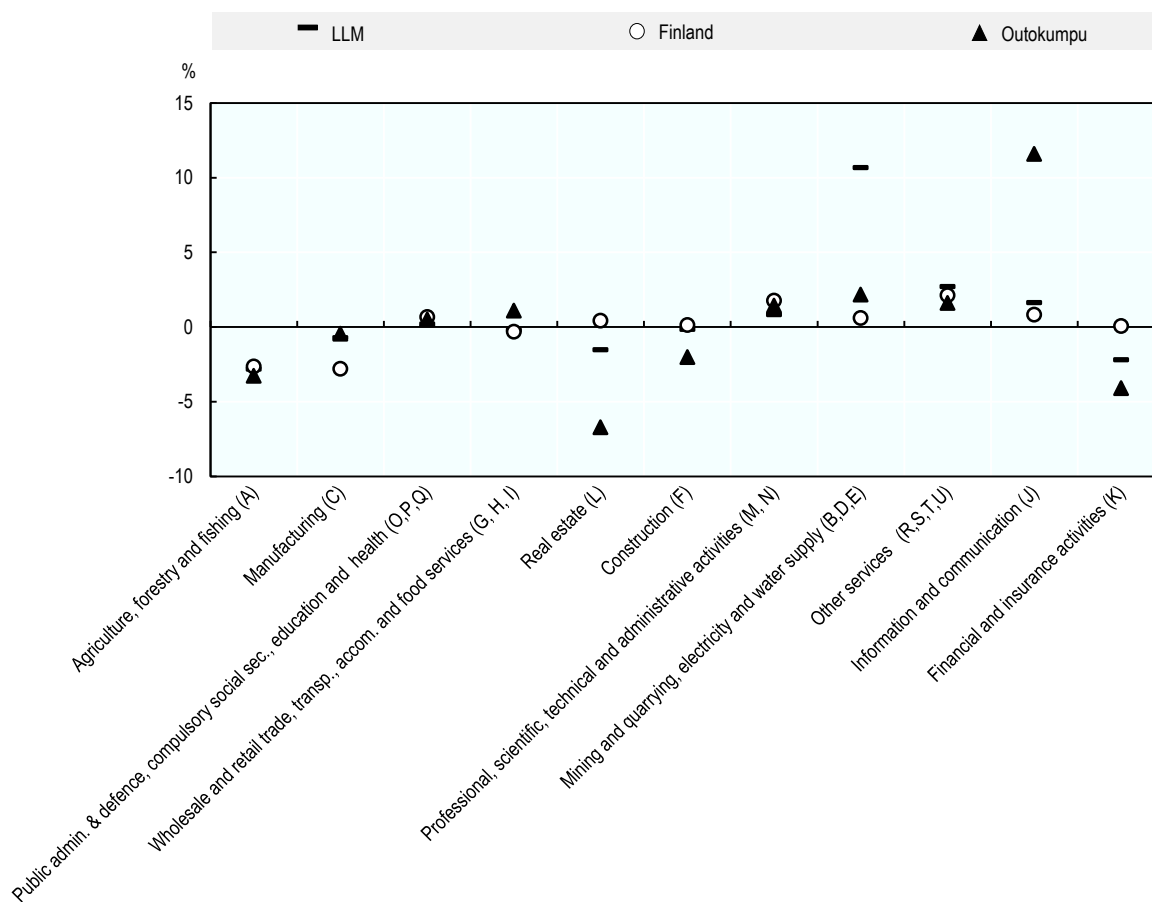
Table 1.7. Employment by sector, 2016

	Finland (%)	LLM (%)	Outokumpu (%)
Agriculture, forestry and fishing (A)	3	9	4
Public administration and defence, compulsory social security, education and human health (O, P, Q)	29	33	25
Construction (F)	7	7	5
Real estate (L)	1	1	1
Other services (R, S, T, U)	5	5	4
Mining and quarrying, electricity and water supply (B, D, E)	1	3	4
Manufacturing (C)	13	15	33
Wholesale and retail trade, transportation, accommodation and food services (G, H, I)	21	15	13
Information and communication (J)	4	1	1
Professional, scientific, technical and administrative activities (M, N)	13	8	10
Financial and insurance activities (K)	2	1	0

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The manufacturing sector in Outokumpu was less affected by the crisis than nationally as employment in manufacturing declined only by 1%. On the other hand, mining and extractive activities grew in importance in the LLM and Outokumpu. The highest growth rate in the LLM was measured, where the sector grew from 1% to 3% in 2007-16.

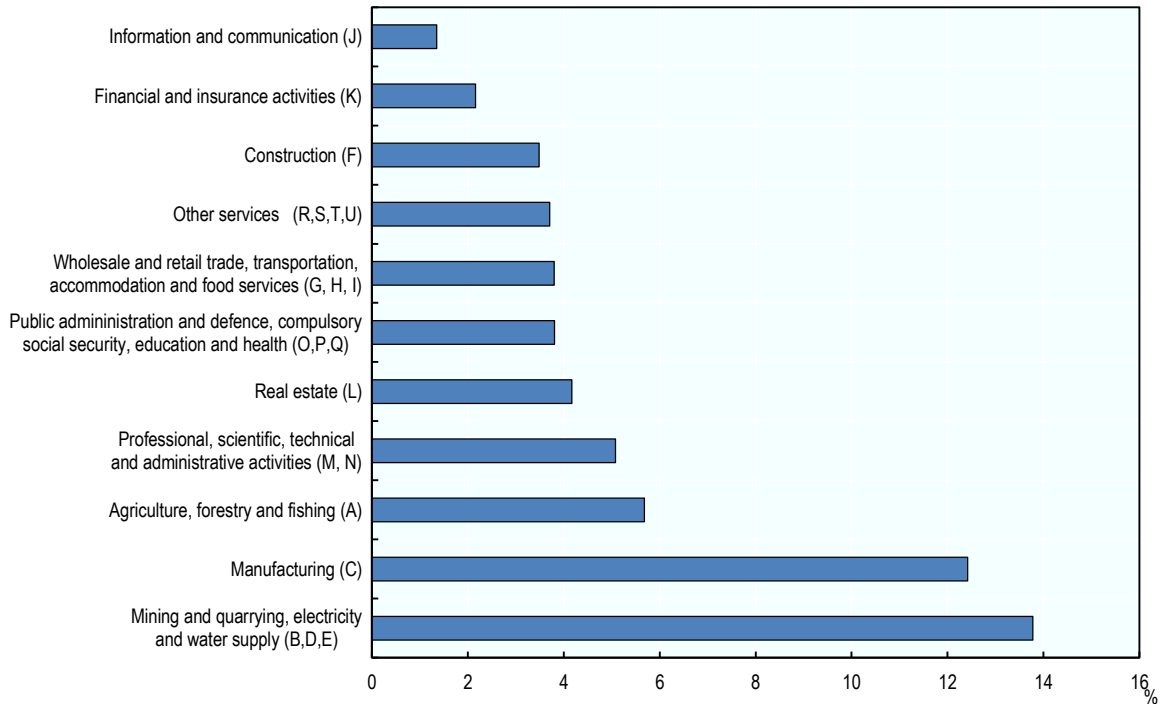
Figure 1.19. Employment in mining and quarrying sector is growing, 2007-16



Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Take a closer look at the dynamics of job creation in different sectors of the LLM and Outokumpu, 5% of the jobs of the LLM were created in Outokumpu in 2016. Broken down to the distribution of employment by sectors, the analysis shows that 14% of the jobs in mining and other extraction industries were in Outokumpu in 2016 (see Figure 1.20).

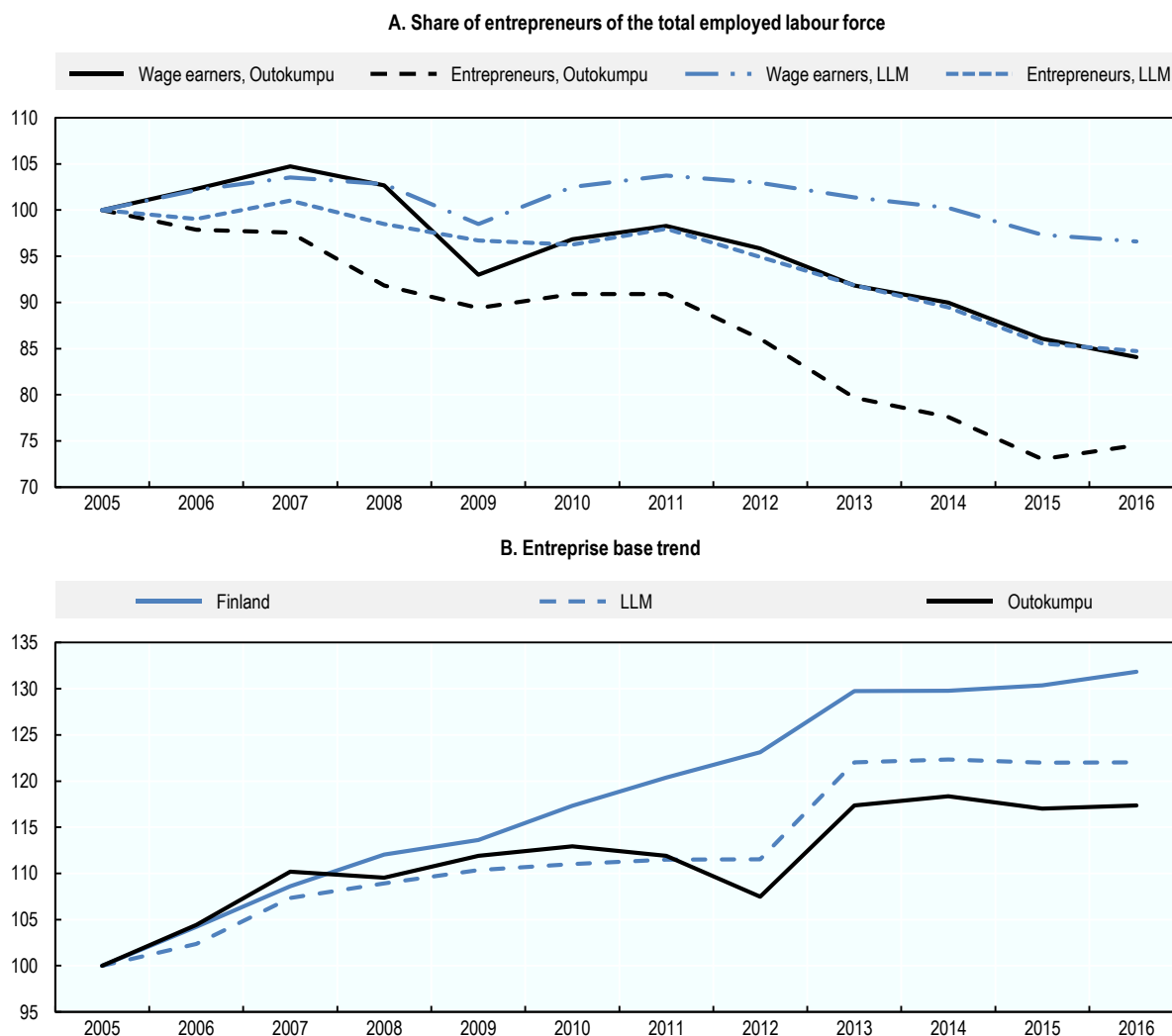
The business demography in Outokumpu is characterised by a low level of entrepreneurship and a low number of companies per inhabitant. In 2016, entrepreneurs represented approximately 11% of the employed labour force in Outokumpu, which was 2.9 percentage points lower than the LLM average. In terms of absolute numbers, the number of entrepreneurs decreased from 330 (2005) to 246 (2016). A similar trend was identified for the LLM where the number of entrepreneurs decreased annually by 1.2 percentage points, 1.2 percentage points lower than the rate for Outokumpu. Compared to the change of wage earners, the number of entrepreneurs has decreased at a faster rate (the difference in annual growth rates was 0.98 percentage points in 2005-16).

Figure 1.20. Contribution to total employment of the LLM by sector in Outokumpu, 2015

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

As seen in the analysis above, there is a structural transition in the local economy from mining toward manufacturing. Manufacturing together with localised impacts of the crisis, and demographic trends such as an ageing population and negative net migration may have influenced the declining levels of entrepreneurship.

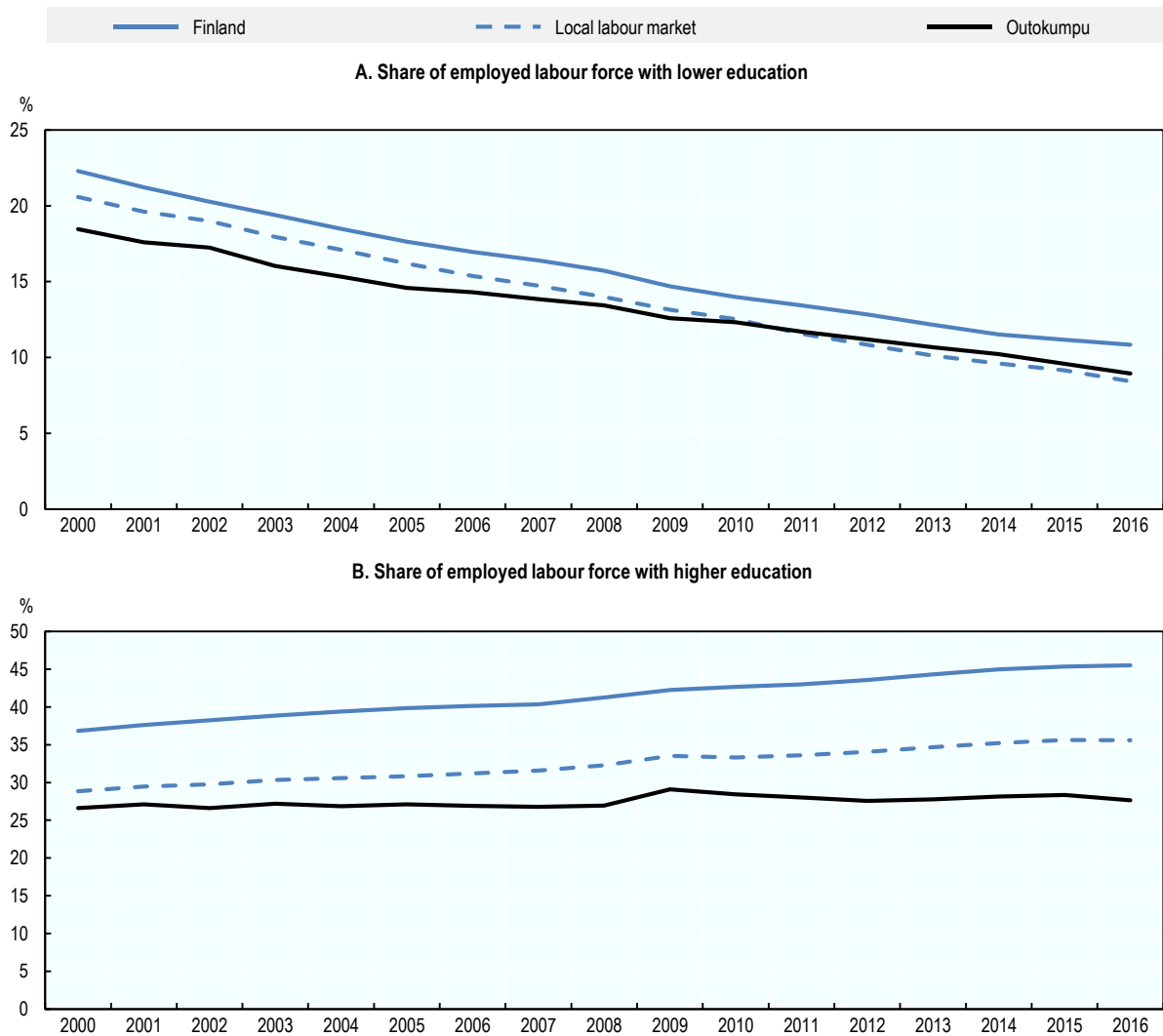
Unlike entrepreneurs, the number of enterprises has increased in Outokumpu since 2005. Between 2005-16 the annual growth of enterprises operating in Outokumpu was 117 (with 2005 as the base year). Despite the growing number of enterprises in Outokumpu, development is slightly slower than in the LLM with an annual growth rate of 122 in 2016. During the crisis period, the annual growth index was higher in Outokumpu than in the LLM on average. After 2011, Outokumpu experienced a decrease in the number of operating enterprises in the area from 112 to 107. The number of businesses in the agriculture, forestry and fisheries sectors increased by four and two businesses respectively during 2005-12 and 2013-16. The highest increase occurred in the number of enterprises in the forestry and logging sector. On the contrary, the number of enterprises in manufacturing increased by three companies during 2005-12 and decreased by five during 2013-16.

Figure 1.21. Outokumpu's business environment is not dynamic

Note: 2005=100.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Outokumpu has a lower share of high-skilled employed labour force than in the broader local labour market. This outcome is not surprising given that the high-skilled population are more likely to out-migrate than the share of population with lower skills. The share of high-skilled labour force was 27.6% of the total employed labour force, which was 7.9 percentage points lower than the LLM average of 35.6%. Since the financial crisis, the share of high-skilled employed labour force decreased annually by 1%, from 29.1% to 27.6%. Respectively, the number of employed people with a lower level of education has been decreasing in 2009-16 in all regions annually on average by 5.4%.

Figure 1.22. Outokumpu has a low share of high-skilled employed labour force

Note: Lower education refers to the category “basic education/level of education unknown”. Higher education refers to the categories “lowest level of tertiary education/lower-degree level of tertiary education” and “higher-degree level of tertiary education/doctorate or equivalent level of education”.

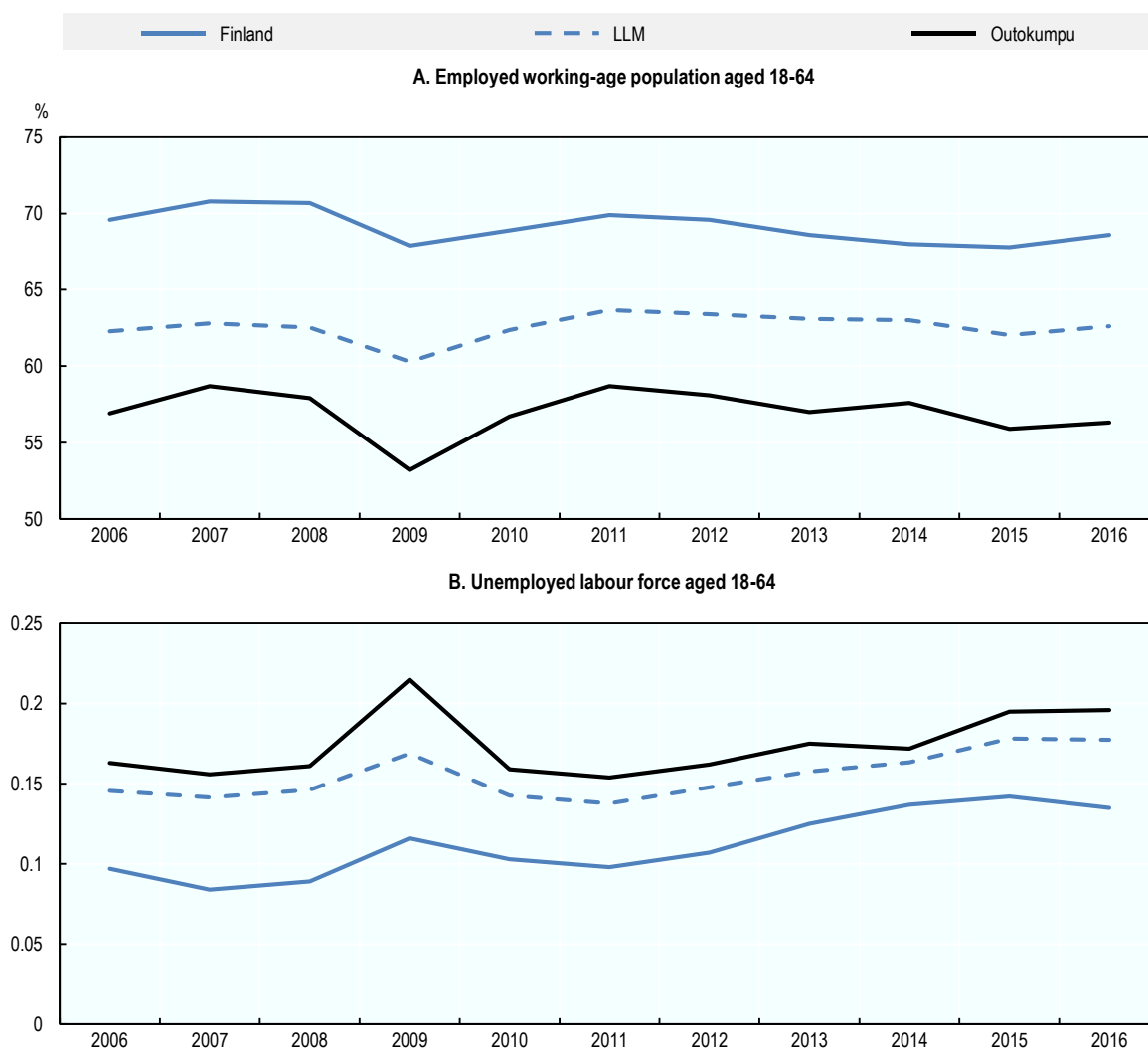
Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

The labour market indicators in Outokumpu lags behind its local labour market and its region.

- In 2016, the employment rate in Outokumpu 56.3%, is 6.3 percentage points lower than in its LLM and 5.8 percentage points below the regional level. Despite this gap, the employment rate has increased from its level of 53.2% in 2009.
- The unemployment rate in Outokumpu was at 19.8% in 2016, which was 1.4 percentage points higher than the LLM average of 18.4% and 1.8 percentage points higher than the regional average. The crisis period hit Outokumpu the hardest from the six municipalities of the LLM. From 2007 to 2009, the

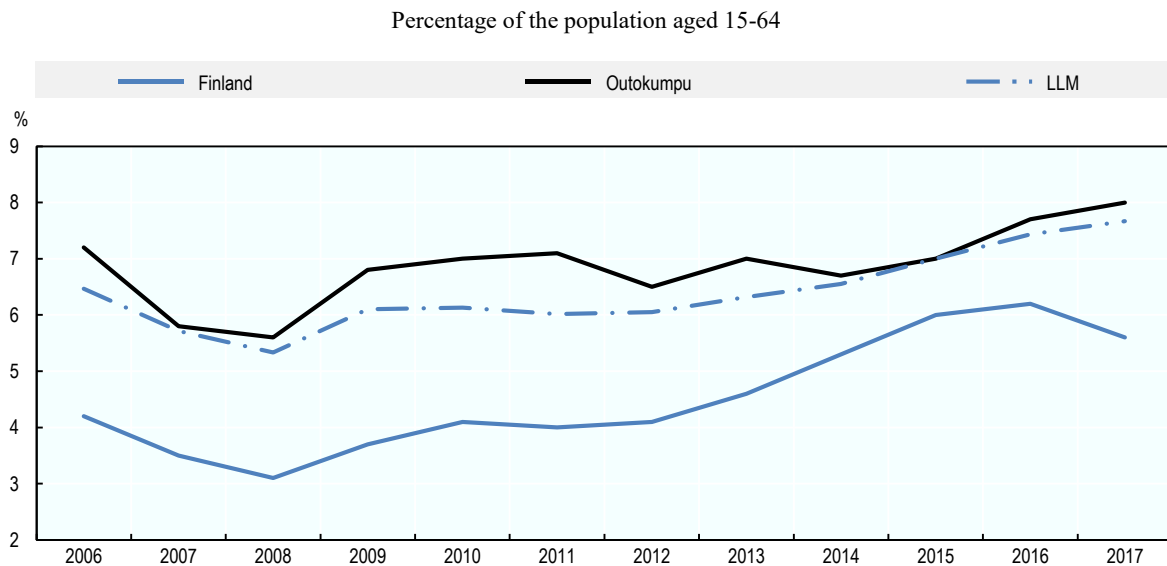
unemployment rate in Outokumpu rose from 15.6% to 21.6%. While the average rate of the LLM rose from 14.2% to 16.9%. Since the crisis period, the unemployment in Outokumpu has decreased but has not been able to reach the pre-crisis level of 15.6%.

Figure 1.23. Outokumpu is underperforming in terms of labour market outcomes in reference to the benchmark regions



Source: Statistics Finland (2019^[31]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Structural unemployment is high in Outokumpu. According to Employment Service Statistics (Ministry of Employment and the Economy), the share of persons who have difficulties finding a job has increased since the crisis period (Figure 1.24). In 2017, structural unemployment in Outokumpu stood at 8%, 0.3 percentage points higher than the LLM average of 7.7%.

Figure 1.24. Structural unemployment, 2006-17

Note: Structural unemployment is based on persons who are difficult to employ that include the long-term unemployed, the repeatedly unemployed, those becoming unemployed after a labour market measure, and those repeatedly circulating between labour market measures. Persons who are difficult to employ are proportioned against the population of the same age to avoid inclusion of people outside the labour force.

Source: National Institute for Health and Welfare (2019^[13]), *Sotkanet.fi Statistics and Indicator Bank*, <https://sotkanet.fi/sotkanet/en/haku?indicator=s050BgA=®ion=szZ3tc7UM7Q28wFRAA==&year=sy6rsj bX0zUEAA==&gender=t&abs=f&color=f&buildVersion=3.0-SNAPSHOT&buildTimestamp=201802280718> (accessed on 21 March 2019).

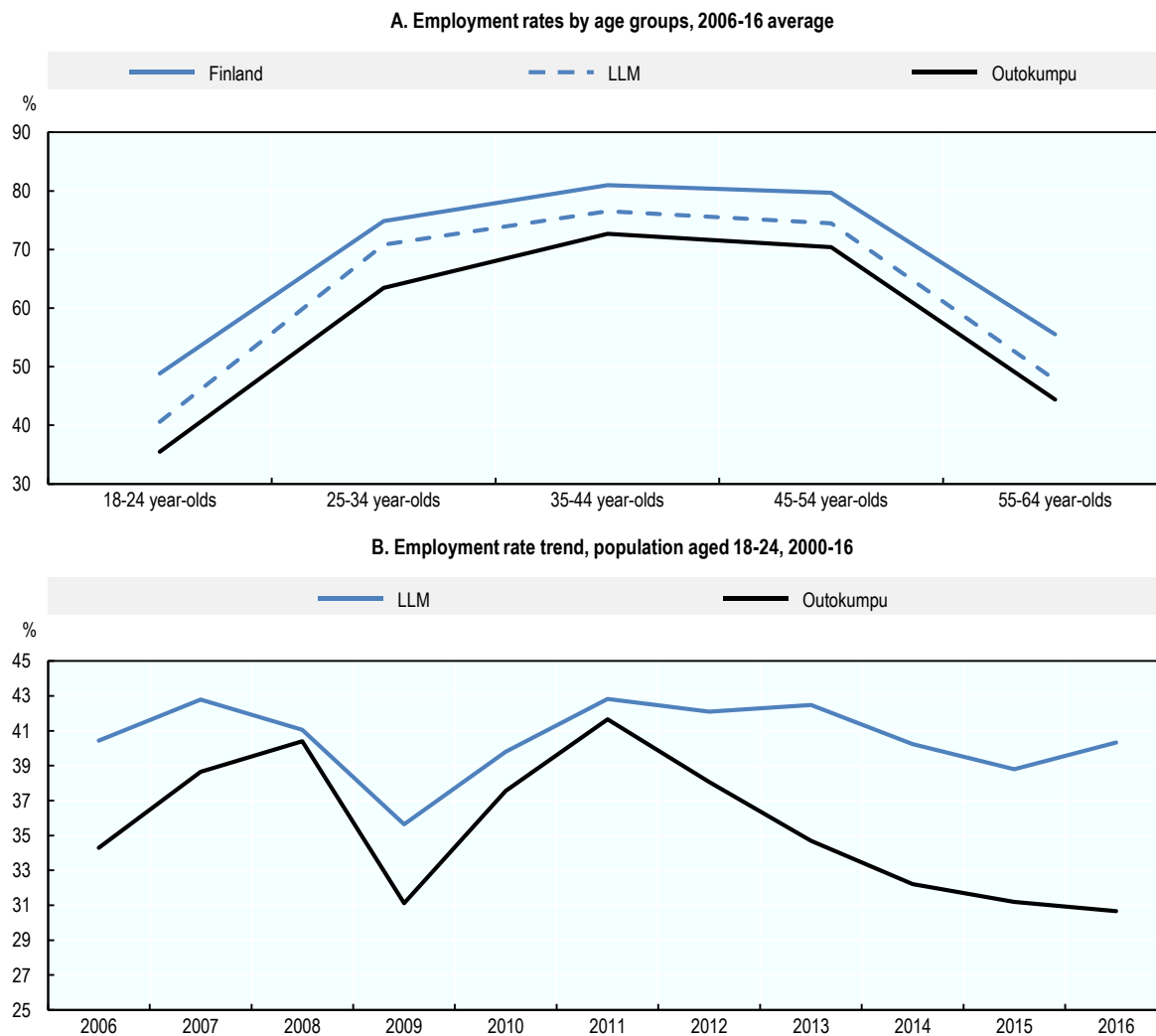
Employment rates are age-dependent. The employment rate of each age group was lower than the LLM average in 2006-16. The highest employment rate is reported in Outokumpu among people aged 45-54, where approximately 70% of the age group were employed. On the contrary, less than half of the older population (aged 55-64 years) were employed. Largest gaps in employment by age groups with the local and national averages were reported among the younger population (age groups 18-24 and 25-34) where the difference was about 9 percentage points.

The employment of the youth population was affected most dramatically by the crisis in 2007-09. The economic crisis negatively affected the employment of all age groups at the national and municipality levels (Outokumpu and LLM). Overall, the greatest impact occurred in Outokumpu and affected the youth population the most (population aged 18-24) followed by the young adult population (population aged 25-34). In fact, the employment rate for the younger population dropped by 10 percentage points, from 39% (2007) to 31% (2009). The employment rate of the youth population has not recovered from this drop, standing at 31% in 2016, contrary to the older population (aged 55-64), whose employment rate rose from by 3 percentage points from 39% to 48% during 2009-16. In comparison to the LLM, the employment of youth population dropped from 43% to 36% in 2007-09; however, unlike in Outokumpu, the employment of the youth population recovered and, in 2016, the rate stood at 40% (see Figure 1.25).

The working-age population outside of the workforce has increased annually by 1.2% (2005-16). More than half of this population were women (52% in 2016). During the same period, the share of the employed labour force has decreased by 1.4%. This type of trend

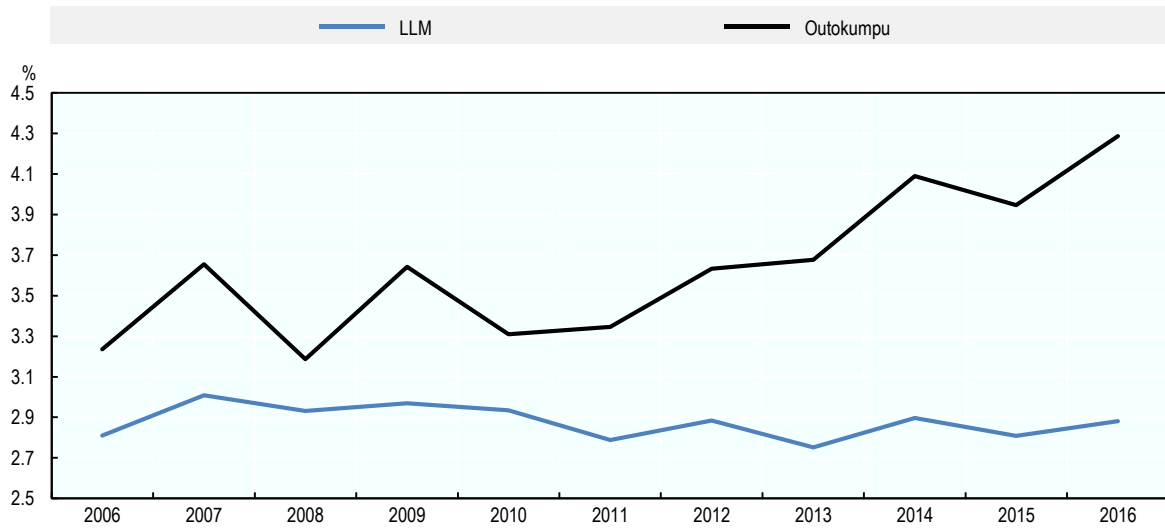
indicates that Outokumpu not only has a decreasing active population but also has an increasing population that has dropped out from the social system. This population group represented 4.1% of the total population of Outokumpu in 2016, which was 1.3 percentage points higher than in the LLM on average. In other words, Outokumpu is not taking advantage of its active population.

Figure 1.25. Employment is age-dependent

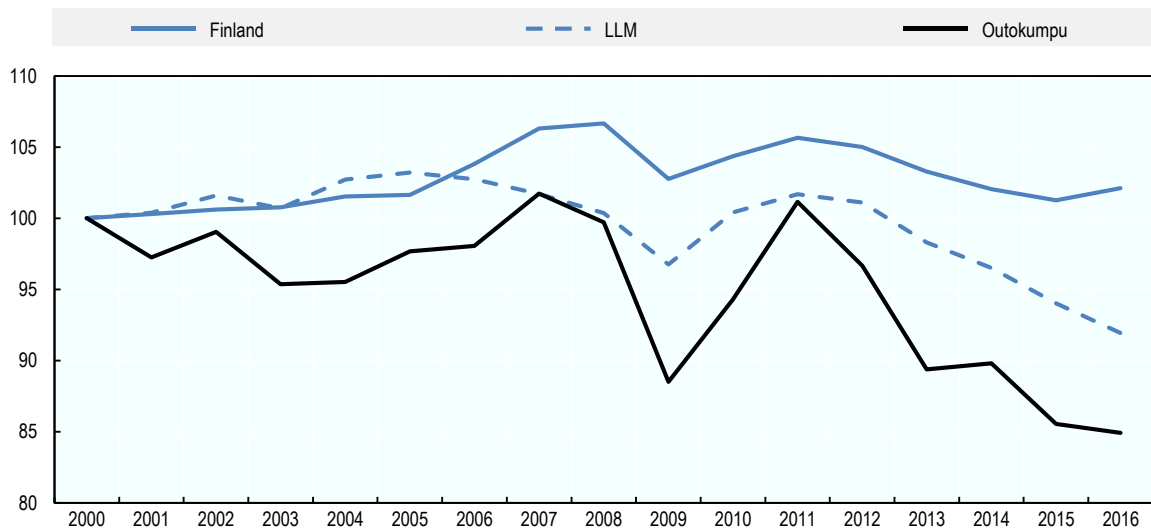


Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Outokumpu is integrated in its local labour market but this integration can be strengthened. In 2016, Outokumpu had more jobs (2 366) than employed people (2 187) meaning that a significant share of the employed population commutes to Outokumpu. However, a majority (78%) of the employed population living in Outokumpu was also employed in Outokumpu. The share of people commuting to Outokumpu was 31%. Of these, 9% were from Joensuu, 9% from Liperi, 4% from Polvijärvi, 1% from Kontiolahti and 7% from outside of North Karelia.

Figure 1.26. Share of the population outside the labour force is increasing

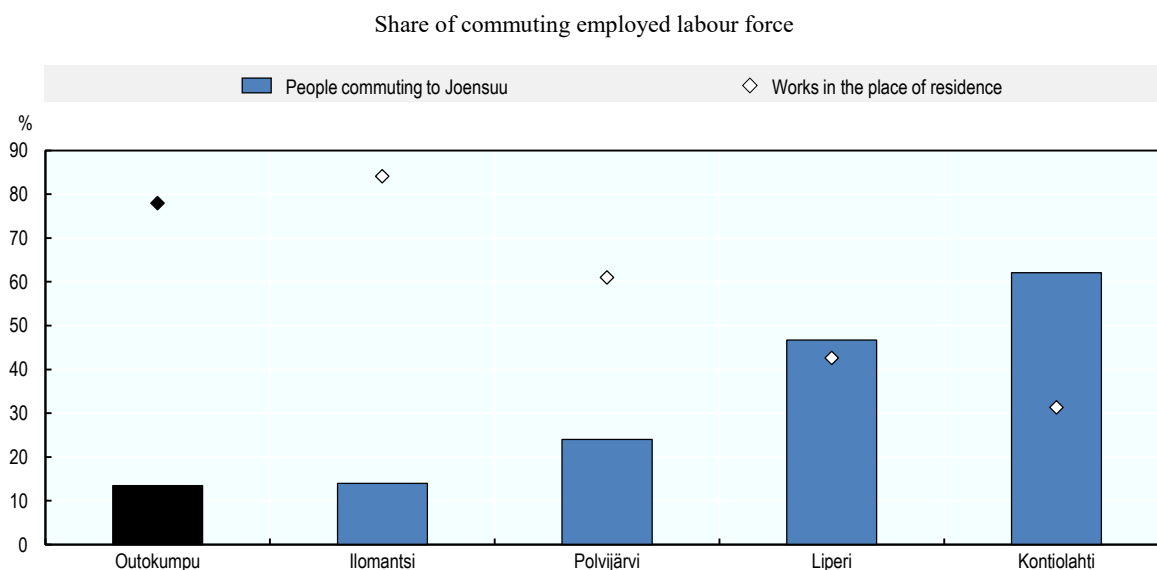
Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Figure 1.27. Number of jobs is decreasing, 2000-16

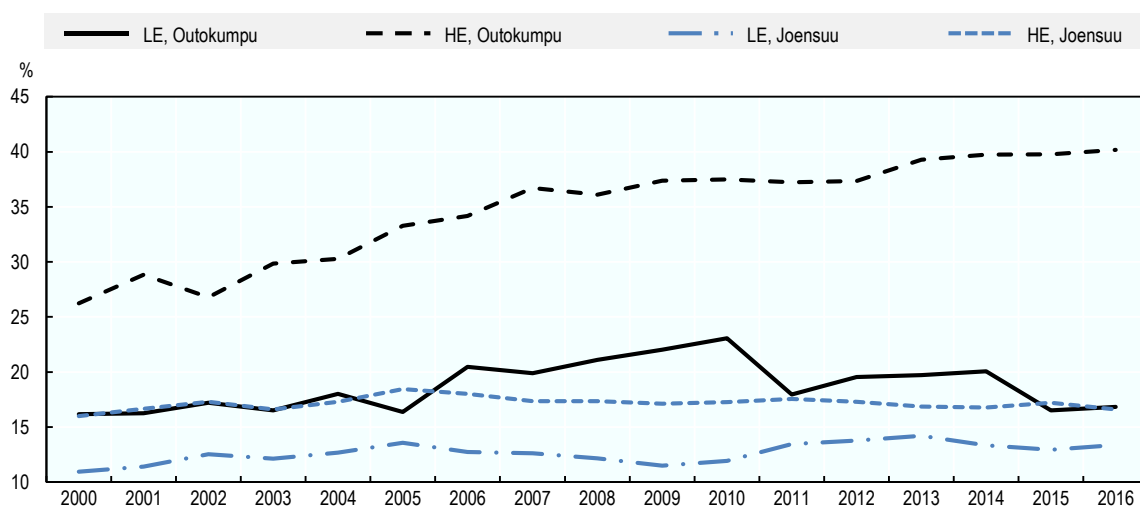
Note: 2000 = 100.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

One-tenth of the employed residents of Outokumpu worked in Joensuu in 2016. Indeed, in 2016, about two-fifths of the employed labour force with higher education and resident of Outokumpu were employed outside of Outokumpu, compared to 17% in Joensuu, the largest municipality in the LLM. The high share of high-skilled employed labour force working elsewhere can be a cause of different things. First, these individuals may not have found a job in the municipality due to the mismatch of skills. Second, the high share of the high-skilled employed labour force working elsewhere may have chosen Outokumpu as a place of residence due to its attractiveness and affordability.

Figure 1.28. Local labour market is interlinked

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Figure 1.29. High-skilled employed labour force is more likely to be employed outside of Outokumpu

Note: Lower education (LE) refers to the category “basic education/level of education unknown”. Higher education (HE) refers to the categories “lowest level of tertiary education/lower-degree level of tertiary education” and “higher-degree level of tertiary education/doctorate or equivalent level of education”.

Source: Statistics Finland (2019^[3]), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019).

Summary

North Karelia is highly specialised in industrial sectors and forestry and is performing strongly in terms of productivity in a national and European context. North Karelia has a lower GDP per capita and productivity than nationally but higher than comparable

regions. The crisis had a significant impact on the regional economy, reducing the contribution of manufacturing to regional GVA by one-fifth. Since the crisis period, it has been reducing the national gap given its higher resilience to the effects of the crisis.

The post-crisis period has changed the composition of the region's manufacturing sector with declines in wood, electrical products, and non-metallic mineral products and increases in machinery and equipment, paper and metal product manufacturing. Over the past two decades, mining activity has continued to grow in the region, in line with national averages. In the context of these trends, the mining value chain (extraction and processing) has become more important to the regional economy. Outokumpu is in a strong position due to its specialisation in metal product manufacturing.

Key challenges for North Karelia and Outokumpu relate to conditions in the labour market and levels of entrepreneurship. In terms of labour market performance, the employment rate in North Karelia is lower than nationally with a gap still standing 7 percentage points below the national value and the unemployment rate surpassing it by 4.6%. The gaps in both indicators, however, have been closing vis-à-vis the national trend since the crisis. At the local level, Outokumpu has lower employment rates and higher unemployment rates than in North Karelia and its broader local labour market. Although the rate of employment has improved in the local economy, the rate of unemployment rates increased the highest locally against all other municipalities in the local labour market since the crisis. This suggests that although Outokumpu is integrated in the LLM of Joensuu, this integration can be strengthened.

The impacts of the crisis and structural shifts in the regional economy have had particular impacts on employment opportunities for younger people and older workers. This finding reinforces the point that a more proactive approach is needed in terms of workforce development and skills with a particular focus on transition pathways for these groups.

The municipality has been undergoing a long-term structural shift from a mining producer to one specialised in subcontracting and exports of metal technologies and mining services. Tradable activities still dominate the local economy, particularly manufacturing, but the mining sector has contributed to positive growth during the crisis. The local economy experiences positive enterprise growth, although entrepreneurship is still relatively low due mainly through a lower share of the high-skilled labour force than in the broader local labour market. Low levels and declining rates of entrepreneurship means there is a less dynamic labour market and reduced potential for economic diversification. Improving the local environment for entrepreneurship is another area for future policy change.

Well-being and quality of life

Eastern and Northern Finland have a high quality of life in an OECD context. Figure 1.30 reveals that Eastern and Northern Finland (TL2) performs above the average OECD region in eight dimensions of well-being. This region comprises seven TL3 regions (Kainuu, Lapland, Central Ostrobothnia, Northern Ostrobothnia, North Savo, South Savo and North Karelia) which share similar characteristics in terms of natural resource specialisation and low population densities (OECD, 2017_[14]). In an OECD context, the region ranks particularly high in environmental quality and life satisfaction and lower in terms of income, jobs and civic engagement. The largest difference was recorded in the income dimension, where Eastern and Northern Finland had about 28% lower income than the average OECD region.

Box 1.4. OECD Regional Well-being Indicators

Building comparable well-being indicators at a regional scale

The OECD framework on measuring regional well-being builds on the Better Life Initiative at the national level. It goes further to measure well-being in regions with the idea that measurement is more meaningful where people experience it. Besides place-based outcomes, it also focuses on individuals since both dimensions influence people's well-being and future opportunities.

In line with national well-being indicators, regional well-being indicators concentrate on informing about people's lives rather than on means (inputs) or ends (outputs). In this way, policies are directed to well-being features that can be improved by policies. Regional well-being indicators also serve as a tool to evaluate how well-being differs across regions and groups of people.

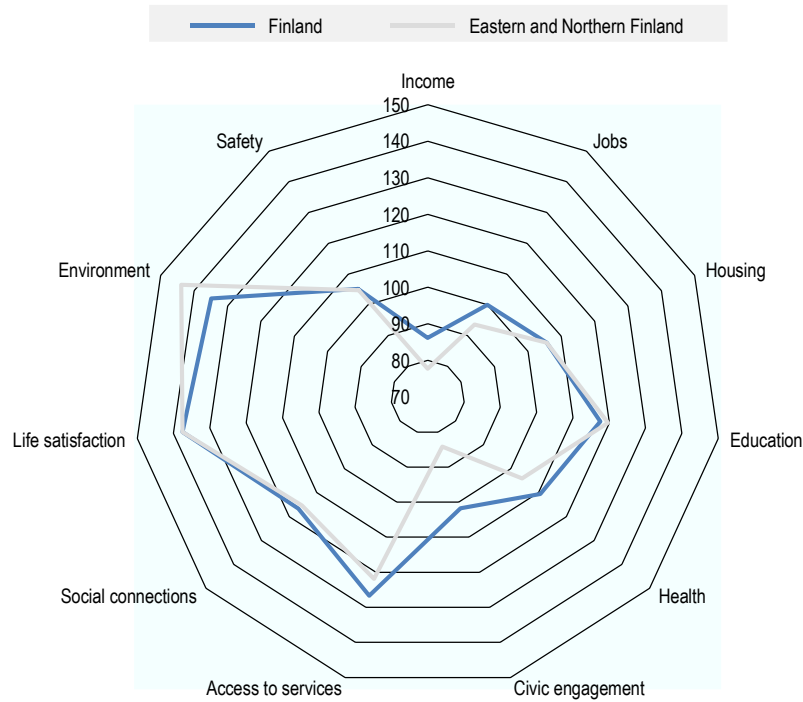
Regional well-being indicators are multi-dimensional and include both material dimensions and quality of life aspects. They also recognise the role of citizenship, institutions and governance in shaping policies and outcomes.

Although well-being dimensions are measured separately, the aim of the regional well-being framework is to allow for comparisons and interactions across multiple dimensions to account for complementarities and trade-offs faced by policymakers. At the same time, the comparison of regional well-being indicators over time allows comparing dynamics of well-being over time, as well as the sustainability and the resilience of regional development.

Regional well-being in Finland is measured in 12 well-being dimensions: income, jobs, housing, health, access to services, education, civic engagement and governance, environment and safety – for which there are comparable statistics at the regional level – and 3 additional dimensions: work-life balance, community (social connections) and life satisfaction, which are available only at national level in the OECD database due to lack of comparable data at the subnational level. Table 1.8 details the indicator used for each dimension.

Table 1.8. Indicators by well-being dimension, North Karelia

Dimension	Indicator
Environment	Level of air pollution in PM 2.5 ($\mu\text{g}/\text{m}^3$), 2013
Community	Perceived social network support (scale from 0 to 10), 2013
Life satisfaction	Life satisfaction (scale from 0 to 10), 2013
Civic engagement	Voters in last national election (%), 2015 or latest year
Jobs	Employment rate (%), 2014 Unemployment rate (%), 2014
Safety	Homicide rate (per 100 000 people), 2013
Housing	Rooms per person, 2013
Health	Life expectancy at birth (years), 2013 Age adjusted mortality rate (per 1 000 people), 2013
Access to services	Households with broadband access (%), 2014
Education	Labour force with at least upper secondary education (%), 2014
Income	Disposable income per capita (in USD PPP), 2013

Figure 1.30. Well-being dimensions, TL2, 2014

Note: OECD average = 100.

Source: Calculations based on OECD (2019^[15]), “Regional well-being”, <http://dx.doi.org/10.1787/data-00707-en> (accessed on 21 March 2019).

Quality of life is important for a municipality like Outokumpu for retaining and attracting people, particularly of working age. Outokumpu benefits from its environmental amenities, proximity to Joensuu and affordable housing. These basic locational assets provide an attractive offer for people of working age. The slack in the local housing market is a potential downside as people may be reluctant to purchase a house, or landlords make investments, due to low potential for price appreciation. Incomes in Outokumpu are also lower along with education and health outcomes, and civic participation.

The quality of life in Outokumpu undertaken by this analysis follows the OECD multi-dimensional well-being framework to assess the current level of well-being in Outokumpu but focuses on dimensions, which are considered to impact on individual’s well-being. Due to data limitations, the indicators used differ from the OECD well-being framework to some extent.

In terms of material conditions, having sufficient income and housing are preconditions for a good quality of life. The income level of Outokumpu is lower than the regional and national averages as well as the LLM average:

- In 2017, the mean disposable monetary income of a household-dwelling unit was USD 33 743 thus about 79% of the national average and 92% of the LLM average (Statistics Finland, 2019^[3]).
- The share of families with children in Outokumpu receiving social assistance was much higher than the LLM average and the national/regional average. In 2016, the

share stood at 3.4% in Outokumpu, whereas the LLM and the national average were at 2.6% and 3%, respectively (National Institute for Health and Welfare, 2019^[13]).

- The declining population has resulted in slack in the local housing market – privately owned rental apartments have a lower average price per square metre than the social ones (EUR 8.89 per square metre compared to EUR 10.22 per square metre).

The aspects that matter to an individual’s quality of life are good health, education, social connections, civic engagement, environmental quality, safety, access to services and life satisfaction. Outokumpu performs high in terms of environmental quality, as the air quality was better in Outokumpu than on average in the country, region and LLM. In respect to other aspects of quality of life, Outokumpu is not very competitive in relation to its LLM and national average.

- The education level of the population in Outokumpu is lower than the LLM average and the share of population aged 17-24 not in education or training (7.3%) was higher than the regional and LLM average of 7% and 7.1% (National Institute for Health and Welfare, 2019^[13]).
- The age-standardised morbidity index constructed by the National Institute for Health and Welfare was higher in Outokumpu than in the LLM on average (National Institute for Health and Welfare, 2019^[13]).
- The level of civic engagement in Outokumpu (56.3%) is below the national level of 58.9% but above the regional level of 55.1% (National Institute for Health and Welfare, 2019^[13]). Compared to its LLM, the civic engagement in Outokumpu is slightly lower, by 0.5 percentage points.

Summary

The evidence shows that over time, the standard of living is improving in North Karelia. The region can offer a relatively high quality of life in an OECD context. This is important for the future in terms of competing to retain and attract working-age people in the context of an ageing population. However, these trends are uneven across the region as shown in the data that is available for Outokumpu. A key challenge for Outokumpu and North Karelia is continuing to invest in improving local amenities and services, and putting in place proactive strategies to link younger people who live in the region with further education, training, employment and entrepreneurship opportunities.

References

- 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. 2011/6, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5kg6z83tw7f4-en>.

[1]

- GTK (2014), “Quantitative assessment of undiscovered resources in volcanogenic massive sulphide deposits, porphyry copper deposits and Outokumpu-type deposits in Finland”, https://www.researchgate.net/profile/Pasi_Eilu/publication/270574150_Quantitative_assessment_of_undiscovered_resources_of_volcanogenic_massive_sulphide_deposits_porphyry_copper_deposits_and_Outokumpu-type_deposits_in_FinlandElectronic_resource_Geologian_tu. [5]
- Ivanova, G. (2014), “The mining industry in Queensland, Australia: Some regional development issues”, *Resources Policy*, Vol. 39, pp. 101-114, <http://dx.doi.org/10.1016/J.RESOURPOL.2014.01.005>. [9]
- Mining Finland (n.d.), *Opportunities*, <http://www.miningfinland.com/opportunities> (accessed on 5 April 2019). [4]
- Mitchell, C. and K. O’Neill (2016), “Tracing economic transition in the mine towns of northern Ontario: An application of the “resource-dependency model””, *The Canadian Geographer/Le Géographe canadien*, Vol. 60, <http://dx.doi.org/10.1111/cag.12238>. [8]
- National Institute for Health and Welfare (2019), *Sotkanet.fi Statistics and Indicator Bank*, <https://sotkanet.fi/sotkanet/en/haku?indicator=s050BgA=®ion=szZ3tc7UM7Q28wFRAA==&year=sy6rsjbx0zUEAA==&gender=t&abs=f&color=f&buildVersion=3.0-SNAPSHOT&buildTimestamp=201802280718> (accessed on 21 March 2019). [13]
- OECD (2019), *OECD Regional Statistics*, <http://dotstat.oecd.org/?lang=en#> (accessed on 22 February 2019). [6]
- OECD (2019), “Regional well-being”, *OECD Regional Statistics (database)*, <https://doi.org/10.1787/data-00707-en> (accessed on 21 March 2019). [15]
- OECD (2018), *OECD Regional Statistics*, https://www.oecd-ilibrary.org/urban-rural-and-regional-development/data/oecd-regional-statistics_region-data-en (accessed on 3 December 2018). [11]
- OECD (2017), “Mining regions and their cities: Scoping paper”, <http://www.oecd.org/cfe/regional-policy/Scoping-paper.pdf> (accessed on 27 March 2019). [10]
- OECD (2017), *OECD Territorial Reviews: Northern Sparsely Populated Areas*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264268234-en>. [14]
- OECD (2016), *OECD Economic Surveys: Finland 2016*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-fin-2016-en. [2]
- Outokumpu Mining Oy (2019), *History of Outokumpu*, <https://www.outokumpu.com/about-outokumpu/history-of-outokumpu> (accessed on 20 February 2019). [12]
- Statistics Finland (2019), *Statistics Finland (database)*, <http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/?rxid=0f873e06-3422-4e82-b2db-89fa81f7bbad> (accessed on 13 March 2019). [3]
- Stimson, R., R. Stough and B. Roberts (2006), *Regional Economic Development: Analysis and Planning Strategy*, Springer. [7]

Chapter 2. Towards a sustainable development in Outokumpu and North Karelia

The purpose of this chapter is to provide recommendations about the type of policies to unlock Outokumpu's mining potential and new growth opportunities in the municipality and the region. First, the chapter presents an overview of the current economic and institutional environment of the mining sector in Finland and the region. Then, it examines the policy strategies needed for sustainable development in Outokumpu and North Karelia, involving their mining potential.

Box 2.1. Assessment and Recommendation

Assessment

- **Finland can play a key role in the raw materials agenda of the EU.** The country stands out by its attractive regulatory environment and mining production. However, mining policy in Finland is a space-blind policy, which lacks integration with regional characteristics and local development plans. The mining potential in the country can further expand through joint work with regions and municipalities.
- **Outokumpu has the potential to raise the role of the mining sector in the regional development and support the national mining strategy.** However, there exists a lack of clarity on the role of the mining sector in the regional economy and on the marketing strategies to promote the mining potential. Furthermore, the regional mining strategy does not acknowledge the local mining clusters and the potential of Outokumpu's mining-related companies.
- **Outokumpu has scope to mobilise its assets, including its geographic location and the industrial fabric, and further diversify its economy to unlock growth opportunities and boost well-being.** This process requires overcoming the fragmented visions of development within the region and the lack of co-ordination in the economic strategies among municipalities.

Recommendations

Better integrate mining in local economic development planning and link Outokumpu with the Joensuu local labour market (LLM):

- Revise the municipal economic development plan to better define the economic objectives based on the existing assets in the territory (particularly integration within the Joensuu LLM, maximising mineral and metal extraction, and the mining value chain) (Outokumpu Municipality).
- Create a unified vision and priorities amongst municipalities within the Joensuu LLM (Outokumpu Municipality, Business Joensuu, the regional council and national agencies). Actions for this are:
 - Develop the local workforce to meet future industry needs (e.g. skills profile, demand for skills from business, and barriers to mobility).
 - Attract and retain workers that address critical skills shortages/gaps (current and forecast).
 - Improve infrastructure connectivity and transport services to reduce commuting times.

Strengthen the local mining cluster of Outokumpu and improve the operational environment for mining-related activities:

- Strengthen the vision of mining development in the region (Regional Council of North Karelia and Business Joensuu). Actions for this are:

- Identify priorities to maximise the potential of the mining value chain in the region (land use, skills, innovation and internationalisation) and ensure they are reflected in North Karelia's regional planning and smart specialisation strategy.
- Develop a portfolio of projects linked to these priorities and link them to funding opportunities for national funding and the European Structural and Investment Funds (ESIF).
- Develop a clear mining brand for the region and a strategy to promote it internationally. The marketing activities should aim to make the Outokumpu mining camp an internationally renowned source of knowledge-based services in mining and ensure this strategy is included within the national marketing activities (Regional Council of North Karelia and Business Joensuu).
- Enhance interregional (Finland and European Union) co-operation on smart specialisation and green mining technologies by promoting joint projects on research and innovation with other regions and supporting the internationalisation of local businesses (Business Joensuu).
- Conduct a flagship project for mining activities (e.g. testing of tailings for mines in cold temperatures) to align and spur commercial partnerships among established industries. This should involve an active role from the Geological Survey of Finland (GTK), local firms and the University of Applied Sciences in Joensuu (Outokumpu Municipality and Business Joensuu).
- Lead Outokumpu's mining camp and GTK to take an active role in supporting the regional mining strategy by building a network of experts to support innovation and higher-value-added activities in the sector (Outokumpu Municipality and Business Joensuu).

Diversify sources of economic growth to boost employment and reduce labour market mismatches:

- Provide targeted support to increase the share of the service sector in the economy by promoting new businesses focused on services embedded in the industrial process of established companies and enhancing linkages with universities and other markets (Business Joensuu).
- Strengthen programmes to boost small- and medium-sized enterprises (SMEs) and entrepreneurial culture (Business Joensuu). Actions for this are:
 - Improve the link of entrepreneurs and SMEs in small rural municipalities to regional business development programmes. This involves enhancing local and international networks for SMEs to transition toward related higher-value economic activities connected with the green economy (Business Joensuu).
 - Develop a strategy to strengthen an entrepreneurial culture by enhancing education programmes, improving information and mentoring and reducing the negative social consequences of business failure (Business Joensuu).
- Strengthen tourism strategy through a co-ordinated approach and development of partnerships (regional council and Outokumpu Municipality). Actions for this are:

- Strengthen the regional strategy on tourism to embrace a model where tourism is developed around a collection of experiences that leverages on the special characteristics of each municipality (regional council).
- Enhance partnerships with stakeholders involved in mining tourism and expand the offer of thematic events leveraging on the mining museum (Outokumpu Municipality with Business Joensuu).
- Improve programmes and regional co-ordination to enhance vocational, language and information technology (IT) training to increase workforce suitability with the current and future needs of the private sector (Business Joensuu, Outokumpu Municipality and regional council).
- Embrace a comprehensive strategy to attract and integrate high-skilled migrants in order to fill gaps in the labour force demand and boost local business in Outokumpu (regional council and Outokumpu Municipality).
- Develop a strategy to involve the older working-age population in the economic development of the municipality. Such a strategy should be aligned with the regional priorities and the work of institutions in Joensuu that aim to create new economic opportunities for the older population (Outokumpu Municipality).

Introduction

As depicted in Chapter 1, the municipality of Outokumpu faces acute challenges for sustained economic development and the future of the local businesses. These challenges include out-migration, an ageing population, a lack of skilled workers and a low share of entrepreneurs. Yet Outokumpu has unexploited assets that can be further mobilised to revitalise the local economy and boost well-being in the community. It includes a good geographic location and a strong industrial fabric. Furthermore, the European and international demand for raw materials gives the municipality an opportunity to leverage on its mining expertise to become a key player for the national and international mining sectors.

The purpose of this chapter is to provide recommendations on the type of policies that can unlock Outokumpu's mining potential and new opportunities for growth in the municipality and the region. In order to harness the benefits for and address the challenges in regional development, in collaboration with North Karelia, Outokumpu needs to put sound policies in motion to mobilise its local assets, including its geographic location, industrial sector and mining expertise. Diversifying its economy by transitioning towards high-value-added activities, upskilling and attracting labour force and promoting entrepreneurship, will also be required.

This chapter begins with an overview of the current economic and institutional environment affecting the mining sector in Finland and North Karelia. It then outlines the current municipal and regional development strategies and examines the policy needed to address Outokumpu's challenges in sustainable development.

The institutional environment in Finland and North Karelia

Finland as a key player to fulfil the European Union demand for minerals

Global demand for raw materials has grown strongly over the past two decades. Raw materials are essential for the production of goods and services and for the development of new technologies. Since 2000, rapid economic growth in developing countries, mainly China and India, has boosted the consumption of minerals and metals. This global demand for materials is expected to remain high due to the ongoing urbanisation in Africa and the development of new green technologies.

The global transition towards a low carbon economy is opening up market opportunities to materials that did not previously attract sufficient commercial demand. These new materials include lithium, nickel, cobalt and graphite, necessary for electric batteries, wind turbines and electric cars. For example, demand for lithium is expected to triple from 2017 and 2025, and demand for cobalt could increase by 60% during the same period (McKinsey & Company, 2018^[1]).

The abovementioned market trends coupled with the shortage of easy-to-access extraction mineral deposits add pressure to the global demand for materials.¹ Thus, a major challenge for national and regional economies with limited mineral production, such as the European Union (EU), is to ensure access to a stable supply of raw materials.

The EU has set the aim to improve the reliability of supply for raw materials in the years to come high on the agenda. This strategy was initially outlined in the *2008 European Raw Materials Initiative*, which has the sustainable supply of raw materials from EU sources as a key pillar (European Commission, 2008^[2]). To achieve this objective, the European Commission has supported programmes to reduce waste and conserve resources, while promoting a sustainable utilisation and recycling of raw materials. It has also enhanced research and the knowledge base on raw materials as well as the regulatory framework conditions across the European countries.²

As part of this strategy, the European Commission has identified a number of critical non-energy and non-agricultural raw materials that are highly important to industry and society in the EU (Box 2.2). In 2017, the commission established 43 types of critical raw materials (CRMs) of high importance to the EU economy and with high risk associated with their supply (Table 2.1).

Table 2.1. Critical raw materials (CRMs) for the European Union, 2017

Antimony	Fluorspar	LREEs	Phosphorus
Baryte	Gallium	Magnesium	Scandium
Beryllium	Germanium	Natural graphite	Silicon metal
Bismuth	Hafnium	Natural rubber	Tantalum
Borate	Helium	Niobium	Tungsten
Cobalt	HREEs	PGMs	Vanadium
Coking coal	Indium	Phosphate rock	

Note: HREEs: Heavy rare earth elements, including dysprosium, erbium, europium, gadolinium, holmium, lutetium, terbium, thulium, ytterbium, yttrium.

LREEs: Light rare earth elements, including cerium, lanthanum, neodymium, praseodymium, samarium.

PGMs: Platinum-group metals, including iridium, platinum, palladium, rhodium, ruthenium.

Source: European Commission (2017^[3]), *Study on the Review of the List of Critical Raw Material*, https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en (accessed on 6 February 2019).

Box 2.2. Critical raw materials for the European Union

Raw materials are crucial to Europe's economy. They form a strong industrial base, producing a broad range of goods and applications used in everyday life and modern technologies. Reliable and unhindered access to certain raw materials is a growing concern within the EU and across the globe. To address this challenge, the European Commission has created a list of critical raw materials (CRMs) for the EU, which is subject to a regular review and update.

Critical raw materials are important to:

- Industry production: non-energy raw materials are linked to all industries across all supply chain stages.
- Modern technology: technological progress and quality of life rely on access to a growing number of raw materials. For example, a smartphone might contain up to 50 different kinds of metals.
- The environment: raw materials are closely linked to clean technologies. They are irreplaceable in solar panels, wind turbines and electric vehicles, among others.

The list of CRMs can help to:

- Strengthen the competitiveness of European industry.
- Simulate the production of CRMs by enhancing new mining and recycling activities in the EU.
- Foster efficient use and recycling of critical raw materials, a priority area in the EU circular economy action plan.
- Increase awareness of potential raw material supply risks and related opportunities among EU countries, companies and investors.

The methodology to identify CRMs:

The 2017 criticality assessment was carried out for 61 candidate materials (58 individual materials and 3 material groups: heavy rare earth elements, light rare earth elements, platinum-group metals, amounting to 78 materials in total). In 2014, 54 materials were assessed.

The main parameters used to determine the criticality of the material for the EU are:

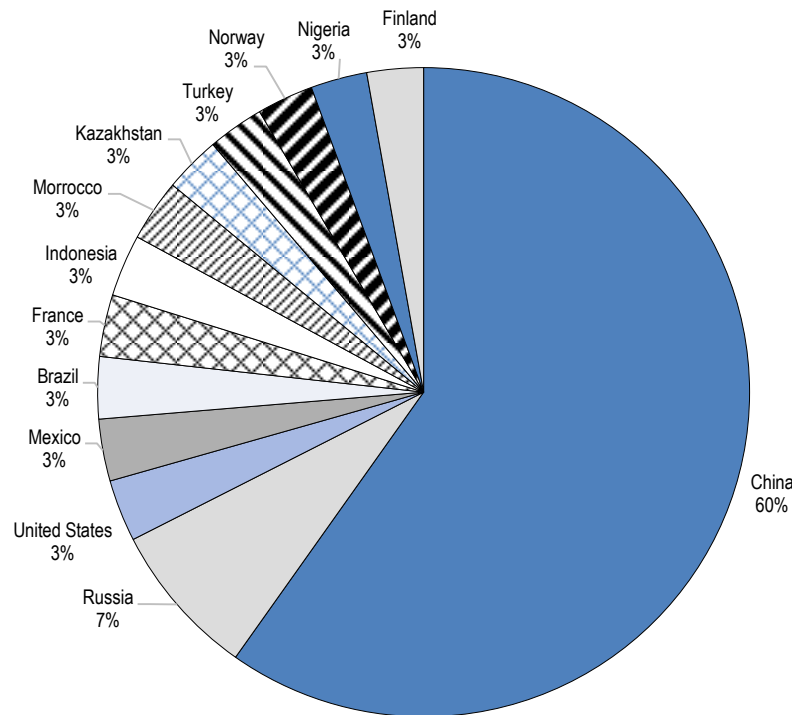
- **Economic importance** – provides insight into the importance of a material for the EU economy in terms of end-use applications and the value-added (VA) of corresponding EU manufacturing sectors. The economic importance is corrected by the substitution index (SIEI) related to technical and cost performance of the substitutes for individual applications.
- **Supply risk** – reflects the risk of a disruption in the EU supply of the material. It is based on the concentration of primary supply from raw materials producing countries, considering their governance performance and trade aspects. Substitution and recycling are considered risk-reducing measures.

Source: European Commission (2017^[3]), *Study on the Review of the List of Critical Raw Material*, https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en (accessed on 6 February 2019).

Most of the suppliers of CMRs to the EU are non-European countries. Supplying 60% of all CMRs to Europe, China is the largest supplier to the union, followed by Russia and the United States (Figure 2.1). This high external dependency on critical metals creates potential geopolitical and market risks for the EU.

As one of the richest countries in mineral deposits in Europe, Finland can play a key role in the raw materials agenda of the European Union. Finland is the third-largest European country supplying raw materials to the EU (3% of all the raw materials supplied), after France and Norway (Figure 2.1). Finland's mining production represents most of the EU production of platinum-group elements and other minor metals, including chromite, which is fully integrated with the stainless-steel production (Table 2.2). In particular, Finland is the EU's largest supplier of cobalt (mined as a by-product of nickel and copper, 66% of total supply) and has become one of the EU's largest producers of phosphate and gold (World Finance, 2019^[4]). Finland is today one of the larger suppliers in the world of the cobalt chemicals used in the global battery production (European Commission, 2017^[3]; World Finance, 2019^[4]).

Figure 2.1. Main suppliers of critical raw materials for EU, average from 2010-14



Note: The figure should be interpreted in terms of the ranking of main suppliers rather than looking at the exact numbers.

Source: European Commission (2017^[3]), *Study on the Review of the List of Critical Raw Material*, https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en (accessed on 6 February 2019).

Finland stands out in the world by its attractive regulatory and business environment for mining. The country ranks first as the best judicial environment for mining activity according to Fraser Institute's Mining Survey. It represents an improvement in comparison with 2016 and 2015 where ranked in (Stedman and Green, 2018^[5]). The survey's results represent the opinion of executives and exploration managers in the sector and include data

from more than 100 jurisdictions. Finland's high ranking is related to its mining potential, political stability, transparency, high quality of available geological data and current infrastructure. In particular, the geological data collection is considered one of the best in the world (Stedman and Green, 2018^[5]). This database, developed by Geological Survey of Finland (GTK), covers the whole country and includes geological, geophysical and geochemical information, which is available to exploration and mining companies.

Table 2.2. Finland mining production as a share for the EU, selected minerals and metals, 2012

Metal by country	Unit	Mine production	Share of EU production (member states only) (%)	Share of world production (%)
Chromite	kt	452	99.8	1.88
Copper	kt	20.7	2.5	0.12
Gold	t	9	41.8	0.32
Nickel	kt	21	45.3	1.20
Palladium	t	1	100.0	0.51
Platinum	t	0.43	100.0	0.24
Silver	t	20	1.1	0.08
Zinc	kt	51.5	6.8	0.38

T: tones.

Kt: kiloton.

Note: Cobalt in Finland is mined as a by-product of nickel and copper mining.

Source: Lulea University of Technology (2014^[6]), "Mapping the Nordic mining and metal industry".

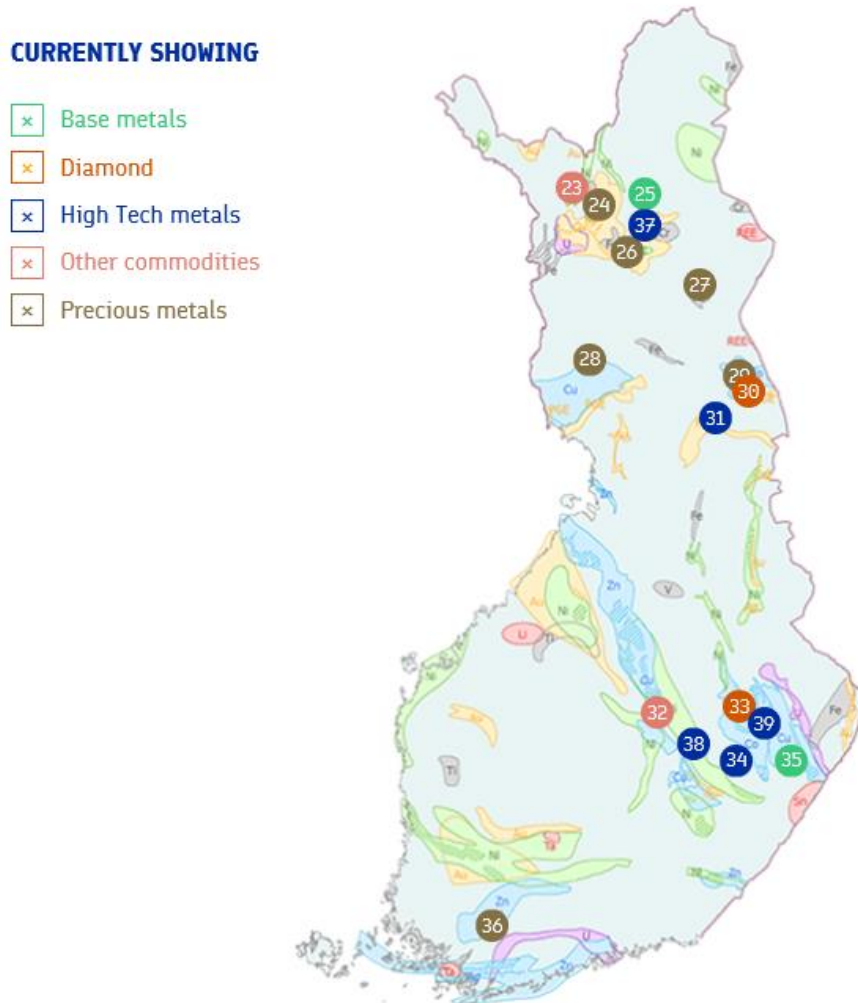
The good international standing of Finland has led to an increased inflow of exploration projects. The country has emerged as the most interesting exploration country in Europe and attracts significant interest from international mining companies (Lulea University of Technology, 2014^[6]). In 2017, Finland recorded the third-highest investment in mining exploration since 2012, with 46 companies conducting 44 exploration projects (7 of which are being conducted in North Karelia) (Tukes, 2017^[7]). Most of the exploration projects focus on gold, copper, platinum, nickel, zinc and cobalt in areas located in the eastern and northern parts of the country (Figure 2.2). These projects provide a good base to strengthen the role of the country's mineral production in the EU mining policy.

Embracing a mining policy with a territorial approach can help sustain Finland's international attractiveness and ensure a major role in the production of critical minerals for the EU. Subnational governments play an instrumental role in the sustained development of the mining sector in a country and in the implementation of the national mining policy (OECD, 2017^[8]). Regions ensure that the enabling factors for mining development are in place, including infrastructure, skills, community engagement and land-use governance. They also contribute to co-ordinating stakeholders and local clusters in order to support mining projects and promote policy complementarities at the local level (Chapter 3). Thanks to its close contact with the community, local governments are key to supporting community engagement in the projects and strengthening social license to operate (SLO).

Regions such as North Karelia and, in particular, Outokumpu can become an important partner in the implementation of the mining national strategy. Many Finnish regions are conducting individual strategies to promote mining development and harness the economic benefits from the global needs of materials. Both Lapland and North Karelia have

established metals as one of their smart specialisation strategies. Small municipalities are also developing mining initiatives such as the mining camp of Outokumpu or the construction of the chemical plant for processing cobalt and nickel sulphates in Sotkamo. Outokumpu, in particular, can contribute to the national mining sector thanks to its enabling socio-political environment for mining activities and an internationally connected industrial base with expertise in mining. These local initiatives and assets require co-ordination with the national strategy to ensure a good operational environment for mining activities and positive social and economic outcomes for the communities.

Figure 2.2. Mining exploration projects in Finland, 2018



Source: Mining Finland (2019^[9]), *Current Exploration Projects*, <http://www.miningfinland.com/opportunities/#current-exploration-projects> (accessed on 6 February 2019).

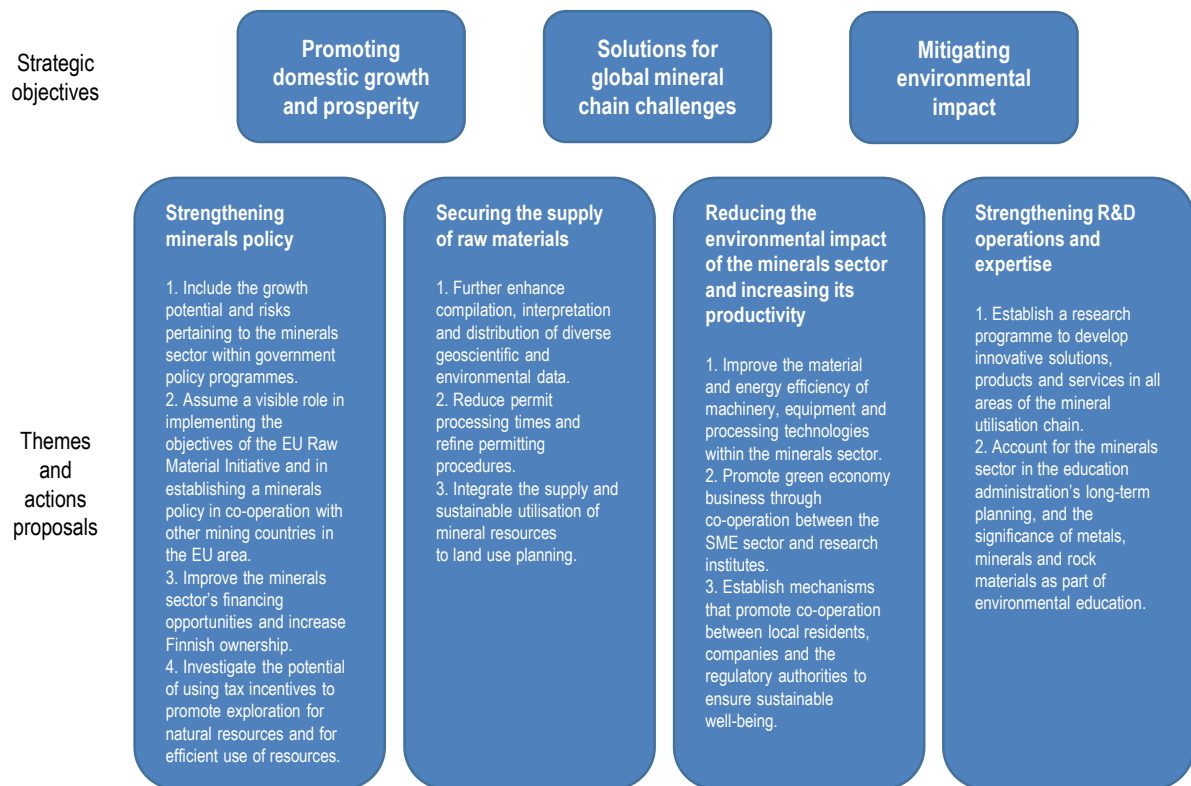
The mining policy in Finland lacks a territorial approach

The responsible use of natural resources and the capacity to innovate in the production of natural products is a cornerstone strategy to boost regional competitiveness in Finland. For this, one of the goals set by the national government is to make Finland a global leader in the sustainable extractive industry (Finnish Trade Organization, 2016^[10]). This strategy can

leverage on the relevant position of Finland as a key supplier of raw materials for the European Union.

The 2010 Mineral Strategy is the guiding document that outlines the route for the future of mining in the country and sets the vision for 2050. In this vision, the government has set the target to make of Finland a global pioneer in the sustainable utilisation of minerals, with the mineral sector as one of the foundations of its national economy. To achieve this, the Mineral Strategy has set three strategic objectives: promote domestic growth and prosperity, find solutions for global mineral chain challenges and mitigate the environmental impact. The objectives are complemented by 4 action themes with 12 actions proposals (Figure 2.3).

Figure 2.3. Mineral Strategy of Finland



Source: Geological Survey of Finland (2010^[11]), *Finland's Minerals Strategy*.

The Finnish Mining Strategy results in a comprehensive policy strategy that aims to enhance knowledge, skills and innovation as a means to achieve sustained and sustainable growth in the sector. The goal of attaining sustainable or green mining translates in efforts to implement technologies, best practices and mining processes as a means to reduce the environmental impacts associated with the extraction and processing of metals and minerals. Furthermore, the policy strategy acknowledges that the minerals sector has significant potential to become a key foundation of the national economy, particularly from the perspective of sustaining regional development. To make this happen, it stresses the need for proactive support and commitment from both the Finnish government and other relevant public authorities.

The country has a strong mining cluster consisting of mines, major global technology companies, SMEs and organisations providing education, and research and development (R&D) and innovation services. Government-owned companies support the mining strategy in Finland by supporting financing (Finerva) and promoting the development of value chains such as the battery cluster (Finnish Minerals Group).

The policy has also a strong focus on international promotion. As a part of the whole strategy to boost the mining sector, the government elaborated the Mining Finland programme. Funded by Business Finland, this programme is a platform that condenses all the information related to the mining activity in the country in a single site. It includes information on current active mines, exploration mining projects and prospective resources. The platform also shows the current composition of the Finnish mining cluster, promoting the mining and services companies established in the country (Box 2.3).

Nevertheless, the mining policy in Finland is a space-blind policy that does not fully take into account the special characteristics of the regions and their development strategies. Neither the national policy nor the mining national cluster acknowledges the local mining clusters and particular regional strategies. For example, Mining Finland does not mention the characteristics of the regions with mining activities. Involving regional and local governments in the national mining policy can help Finland strengthen the social licence to operate, the mining infrastructure and the land-use governance, among other conditions, to enhance the operation climate for the sector. The Canada Minerals and Metals Plan is a good example of a national plan that involves both national and regional governments by implementing strategic actions. Some of these actions include: the review of Canada's tax position, policy and fiscal measures; working with Indigenous peoples, local communities and industry to identify enabling infrastructure needs and opportunities for economic benefit; and settling land claims with Indigenous peoples as a principle for reconciliation (Natural Resources Canada, 2019^[12]).

A unified and co-ordinated vision for mining development in the country is also key to supporting regions in their local economic strategies. A co-ordination with other strategies (transport, education) can realise policy complementarities and thus help attain regional development goals. For example, actions to strengthen R&D operations and expertise in mining could be better integrated with other regional development programmes that support innovation including the activities of the regional smart strategies. This synergy can foster an innovative ecosystem and spur SMEs and researchers working in the sector.

Box 2.3. The Mining Finland programme

The Mining Finland programme is one of the Finnish government's growth programmes funded by Business Finland. The main goals of the programme include:

- Export promotion and internationalisation of Finnish mining technology and service companies.
- Promotion of direct foreign investment in early-stage Finnish mining and exploration companies and in technology growth companies in the sector.
- Increased visibility of the Finnish mining industry in the global mining industry market.

- Support for companies to develop their international marketing and sales capabilities.
- Strengthening of the Finnish mining cluster and promotion of networking between actors in the sector.

Stakeholders that want to be members of the programme must pay a membership registration fee of EUR 2 000. After May 2019, fees and terms of memberships concerning current and temporary members will be reassessed. The membership gives companies and organisation access to all the services offered by the programme, including:

- Company visibility on programme websites, brochures and publications.
- Direct contacts with international mining industry actors, Finnish embassies and Business Finland export centres.
- Free participation in the programme's international trade shows, congresses and roadshows, excluding own travel and accommodation costs.
- Free participation in programme's networking and match-making events, excluding own travel and accommodation costs.
- Generic training events.
- Access to GTK's and Business Finland's expert services and network.

Note: The initial end date of the programme is April 2019. Discussions with Business Finland and the Ministry of the Economic Affairs and Employment about the possible continuation of the programme and future financing model are going on.

Source: GTK (n.d.^[13]), *Mining Finland*, <http://new.gtk.fi/miningfinland/index.html> (accessed on 6 February 2019).

Policy strategies to attain sustainable economic development in Outokumpu

Outokumpu has been able to transition from an economy dependent on mining to one with a strong industrial base. The municipality has a number of assets that can unleash new opportunities for growth, including its geographic location, mining sector potential and strong industrial fabric with globally connected companies. Yet, the municipality faces a number of challenges in sustaining economic growth and increasing employment rates. They include out-migration, a low-skilled labour force and relatively low entrepreneurial activity (Chapter 1). This section will examine the policies to mobilise such assets while addressing the current challenges.

The development policy strategy in North Karelia and Outokumpu

The experience across several OECD countries and regions has shown that strategic planning is an important tool for development. Regions can benefit from planning, especially on the provision of basic public services and the elaboration of the right framework for economic diversification and innovation. Effective strategic planning can help reduce asymmetries of information, contribute to the better functioning of markets and create new markets where there are none (OECD, 2016^[14]).

Regions and municipalities in Finland develop their development programmes based on the EU and national-level strategies. Finland's regional development policy has a strong

focus on the competitiveness of business and innovation (Box 2.4). The 2016-19 strategy, “Competitive regions and smooth everyday life”, aims to improve the competitiveness of business through better transport and communications infrastructure and support to innovation. The economic objectives also include a commitment to ensuring environmentally and sustainable economic growth through the bioeconomy sector. In this strategy, social objectives are given less emphasis and framed in terms of providing access to services (OECD, 2017^[8]).

Box 2.4. Finland’s regional policy framework

Regional development in Finland is governed by an overarching Regional Development Act. The Regional Development Act first came into force in 1994 as a response to the impacts of the recession of the early 1990s and to help enable accession to the EU. The commitments to equity and competitiveness are embedded within the objectives of the Regional Development Act and include:

- Promoting the balanced development and national and international competitiveness of the regions.
- Sustainably supporting and diversifying the business structure of the regions and promoting economic balance.
- Promoting sustainable employment as well as competency, equal opportunities and social inclusion of the population.
- Narrowing development gaps between and within regions and encouraging the full use of the available resources in a sustainable manner.
- Enhancing regional strengths and specialisation and promoting regional culture.
- Enhancing the quality of the living environment and a sustainable regional policy.

The government’s regional policy acknowledges the disruptive effects of external changes – such as climate change, stagnant global growth and immigration – on the economic conditions of Finland’s regions. These changes have forced downsizing and restructuring of existing firms, which has led to reductions in employment. In turn, this has generated other problems such as structural unemployment, skills mismatches and increasing inequalities between regions. The main opportunity for growth is identified as coming from the capacity to take advantage of the bioeconomy sector to generate new products, services and export markets.

The table below depicts the main priorities of Finland’s regional policy.

Table 2.3. Finland's regional policy: Priorities and actions

Priority	Vision	Action areas (examples)
Growth through renewal	Regions will have created growth based on high-quality competency and sustainable development.	<ul style="list-style-type: none"> • Ensuring regional Councils prepare for the impacts of structural change. • Developing skills and capabilities of entrepreneurs. • Collaboration between higher education institutions and businesses. • Supporting the development of bioeconomy. • Improved skills requirements for newly arrived migrants.

Vitality through well-networked regions	Finland, relying on a network of regions, makes effective and sustainable use of its resources.	<ul style="list-style-type: none"> • Ensuring the EU's long-term transport strategy considers linkages to non-EU markets. • Ensuring regional employment and innovation needs are reflected in the EU Arctic Policy.
Well-being through partnerships	The public, private and third sector successfully promote the development of regions and services as a joint effort.	<ul style="list-style-type: none"> • Promoting the use of digital services. • Inclusion of private and third-sector actors in local and regional development. • Promoting housing construction in growing urban regions.
<p>Sources: Government of Finland (2016^[15]), <i>Competitive Regions and Smooth Everyday Life: National Priorities of Regional Development 2016-2019</i>; OECD (2017^[16]), <i>OECD Territorial Reviews: Northern Sparsely Populated Areas</i>, http://dx.doi.org/10.1787/9789264268234-en; OECD (2005).</p>		

North Karelia's development strategy

The Regional Strategic Programme 2018-21 of North Karelia (POKAT2021) defines the region's development objectives based on the region's potential and special characteristics. It describes and consolidates EU-, national- and regional-level strategies as well as the municipal and local level strategies with specific focus areas. The programme aims to attain three main goals:

- **Oil-free region.** The region seeks to be at the forefront of sustainable and resource-smart production and use of renewable energies.
- **Life-long participation.** The region wants to see the ageing population as an opportunity rather than a challenge, by involving people of different age groups.
- **Smart specialisation.** The smart specialising strategy identifies two core areas with potential to boost regional economy: new solutions for the forest bioeconomy and technologies and materials as enablers for growth (Table 2.4).

Table 2.4. North Karelia's key areas of economic potential

Core areas	The region's areas of expertise
New solutions for the forest bioeconomy	<ul style="list-style-type: none"> - Forest technology and logging logistics: Forestry machinery manufacturing and utilisation of logging methods and technologies - Distributed biorefining: Raw material chains for distributed biorefining and the refinement technologies - New biobased products: Biobased materials and production technology - Forest information solutions: Service activities that are based on electronic forest information - Multipurpose use of forests: The refinement of the material and immaterial value of forests - Renewable energy production and wood construction: Distributed energy production and hybrid solutions that are based on renewable energy sources
Materials as enablers for growth	<ul style="list-style-type: none"> - Photonics: Scientific research and commercialised solutions - Machinery and engineering workshop solutions: Machinery and engineering design expertise - Information and communication technology (ICT) applications: Digital solutions in products, services and processes - Chemistry-related materials expertise: Scientific research on functional materials and biomaterial analytics

Core areas	The region's areas of expertise
	<ul style="list-style-type: none"> - Precision technique: Precision work expertise in the manufacture of optical, mechanical and biomedical components - Extractive industry processing expertise: Analytics and processing expertise that serve the stone and extractive sectors

Source: North Karelia Council (2018_[17]), *POKAT 2021 North Karelia's Regional Strategic Programme for 2018-2021*, <http://www.pohjois-karjala.fi/documents/33565/34607/POKAT+2021+Summary.pdf/80583d66-9e7b-d4f6-8e90-3dc0a4552dac?version=1.0> (accessed on 24 January 2019).

To achieve the long-term goals, the programme has set three areas of action: i) vitality from regional networking; ii) growth from renewal; and iii) well-being from partnerships (Table 2.5). These strategic actions aim to mobilise the natural and economic assets of the region including tourism, forest bioeconomy and mining activities, and link them together with the local market. To do so, the programme seeks to leverage a variety of internal and external networks, including Russia and EU countries. The programme acknowledges that attaining a more dynamic economic growth and a sound business environment requires boosting well-being in local communities. It involves improving educational standards and ensuring quality access to public services.

Table 2.5. Areas of actions in the North Karelia Regional Strategic Programme 2018-21

Areas of action	Specific actions
Vitality from regional networking	- Create good accessibility and operating environment to enhance transport infrastructure in the region and harness the benefits from international and interregional networks
Growth from renewal	<ul style="list-style-type: none"> - Forest bioeconomy: Foster the sector and size its potential for business opportunities in the substitution of renewables for fossil fuels - Technology industries: Prepare the region and businesses for the effects of automation by strengthening businesses' adaptability and digital solutions - Stone processing: and mining: Produce a long-term regional mining policy aligned with national and EU-level policies - Tourism: Support the sector with joint efforts and effective co-marketing activities – enhancing niche markets like nature-based and sustainable and responsible tourism - Food industry: Establish itself as an organic producer in the semi-cultivation of forest-origin health foods, such as mushrooms, herbs and berries
Well-being from partnerships	- Comfortable living based on the development of the operational environment and economic growth

Source: North Karelia Council (2018_[17]), *POKAT 2021 North Karelia's Regional Strategic Programme for 2018-2021*, <http://www.pohjois-karjala.fi/documents/33565/34607/POKAT+2021+Summary.pdf/80583d66-9e7b-d4f6-8e90-3dc0a4552dac?version=1.0> (accessed on 24 January 2019).

Outokumpu's development strategy

The Outokumpu's development programme aims to improve the attractiveness and well-being in the municipality as well as to attain a sustainable municipal budget to ensure a better provision of public services. The municipality has identified four policy priorities to be attained through the strategic plan:

1. Municipal image: Improve the municipality's image and attractiveness.
2. Corporate finance: Achieve balanced municipal finances.

3. Vitality: Develop local vitality.
4. Well-being: Promote urban welfare.

To achieve this, the plan has a set of six transversal actions that contain specific strategies that support one or more policy priorities (Table 2.6). To improve the municipal image, for example, the municipality aims to embrace digitalisation, enhance road safety, undertake active marketing and update urban planning.

Table 2.6. Actions and strategies in the Outokumpu Development Strategy

Actions	Selected strategies (policy priority targeted)
Corporate finance	<ul style="list-style-type: none"> - A higher tax growth than cost growth (corporate finance and urban image) - A unified, integrated urban group. e.g. integrated practices with joint marketing among municipal companies (vitality, urban image).
Business development	<ul style="list-style-type: none"> - Business impact assessment as part of decision-making (well-being and vitality) - Genuine co-operation between actors (vitality) - Development of tourism and service industries (vitality & city image)
General administration	<ul style="list-style-type: none"> - Customer focus and customer service quality (welfare, city image) - Active municipal marketing (city image) - Co-operation and partnerships- events and institution meetings (vitality, well-being)
Welfare services	<ul style="list-style-type: none"> - A secondary education that is versatile and linked with the market (city image, vitality, welfare) - Development of cultural activities (welfare, city image) - Child-friendly city (welfare, city image)
Urban construction services	<ul style="list-style-type: none"> - Upgrading urban planning (vitality) - Real estate portfolio management and planning (vitality, city image) - Budget management for maintenance and reparation (corporate finance and urban image) - Improving the overall look (city image)
Municipal companies	<ul style="list-style-type: none"> - Improving road safety (vitality, welfare) - Renovation of streets (city image) - Plot marketing – increasing plot sales (vitality)

Source: Outokumpu Municipality (2018^[18]), “Corporate Strategy 2018-2021”, <http://www.outokummunkaupunki.fi/documents/291232/298182/Outokummun+kaupungin+konsernistrategia+Kumpukartta+2018-2021%2C+kvalt+27.11.2017%2C+voimaan+1.1.2018.pdf/5a953d57-1739-4207-dc2e-9e9e0b9601b8> (accessed on 6 February 2019).

The economic plan recognises the need for attracting new business and people to the municipality and create a sustainable living environment for residents. Marketing activities together with policies to improve public services delivery are welcomed strategies to revitalise the municipality. Ensuring quality education and the right amenities for families, as well as a friendly environment for business to settle in are strategies that can provide sustainable growth for the area.

One of the key areas of the plan is the development of a cluster to support mining activities in the region. The Outokumpu mining camp aims to create a stronger network between the existing industrial companies, workers’ expertise and research centres to provide a solution for mining activities (Figure 2.4). Yet, the way in which this interaction will work and the type of solutions to be developed are not clearly detailed in the plan.

Figure 2.4. Outokumpu's mining cluster

Source: Outokumpu Municipality (2018), “Corporate Strategy 2018-2021”

The regional and municipal development plan are forward-looking and aims to create a dynamic business environment. However, these plans could better exploit synergies among them and align main priorities. Key policy priorities in the regional plan including creating new economic opportunities for the elderly population or unlocking the potential of bioeconomy seem to be missing in the municipality’s development plan. Likewise, the regional plan lacks clarity about the role of the mining sector for the development of the whole region and does not acknowledge the local mining cluster and strategies for the sector.

Mobilising regional assets to become a mining hotspot

Outokumpu municipality has scope to unlock existing assets in the territory in order to attain its economic objectives and boost well-being. The geographic location, the natural resource endowment and the important industrial component in the economy can be better aligned to support a unified vision of development and mobilise the potential of the local mining value chain.

Unlocking the potential of Outokumpu geographic location

Outokumpu benefits from a good geographic location, with close proximity to the two largest urban centres in Eastern Finland and to the Russian border. The municipality is 50 kilometres away from Joensuu (average travel time of 40 minutes), the capital of North Karelia, and 90 kilometres from Kuopio (average travel time of 75 minutes), the capital of

Northern Savonia region and the second most densely populated city in the country. Outokumpu is less than 120 kilometres from the Russian border and has direct access to the region's 2 airports in less than 100 kilometres (Joensuu and Kuopio).

Outokumpu's proximity to Joensuu provides an advantage over more remote municipalities in the region. Outokumpu, along with five other municipalities, is located in the labour market of Joensuu (Chapter 1). This is the largest labour market in the region due to the size of the population and range of jobs offer (OECD, 2017^[8]). In fact, Joensuu represents the main hub of population and economic growth in the region, which offers surrounding an opportunity to benefit from that dynamic. Generally, subnational areas closer to cities are more prosperous and experience higher economic growth than the more remote ones. Empirical evidence for the OECD concludes that the gross domestic product (GDP) per capita growth of subnational areas within 45 minutes by car to a city is, on average, half a percentage point higher than the growth of those areas within 45 to 90 minutes from a city of the same size (Ahrend and Schumann, 2014^[19]). The proximity to the fastest-growing municipality in the region can benefit Outokumpu through a greater flow of workers, business and ideas.

Nevertheless, there is competition among municipalities for workers and investment. Municipal plans are competing to attract skilled workers without a clear co-ordinated strategy for the whole local labour market (Chapter 3). An individual strategy for investment can eventually translate into a "race to the bottom", leading to revenue losses and weaker labour and environmental standards. From a regional standpoint, if existing economic activity is simply transferred from one location to another within the same region, net benefits are at best zero, and usually negative (OECD, 2018^[20]). Therefore, a well-functioning governance framework must be in place to ensure that the potential benefits from proximity to a city are seized and the notion of "catching up" promoted. OECD analysis finds that, for a given population size, a higher fragmentation of a single local labour market among municipalities is associated with lower productivity (OECD, 2015^[21]).

Furthermore, Outokumpu is not fully benefitting from the flow of workers into the local labour market. Outokumpu is the third municipality in the local labour market with the largest share of residents working in their place of residence (80% of employed residents work in Outokumpu). The municipality also receives a relatively large share of workers commuting every day from other municipalities (31% of Outokumpu's workforce in 2015), far above the share in Joensuu (27% of non-resident workers) (Chapter 1). Despite such a flow of workers, Outokumpu has a higher unemployment rate than the LLM average (Chapter 1). Part of the persistent unemployment rate in the municipality is explained by labour market mismatches (see next section). The fact that workers from other municipalities, not all of them high-skilled, can find a job in Outokumpu (Chapter 1) underlines the existence of information and mobility barriers within Outokumpu's workforce. Improving the information on job opportunities and the availability of skills across the local labour market can help match Outokumpu's unemployed population with labour opportunities in other municipalities.

The whole labour market can further unlock opportunities from agglomeration economies. Productivity tends to increase with the size of the area's labour market, which enables a broader range of firms to compete and specialise, thereby raising overall efficiency (Ahrend et al., 2014). Yet, the size of the labour market is not the only determining factor of productivity; it also depends on the relative accessibility of firms to each other and the labour force, sector-specific effects (e.g. cities with a higher proportion of financial

services tend to have higher productivity) and the level of skills (Ahrend et al., 2014). Co-operation among municipalities to create a well-functioning labour market that links worker skills, business and educational institutions correctly is a tool to promote productivity. For operational factor mobility, infrastructure and land-use strategies are instrumental to increase accessibility to employment and provide high-amenity environments that are attractive to highly skilled labour.

Infrastructure in the local labour market has scope for improvement. The OECD (2017^[8]) has stressed the need to improve infrastructure in North Karelia, especially the provision of transport services to small rural communities. The main transport corridor for the region is Highway 6, which links Kajaani, the capital of Kainuu in the north (approximately a 3-hour journey from Joensuu), to the south, towards the national capital Helsinki (5 hours by car) (OECD, 2017^[8]). Currently, a private car is the main way to commute from Outokumpu to Joensuu, since public transport has a low frequency and there are no train connections. The highway connecting both areas has many sections with only two lanes and is prone to freezing during wintertime. These factors tend to increase the overall commuting time. Furthermore, the road network conditions to Kuopio and other municipalities in the west can be enhanced to improve municipal links. As OECD (2017^[8]) mentioned, improving east-west connectivity has the potential to create new growth opportunities for northern sparsely populated areas (NSPA).

In summary, to make the most of the geographic proximity of Joensuu and Outokumpu, the North Karelia and Outokumpu Council should:

- Better assess the socioeconomic and environmental interconnection between Outokumpu and the LLM. A starting point for this assessment is to produce and disseminate clear data at the appropriate scale (e.g. workforce skills and job opportunities in different municipalities) to identify mobility barriers and challenges in the territorial interaction among the municipalities.
- Set up a framework to help local stakeholders co-operate outside the constraints imposed by administrative boundaries. To do this, the regional council should encourage municipalities to identify development strategies or projects around functional geographies (e.g. Joensuu LLM) and co-operate on labour mobility and investment attraction. Common planning and foresight strategies to embrace potential interactions in the labour market should be a priority on the territorial agenda.
- Develop a common and co-ordinated regional approach to attract and retain workers.
- Improve infrastructure connectivity with Joensuu and other municipalities.

Becoming a key player for the mining sector

For Outokumpu, mining explains most of its development history. Today, the municipality has a number of assets to become a key player for the mining sector: i) ongoing exploration projects in the municipality; ii) a potential for undiscovered deposits; iii) proximity to active mines and known deposits; iv) companies with mining expertise; and v) social licence and political willingness.

While there are no active mines in the municipality, some mining exploration projects could revitalise the mining activity in the area. The municipality is located in the so-called

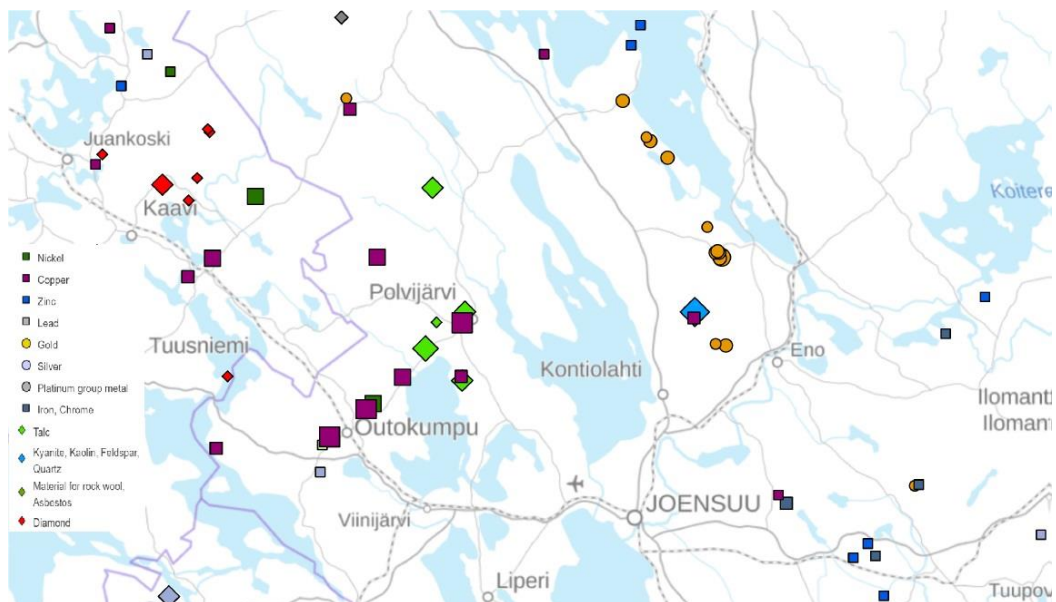
Outokumpu geological area (named after the company), containing copper, zinc and nickel deposits. Currently, the two most relevant exploration projects are:

- Outokumpu copper mine operated by Finnaust Mining. Six drill targets have been identified to date, with a good potential for hosting high-grade copper. The mine is immediately adjacent to the former Outokumpu copper mine.
- Hautalampi nickel, copper and cobalt mine operated by Finncobalt. Preliminary studies in Hautalampi (the historic mining area of Outokumpu) have determined a deposit of 2.2 million tonnes with a production plan of the 7-year underground mining operation.

The geological area where Outokumpu is located still appears to have undiscovered resources. GTK analysis underlines the Outokumpu copper-cobalt deposit as one of the eight most representative deposits in the country. It has found that about 71% of the copper and 68% of the zinc endowment of Outokumpu-type deposits are located in poorly explored and undiscovered areas (GTK, 2014^[22]).

Outokumpu is also in close proximity to municipalities with active mines and mineral deposits with permits. Finland's most significant mines are located in Eastern Finland and Lapland (Chapter 1). There are two active metal ore mines in North Karelia: Kylylahti multi-metal mine in Polvijärvi and Endomines gold mine in Ilomantsi. Outokumpu is 22 minutes by car from the Kylylahti copper, gold and zinc mine operated by Boliden and slightly more than 1 hour from the gold mine in Ilomantsi. In terms of exploration projects, North Karelia hosted 7 out of the 44 exploration projects of Finland during 2017. Overall, there are at least ten known deposits with active permits at less than one-hour's distance from Outokumpu (Figure 2.5). Most of the deposits are of copper, zinc (e.g. the Vuonos deposit), nickel and talc (e.g. Perttilahti deposit).

Figure 2.5. Mineral deposits around Outokumpu



Note: Each figure represents the main mineral of the deposit.

Source: GTK (2019^[23]), *Mineral Deposits and Exploration (database)*, <http://gtkdata.gtk.fi/mdae/index.html> (accessed on 6 February 2019).

The municipality benefits from a pool of companies with important mining know-how to support green sustainable mining. The municipality has 47 companies in the industrial manufacturing sector; some of them with direct experience in mining-related machinery. The most representative of these companies is Outotec; a company that was initially established as a technological unit of the Outokumpu mining company, is currently an independent global leader in minerals and metals processing technology with an important focus on sustainable mining. This company has a factory unit in Outokumpu that manufactures mining machinery and structures and exports to a variety of countries.

Another key player for mining activities in Outokumpu's industrial fabric is the Geological Survey of Finland (GTK). GTK, the national geological research centre, operating under the Ministry of Employment and Economy, based its competitive advantage on a high-skilled research service that leverages on a pool experts and laboratories to provide customer-oriented solutions and support business operations in different areas of the extractive sector. The company have four strategic themes: i) digital solutions to drive GTK's success; ii) producing new cleantech solutions; iii) supporting the sustainable building of communities with geology; and iv) creating sustainable growth with mineral economics. GTK's Mineral Processing Laboratory (GTK Mintec) in Outokumpu focuses on mineral processing and material research and works with global costumers. It has the potential to be an important platform for developing research and innovation projects as well as bench-scale tests to continuous pilot campaigns in the mining sector.

Overall, Outokumpu's industrial companies can provide particular know-how for mining operations in cold climates and support the niche market of green mining and circular economy in that sector by developing sustainable mining technologies. If well-managed and linked to global value chains, this industrial fabric can become a key player to support the national strategy to make Finland the global leader in the sustainable extractive industry.

While Outokumpu is not the closest municipality to Russia, it can further benefit from its proximity by integrating the local industry with the mining development in that country. North Karelia is a north-eastern region in Europe. Its border with Russia is a competitive advantage that has afforded the region a particular expertise on Russia and contributed to the regional economy, especially in the tourism sector. The regional development plan has recognised the importance to enhance the network with the Russian market. Outokumpu can consider strengthening its market activity with the neighbouring country by improving, for instance, the flow of tourists and the integration of its industrial sector with the mining development in that country.

Finally, the enabling social-political environment for mining activities is an outstanding asset in the municipality to support mining development in the region. The conversion of exploration properties into actual mines depends on several factors, including the development of world metal prices and mining technology, as well as the socio-political aspects of natural resource extraction (Tiainen, Sairinen and Sidorengo, 2015^[24]). In Outokumpu, the community has a positive perception of the mining activity, with a number of families that still remember the economy's mining past and experienced workers in mining planning. Furthermore, the municipality has put the elaboration of the mining cluster high on the development agenda. Mining and stone processing is one of the five pillars for economic development in the North Karelia regional plan. The region acknowledges the good international image of the country in the mining sector and the potential of mining to create jobs in other sectors of the economy.

Towards an integrated strategy to unlock the mining potential

Outokumpu has a set of assets that can contribute to raising the role of the mining sector in the regional development of North Karelia. To mobilise this mining potential, the region needs to conduct a number of strategies.

First, clarify the role of the mining sector in the regional development plan and future opportunities for growth. While the region includes mining development as a part of the smart specialisation strategy on materials as enablers for growth, most of the growth opportunities in the region and the flagship programmes are focused on forestry and the bioeconomy. The “materials as enablers for growth” smart specialisation strategy allocates a high relevance to technology development and mobilisation of the related expertise in photonics, while the mining sector seems less of a priority. It implies a rather unclear regional strategy to promote the innovation ecosystem in the mining value chain. For example, the strategy to enhance the photonics industry, promoted as a key regional innovation programme, aims to scale up the value-added of the industry by linking competencies between different sectors. This type of support and strategic thinking – connecting ICT, technology and universities to strengthen the industry – is needed in the mining sector.

Second, enhance the international promotion of regional and Outokumpu’s mining assets. Outokumpu and North Karelia are absent from international fairs and events on mining. While Finland is a brand for sustainable mining and a favourable jurisdiction for mining, there is not recognition of Outokumpu within this brand. Furthermore, the promotion activities of North Karelia do not mention the local clusters and their potential in mining. The poor regional marketing of mining is related to a lack of a common vision of the mining role in regional planning and co-ordination challenges with the national strategy.

Finally, acknowledge the local mining clusters and involve the companies in the regional mining strategy. The extractive industry processing expertise strategy of North Karelia does not recognise the potential of a mining camp strategy and the mining-related industries in Outokumpu (GTK, Outotec). For example, GTK does not appear as an active player in the smart specialisation strategy of materials, unlike Lapland where the smart specialisation strategy has actively involved GTK along with other private companies and educational institutions (Box 2.5). For this, Business Joensuu can play an instrumental role in mapping mining assets and involving the private sector and local strategies with regional plans and strategic programmes on mining.

Box 2.5. Involving stakeholders in smart specialisation strategies

Lapland’s Arctic Smartness cluster

The Lapland’s Arctic Smartness cluster collaboration is headed by the Regional Council of Lapland. This cluster has increased awareness of the expertise and specialists in Lapland and created new opportunities for introducing developed products and services to the market.

The collaboration between companies, educational and research institutions, the public sector and financiers is a key element in the cluster’s work. The clusters of Lapland have seen significant development in the past few years. New goals have been set in Lapland that strongly emphasise the emerging industries in the area and the needs of business life.

This steadily advancing locomotive is being steered by new and innovative industries. In addition, growth has been seen in the traditional mining and tourism industries.

The Arctic Smartness collaboration guides the clusters and implements smart specialisation in Lapland. The Geological Survey of Finland (GTK) and the Natural Resources Institute Finland (LUKE) have obtained a stronger role in the region. Together, Arctic Smartness stakeholders have increased the international visibility of Lapland.

The actors working the business interface, namely Digipolis, Rovaniemi, Development and ProAgria Lapland, create services concepts. The University of Lapland and Lapland University of Applied Sciences provide innovation platforms and learning environments as meeting points for business, education and research.

Source: Arctic Smartness (n.d.^[25]), Homepage, <https://arcticsmartness.eu/> (accessed on 23 March 2019).

The mining potential of Outokumpu can be boosted by leveraging on EU cross-border co-operation programmes. As a part of the EU current programming period (2014-20), North Karelia, through Business Joensuu, participates in two EU programmes to develop the mining sector. The two programmes have an important component on network development and provide a platform for deep policy learning, peer review and identifying ways to use EU policy instruments (European Structural and Investment Funds). The programmes are the following:

- The *Mining and Metallurgy Regions of EU (MIREU)* project aims to establish a network of mining and metallurgy regions across Europe to develop guidelines and recommendations to ensure the sustained and sustainable supply of mineral raw materials to the EU. The network will help the regions to share knowledge and experiences in establishing and maintaining an extractive industry. MIREU brings together 30 partners from 17 regions, representing 15 EU countries. It is funded by the EU Research and Innovation programme (Horizon 2020). The main objectives of the programme are:
 - Map synergies between mining and metallurgy regions.
 - Identify favourable conditions for raw material development.
 - Engage with stakeholders and raise public awareness about the need for minerals and the importance of a sustained supply within Europe.
 - Develop EU-level Social License to Operate (SLO) Guidelines and an accompanying Toolkit.
- The *Smart and Green Mining Regions of EU (REMIX)* project aims to link EU mineral-rich resource regions to support innovations of large- and small-scale companies in their regional mining value chains. The REMIX project brings together nine partners and one advisory partner from nine different countries to outline good practices with regards to how regional SMEs and municipalities can benefit from the mining industry and how the regional development authorities can strengthen the sustainable operational environment (Interreg Europe, 2019^[26]). It is funded by the European Regional Development Fund. The main objectives of the programme are to:
 - Develop a dialogue between regional and industrial policymaking in the EU.
 - Involve research, development and innovation (RDI) in regional development processes.

- Raise awareness of the sustainability of the EU mining sector.
- Increase the regional innovation capacity in mining and metallurgy.

There is a scope to take these mining programmes a step further in terms of joint projects on research and innovation, and internationalising SMEs with other municipalities and regions. For this, North Karelia needs to agree on their areas of expertise to support the EU mining networks. Business Joensuu's role here should be to co-ordinate a unified vision of mining in the region and involve the private sector (e.g. GTK) and educational institutions in EU networks. The regional competitive advantages that North Karelia can put forward within the EU programmes should include its geographic location, industrial expertise on sustainable mining and social license to operate. An active role from the region on leading a project in the networks, the EU-level Social License to Operate Guidelines for example, can afford the region higher international recognition in the mining sector.

Business Joensuu can also ensure both EU programmes contribute jointly to building scale for the mining strategy in Outokumpu and promote policy complementarities at the local level. A co-ordinated support between both programmes can lead to a stronger local mining camp in Outokumpu and ensure its recognition as a key player to promote the mining network in the country. Enhancing the co-ordination of specific internal activities of each of the EU programmes (e.g. marketing activities and SME support) with the national and regional strategies can result in a coherent policy to ensure enabling factors for mining development are in place (e.g. infrastructure, skills).

In summary, to make Outokumpu a key player for the national and European mining sector, the region needs to develop an integrated mining strategy that aligns different stakeholders to a single vision and promotes its competitive advantages globally. Specific actions for this are to:

- **Develop a unified vision for mining development within the region.** This involves clarifying and enhancing the role of the mining sector in the regional development strategy. For this, the region needs to assess the potential of local assets and strategies (Outokumpu mining camp) to define its integration within the smart specialisation strategy. The revision of the regional strategy in 2021 is a great opportunity to reassess priorities.
- **Strengthen the regional support for the implementation of local mining strategies.** Business Joensuu should help ensure sufficient support for mining development and balance among the implementing programmes for both regional smart strategies (bioeconomy and metals). This involves promoting co-ordination among municipalities to leverage on their special characteristic on mining and link municipal assets with other mining regions (Lapland) to generate synergies in order to attract investors (Chapter 3).
- **Define a clear mining brand for the region and a strategy to promote it internationally.** The marketing activities should aim to make the mining camp an internationally renowned source of knowledge-based services in mining. For this, the region should enhance its participation in mining events and ensure this strategy is included within the national marketing activities and the national platform *Mining Finland* (Chapter 3).
- **Enhance interregional (Finland and EU) co-operation on smart specialisation and green mining technologies.** This involves strengthening the use of the EU cross-border co-operation programmes for the mining sector. For this, Business

Joensuu should leverage these platforms to promote joint projects on research and innovation with other regions and support the internationalisation of local businesses.

- **Conduct a flagship project for mining activities (e.g. testing of tailings for mines in cold temperatures) to align and spur commercial partnerships among established industries.** For this, GTK's lab with other established companies and universities of applied sciences could co-ordinate efforts to expand their offer to the mining industry and attract international firms investing in Nordic countries. For example, GTK could become a platform to test new exploration and operation methods and offer tailored market solutions for operations in cold temperatures. This project could, in fact, become a cornerstone of the mining camp in Outokumpu.

Diversifying the economy for sustained and inclusive regional growth

The economic structure and level of diversification are important factors in influencing regional economic performance. OECD regions that are undergoing a catching-up process in their stages of economic development are characterised by a high level of diversification and a greater concentration in tradable activities (OECD, 2016^[27]). Countries, regions and cities with a diversified economic structure have a higher employment and economic growth rate than their peers with a high degree of specialisation (Glaeser et al., 1992^[28]; Hausmann and Hidalgo, 2010^[29]; OECD, 2018^[20]). Although specialised regions may have high levels of GDP per capita, a high degree of specialisation tends to hinder GDP growth. The OECD (2018^[20]) found that the lower per capita GDP and productivity growth of highly specialised regions are due in part to lower levels of innovation-related activities (lower patent activity) in comparison with more diversified regions.

Diversification strategies need to be consequent with the economic structure and abilities of the region (Boschma and Iammarino, 2009^[30]). Regions should focus on diversifying the economic activities that require related skills and knowledge to those activities already present in their economies. This involves upskilling labour force, attracting new skilled people and establishing an operational environment for new business that can support new paths of growth based on cemented economic advantages.

Expanding the existing industrial fabric beyond manufacturing

Outokumpu can further diversify its economy by promoting a transition of the established companies towards high value-added activities and boosting new sectors such as tourism to leverage on the municipality's natural endowments and special characteristics.

Outokumpu is the most industrialised municipality in North Karelia (Chapter 1). The manufacturing sector employs 33% of the working-age population in Outokumpu, far above the share of the local labour market (16%) and the country average (13%). The main companies established in the municipality supply to a number of sectors: machinery and electric components for extractive industries (e.g. Outotec); industrial components for agriculture and forestry (e.g. Outokummun Metalli Oy and Pippo Oy); technological components for construction and housing (FinelComp) (see Table 3.1 in Chapter 3). Most of these companies either compete in international markets or are connected with global firms (e.g. Outokummun Metalli is a supplier to the multinational John Deer).

Yet though this manufacturing industry has brought economic dynamism to the economy and income to the municipality, there is a persistently high unemployment rate in

comparison to the region (Chapter 1). As the former session depicted, a share of Outokumpu's workforce did not fit with the labour demand of the industry-manufacturing sector, which explains the role of the municipality as net receiver of workers from surrounding areas. In an increasingly globalised world, the main source of value-added is often found in upstream or downstream steps in the production process (e.g. R&D, design of products or marketing). Transitioning towards the service sector can thus help the municipality to diversify the economy into high value-added activities. Regions catching up across OECD member countries are moving faster towards tradable services and increasing their share in the total economy while, in "low-income regions", industrial production accounts for one-third of total output and is the fastest-growing sector (OECD, 2018_[20]). Part of the industrial transition towards services is leveraging on the services linked to the production process (OECD, 2018_[20]).

Outokumpu has tried to enhance service activities in the economy but the growth opportunities in economic strategy remain mostly linked to industrial production. Primary-sector logistics or services activities have less relevance in the municipal economic strategy. The main strategy to support diversification within Outokumpu's development plan is the strategic action of developing tourism and service industries (see Table 2.6). To do this, the municipality is promoting a joint digital project to develop a modern business environment and support marketing expertise. While Outokumpu's economic strategy has defined the goal to increase the share of the services sector in the economy, the strategy falls short on clarifying the type of service activities it wants to promote.

The municipality has scope to support economic diversification by unlocking the synergies with the services embedded in the manufacturing process. The strategic diversification in related sectors can build on local manufacturing strengths. Many companies in Outokumpu require a range of services associated with the industrial processes, including design, sales, maintenance and financial management. Although in some cases, companies get to develop these services in-house, some services (e.g. maintaining, disposal of material, security) can be provided close to the production site. Identifying the potential services to be outsourced requires common planning activities and networking events with firms, entrepreneurs/SMEs and government. To support this effort, Business Joensuu and Outokumpu Municipality should dedicate a particular programme to foster interfirm links (inside and outside Outokumpu) and entrepreneurship in these type of service activities.

Greater development of the mining sector in the region can also lead to a growth of service activities. The OECD finds that services is the sector with the strongest backward(or upstream) linkages to mining. This sector accounts, on average, for 23% of the value-added of exports from the mining sector (based on a sample of 65 countries included in the 2018 version of the OECD Trade in Value-Added [TiVA] dataset). In almost all the regions studied, the large majority of services embedded in mining exports are produced domestically (18%), while a small proportion is imported (5%) (OECD, forthcoming_[31]). The relevance of domestic services in mining underlines the capacity of the mining sector to support economic growth in the local economy (Box 2.6).

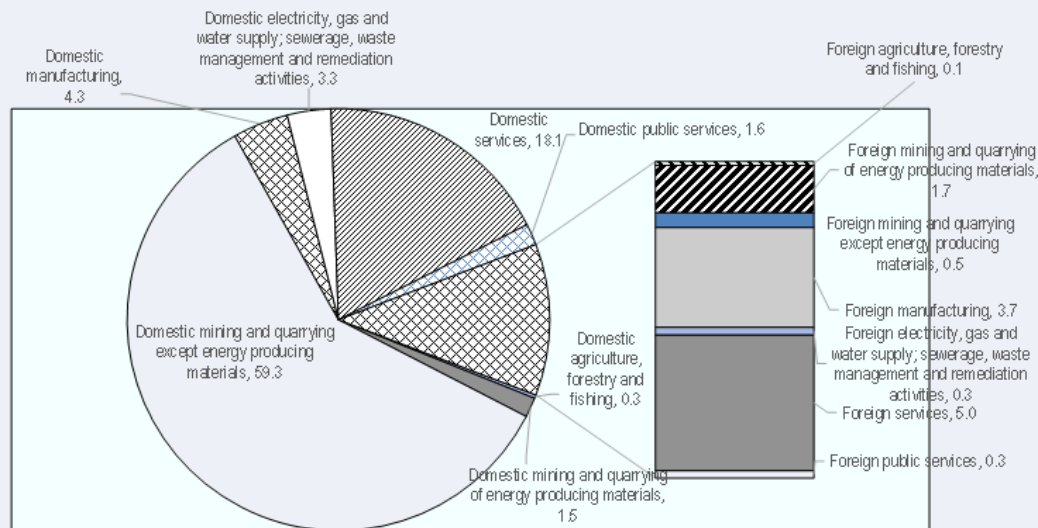
Box 2.6. Backward and forward linkages in the mining sector

The OECD conducted an analysis based on detailed and harmonised data on the mining global value chain in the 2018 version of the TiVA data that comprised 65 countries. The Trade in Value-Added (TiVA) dataset traces value addition into and out of the mining sector throughout the entire value chain. Upstream linkages to sectors that feed into the mining sector as inputs are referred to as backward linkages. Downstream sectors that integrate exports from the mining sector into their production processes are referred to as forward linkages.

As with other natural resource sectors, much of the value-added of mining exports come from the sector itself (59% in 2015). This is due to the inherent value of the minerals extracted, plus the value addition of labour and capital expenditures in the sector. The sector to which mining displays the strongest backward linkages is services, representing 23% of the value-added of exports from the mining sector on average (Figure 2.6). In European and Central Asian countries, services account for 26% of the value-added of minerals exports. In almost all regions, a large majority of services to the mining sector are produced domestically, accounting for 18% of the value-added of mining exports.

Figure 2.6. Backward linkages, the mining sector

Inputs by sector into mining, 2015



Source: OECD (forthcoming^[31]), *The Mining Global Value Chain and the Impact of Embodied Services*, OECD Publishing, Paris.

The mining industry uses a variety of services throughout the lifecycle of mines. The mining lifecycle is composed of four main stages: prospection and exploration, feasibility, exploitation, and closure and remediation. Due to the specific legal, technical and economic needs of the mining process, each stage requires specialised mining services. These include geological services like surveying and sample analysis; engineering services that contribute to feasibility studies, mining design and oversight of mining operations; construction services for roads, mine sites and mining camps; drilling services at both exploratory and

construction phases, among others. Furthermore, mining is increasingly done remotely; digital mining includes services related to data collection and management; specialised software; technologies such as sensing, information gathering through drones and machine learning; and innovative business processes.

Source: OECD (forthcoming^[31]), *The Mining Global Value Chain and the Impact of Embodied Services*, OECD Publishing, Paris.

Outokumpu can also move towards high-value-added activities by better linking its assets with the smart specialisation strategies of the region. Outokumpu can be a key partner for North Karelia to attain the “materials as enablers for growth” smart specialisation strategy. This strategy aims to leverage the economic growth on the technologies and materials in the region by harnessing the existing activity on research, R&D from the technology industry companies (53% of R&D in the region stems from companies in the field). To harness the mining and metal potential, North Karelia regional council has identified two main bottlenecks:

- Improve the critical mass of experts with presence in the region.
- Enhance the relevance of high-technological businesses in production volume. So far, mainly traditional engineering and metal companies are involved in this type of production.

In Outokumpu, GTK’s national network of experts can support the regional strategy on metals and mining. The company employs 420 full-time staff and are engaged in tasks at the local, national and international levels. It has seven research laboratories around the country with experts in areas such as isotope geology and applied mineralogy. Outokumpu can mobilise GTK through, for example, the mining camp, to take an active role in supporting the materials strategy and address the need for experts in the sector.

Using tourism as an anchor of economic growth

The tourism sector in North Karelia is small when compared with an average of Finnish regions (Chapter 1). North Karelia is among the 6 regions with the lowest number of overstay nights spent by tourists (456 323 in 2017), which represent 2% of the national total. It is far below the number of nights spent in regions such as Uusimaa (33% of the national total), Lapland (12%) or the neighbouring region Pohjois-Savo (5%) (Official Statistics of Finland, 2018^[32]). Furthermore, the sector relies on a narrower range of tourists, mainly domestic and Russian (North Karelia Council, 2018^[17]).

This sector, however, has the potential to represent an important source of income for North Karelia and Outokumpu. The regional council has set tourism as one of the five sources of growth for the region (see Table 2.5). The regional tourism policy focuses on supporting nature-based tourism and sustainable and responsible tourism as well as stressing the safety and security characteristics of the region. The region has also developed the website *visitKarelia* which promotes municipal destinations, mainly natural and cultural attractions. The tourism strategy in the 2018-21 regional development programme has set four objectives:

- Strengthen tourism centres, international competitiveness and the product offer.
- Enhance tourism marketing and sales.

- Develop event tourism.
- Develop ecological and cultural tourism.

In Outokumpu, the municipal council has conducted activities to promote tourism based on its mining heritage. Since 2008, the municipality has been following a comprehensive plan to attract tourists to the old mine, converted into a tourism destination. This mine serves as a museum for mining in the country. Tourists can take a tour of the mine and learn about ancient and modern mining processes. The site also offers the possibility of holding conferences and events underground.

The municipality offers other types of attractions beyond the old mine: a golf area in the old mining site of Kereti, an important offer of water-related attractions (24% of Outokumpu's land is covered by water) and a natural park just 5 kilometres from the centre, with nature trails of 3, 4 and 7 kilometres. Outokumpu receives around 15 000 visitors per year, most of them Finnish nationals attracted first and foremost by the mine site.

Outokumpu can improve its tourism strategy by diversifying its offer and linking its main destination, mining, with other sectors such as agriculture or forestry. Tourists visit the municipality attracted by the mine but their stay is generally short and does not explore other attractions in the area. For example, further exploiting ecotourism could help Outokumpu attract some of the tourists visiting Finland on an annual basis and looking for outdoor activities. Health and wellness tourism could also create a new offer for the country's increasing elderly population. The municipality can further promote the other exciting activities in the area – golf, trekking, fishing – by developing new activities around them (e.g. hosting golf camps, fishing tournaments). As seen in other examples of OECD regions, an integrated tourism strategy at the local level requires close co-ordination with the community and other levels of government, regional and national (Box 2.7).

Box 2.7. Experiences of mine repurposing – Atikokan, Ontario

Atikokan, a transitioning municipality in north-western Ontario, engaged in mine site repurposing to avoid winding down activities following closure of its in-situ mines.

Mine dependency prevailed from 1944 until 1980, covering the period of commercial iron ore production. During this extended phase, mining was the dominant source of employment for Atikokan's residents. Upon closure, the property was transferred to the township and all buildings, equipment, stockpiles and useable aggregate materials removed.

The post-mine-dependent period emerged in 1981, following the closure of the neighbouring mines of Steep Rock mine in 1979 and the Caland mine the following year.

The first, unofficial stage of repurposing spanned the 1981 to 2004 period, when the abandoned "legacy mine land" was used informally by local residents for a variety of outdoor activities (e.g. horseback riding, fishing, hiking, picnicking, snowshoeing and skiing). The second period was driven and implemented by a local volunteer group but enabled by local and external stakeholders. This neo-endogenous strategy was initiated in 2005 with the establishment of the Charleson Recreation Association.

The association and its volunteers implemented the repurposing mechanism, with advice provided by the Ontario Ministry of Natural Resources. The township's dominant tourism identity reflects the area's natural, place-based assets, including Quetico Provincial Park, with its abundant trails and waterway.

This experience suggests that repurposing may potentially create paths that are simultaneously emergent and dependent (i.e. if the repurposed landscape is the first tourist attraction in the municipality) or enhance a pre-existing emergent trajectory, whose development hinges on a previously tapped, place-based asset (e.g. wilderness space).

Sources: Mitchell, C. and K. O'Neill (2016^[33]), "Tracing economic transition in mine towns of northern Ontario: An application of the "resource dependency model"", *The Canadian Geographer*, Vol. 60/1, pp. 91-106.; Worrall et al. (2009).

Outokumpu should also upgrade the experience of mining tourism. This can be done by conducting international partnerships with other museums and diversifying the activities around the mine site to increase the number and variety of tourists. Specific actions could involve:

- *Partnerships with museums and other stakeholders targeting the same tourism niche.* A co-ordinated approach among different levels of government and private sector is instrumental to boost tourism in niche products, such as mining museums. The Louvre-Lens case in France could be a good example of a partnership development involving different actors (e.g. SMEs, national museum) to support the rehabilitation of a closed mining site (Box 2.8).
- *Enhancing the offer of thematic events around the mining museum.* Distinctive products and thematic visitor experiences may also be created from particular types of landscape and associated cultural heritage (OECD, 2018^[34]). Thus, a strategy to offer a set of products linked to the mining site can become an instrumental tool to sustain the flow of visitors. Many OECD regions have recognised events as catalysts, animators and image-makers for both business and leisure travel. Improving the promotion of wedding or business events within the mine as well as creating thematic events require sound co-ordination with the North Karelia tourism strategy. The case of Coal Creek Community Park and Museum in Korumburra can guide the municipality to widen the tourism offer based on the museum and thematic events.

Box 2.8. Tourism development for mining rehabilitation

Partnerships and integrated investment for mining tourism: The case of Lens, France

Lens, a mining municipality of about 31 000 inhabitants in the north of France, closed its last coal mine in 1986. Since then the town has sought to revitalise the economy. In co-operation with regional and local authorities, in 2012, the world-famous Louvre Museum opened a satellite branch in the mining area of the municipality. The aim was to revitalise the region and promote economic development through tourism, transforming the area into a new cultural destination.

The establishment of the museum has been a concerted effort made by public authorities across different government levels. The French state approved the use of the Louvre brand, the regional council financed 60% of the construction cost (EUR 150 million) and the local authorities played an important role in financing and promoting the project.

The development was supported by a global approach to investment at a destination level and included the creation of a strong value proposition with a long-term view. The strategy engaged local SMEs in the process, building capacity in knowledge and skills. Private investment has been directed mostly into accommodation but significant investment has also been made in leisure parks, museums and convention centres.

Since 2015, the *Mission Louvre-Lens Tourisme*, consolidated with the establishment of a “destination contract”, rallies public and private partners to undertake a consistent, highly visible tourism offering, in line with the expectations of foreign markets. This type of contract has been an important step to overcome traditional barriers to tourism investment, including the fragmentation of local stakeholders and the lack of tourism capacity, by creating a committee of investors and experts.

Enlarging tourism based on mining heritage

Coal Creek is a small recreation area in the town of Korumburra (3 639 inhabitants) in the state of Victoria, Australia. The prosperity of the town was closely linked to coal mining. The mine of Coal Creek operated until 1958. In 1974, the town developed an open-air museum of 15 hectares on the site of the closed mine.

Today, it is called Coal Creek Community Park and Museum, whose museum was accredited in 2014. It is home to local groups and organisations and has a large educational programme. Several events are held during the year, which have proved extremely popular with local people and the surrounding communities.

Tourists can upgrade the visit with a multimedia interpretative self-guided tour, ride the bush tramway, enjoy the Community Gallery and take a scary Ghost Tour. Weddings and family events often take place in the park.

Sources: OECD (2018^[35]), “Effective policy approaches for quality investment in tourism”, <https://doi.org/10.1787/88ea780c-en>; Coal Creek (Coal Creek, n.d.^[36]) (n.d.^[36]), *Coal Creek Community Park and Museum*, <https://coalcreekcommunityparkandmuseum.com/>.

For a successful outcome of Outokumpu’s tourism strategy, North Karelia needs to conduct a whole-of-government approach for tourism that involves all the municipalities and the different economic sectors (e.g. environment, transport). The current regional tourism strategy lacks integration of the municipal characteristics into a single brand. For example, the mining museum seems somehow lost among the outdoors, ecological activities promoted in the regional strategy. The regional marketing strategy should go beyond displaying the attraction in each municipality separately to form a co-ordinated experience for visitors. To do so, the region can move from a tourism destination approach towards a model where tourism is developed around a collection of experiences which are often thematically connected and can be explored at the visitor’s own pace within somewhat wider geography (OECD, 2017^[37]). Examples like the European Cultural Routes, the Sierra Mágica Routes Programme in the state of Puebla, Mexico or the wine trail in Valle de Guadalupe in Baja California can serve as a guide for North Karelia (OECD, 2017^[37]).

To develop a comprehensive tourism strategy on tourism, the region needs to improve its data on tourism. Clear and detailed data are the basis for regions to better plan and define tourist products and attract new tourists (OECD, 2017^[37]). North Karelia Council should enhance its tourism data by conducting a visitor survey to gather the characteristics of tourists, their travel and consumption patterns, expectations and degree of satisfaction with different aspects of their travels. This should be done jointly with municipalities to adapt their local strategies and improve their offer.

Unlocking new growth opportunities by upskilling the workforce and attracting new workers

Population ageing is a widespread phenomenon across the OECD. Elderly dependency ratios in the OECD, the ratio between the resident population that is 65 years or older and those of working age (15-64), grew by more than 25% between 2001 and 2015 (OECD, 2018^[20]). In many low-density areas, the population ageing is coupled with out-migration, particularly among youth, and low fertility rates (OECD, 2016^[27]).

North Karelia and Outokumpu are not an exception to this trend and face one of the most accelerated demographic shifts in the country. In North Karelia, the share of the elderly population is growing faster than in the rest of the country (Chapter 1). The situation for Outokumpu is more dramatic as the municipality experiences a higher out-migration and ageing population rate than the region. Furthermore, Outokumpu's labour force has lower skills than the average of the municipalities in the local labour market (Chapter 1). Implementing policies to upskill the local labour force, attract new residents and offer new economic opportunities for the elderly population are mechanisms to maintain a vibrant community and promote diversification in the economy.

Upskilling labour force

Human capital is a critical factor influencing regional growth and development throughout all types of OECD regions (OECD, 2017^[38]). A skilled human capital is at the essence of regional development and competitiveness. It leads to building a learning society that is able to absorb and create knowledge, drive innovation and facilitate local adaptability within a changing technological environment. A high level of skills is required to access higher-wage jobs and higher education and advanced vocational abilities are also a requirement in many parts of the non-traded sector.

Outokumpu's workforce has low levels of educational attainment. The transition from mining to manufacturing activities during the 1980s left a share of workers with skills that do not match contemporary economic needs. The share of the workforce with higher education (28%) is far below the share in the local labour market (35%) and the average of the region. Alongside this, most of the people who out-migrated from Outokumpu in the past years have a medium or high educational level, while the average of people having moved into the municipality hold secondary educational levels (Chapter 1). OECD regions tend to compensate the trends of a shrinking workforce with policies to increase productivity (OECD, 2018^[20]); yet, in the case of Outokumpu, the low skills of its labour force represent a challenge to transition towards high-value-added activities.

Outokumpu municipality has set high in its development agenda the improvement of the quality of secondary education and their link with the market. The "secondary education that is versatile and linked with the market" strategy focused on active marketing for high school and developing high school co-operation with local vocational schools and network leaders. North Karelia has a programme to better match labour demand with job seekers.

The Skilled Workers and Entrepreneurship programme, conducted by Business Joensuu in co-operation with the Employment Office, supports the future employee with training related to the professional skills required for the job and the company's tacit knowledge. Correspondingly, workers in companies have been trained as masters/instructors for the newcomers. Business Joensuu is also looking to further leverage on the European Social Fund to improve labour market matching with companies by linking together different actors and establishing personalised support for unemployed people.

However, more efforts should be undertaken to adapt higher education to market needs. Outokumpu has a vocational college that teaches a variety of degrees and has a good scientific component. Yet, its best-known vocational degree is dance, which attracts annually a relatively large number of students from other municipalities. This degree does not fit the demand for labour in the area and most of these students leave the municipality once their studies finished. Furthermore, at the regional and local levels, there is a lack of granular data on the characteristics of the workers and unemployed population as well as the needs from the labour demand side (see the previous section).

The municipality's development plan can give greater emphasis to the provision of intermediate skills within the labour force. The current municipal plan has a strong focus on improving the quality of secondary education; however, strategies to address skills of the mid-career population and those active workers coming from the economic transition period can be strengthened. Enhancing programmes to support higher knowledge-intensive pedagogy and retrain the workforce can be instrumental to transition to high-value-added activities. For this, stronger co-ordination with regional programmes is required for the municipality and local companies to improve vocational, language and IT training in order to increase workforce suitability with the current and future needs of the regions' private sector (Box 2.9).

Box 2.9. Vocational education and training (VET) for local labour markets

Vocational education and training (VET) delivery should be aligned with the local sectoral and occupational labour market profile. Turning specifically to mechanisms for local decision-making in VET, the ability of local actors to align VET delivery with the sectoral and occupational profile of the local labour market is critical.

Governments are using a number of mechanisms to allow local actors to tailor the sectors and occupations covered by VET programmes in their local areas. These include: i) developing a menu of choices, from which local stakeholders are able to choose; ii) allowing for local choice as long as nationally set parameters are met; and iii) market-based mechanisms, including steering through subsidies.

The market approach case often drives apprenticeship programmes as they require interest from both a trainee and a workplace sponsor. In the short term, the system ensures a reasonable degree of alignment between apprenticeship offerings and labour market demands.

Source: OECD (2016^[39]), *Job Creation and Local Economic Development 2016*, <http://dx.doi.org/10.1787/9789264261976-en>.

A policy to upskill the labour force should also aim to prepare workers to face the changes brought by technological change. Automation would bring disruptive effects on local economies. On the upside, automation offers a path to revive productivity growth. On the downside, it can lead to large-scale job losses. The OECD (2018_[40]) finds that jobs in rural regions with a lower share of service activities and low productivity face higher risks due to automation. In particular, economies with a high degree of specialisation in manufacturing, such as Outokumpu, could face important risks of job displacement, as this sector contains high proportion of repetitive tasks (Box 2.10). This scenario reinforces the need for Outokumpu municipality to make labour force upskilling a central policy in its economic plan. Furthermore, given that jobs in the service sector are less prone to suffer from automation, diversifying the economy towards high-value-added activities will help the municipality to reduce the effects of automation in the labour market. A well-prepared labour force can thus harness the benefits of automation by offering high productive services in the manufacturing and mining sectors.

Box 2.10. Manufacturing and mining are among the top sectors at risk of automation

According to the OECD (2018_[40]), mining jobs are among the top five occupations in terms of jobs at risk of automation (Table 2.7). Automation is likely to reduce the number of operational jobs in mining such as drilling, blasting, and train and truck driving. These areas typically constitute over 70% of employment in mines (Cosbey, A. et al., 2016_[41]).

Table 2.7. Top 5 occupations in terms of jobs at risk of automation

Occupation (ISCO name)	Share of jobs at high risk of automation, average across TL2 regions (%)
Food preparation assistants	0.6
Drivers and mobile plant operators	3.5
Labourers in mining, construction, manufacturing and transport	2.2
Stationary plant and machine operators	2.6
Refuse workers and other elementary workers	0.8

Note: The table shows the five occupations that have the highest risk of automation (in descending order) as well as their share of total employment, average across TL2 regions in the sample.

Sources: OECD (2018_[40]), *Job Creation and Local Economic Development 2018: Preparing for the Future of Work*, <https://doi.org/10.1787/9789264305342-en>; Cosbey, A. et al. (2016), *Mining a Mirage? Reassessing the shared-value paradigm in light of the technological advances in the mining sector*, <http://www.iisd.org> (accessed on 24 September 2018).

Strengthening strategies to attract new residents

To address the effects of the elderly population and a shrinking workforce, the municipality can attract workers to fulfil the demand for labour from established companies and create new business.

North Karelia Council has already conducted strategies to bring new residents to the region. One of the key regional policies to repopulate the territory is to use high-quality education as a tool to pull in young people and families (North Karelia Council, 2018_[17]). The region's educational offer is competitive in national comparison, in terms of quality and diversity. The region counts with the University of Eastern Finland (UEF), the Karelia University of Applied Sciences and the Riveria organisation of vocational education and a

conservatory of music education. The UEF is one of the top five universities in the country and has performed well in many international university rankings (North Karelia Council, 2018^[17]). It counts more than 15 000 students in its 2 main campuses of Joensuu and Kuopio. The educational institutions in the region are also connected through a network, Edupark, which offers educational packages and tailored educational programmes for students.

Both the region and the municipality can benefit from developing a trademark in quality education, specialised in some of the regional attributes. Courses on photonics and bioeconomy are gaining importance in North Karelia's educational institutions. The region is also creating a competitive cluster in digital education and learning (*Export Cluster* project), which will package services to meet the needs of international students. Outokumpu should co-ordinate the municipal work on education with the former regional strategies, leading the municipality to promote vocational programmes that can complement those of large universities in Joensuu.

A comprehensive strategy to receive migrants can fill gaps in the labour force demand and boost local business in Outokumpu. The supply of workers emerging from Outokumpu's vocational college is not enough to meet the demand for labour in the municipality. While the vocational college in Outokumpu is conducting strategies for drawing in people from overseas (e.g. Bulgaria, Estonia, India) to fill this gap, more has to be done to increase the number of skilled workers and ensure their long-term integration with the local economy and society. OECD evidence shows that the presence of migrant communities could have a positive impact at the local level by revitalising demand for local business, balancing out local demographic losses and diversifying the cultural activities for all residents (OECD, 2018^[42]). Migrants can improve the supply side of the labour market by providing skills that are scarce on the market (see the case of Solingen in Box 2.11).

A policy of migrant's attraction can also contribute to create new companies and boost entrepreneurial levels in the hosting area. Figures from Gothenburg and Roma stresses that migrants are greater risk-takers than are native-born. In Sweden, the percentage of Swedish men who are self-employed is 4.8% but rises to 7.7% of Iranian-born and 11.4% of Syrian-born men (OECD, 2018^[42]). With the right public support and training, migrants can build and grow local firms and thus leapfrog the possibility of low quality-type of entrepreneurship. For example, in a sector like tourism, migrants can leverage on their foreign language skills to play a critical role in filling labour shortages.

North Karelia and Outokumpu should evaluate the possibility to embrace further migration to boost economic and population growth. Given their knowledge of the territorial reality, local authorities are the best placed to work in partnership with different stakeholders (e.g. non-governmental organisations, businesses, citizens and migrant associations) to successfully receive and integrate the new inhabitants. Based on other regions' experiences gathered by the OECD (2018^[42]), certain actions can be further developed in North Karelia and Outokumpu to harness the economic benefits of migration and enhance the local labour market:

- Improve the match between local labour needs and newcomers' skills by building a locally accessible database of newcomers' competency.
- Fight discrimination on the labour market. Enforcement of anti-discrimination legislation in hiring and at the workplace could be made through education and support programmes for local employers or the introduction of anonymous CVs.

- Develop strong networks with the private sector to foster migrant integration. Municipalities can support informal networking opportunities for migrants and directly provide fiscal incentives to companies that commit to hiring non-nationals.
- Develop systems for the validation of professional qualifications by helping migrants understand which authorities they need to address to obtain the validation.
- Encourage employment orientation services to target (skilled) migrants (Box 2.11).

Box 2.11. Matching skilled migrants

Migrants and children of immigrants tend to have a structural disadvantage as they are less familiar with how the labour market works, including the unwritten rules about applications and social codes surrounding job interviews. In addition, online or traditional recruitment strategies might not reach newcomers due to language barriers and lack of social networks. In some cities, job orientation is one of the services available in one-stop-shops for migrant orientation. When it comes to qualified migrants, cities often put in place targeted services to attract international skilled workers or to incentivise international students to stay after their studies. Some practical cases are:

- **Amsterdam:** The city has deployed significant efforts to attract skilled migrants and has made contacts with local enterprises to this end. The city established the Expat Centre (now called IN Amsterdam – International Newcomers Amsterdam), which is a one-stop-shop for the integration of highly skilled migrants. Migrants find assistance to register and settle in the city. In collaboration with the national Ministry of Security and Justice (Immigrate and Naturalisation service [IND]), the Expat Centre helps with residence and work permits, registration with the municipality, tax questions and many other official matters.
- **Helsinki:** The International House Helsinki and the At Work in Finland project focus, among others, on international skilled migrants in Helsinki, by developing services to retain international students and international skilled workers (one-stop-shop), relocation services and matching them with private companies (on demand). The city has also established the Skills Centre of Helsinki, where the city provides adult migrants with employment services and co-operation with enterprises, vocational, educational, occupational and specific language training. Since June 2016, the Skills Centre has reached over 1 000 people.
- **Solingen:** The city has developed a strategy to respond to labour shortages for (elderly) healthcare. The project, “The Future of Care is Colourful” (*Die Zukunft der Pflege ist bunt*) aims to attract young migrants with an interest in working in this area. The municipality established an office for the counselling and the hiring of migrants as interns in this sector.

Source: OECD (2018^[42]), *Working Together for Local Integration of Migrants and Refugees*, <http://dx.doi.org/10.1787/9789264085350-en>.

Considering ageing as an opportunity

North Karelia has made of the ageing population an opportunity for development in the region. The region estimates that age can be a resource for society in a variety of ways in

the future. The regional plan thus aims to create new economic opportunities for the elderly population in order to mobilise their assets. Ageing is also a strategic focus area of Karelia University of Applied Sciences, developed not only in the curriculum but also in co-operation practices with external partners (Jamsen and Kukkonen, 2015_[43]).³

However, Outokumpu does not clearly embrace this long-term strategy in its municipal plan. While Outokumpu is one of the municipalities with the highest share of elderly population, the economic plan does not outline clear strategies to involve the elderly in the labour market and business development.

Supporting ageing employees to stay at work requires a combination of management training and work well-being measures. Older workers can be a means to transfer skills to younger cohorts and, with the adequate mentoring, joint work between older and younger workers can lead to the creation of new expertise and methods (Jamsen and Kukkonen, 2015_[43]). In that sense, the management of the skills of employees of diverse ages is key to the extent of the usefulness of older employees.

Differentiated measures to offer a quality of life to older cohorts are also key in this strategy. For example, companies like Abloy in Finland – leading manufacturers of locks, locking systems and architectural hardware – have developed the Age Master’s programme to keep employees healthier and longer in working life. It starts when employees are 55 years of age and offers them collective education and recreation as well as ageing seminars, concerning healthy lifestyles for example, and free use of special fitness clubs. After 59 years of age, workers start to receive additional days off as long as they have carried out their personal fitness tests. The outputs following the programme’s first review showed an increase in the company’s retirement age from 59 to 62 years old (Jamsen and Kukkonen, 2015_[43]).

The elderly population at retirement can also be of benefit to society. They have experience, knowledge and, often, time. They can take care of grandchildren, freeing extra time for working-age parents, engage in voluntary work or travel around the region. Including this population in overall cultural activities can also vitalise the municipalities. In Joensuu, for example, the festival Ilosaarirock started offering free tickets to people older than 60 years old; since then, the affluence of older people has increased and the festival has now increased the age threshold for free tickets to 65 years old (Laitinen et al., 2012_[44]).

North Karelia experiences a number of challenges in making the most of its workforce. It includes fragmented information about skills and labour needs, a range of actors involved in regional workforce planning without effective co-ordination (Chapter 3) and a lack of an integrated vision of some long-term strategies (e.g. including the elderly population in the economy) in the municipal strategies.

To address these challenges, North Karelia needs a whole-of-government approach to link different stakeholders and levels of governments in order to implement a co-ordinated strategy that develops skills, attracts new residents and mobilises the elderly population. In fact, a key role for OECD regional governments to improve the labour market and skills is overcoming fragmentation and integrating the national and local levels through better co-ordination of service providers, municipalities and civil society actors (OECD, 2018_[45]). For this, North Karelia’s regional council should establish partnerships to connect education and training providers with employers in the region. This can be done through a platform, connecting the different actors and increasing co-operation among municipalities. Business Joensuu should be the bridging actor to understand business needs and translate into policy strategies.

Promoting entrepreneurship and SMEs to unlock high-valued-added activities

New and small businesses are often a driving force of innovation and knowledge diffusion, they respond to new demands and social needs, and contribute to empowerment and inclusion in society. In the OECD area, SMEs account for 60% of total employment and generate 50% to 60% of value-added on average (OECD, 2017_[46]). When the labour market does not offer enough economic opportunities for local residents, the entrepreneurial route is often an alternative way that can help to channel the benefits of this human capital into the local economy.

The promotion of SMEs is a key aspect of the development strategy for Finland. Business Finland promotes the internationalisation of SMEs through different programmes, which focus mainly on the most productive and outstanding SMEs. For example, the Green Mining programme had a goal of increasing the number of SMEs targeting the export market in the mineral cluster. It supported around 25 SMEs with their own projects on R&D (Tekes, 2015_[47]).

In North Karelia, SME and entrepreneurship support is a cornerstone strategy. The region undertakes a series of programmes to boost existing SMEs and promote entrepreneurship, in particular in the smart specialisation strategic sectors: bioeconomy and metal technologies (Table 2.8). Most of the projects are funded (partially or entirely) through the EU Structural Funds. Business Joensuu is the entity in charge of implementing and co-ordinating most of the projects supporting SMEs and entrepreneurs from North Karelia Region and Outokumpu.

Table 2.8. Selected programmes to support SMEs and entrepreneurs in North Karelia

Programme	Objective	Fund source
Export Growth – Export to Growth	Promote the growth and competitiveness of production-oriented SMEs in North Karelia by intensifying exports to Germany, Russia and Sweden.	European Union and public funding
Expertise in 2020	Gather information on training needs to improve the productivity of companies. Provide tailor-made training to enable a quality system for the company (micro and SMEs) and improve leadership.	European Union and public funding
Digital Time Training for Business Developers	Develop the digital readiness and expertise of persons and development organisations involved in business counselling. In addition, participants will be provided with tools to identify the potential for digitalisation.	European Union and public funding
Investments in Eastern Finland – Coaching programme	Support the creation of growth-oriented and internationally competitive SMEs by developing the positioning and investment conditions of foreign companies in Eastern Finland.	European Union and public funding (shared among different regions)
RARE	Increase the volume of stone business in all areas from extraction to refining, from raw materials to products through an exploration of new reserves, deployment of resources and best practices for production start-ups.	European Union and public funding
New Generation Recruitment Skills for SMEs (SMERec)	Strengthen the competitiveness of SMEs by developing companies' recruitment expertise and thereby ensuring the success of SME recruitment. Implemented in Joensuu and Turku.	European Union and public funding

Source: Business Joensuu (n.d.^[48]), *Projektit*, <https://www.businessjoensuu.fi/tietoa-meista/projektit/>.

The programmes supporting North Karelia's SMEs are large and diverse in scope. Their focus ranges from promotion of exports through networking and the organisation of fairs (e.g. ExportGrowth – Export to Growth, RARE) to coaching and management training, business development and recruitment (e.g. Expertise 2020, SMERec).

The region is also setting up an “entrepreneur community”, through the joint work of Business Joensuu, the University of Eastern Finland and vocational education providers. For this, each educational institution involved has developed a number of programmes to develop entrepreneur skills. The initiative involves linking young people to opportunities linked to developing skills, networks and mentors, and then introducing them to business coaches (Incubator, Go Global, etc.). The region is also commencing a local small start-up fund where two-thirds of the funding will come from the national government and the rest from local investors. This initiative goes in the right direction by addressing the gaps in the local market, particularly in skills, networks and mentoring. However, this initiative risks being too focused on Joensuu and needs to build additional mechanisms that link it to small communities in the region (e.g. Outokumpu).

Overall, most of the programmes supporting SMEs and entrepreneurship in North Karelia lack incentives to engage the actors from small municipalities and end up paying greater attention to businesses established in Joensuu. Furthermore, many national programmes co-ordinated by Business Finland tend to focus on the large and more advanced companies. Business Finland's contact with municipal companies is subordinated to the business

promotion agency in the region, in this case, Business Joensuu. While, on paper, this division of tasks brings efficiency, many companies that need to be more visible and support internationally are less integrated into national programmes. Business Joensuu should thus play a proactive role in terms of linking small municipalities to regional programmes in order to support skills.

Linking SMEs entrepreneurs with local firms and international networks

Efforts to support closer interaction among small companies and large industries can lead to new business opportunities in Outokumpu. There is scope to make established companies in the municipality work closely with local businesses. Manufacturing firms in Outokumpu acquire many supplies from businesses in other municipalities or internationally. For example, Outotec only obtains 25% of its inputs from the Outokumpu area; products such as dunks and chains are sourced from other municipalities or imported. These local companies competing globally (Outotec, GTK) could further integrate local SMEs in their value chains to support internationalisation and promote a better business environment in the region. For example, as a platform for innovation (as proposed in the previous section), GTK could also support a start-up ecosystem that facilitates upgrading and related diversification of SMEs.

Furthermore, the diffusion of knowledge from the most innovative firms to other firms is an instrument to spur innovation. Linking SMEs to new markets and knowledge can lead to new businesses ideas among local companies and finding diversified sources of growth (Mitchell and O'Neill, 2016^[33]). With the support of Business Joensuu, Outokumpu should enhance local and international networks for SMEs to transition toward related economic activities. Programmes to foster these links need to be complemented with a means to create interfirm ventures and linkages with foreign firms.

The example of the Windcluster in Verdal Municipality in Norway can guide the strategic plan (Box 2.12).

Box 2.12. The relevance of local and external networks for economic transition**Verdal Windcluster Mid-Norway project**

Since the 1960s, Verdal, a small industrial town in Central Norway, specialised in oil and gas (O&G) after a major Norwegian industry corporation started developing a yard for the fabrication of steel structures for the offshore O&G industry. For almost three decades, Verdal fared well and the yard grew to become a cornerstone in the region and a large industrial site in Norway. However, in 1999 and 2009, the O&G industry experienced important shocks that hit the Verdal economy.

Following the first external shock, the Aker Verdal company underwent a restructuring process that resulted in significant loss of employment. In 2000, subsidiary companies started forming in Verdal, many of them focusing on mechanical engineering and formed by previous Aker employees.

Verdal Municipality, in close co-operation with Aker, supported the transition by applying for a restructuring programme (RP) from central government to reduce the negative effects of plant downsizing and help revitalise the local economy. The programme conducted three adaptive strategies to address the issues in the Aker company and set a new industrial development path in Verdal Municipality:

1. A comprehensive training programme aimed at laid-off workers, workers at the Aker plant, and individuals who had left to work in spin-offs or other new firms.
2. Provision of entrepreneurial support and programmes to attract new (external) firms into the Verdal Industrial Park in order to diversify the local economy.
3. Development of the infrastructure at Verdal to facilitate new ventures.

In 2009, Verdal faced a second economic shock as a result of the global financial crisis. The response to this event was even more proactive than the first shock, as it was decided to support the creation of the Windcluster Mid-Norway.

The local government decided to include the development of infrastructure to promote new ventures and to facilitate sectoral agglomeration of existing firms. However, the most important feature of the second response is its focus on developing interfirm networks and extra-local linkages to new markets and knowledge sources, specifically the Windcluster Mid-Norway project. The project aimed at developing a wind-energy cluster, with an initial focus on the emerging offshore wind market.

In 2009, the local strategy was to apply for an “Arena” programme, which is financed typically for three years and aims to increase value creation in regional business environments. This external state funding was crucial for the cluster project to be launched, and it is thus evident that the top-down strategy of cluster creation in this case fitted with the bottom-up aspirations in Verdal.

Source: OECD (2018^[42]), *Working Together for Local Integration of Migrants and Refugees*, <http://dx.doi.org/10.1787/9789264085350-en>.

The expansion of the mining sector in the country could also open up new opportunities for local SMEs. New requirements for mining activities (e.g. management of waste and side streams, environmental reports, multifaceted research) and the increasing use of technology

in the sector (e.g. automation and measurement and monitoring technologies) creates possibilities for SMEs (Vasara, 2018^[49]). Many mining companies outsource those services to specialised firms, especially when it comes to activities that require local knowledge. For example, occupational safety and the management of safety risks are highly valued at mines and these tasks are often supported by companies with local know-how. An overall strategy for SME support is then needed to connect the demand of future business, SMEs and entrepreneurs.

Boosting entrepreneurial culture in Outokumpu

To drive entrepreneurship and SMEs' involvement in high-value activities in the municipality, Outokumpu needs to boost the entrepreneurial culture in the community.

The relevance of industrial manufacturing in Outokumpu has hindered the formation of an entrepreneurial culture. Culture, defined as shared practices and values, has an influence on risk-taking and tolerance of failure (related to attitudes) and affects the individual's conjectures about the desirability of the entrepreneurial action (related to opportunities) (OECD, 2017^[46]). Manufacturing industries provide a large share of jobs in the municipality as well as training for employment. Many people in the area see the work in the manufacturing industry as a path to secure a sustained income in the long term. In turn, the trend of new businesses in Outokumpu is decreasing and most skilled people are going to work in other municipalities (Chapter 1). The rapid trend of an ageing population also hampers entrepreneurship as young people tend to be less risk-averse to start a new business.

Enhancing education programmes, improving information and mentoring activities as well as reducing the negative social consequences of business failure are common policies in OECD countries to boost an entrepreneurial culture (Box 2.13). Outokumpu, in joint work with the regional council, should develop an integrated policy approach to foster entrepreneurship in the area. This can include information campaigns to raise awareness about entrepreneurship (e.g. France) or providing financial support to entrepreneurs that are active or have already failed (e.g. Portugal). A cornerstone policy to promote a change towards a more entrepreneurial attitude is including entrepreneurial courses into the curriculum of educational institutions and training for employees, supporting entrepreneurship education across all disciplines, including entrepreneurship culture development (Box 2.14).

Box 2.13. Supporting entrepreneurial culture

The entrepreneurial function is a vital component in the process of economic growth. The business environment context regulates opportunities, feasibility and desirability considerations for entrepreneurial action, as well as its outcomes. OECD countries have conducted a number of strategies to boost entrepreneurial culture. Many of those actions include improving education, promoting training and mentoring, and providing second chances.

Table 2.9. Promoting an entrepreneurial culture: Policy developments

Policy approaches	Examples
-------------------	----------

Entrepreneurship education	Denmark	<i>Danish Foundation for Entrepreneurship</i> : created in 2011, following a partnership between different ministries, it aims to create a coherent national commitment to education and training in entrepreneurship and become a national knowledge centre for entrepreneurship education and training.
	The Netherlands	<i>Education and Entrepreneurship Action Programme</i> : launched in 2007, to promote entrepreneurship in education and to bring the education sector and the business community closer together. <i>Education Networks Enterprise</i> : set up in 2009 as a subsidy scheme to help educational institutions integrate entrepreneurship education into their policies, organisation and curricula.
	Portugal	<i>Strategic Programme for Entrepreneurship and Innovation 2011-15</i> : it has introduced entrepreneurship as a transversal competency in school teaching programmes, including non-formal training. This includes the <i>INOVA! Ideas</i> contest, which provides young people with the opportunity to develop ideas that can contribute to the resolution of issues in their local communities.
Information, advice, coaching and mentoring	Canada	<i>Expert Panel on Championing and Mentorship for Women Entrepreneurs</i> : set up in the framework of the Economic Action Plan 2014, it aims to consult with business leaders and entrepreneurs and advise the Minister of Status of Women on best practices for mentorship and championing to support women entrepreneurs.
	France	<i>Entreprendre au Féminin</i> : national plan to develop women entrepreneurship, launched in 2013, it includes initiatives that sustain entrepreneurship education and raise awareness among female students about the opportunities from the entrepreneurial career.
Second chance	European Union	<i>Second chance for honest entrepreneurs</i> : in order to address the stigma and consequences of business failures, the Small Business Act for Europe promotes a second chance policy by supporting actions and facilitating exchanges of best practice between member states. It includes promoting a positive attitude in society towards giving entrepreneurs a fresh start, enabling the completion of all legal procedures to wind up a business, in the case of non-fraudulent bankruptcy, within a year.
	Portugal	<i>Revitalise Programme (Programa Revitalizar)</i> : this makes it easier to save businesses, which are economically sound but facing insolvency, through financial instruments, development of an out-of-court credit restructuring system and improvements in the legal framework. The <i>Insolvency and Corporate Recovery Code</i> introduces an early warning mechanism that aims to facilitate timely signalling of financial difficulties. <i>New "pre-executive extrajudicial procedure"</i> : gives creditors prior knowledge about the attachable assets of debtors, thus enabling better decisions on further action to be taken.

Source: OECD (2017^[46]), *Small, Medium, Strong. Trends in SME Performance and Business Conditions*, <https://dx.doi.org/10.1787/9789264275683-en>.

Box 2.14. Changing norms on society for entrepreneurship

In the past two decades, Sweden's population has undergone a fundamental change in attitude. Entrepreneurs and small companies were often the objects of suspicion in the past. Today, many citizens dream of becoming an entrepreneur and running their own company.

An important part of this change in attitudes has been driven by the educational sector itself. As a deliberate strategy, Nutek, the national board responsible for entrepreneurship, innovation and regional development, started a programme in 1998 for entrepreneurship in school. Its goal was to increase focus on creativity in education and to change the perception that the aim of education is simply to get a job. Instead, the emphasis was placed on giving an education so that each student could shape his or her own future and even run their own business.

In the Västra Götaland region, entrepreneurship has been at the centre of development policy for 15 years. Support for organisations like Young Entrepreneurship and other organisations running programmes at every educational level has been strong and consistent. The region has also started its own programme for entrepreneurship in society, focusing on how civil servants in municipalities and other public organisations perceive entrepreneurship. One element of the programme has allowed public officials in cities to be “entrepreneurs for a day”. This experience is often an eye-opener for the participants. The programme has now been adopted by the national association for regions and municipalities and is being implemented in 160 of Sweden's 290 municipalities.

This focus on entrepreneurship has clearly paid off. Västra Götaland today has the highest proportion of young people in Sweden who say that they can envisage becoming entrepreneurs or starting a company. This is a remarkable change in a region known as Sweden's manufacturing “district”. Three out of 4 inhabitants between the ages of 18 and 30 in Västra Götaland report that they could see themselves running a company. The Swedish average is two out of three.

Source: Adapted from OECD (2016_[50]), *OECD Territorial Reviews: Bergamo, Italy*, <https://dx.doi.org/10.1787/9789264251984-en>.

Notes

¹ Natural metal concentrates found in the bedrock are called mineral deposits. If the deposit can be utilised in an economically viable manner it is referred to as ore.

² The European Raw Materials Strategy defined 14 critical raw materials based on the risks of supply shortage and their impacts on the economy. Though Finland is not a main producer of any of those, it has potential in cobalt.

³ The focus on ageing is prominent in the university's research and innovation strategies, which is developing a service and learning environment, called Viomala, with the aim to provide a common development structure for students, older people and external partners.

References

- Ahrend, R. and A. Schumann (2014), “Does Regional Economic Growth Depend on Proximity to Urban Centres?”, *OECD Regional Development Working Papers*, No. 2014/7, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5jz0t7fxh7wc-en>. [19]
- Arctic Smartness (n.d.), *Homepage*, <https://arcticmartness.eu/> (accessed on 23 March 2019). [25]
- Boschma, R. and S. Iammarino (2009), “Related variety, trade linkages, and regional growth in Italy”, *Economic Geography*, Vol. 85/3, pp. 289-311, <http://dx.doi.org/10.1111/j.1944-8287.2009.01034.x>. [30]
- Business Joensuu (n.d.), *Projektit*, <https://www.businessjoensuu.fi/tietoa-meista/projektit/>. [48]
- Coal Creek (n.d.), *Coal Creek Community Park and Museum*, <https://coalcreekcommunityparkandmuseum.com/>. [36]
- Cosbey, A. et al. (2016), “Mining a Mirage? Reassessing the shared-value paradigm in light of the technological advances in the mining sector”, <http://www.iisd.org>. [41]
- European Commission (2017), *Study on the Review of the List of Critical Raw Material*, https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en (accessed on 6 February 2019). [3]
- European Commission (2008), *The raw materials initiative-meeting our critical needs for growth and jobs in Europe*, http://ec.europa.eu/enterprise/non_energy_extractive_industries/raw_materials.htm (accessed on 7 February 2019). [2]
- Finnish Trade Organization (2016), *Finnish Mining Cluster*. [10]
- Glaeser, E. et al. (1992), “Growth in cities”, *Journal of Political Economy*, Vol. 6, pp. 1126-1152. [28]
- Government of Finland (2016), *Competitive Regions and Smooth Everyday Life: National Priorities of Regional Development 2016-2019*. [15]
- GTK (2019), *Mineral Deposits and Exploration (database)*, Geological Survey of Finland, <http://gtkdata.gtk.fi/mdae/index.html> (accessed on 6 February 2019). [23]
- GTK (2014), *Quantitative Assessment of Undiscovered Resources in Volcanogenic Massive Sulphide Deposits, Porphyry Copper Deposits and Outokumpu-type Deposits in Finland*, Geological Survey of Finland, https://www.researchgate.net/profile/Pasi_Eilu/publication/270574150_Quantitative_assessment_of_undiscovered_resources_of_volcanogenic_massive_sulphide_deposits_porphyry_copper_deposits_and_Outokumpu-type_deposits_in_FinlandElectronic_resource_Geologian_tu. [22]
- GTK (2010), *Finland's Minerals Strategy*, Geological Survey of Finland. [11]

- GTK (n.d.), *Mining Finland*, Geological Survey of Finland, [13]
<http://new.gtk.fi/miningfinland/index.html> (accessed on 6 February 2019).
- Hausmann, R. and C. Hidalgo (2010), “Country diversification, product ubiquity, and economic divergence”, *SSRN Electronic Journal*, [29]
<http://dx.doi.org/10.2139/ssrn.1724722>.
- Interreg Europe (2019), *Smart and Green Mining Regions of EU*, [26]
<https://www.interregeurope.eu/remix/> (accessed on 18 March 2019).
- Jansen, A. and T. Kukkonen (2015), “North Karelia - Strong competence in aging”, [43]
Gerontologia, Vol. 2.
- Laitinen, P. et al. (2012), *Ageing in Working Life*, North Karelia University of Applied Sciences, [44]
https://www.theseus.fi/bitstream/handle/10024/47639/C49_verkkojulkaisu.pdf?sequence=1
 (accessed on 30 January 2019).
- Lulea University of Technology (2014), “Mapping the Nordic mining and metal industry”. [6]
- McKinsey & Company (2018), *Lithium and Cobalt: A Tale of Two Commodities*, [1]
<https://www.mckinsey.com/industries/metals-and-mining/our-insights/lithium-and-cobalt-a-tale-of-two-commodities> (accessed on 3 February 2019).
- Mining Finland (2019), *Current Exploration Projects*, [9]
<http://www.miningfinland.com/opportunities#current-exploration-projects> (accessed on 6 February 2019).
- Mitchell, C. and K. O’Neill (2016), “Tracing economic transition in mine towns of northern Ontario: An application of the “resource dependency model””, *The Canadian Geographer*, [33]
 Vol. 60/1, pp. 91-106.
- Natural Resources Canada (2019), *The Canadian Minerals and Metals Plan*, [12]
<https://www.minescanada.ca/en> (accessed on 7 April 2019).
- North Karelia Council (2018), *POKAT 2021 North Karelia’s Regional Strategic Programme for 2018-2021*, [17]
<http://www.pohjois-karjala.fi/documents/33565/34607/POKAT+2021+Summary.pdf/80583d66-9e7b-d4f6-8e90-3dc0a4552dac?version=1.0> (accessed on 24 January 2019).
- OECD (2018), “Effective policy approaches for quality investment in tourism”, *OECD Tourism Papers*, No. 2018/03, OECD Publishing, Paris, [35]
<https://dx.doi.org/10.1787/88ea780c-en>.
- OECD (2018), *Job Creation and Local Economic Development 2018: Preparing for the Future of Work*, OECD Publishing, Paris, [40]
<https://dx.doi.org/10.1787/9789264305342-en>.
- OECD (2018), *OECD Territorial Reviews: The Megaregion of Western Scandinavia*, OECD Territorial Reviews, OECD Publishing, Paris, [45]
<https://dx.doi.org/10.1787/9789264290679-en>.
- OECD (2018), *OECD Tourism Trends and Policies 2018*, OECD Publishing, Paris, [34]
<https://dx.doi.org/10.1787/tour-2018-en>.

- OECD (2018), *Productivity and Jobs in a Globalised World: (How) Can All Regions Benefit?*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264293137-en>. [20]
- OECD (2018), *Working Together for Local Integration of Migrants and Refugees*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264085350-en>. [42]
- OECD (2017), “North Karelia, Finland (Northern Sparsely Populated Area)”, in *OECD Territorial Reviews: Northern Sparsely Populated Areas*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264268234-12-en>. [16]
- OECD (2017), *OECD Territorial Reviews: Morelos, Mexico*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264267817-en>. [38]
- OECD (2017), *OECD Territorial Reviews: Northern Sparsely Populated Areas*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264268234-en>. [8]
- OECD (2017), *Small, Medium, Strong. Trends in SME Performance and Business Conditions*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264275683-en>. [46]
- OECD (2017), *Tourism Policy Review of Mexico*, OECD Studies on Tourism, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264266575-en>. [37]
- OECD (2016), *Job Creation and Local Economic Development 2016*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264261976-en>. [39]
- OECD (2016), *OECD Regional Outlook 2016: Productive Regions for Inclusive Societies*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264260245-en>. [27]
- OECD (2016), *OECD Territorial Reviews: Bergamo, Italy*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264251984-en>. [50]
- OECD (2016), *OECD Territorial Reviews: Peru 2016*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264262904-en>. [14]
- OECD (2015), *The Metropolitan Century: Understanding Urbanisation and its Consequences*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264228733-en>. [21]
- OECD (forthcoming), *The Mining Global Value Chain and the Impact of Embodied Services*, OECD Publishing, Paris. [31]
- Official Statistics of Finland (2018), *Accommodation Statistics (e-publication)*. [32]
- Outokumpu Municipality (2018), “Corporate Strategy 2018-2021”, <http://www.outokummunkaupunki.fi/documents/291232/298182/Outokummun+kaupungin+konsernistrategia+Kumpukartta+2018-2021%2C+kvalt+27.11.2017%2C+voimaan+1.1.2018.pdf/5a953d57-1739-4207-dc2e-9e9e0b9601b8> (accessed on 6 February 2019). [18]
- Stedman, A. and K. Green (2018), *Fraser Institute Annual Survey of Mining Companies 2017*. [5]

- Tekes (2015), *Tekes Green Mining Program Achievements of the Programme*, [47]
http://fem.lappi.fi/c/document_library/get_file?folderId=2807764&name=DLFE-28491.pdf
(accessed on 4 February 2019).
- Tiainen, H., R. Sairinen and O. Sidorengo (2015), “Governance of sustainable mining in arctic countries”, *Arctic Yearbook 2015*, [24]
https://www.researchgate.net/publication/283510080_Governance_of_Sustainable_Mining_in_Arctic_Countries (accessed on 4 February 2019).
- Tukes (2017), *Exploration and Mining Industry Statistics*. [7]
- Vasara, H. (2018), *Mining Industry-Sector Report 2018*, Ministry of Economic Affairs and Employment of Finland, [49]
http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/160584/SectorReports_1_2018_MiningSector.pdf (accessed on 28 February 2019).
- World Finance (2019), “Geological Survey of Finland is allowing the country to reap the mining rewards”, <https://www.worldfinance.com/strategy/geological-survey-of-finland-is-allowing-the-country-to-reap-the-mining-rewards> (accessed on 3 February 2019). [4]

Chapter 3. Governing mining regions to attain sustained and inclusive growth

This chapter offers an overview of the national and regional governance structure in Finland and the distribution of competencies to implement the regional policies relevant to Outokumpu. It then examines how the mining policy framework can better support regional development in the country and finishes by analysing the mechanisms to improve co-ordination between different levels of government for a successful strategic programme in the region and municipality.

Box 3.1. Assessment and recommendations

Assessment

- **Finland’s mining policy and regulatory framework lacks a territorial approach and this results in missed opportunities.** The policy does not take into account the special characteristics of the region and there are no incentives for municipal or regional co-operation to steer investments or conduct joint mining projects.
- **There is an opportunity to develop a more cohesive long-term vision for regional development that translates into a portfolio of projects.** The strategic fora (working groups) in the regional council appear to be more focused on accessing European Union (EU) funds rather than on planning long-term strategies. Furthermore, the region of North Karelia lacks formal incentives for co-ordination among municipalities to implement the regional development plan.
- **Outokumpu Municipality is administrated with a strong corporate vision but there is some disconnect with the priorities of the region and neighbouring municipalities.** The municipality has undertaken efforts to improve the efficiency of public services, create a sound business environment and attract new business. However, a “silo approach” to local economic development is a pressing issue in Outokumpu. Its municipality’s economic strategy has scope to enhance co-ordination with the strategies established at the regional level and with other municipalities. The successful implementation of its economic plan will rely on co-ordination and alignment between different levels of governments and stakeholders.

Recommendations

Strengthen the functioning of regional policymaking and integration with the national mining framework:

- Better link national mining policy instruments with regional characteristics (the Ministry of Economic Affairs and Employment). Actions for this are:
 - Enhance participation of regional councils and municipalities in any future review or revision of the national Minerals Strategy (2010) and articulate the role of the subnational level in the development of mining in Finland.
 - Work with regions to map local mining clusters and identify their strengths and complementarities in the context of national policy.
 - Support the development of a network of mining regions and municipalities to co-operate on joint projects, co-ordinate promotion and investment attraction, and share knowledge and good practices.
 - Partner with regions and municipalities in the international promotion of Finland as a destination for mining investment and in relation to mining technology services.

- Adjust the scope of the working groups to undertake long-term planning and capacity building. Two priority areas are in relation to entrepreneurship, and skills and workforce development (North Karelia Council).
- Develop a strategy that is inclusive of different areas and size of companies within the local labour market. For this, Business Joensuu should better adapt strategic programmes to reach businesses outside of Joensuu (e.g. supporting small business to access EU financial instruments) and act as a broker to co-ordinate and integrate municipal assets and companies with regional programmes (e.g. the mining camp in Outokumpu) (Business Joensuu).

Enhance the benefits of EU funds to support the future development of the mining value chain:

- Work with the local mining industry and Geological Survey of Finland (GTK) to develop a portfolio of projects that are designed to increase mining investment, promote innovation in mining technology services, and address bottlenecks to growth, including land use, skills and specific opportunities associated with photonics and information and communication technology (ICT) (Business Joensuu).
- Develop a cohesive approach to using European Structural and Investment Funds (ESIF) to implement these projects (North Karelia Council and Business Joensuu).

Improve co-ordination and alignment in regional development policies between the regional council, municipalities, universities, industry and other actors:

- Promote a unified vision of development for the region and ensures co-operation among municipalities (North Karelia Council). Actions for this are:
 - Create a strategic platform for dialogue between North Karelia Council and municipalities. This platform can serve various purposes, such as developing a common long-term development vision, improving co-ordination, pooling resources and efforts, and resolving conflicts.
 - Formalise the dialogue in order not to depend on occasional meetings or personal relationships. This should be institutionalised to ensure continuity over time.
 - Include different stakeholders with equal participation and ownership in the platform.
- Develop a monitoring framework to track and co-ordinate the accomplishment of the objectives in municipal development plans. The framework should cover all the municipalities in the region to help the council benchmark align and compare the performance of strategic plans (North Karelia Council).

Improve co-ordination among municipalities:

- **Improve co-ordination among municipalities with incentives** for co-ordination that promote the joint implementation of projects among municipalities (North Karelia Council).

Introduction

Improving the territorial development in a state or municipality depends largely on the institutions, frameworks and processes shaping the territory's public governance structure. The strength of this structure and its adaptability to changing circumstances are prerequisites to meet the state or municipality objectives (OECD, 2017^[1]).

The previous two chapters have underlined the challenges and strengths to be addressed by Outokumpu and proposed a number of policies and programmes that North Karelia and Outokumpu can follow to unleash the mining potential and attain higher levels of productivity and well-being. The municipality has scope to mobilise its geographic location and industrial fabric to become a key partner for national mining development. It can also open new growth opportunities through greater diversification of its economy by supporting service activities, upskilling labour force and enhancing entrepreneurship.

Implementing these policies will require an integrated vision of growth and a collaborative approach between different levels of government, business and communities at regional and local levels. This chapter offers an overview of the national and regional governance structures in Finland and the distribution of competencies in regional policymaking and implementation. It then examines how the mining policy framework can better support regional development in the country. Finally, the chapter analyses the mechanisms to improve co-ordination between different levels of government to attain regional and municipal development goals.

Towards an integrated regional development policy with mining activities

Outokumpu's proximity to Joensuu, its mining potential and its industrial fabric offer untapped opportunities of growth. However, the municipality faces a number of challenges for sustained economic growth (Chapter 2). To harness the assets and address the challenges in Outokumpu, a clear distribution of roles and a co-ordinated action among the stakeholders involved in regional development is needed.

Key actors and roles on regional development in North Karelia and Outokumpu

Finland is a unitary country, with a local government system composed of 313 municipalities and 1 autonomous region (Åland). In Finland, different levels of governments have strategic responsibilities on regional economic development. The national government sets the regional development strategies following the overarching Regional Development Act. Its implementation is mainly the responsibility of subnational governments. Finland is, in fact, one of the most decentralised countries in the OECD, where local authorities are responsible for a very large share of public expenditure (40% of total public expenditure in 2018).

The Minister of Employment and Economic Affairs is responsible for establishing the policy framework for regional development and supporting its implementation, through decentralised regional authorities. The ministry manages 15 Centres for Economic Development, Transport and the Environment (ELY Centres), which are state regional bodies in charge of the regional administration of labour, agriculture, fisheries, forestry and entrepreneurial affairs (they also join together a number of responsibilities from other ministries). In addition, the ministry has a number of national agencies including Business Finland, which conducts programmes to promote foreign investment and the

internationalisation of local companies, and Finerva, which provides financing for small- and medium-sized enterprises (SMEs) and bank guarantees for investment.

Regions are responsible for the regional development plan, business development and regional land use planning. Regional councils are the government authority of the regions, subject to an assembly that is composed of representatives from the municipal councils. The assembly elects the administrative board of the region, which carries out the executive functions. It also appoints the head of the council, who is the managing director of the regional staff office (the staff in North Karelia Council is approximately 45 people). The council elaborates the policy framework for regional development, based on the parameters set by the national strategy and the European Regional Development Fund (ERDF) (OECD, 2017^[11]). The regional council does not have power of taxation and is funded by the municipalities. To implement the strategic programmes, it counts with resources from the European Union and the national government.

To oversee and co-ordinate the implementation of regional development initiatives, North Karelia Council has established nine thematic working groups that underpin the smart specialisation strategy. These thematic working groups cover the main topics of the strategy including forests and the bioeconomy, Russia, education and foresight, transport, tourism and mining. They also support the definition of funding mechanisms for the strategic plans and facilitate the linkages between the EU funds and the regional plan.

North Karelia also relies on a decentralised agency, Business Joensuu, to implement and monitor the strategic programme of the regional plan with EU funds. This company aims to improve the business environment in the region, attract foreign investment and support the internationalisation of local business. North Karelia Council has delegated the co-ordination of the mining industry and the local value chains to Business Joensuu. It also manages the Science Park, which hosts and provides development services to around 130 organisations and 1 500 people (Box 3.2).

Box 3.2. Business Joensuu

The new Business Joensuu started operations in 2019. The company provides services for investment in the area, start-ups, growth, development and internationalisation, as well as space, community and event services for the Science Park. In addition, Business Joensuu produces operating environment development services for different industries, which create the best conditions for companies to operate in Joensuu.

The company is governed by a board of directors that is selected by the following institutions:

- The City Council of Joensuu.
- The University of Eastern Finland
- Joensuu University Foundation
- Riveria training consortium.

In 2019, representatives from the above-mentioned institutions plus representatives from the National Coalition Party and from private companies (Outokumpu Metall Oy, Blancco Oy) formed the board of directors.

The service areas of Business Joensuu include:

- Business growth and development services.
- New businesses, businesses and internationalisation services.
- Placement and attraction, marketing services.
- Space, community and event services for the Science Park.

Overall, the company managed 25 programmes focused on different sectors including export capacity in the region (ExportGrowth), the bioeconomy sector (Vitality for Digital Forest), business digitalisation (Joensuu Smartcity, Digital Training) and entrepreneurship (Women Entrepreneurship). It is also involved in two active EU programmes to support the mining sector (REMIX and MIREU).

The services are typically 1-3 year-long customer-oriented development projects. They are initiated by designated industry-responsible experts who are responsible for promoting the business environment of their businesses, starting with the business needs of their companies.

Source: Business Joensuu (Business Joensuu, n.d.^[2])(Business Joensuu, n.d.^[2]) (n.d.^[2]), *Homepage*, <https://www.businessjoensuu.fi> (accessed on 15 Mars 2019).

Municipal governments in Finland are administrative units, governed by an elected council. The council defines the strategic plan for the municipality, manages land use and urban planning and can levy income tax. Municipalities are responsible for delivering most of the public services (41% of total public expenditure in 2016), primarily healthcare, social services and education as well as sports, youth and cultural services. However, this role is likely to change with the forthcoming regional reform that will give regional governments the competencies of most of public services at the local level (see next section).

In the case of Outokumpu, the municipality also controls a number of public companies to provide some essential services including energy and housing. It owns an industrial park and a public tourism company, which are key players in the definition of economic strategy at the local level. For Outokumpu, the success in the implementation of the economic strategy relies on a co-ordinated interaction of the different level of governments with a range of stakeholder present in the area (Table 3.1).

Table 3.1. Stakeholders for the development policy of Outokumpu

Organisation	Role (selected)	Type of organisation
Ministry of Economic Affairs and Employment	In mining policy: Secures Finland's raw material supply and ensures sustainable use of national resources, international competitiveness, responsible use of natural resources and vitality of Finnish regions.	Public-national level
Business Finland (ex Tekes)	- Promotes investment from foreign companies. - Supports Finish companies (generally focuses on most competitive ones).	Public-national level
Tukes	- Supervises activity. - Issues mineral reservations (areas to conduct activity). - Surveys condition of mines. - Issues mining permits.	Public-national level

Organisation	Role (selected)	Type of organisation
Finnvera	Provides financing for the start, growth and internationalisation of enterprises and guarantees against risks arising from exports.	Public-national level
Finnish Minerals Group	Develops the Finnish battery and mining ecosystem. It owns, manages and develops companies, an investment programme and research and development (R&D) projects related to the Finnish battery.	Public-national level
North Karelia Council	- Authority responsible for regional development and the elaboration of the Regional Development Programme. - Sets the framework and priorities for the implementation of the European Regional Development Fund (ERDF).	Public-regional level
Business Joensuu	- Promotes investment from foreign companies. - Supports companies and SMEs in North Karelia.	Public-regional level
University of Eastern Finland (UEF)	R&D activities in mining and other extractive industry areas.	Public-regional level
Riveria Vocational School	Education organisation whose main function is to provide qualified vocational education in the county of North Karelia.	Public-regional level
Green Park of Joensuu	- Business park designed especially for companies related to the wood product industry, cleantech and mechanical engineering. - 550 industrial jobs (2017).	Public- co-ordinated by Joensuu Business premises
Joensuu Science Park	- Offers services for business development and innovation process, and hosts service companies related to bioeconomy, photonics, and ICT and game industry. - 120 companies and 1 450 jobs.	Public
Municipality of Outokumpu	- Land- use planning. - Budget permit.	Public-local level
Geological Survey of Finland (GTK)	- A leading European competency centre on assessment and sustainable use of geological resources. Provides expertise that serves the interests of stakeholders.	Public-national and regional level
Industrial Park	Currently hosts 50 industrial companies. - Constructs and finances premises for clients. - Offers rental spaces. - Manages state companies of Outokumpu.	Public-local level: 94% owned by municipality of Outokumpu
Main companies inside the Industrial Park of Outokumpu		
Outotec	- Develops leading technologies and services for sustainable mining. - Turula OY - Factory in Outokumpu focuses on building mining machinery and structures. - Around 120 workers in Outokumpu.	Private
Finelcomp	- Produces electric enclosure mechanics. Manufactures solutions for housing and fastening mechanics for electric distribution. - Around 100 workers in Outokumpu.	Private
Oyoutokummun Metalli Oy	- Manufactures forestry machinery, some of them sold under John Deere and Waratah brands. - Around of 146 workers in Outokumpu.	Private

Challenges in the interaction of actors for regional development

While Outokumpu Council plays an active role in implementing the municipal development strategies, the overall definition of long-term goals is structured at the regional level. The Regional Strategic Programme 2018-21 (POKAT2021) is a guiding strategy for municipal councils to establish their local development plans (Chapter 2). North Karelia Council builds the regional programme following a participatory process to include the vision of municipal councils and other stakeholders. This planning process is an asset in the region and fosters comprehensive and clear long-term development goals.

However, there are some gaps in the execution of the vision and the strategic plans in the region. As mentioned in Chapter 2, there is no clarity as to what extent the mining sector can contribute to the regional economy. The bioeconomy and forestry sectors receive the most attention within the strategic programmes relative to other sectors. As the regional council has the power to decide on the use of state funds, unlike the municipal council (OECD, 2017^[1]), the allocation of resources at the regional level drives the implementation of the development agenda. It can, in turn, end up giving less attention to the financial support of key municipal economic strategies (e.g. mining development in Outokumpu).

Furthermore, the working groups in the regional council appear to focus more on designing programmes to access EU funds rather than on long-term strategies to address main regional challenges. Broadening the scope of these groups to a more proactive and strategic role should be a priority for the council to implement strategies related to entrepreneurship and skills and workforce development, for example.

There is a lack of clarity on the main responsibilities of implementing some of the policies needed to address the challenges in North Karelia and Outokumpu; indeed, a number of actors are involved in addressing policy challenges in different areas, including the mismatch of skills in the local labour market, innovation and SME support. These include universities, the ELY Centre, the regional and municipal councils and Business Joensuu. Each of these actors conduct their own programmes but do not co-ordinate effectively on the same strategy. For example, the ELY Centre plays a key role in facilitating national programmes on skills development at the regional level, while Business Joensuu implements EU-funded programmes on upskilling labour force and Outokumpu Council strives, for instance, to link secondary education and local company needs (Chapter 2).

Furthermore, the different actors involved in policymaking do not offer a single picture of the labour market. For North Karelia Council, most of the efforts to improve workforce skills and a business environment rely on building a strong Joensuu municipality to attract new business, while municipalities have their own agendas to pull in skilled residents. Thus, the range of actors need a single platform to further co-ordinate these policies with clear responsibilities in overseeing the strategy.

There is also fragmentation of data on workforce and business characteristics and no clear leader. There are gaps in the main responsibility of co-ordinating and maintaining granular data on economic and social aspects in the region. Identifying particular local assets and challenges with precise and reliable data is required for successful regional planning. For this, Business Joensuu should take an active role in close co-operation with the municipal councils to develop databases on the most pressing areas in the regional economy, including the profile of local SMEs, the type of entrepreneurs, suppliers to the global firms established in the municipalities and the profile of workers commuting every day among municipalities.

Business Joensuu plays a key role in the implementation of the regional economic strategy but has faced challenges to deliver a cohesive business policy throughout the territory. In the last few years, some municipalities raised concerns about the effectiveness of the services provided by Josek (the former business development agency in North Karelia). These concerns led the municipalities of Kontiolahti and Liperi to reduce the number of services ordered from Josek and developed business consultancy services in house. This led to a reform in the development agency and thus the constitution of Business Joensuu (Box 3.2).

Business Joensuu has scope to play a stronger role in the regional development of North Karelia. The recently formed Business Joensuu is currently defining its strategic vision and action plan. While the former Josek was much more focused on short-term solutions to business, Business Joensuu supports businesses through a combination of a short-term and transactional approach (e.g. addressing specific needs for funding, skills) and strengthened long-term strategies to improve the business environment (e.g. implementing EU programmes such as REMIX). The update of Business Joensuu strategy should also serve as an opportunity to develop a strategy that is inclusive of different areas and size of companies within the local labour market. For this, it should better adapt the strategic programmes to reach businesses outside of Joensuu (e.g. supporting small businesses in accessing EU financial instruments) and act as a broker to co-ordinate and integrate municipal assets and companies with regional programmes (e.g. the mining camp in Outokumpu).

Better linking mining with regional development

Given the municipality's potential to contribute to the development of the mining sector in Finland (Chapter 2), a key aspect for national and local governments is to co-ordinate the national mining policy with local economic strategies. For this, a clear picture of the mining governance in the country is key to understanding the role of Outokumpu within the national strategy.

Mining sector governance in Finland

Finland is undertaking efforts to become a worldwide leader in sustainable mining and make the mineral sector one of the key foundations of the Finnish national economy. One of the key aspects of this process is to develop a clear and trustworthy regulatory framework that ensures sustainability and attractiveness and reduces the harmful impact on the environment. The Finnish mining regulatory framework is comprised of a set of different regulations and laws (Table 3.2), which are recognised as transparent and clear for international investment (Finnish Trade Organization, 2016^[3]).

In Finland, mining strategies are mainly defined at the national level. The Ministry of Economic Affairs and Employment is the national entity in charge of elaborating the strategy for the mining sector (Chapter 2). The ministry controls and co-ordinates a number of organisations to promote, finance and implement the mining activities:

- Business Finland supports the implementation of strategic projects.
- FINERVA provides funding for business growth and internationalisation.
- Industrial Investment Ltd invests in and develops mining-related companies.
- The Finnish Minerals Group acquires and manages companies to build a cluster of battery production.

- The Safety and Chemicals Agency (Tukes) is the licensing and surveillance authority for the sector that monitors the activities and issues mining permits.

Table 3.2. Main mining regulatory instrument in Finland

Instrument	Instrument in Finland
Laws specific to mining	- 2011 Mining Act - 2012 Decree on Mining activities
Other laws	- Environmental Protection Act - Nature Conservation Act - Act on the Protection of Wilderness Reserves - Act on Environmental Impact Assessment Procedure - Land Use and Building Act - Water Act - Radiation Act - Reindeer Husbandry Act
Guiding principle	- Guidance for stakeholder engagement in exploration - Guidance for practices supporting environmental regulation and socially sustainable mines in the north

Source: Tukes (2019^[4]), *Mining Activity*, <https://tukes.fi/en/mining> (accessed on 6 February 2019).

The Ministry of Economic Affairs and Employment conducts the National Mineral Policy steered by two main documents: the 2010 Mineral Strategy and the 2011 Mining Act (Ministry of Economic Affairs and Employment, 2019^[5]). The main goal of the 2010 Mineral Policy is to secure Finland's raw material supply and ensure the sustainable use of national resources and international competitiveness. This strategy, elaborated with the support of the Geological Survey of Finland, sets the vision and the policy priorities of the mining sector for 2050 (Chapter 2).

The core mining legislation in Finland is the 2011 Mining Act with the subsequent 2012 Decree on Mining Activities. The main goal of the Mining Act is to ensure mining is conducted in a socially, economically and ecologically sustainable manner. It represents an improvement on the old legislation in terms of environmental governance, participation possibilities of local communities and rights of Sami people (Tiainen, Sairinen and Sidorengo, 2015^[6]). The Mining Act outlines the key process and responsibilities linked to mining activities, including:

- Exploration periods and compensation levels for landowners. This establishes a fixed monetary compensation for the landowner plus a share of the value of explored and utilised minerals.
- A mechanism for landowners, local organisations and citizens to submit their opinion during the permit approval process, before any decisions are made.
- An opportunity for local municipalities and environmental authorities to give their views on the project.
- The content of the application, the hearing process and the mitigation of negative impacts, among others.

Overall, to open a mine in Finland, companies require permits issued by three government levels. The national entity Tukes grants the authorisation of the deposit and issues the exploration and mining permit, as well as the safety permit and the permit for handling and storing chemicals and explosives.

At the regional level, the Regional Administrative Agency (AVI) issues environmental permits and constructs mining dams, supervised by the ELY Centre. North Karelia Council has also established a regional strategic group of extractive industry. The group is in charge of updating the regional strategy of the extractive industry in North Karelia and holds sporadic meetings to discuss the main challenges for mining development, including land-use planning and the mining law.

At the local level, the municipality is in charge of zoning and construction permit plans and the municipal environmental protection authority issues particular environmental permits.

Enhancing the mining governance framework through a territorial approach

Finland's mining regulatory framework lacks a territorial approach and integration with regional development plans. The Ministry of Economic Affairs plays a central role in the definition of the mining strategy and investment attraction, while subnational and local governments have an auditing role, issuing opinions and statements about the projects and approving land-use and construction plans. Local government is however key to ensuring an optimal environment for mining companies and good interaction between the communities and the mining sector. Involving local governments from the beginning of the strategic definition of projects and licensing decision-making can be a powerful practice to gain support from local communities in the mining sector. For example, close co-ordination with municipal governments is instrumental in reducing any uncertainty mining companies may have regarding the approval of zoning and construction permits.

Finland's mining policy framework can further develop mechanisms to promote co-operation amongst regions and municipalities. Alongside low recognition of local mining clusters, the mining framework does not envisage incentives for municipalities and regions to steer joint investments and conduct projects to enhance local conditions for mining activities. In fact, as the promotion and attraction of investment are mainly co-ordinated at the national level (Business Finland), regions have more incentive to co-ordinate directly with national government and agencies than amongst themselves. Creating a more supportive framework for regions and municipalities to conduct joint mining activities could improve the investment and operational climate for mining in Finland.

To attain a sustained mining strategy, the Ministry of Economic Affairs and Employment needs to better link the national mining policy instruments with the regional level. For this, the ministry should enhance the participation of regional councils and municipalities in the elaboration of mining policy strategy in international promotion activities. This involves strengthening the interaction between the national agencies regulating mining (e.g. Tukes) and the local governments. Furthermore, localising the activities of the Mining Finland initiative by acknowledging the regional assets will help attain co-ordinated promotion activities.

At the regional level, North Karelia's regional extractive industry strategic group has scope to play a more active role in developing the mining sector. Frequent meetings involving other actors from the regional mining sector, exploring joint initiatives with national government to better align regional and national strategies or conduct foresight activities to identify the needs of the local mining cluster can boost the sector's dynamics. The regional reform offers a good opportunity for the national government to integrate mining national policy with local strategies. With a greater concentration of responsibilities in regional councils, the national government would have a reduced number of interlocutors to co-ordinate mining policies and set up implementation mechanisms. If well managed,

the regional reform could facilitate the development of co-ordination mechanisms for mining development policies at a subnational level.

Enhancing the benefits of EU funds to support mining development.

European Structural and Investment Funds (ESIF) are the EU's main investment tool to deliver on the EU objectives of the current programming period (2014-20). Finland has focused on a number of priorities linked to the current Europe 2020 strategy, including: promoting innovative and competitive business and research environments; increasing labour market participation; and reinforcing the sustainable and efficient use of resources for environmentally friendly growth (OECD, 2017^[1]). There are three EU funds relevant to regional development in Finland: the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the European Agricultural Fund for Regional Development (EARDF) (Box 3.3). For the period 2014-20, North Karelia has been allocated 12% of ERDF and 7% of ESF funds for Finland, slightly less than Lapland (12% and 10% respectively) but higher than the share allocated to other three north-eastern regions (South Savo, Kainuu and Central Ostrobothnia) (OECD, 2017^[1]).

North Karelia Council has scope to enhance the use of ESIF to achieve their objectives for mining-related development. The regional council should promote active involvement from municipal councils and other stakeholders in setting regional priorities for the allocation of the ESIF. For example, integrating other actors' vision within the working groups in North Karelia Council could enhance local engagement in regional projects.

Box 3.3. The European Structural and Investment Funds (ESIF)

European Regional Development Fund

The European Regional Development Fund (ERDF) is one of the components of the ESIF. The main purpose of the ERDF is to address regional inequalities in the EU to achieve economic and social cohesion. The four key priorities of the ERDF are: i) innovation and research; ii) a digital agenda; iii) supporting SMEs; and iv) low carbon economy. The level of development of a region determines the allocation mechanisms of ERDF: 80% of the funds should target at least two priorities in more developed regions, 60% in transition regions and 50% in less developed regions. Special attention is given to geographically disadvantaged regions, such as remote, mountainous or sparsely populated areas, as well as outermost regions.

European Social Fund

Another key European Structural and Investment Fund is the European Social Fund (ESF). The main difference with the ERDF is that the ESF directly targets people instead of regions. The main purpose is to improve employment and education in the EU and it focuses on the most vulnerable people. In particular, human capital is the top priority with an investment of more than EUR 80 billion from 2014 to 2020. Youth employment is also a key objective of this fund. The ESF is based on the principle of "thematic concentration" and the four thematic priorities are: i) employment and labour mobility; ii) social inclusion and the fight against poverty; iii) education, skills and lifelong learning; and iv) institutional capacity and the efficiency of public administration. A key objective is to increase local, community-based activity and participation.

European Agricultural Fund for Rural Development

A key funding mechanism for rural (economic) development is the Rural Development Programme (RDP). The programme is the common tool for the implementation of the European Agricultural Fund for Rural Development (EAFRD) under Pillar 2 of the Common Agricultural Policy (CAP). The RDP in Finland has a strong focus on ensuring the future viability of agricultural activities by addressing natural constraints caused by poor soil conditions and the extreme climate. Environmental preservation and resource efficiency constitute two-thirds of the total budget.

Source: OECD (2017^[11]), *OECD Territorial Reviews: Northern Sparsely Populated Areas*, <http://dx.doi.org/10.1787/9789264268234-en>.

Furthermore, these funds can help to mobilise public and private investment in the region, thus promoting co-ordination with other actors. The ESIF provide a significant amount of additional resources to North Karelia to invest in productivity-enhancing initiatives and fund pilot projects. The co-ordinating nature of these funds can be used by North Karelia to enhance the operational environment for mining clusters, especially in areas where it fosters private sector investments and cross-regional/municipal benefits. For example, investments to support infrastructure improvement (ICT and road network) or give rise to local projects to integrate mining value chains (e.g. mine tailings sampling pilot in cold geographies within Outokumpu's mining camp) can be a trigger for mining development.

Making the most of the social acceptability of mining in Finland

With increasing mining activity in the country, environmental and social impacts of mining have been brought into the mainstream discussion. Overall, surveys seem to outline that Finnish people have a positive attitude towards mining activities (Tiainen, Sairinen and Sidorengo, 2015^[6]). However, high profile cases have caused social and environmental concern in the country. The best known was the case of the Talvivaara nickel mine in Kainuu in 2012 that involved a series of pollutant uranium leaks into nearby lakes and rivers.¹

To address possible environmental and social conflicts, the current regulatory framework allocates high relevance to the public acceptability of mining. The 2010 Minerals Strategy set the basis to strengthen the role of open and transparent dialogue between the various actors involved in mining activities. Furthermore, the environmental and social procedures rely on sound pre-operational environmental and social permits. The Evaluation Impact Assessment (EIA) is then key for any mining activity and is mainly divided into two stages: an assessment programme and an assessment report, with two hearings, one in each stage of the process (Tiainen, Sairinen and Sidorengo, 2015^[6]).

In the case of Outokumpu, the social license for mining is seen as a competitive advantage. During the mining period, the mining company provided many of the municipal services, including healthcare, police, fire and rescue and recreational services for families such as libraries and sports facilities. This mining history has laid the foundations for a high recognition of the benefits of mining activities in the community. Furthermore, the municipal council advocates the benefits of mining activities and places the sector high in its development vision.

North Karelian Council and Business Joensuu could better use the social acceptability in Outokumpu to promote investments in the sector and attract foreign companies. The

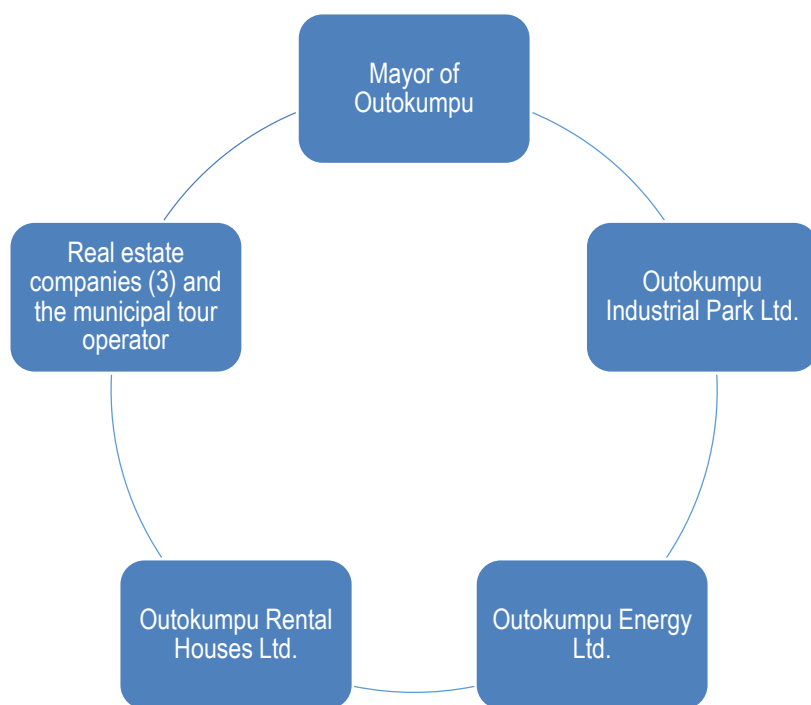
community's understanding of the impacts related to mining operations creates a more stable investment and operational environment for the private sector (OECD, 2017^[11]). The regional and national mining strategy can leverage the pro-mining attitude in the region as an asset to promote and develop mining activities. It is key that the national mining policy acknowledges the importance of regional and municipal councils to build community support for mining.

Enhancing governance in Outokumpu to attain sustainable growth

The municipality of Outokumpu is governed by an elected municipal council composed of 27 elected politicians. The council appoints the municipal mayor (or municipal manager). A subsection of this council, a municipal board of nine people, manages the municipal government and monitors the implementation of council decisions. The current municipal council was elected in April 2017 with a mandate that runs until 2021.

The municipality of Outokumpu is administrated with a strong corporate vision. Outokumpu has a number of affiliated municipal companies, including the industrial park, the energy company, the Outokumpu rental-housing company, real estate companies and the tour operator. A management team conducts the executive tasks in the corporate government of the affiliated municipal companies, including the study and preparation of policy proposals. This management team consists of CEOs of city's affiliated companies and is co-ordinated by an ownership board comprising three politicians and the municipal mayor (Figure 3.1).

Figure 3.1. Municipal corporate management team of Outokumpu



Source: Information provided by Government of Outokumpu.

The policy strategy and its implementation are defined through a collaborative process with the affiliated municipal companies. The industrial park gathers concerns and proposals

from private companies in the municipality and brings them to the management team to elaborate actions and proposals. The city town mayor introduces the proposals to the municipal board, which in turn introduces the policies to the municipal council for approval.

Outokumpu has undertaken a municipal plan to improve attractiveness for people and businesses. The municipality has developed strategies to improve the efficiency of public services and support local firms through a private-led approach. Specific strategic actions of Outokumpu's development plan underline the relevance for the municipality to work in close co-operation with the private sector and attract new companies to the local economy (e.g. active marketing, customer orientation and business co-operation).

Some of the challenges faced by Outokumpu can be attributed, to some degree, to the endogenous characteristics of a small subnational government with significant decision-making power over the territory's administration (Box 3.4). In Outokumpu, two main features of such characteristics stand out. First, the limited scope of goals and activities given the small size of the staff's municipality administration. In some cases, affiliated companies of Outokumpu Municipality are run by no more than two people (e.g. municipal tourism activities). Additionally, the council faces a multifunctionalism of civil servants and organisations. For example, the CEO of the industrial park of Outokumpu performs other planning and strategic tasks within the council.

These characteristics are inherent to the financial capacity and size of the municipality and are not necessarily negative. In the case of Outokumpu, for example, despite the small size of the municipal corporate management team, the municipality counts with a comprehensive reporting and monitoring mechanism of policy proposals. Thus, the ability of Outokumpu municipal government to design and implement development strategies depends less on population and staff size than on its capacity to co-ordinate with other levels of governments and stakeholders.

Box 3.4. Characteristics of small-state public administrations

Early research into the characteristics of small state governments highlighted five interrelated characteristics that are common to some degree across such states. While developed after studying sovereign nations, some or all of these characteristics can be relevant to administrations where individual provinces or regions have significant autonomy and decision-making power over the territory's administration as well as policy design and implementation.

1. **Limited scope of goals and activities.** Small state administrations have to fulfil certain public prerogatives, such as maintaining health and education systems, regardless of the size of the country. Small states, therefore, need to prioritise and limit the number of goals and activities they pursue, the scope of action, and the means of delivery (e.g. production versus purchase of certain public goods).
2. **Multifunctionalism of civil servants and organisations.** Public officials in small administrations tend to have many, diverse responsibilities compared to their peers in larger administrations, who have more opportunities to specialise in a particular field. This is also seen in state bodies; for reasons of scale and resource sharing, there is a greater tendency to merge units (e.g. ministries, agencies, etc.) than to establish or maintain separate entities.

3. **Informality of structures and procedures.** Formal co-ordination mechanisms are more limited in small states and there is a tendency for structures to adapt to individuals rather than individuals to fit in formal organisational frameworks. While personal relationships are important in any system, senior civil servants in small states are more likely to use informal means of communication to consult and inform one another. Civil servants depend on these relationships in order to properly execute their responsibilities. These relationships can also serve as a bridge between executives and lower levels of organisations.
4. **Constraints on steering and control.** Independent scrutiny and reporting mechanisms tend to be less frequent in small states than in large ones due to limited resources, lack of specialisation and political partisanship. The political-administrative interface is usually less clearly defined in small states, with greater mobility between the administrative and political spheres. Senior civil servants, therefore, can have more autonomy in smaller states due to less formal oversight.
5. **“Personalism” of roles and functions.** The multifunctionalism, informality and limited control in small states allow a limited number of individuals to exercise a fair amount of influence based on their competencies, networks and personal qualities. While this can support agility and problem solving, it also leaves room for ad hoc decision-making and subjective judgement.

These characteristics are not “good” or “bad” in and of themselves, but their interaction influences the governance contexts. For example, aspects of personalism that might be perceived as “leadership” in a system with institutional checks and balances can take on a less benevolent aspect in the absence of counter-balancing forces.

Sources: OECD (2016^[7]), *OECD Territorial Reviews: Córdoba, Argentina*, <http://dx.doi.org/10.1787/9789264262201-en>; adapted from OECD (2011^[8]), *Estonia: Towards a Single Government Approach*, <http://dx.doi.org/10.1787/9789264104860-en>; Sarapuu, K. (2010^[9]), “Comparative analysis of state administrations: The size of state as an independent variable”, *Halduskultuur – Administrative Culture*, Vol. 11(1), pp. 30-43.

Enhancing Outokumpu’s development plan for a long-term development vision

The council elaborated the Outokumpu Development Strategy 2018–21 through a consultation process with different stakeholders. It consisted of a four-step process of around seven months that started with statistical analysis and surveys of main stakeholders. Following the initial survey’s results, the council organised a strategy seminar to set the scene and issue preliminary findings. After this, the council drafted the agreed strategies and conducts a final seminar to make the decision on the action points.

Despite its small size, the municipal administration has developed a comprehensive and detailed municipal development plan. For each strategy, the plan has defined the implementation mechanism, the timeframe and duration of the project with desirable outcomes. For example, the strategy of “improving the overall look of the municipality” will be implemented through the renovation and maintenance of green areas, cleaning of forests and parks in the municipal centre and improvement of land plots in the city. Reconstruction and cleaning are carried out on an annual basis, while improvement of land plots to be done in 2018.

While the municipal development plan of Outokumpu distinguishes between short- and medium-term goals, it could better identify long-term strategies that go beyond the current

administration. For example, the aim to create “a secondary education that is versatile and linked with the market” (see Table 2.6) requires a long-term vision of the policy output, which will go beyond the mandate of the current administration. Therefore, Outokumpu administration should define goals in a timeframe and further distinguish which priorities should be achieved in the short term and which ones require long-term government commitment.

In terms of implementation of the plan, the budget is the most important tool to define the municipal’s annual operations and the application of different strategies (Outokumpu Municipality, 2018_[10]). In addition to the budget, the strategy is implemented through operational programmes and plans, the most relevant being the welfare plan, the welfare report and the operational programmes of the affiliated municipal companies (Outokumpu Municipality, 2018_[10]).

Outokumpu has established easily measurable policy objectives, with a monitoring instrument based on performance indicators. Easily measurable objectives are essential to steer government actions but also to improve accountability and communication with citizens and other levels of government. This municipal planning and monitoring framework represents an important step towards efficient implementation and policy results.

Nonetheless, the performance indicator mechanism could be improved by clearly differentiating between output and outcome indicators. Indicators such as “time of response to business contacts” and “occupancy rate of premises rented from the business centre” have the same level of relevance without a clear sense of measuring the ultimate outcome of the economic policy for the municipality (e.g. a lower unemployment rate). Outcome indicators are the primary reason for implementing the policy (Schumann, 2016_[11]). They will monitor the specific objectives that the government wants to achieve, taking into account regional challenges, needs and potentials. Output indicators, on the other hand, track the actions needed to achieve the specific objectives. The monitoring framework of Outokumpu could be strengthened by considering prioritising a limited set of objectives and including lower-level objectives in a hierarchical structure (several objectives contributing to achieving one higher-level objective).

Individual efforts of policy planning and monitoring, such as in Outokumpu, can have a greater impact if they are co-ordinated with the ones of other municipalities in the region. A homogenous set of performance indicators of the local strategies in North Karelia will help the council benchmark, identify bottlenecks and unleash synergies among municipal strategic plans. Norway and several provinces in Canada have established performance indicators and bases of comparison for their municipalities, which have proven effective in terms of planning and policy outcomes (Box 3.5). North Karelia Council, through Business Joensuu, should support the development of a comprehensive monitoring framework across all the municipalities in the region.

Box 3.5. Performance measurement

In 2000, the Province of Ontario, Canada, introduced the Municipal Performance Measurement Program (MPMP) as an accountability mechanism and to help local authorities make more informed decisions, and its use became mandatory in 2001. Ontario's 444 municipalities – regardless of their size – are all responsible for reporting on 12 core service areas, resulting in 54 measures of efficiency and effectiveness. These service areas include local government, fire, police, roads, transit, wastewater, storm-water, drinking water, solid waste management, parks and land-use planning.

The MPMP has not only improved reporting but it has also given provincial and local authorities a solid database in support of multi-year trend analysis and budgeting processes. Municipalities report performance data annually by 31 May. In addition to MPMP, in 2001 Ontario introduced the Ontario Municipal Benchmarking Initiative in order to support city executives as they measure progress and share data and practices with respect to: the efficiency with which resources are transformed into goods and services; their quality; their associated outcomes; and the effectiveness of services delivered. The initiative is composed of 15 member municipalities and publishes an annual report, available to the public. This report presents information in 27 service areas with an aim to help citizens be more informed about their municipality and the services it offers, and how their municipality compares to others.

Sources: Government of Ontario (2015^[12]), *Municipal Performance Measures*, www.mah.gov.on.ca/Page297.aspx (accessed on 6 February 2019); OECD (2017^[13]), *OECD Territorial Reviews: Morelos, Mexico*, <http://dx.doi.org/10.1787/9789264267817-en>.

Strengthening horizontal and vertical co-ordination

Multi-level governance co-ordination is a key ingredient to implement an efficient territorial approach for sustainable development. It requires the adoption of strong co-ordination mechanisms within and between levels of government (Charbit, 2011^[14]). Given the prominent role of the Finnish national government in setting regional strategies, co-ordination among regions and municipalities is a cornerstone to align local policies with the national vision and pursue their implementation at the local level.

Improving co-ordination with the regional council to achieve municipal objectives

The success of North Karelia as a region relies on a co-ordinated implementation of its development plan across the territory. Ensuring that municipal councils are in line with the overall vision for the region and the implementation of the strategies is key to achieving the desired policy outcomes for the population.

In Outokumpu, a pressing issue is its “silo approach” to regional policy. Thanks in part to its history of economic self-sufficiency based on mining activity, the municipal administration has a vision of relying on its own assets to achieve higher stages of development. For example, Outokumpu has set municipal attractiveness to bring in new residents high on its agenda. However, the strategies to attract workers or upskill the labour force seem to be disconnected from the regional plan. Most of these strategies are conducted through individual effort, with little mention of partnerships with other municipalities (Chapter 2). This is not unique to Outokumpu Municipality but a common feature across municipalities in North Karelia, which call for a greater co-ordinating role

in the region. Under the depopulation context of rural Finland, it is understandable that each municipality aims to set high goals on skills attraction and retention, but this should not imply a competing policy environment among neighbouring areas. With Joensuu attracting the bulk of students and skilled workers that arrive in North Karelia, the regional council should work together with municipalities to identify opportunities to further collaborate within the Joensuu labour market.

North Karelia Council can improve the interaction among local and private stakeholders to strengthen the implementation of policies. Some policies are being conducted with a lack of co-ordination with the local actors. For example, while the University of Eastern Finland has an important role in skills upgrading and research in the region, the university's interactions with the working group of extractive industries are rare and informal. Furthermore, local actors in municipalities (e.g. the industrial park of Outokumpu) do not have clear institutional spaces to collaborate with national government agencies (ELY Centre). Conducting a detailed mapping of relevant stakeholders to involve and open collaboration spaces to create links with national institutions at the regional level can be of benefit for attaining comprehensive policy outcomes.

Furthermore, the strategic programmes within Business Joensuu could be better co-ordinated to fulfil policy complementarities. Some sectors in Business Joensuu are fragmented into different strategic programmes (e.g. innovation, entrepreneurship). These could be better co-ordinated and also with programmes conducted by municipalities and state regional agencies in order to unleash the potential of synergies among economic sectors. Many of the programmes have points in common that should be better co-ordinated, including the focus on boosting entrepreneurship and the aim to attain greater economic results through networks and new technologies.

To ensure alignment of the regional development plan and municipal strategies, the regional council can create a platform for dialogue and meet regularly in a formalised setting (Box 3.6). This platform can help build a unified vision for the region, embrace changes in strategies when needed and define synergies among municipal plans. The platform has to be institutionalised to ensure its continuity over time and should involve different actors, local businesses and community leaders, to build an integrated action plan for development.

Box 3.6. Platform to align views for regional development

Brainport regional development

Eindhoven is one of the few regions in the Netherlands where regional government has been successful, as a complement to national and local government. The Eindhoven Regional Co-operation organisation is an alliance of 21 local governments organised on a voluntary basis.

Part of its success stems from the fact that the 21 local governments are willing to contribute financially and co-fund projects for which only partial funding is available (as is generally the case for both Dutch and EU-level regional policy). Nevertheless, it has only been truly effective in policy areas where consensus exists.

For example, it has struggled to deal with problems of traffic congestion and an oversupply of office space, but has proven effective in facilitating high-tech industry.

By the 1990s, three factors were in place:

1. A history of proactive local government.
2. A number of leading firms with a long history in the region and/or a strong feeling of attachment to it, which were willing to assume responsibility for the region's well-being on their own initiative or if called upon to do so.
3. An effective regional-scale co-operation organisation (SRE), backed politically and financially by local governments.

These conditions made it possible to set up a special public-private organisation that grew out of the temporary projects to fight the crisis (Stimulus and Horizon), organised by local and regional actors. This organisation, the Brainport Foundation, is a permanent public-private partnership responsible for implementing and, increasingly, for formulating, regional economic policy through its subsidiary, Brainport Development.

Five Clusters Initiative” in Västra Götaland, Sweden

The importance of co-operation and partnership among different institutional actors has also been demonstrated in the region of Västra Götaland in Sweden. A recent initiative, the “Five Clusters Initiative”, is an example of successful co-operation among businesses, research institutes and the public sector in the region. The initiative is a joint effort initiated by the West Sweden Chambers of Commerce; the main universities; the principal city, Gothenburg; and the region of Västra Götaland, which is responsible for regional development. This process began with a mutual understanding that sustainable development in all its aspects and dimensions would be the basis for discussion.

After bringing the actors together for joint discussions, five clusters were identified: i) the urban future; ii) transport solutions; iii) green chemistry and bio-based products; iv) life sciences; and v) the marine environment. For each cluster, the aim was to identify world-class resources in research, education and industry and move toward developing the regional economy from them. The initiative resulted in a clearer focus for all organisations in the areas represented in the clusters and also in day-to-day operations. The universities have even in some instances adapted their internal organisation to better focus on the chosen challenges. As a result of a more focused approach, a new large-scale collaboration in clinical research between the leading companies, the region and the academy, with strong outside back-up, was announced in the autumn of 2014. Mistra Urban Futures, a national centre with international ambitions located in Gothenburg, is now a player in rebuilding part of the city centre in Gothenburg Old Harbour, with 40 000 residents and 20 000 working places.

Source: OECD (2016^[15]), *OECD Territorial Reviews: Bergamo, Italy*, <http://dx.doi.org/10.1787/9789264251984-en>.

Business Joensuu can support this platform by co-ordinating the involvement of business and entrepreneurs. The active participation of the private sector in the strategic definition of development has proven to be instrumental for regions (see example of Eindhoven in Box 3.6). Business Joensuu can also help to clarify the implementation mechanisms of EU funds and define synergies among municipality development plans. Business Joensuu should also play a more active role in connecting local companies directly with the programmes managed by Business Finland and help define a clear marketing strategy for the region.

Improving co-ordination among municipalities

Given its small size, Outokumpu requires co-ordination with other municipalities to have a bigger impact on policy decisions and provide quality public services and infrastructure. In Finland, the low density of settlements makes the cost of service delivery particularly high. These costs are for example higher than in other Nordic countries like Sweden, due to Finland's higher dispersion (OECD, 2017^[11]). Municipal fragmentation not only affects the quality of public services but also limits the benefits of economies of scale in large projects and hampers productivity (Ahrend et al., 2014^[16]).

Municipalities within North Karelia have a tradition of joint ventures to overcome challenges on the provision of public services. The development of a joint data management system between municipalities has helped facilitate collaboration between service providers to better meet people's needs. Municipalities have also formed partnerships to deliver some elderly care services and have pooled their resources to form a common ICT and telecommunications service provider (OECD, 2017^[11]). Likewise, Outokumpu is a labour market hub for residents from other municipalities (Chapter 2), which highlights the economic interaction in the area.

Nevertheless, one of the big challenges for the municipal council is that people coming to work from other municipalities can contribute to the municipal finances and vitality. One of the reasons for some people to live outside of the municipality and commute every day to work is related to the relatively high property taxes in Outokumpu. The average Outokumpu rent, in price-controlled apartments, is the second-highest in North Karelia (EUR 10.2 monthly per square metre) and not far from Joensuu's average price (EUR 10.5). To make the most of the the labour mobility within the region, North Karelia should have a clear assessment of the type of people commuting and strengthen the discussion platforms (workforce groups) to agree on policies and unlock opportunities for both municipalities where people live and the ones where people work.

The region of North Karelia lacks formal incentives for co-ordination among municipalities. Municipal co-operation is mainly done on a voluntary basis through meetings and specific partnerships. The platform for dialogue can be complemented with formal co-ordination arrangements between local governments to implement policies without relying on the different types of relationship with the government in power. North Karelia Council can use the experience of project contracts in France or the budgetary agreement approach in Vancouver to promote municipal co-ordination through contractual arrangements (Box 3.7).

Box 3.7. Contractual arrangements in France and Vancouver, Canada

France uses project contracts (*contrat de projet*) to bring together state (including European Structural Funds) and regional funding to finance projects that can help leverage other objectives (e.g. digital services, transitions to more environmentally friendly practices, etc.). Territorial contracts (*contrat de pays*) are also used to encourage a group of local authorities to undertake a development project, sometimes straddling or crossing administrative boundaries, adapting to the space where people live. The project is directly prepared by the relevant area (group of local authorities) and the contract provides fiscal incentives to enterprises involved.

In **Vancouver, Canada**, the first Vancouver Agreement was signed for a five-year period in 2000 and renewed in 2005 until 2010. The scope of the Vancouver Agreement was broad, with three main components: health and safety, economic and social development (including housing), and community capacity building. Its main objective was to promote co-operation between the three levels of government to address local issues of poverty, homelessness, substance abuse, safety and economic revitalisation, concentrating on Vancouver's Downtown Eastside. While the Vancouver Agreement was unfunded, it made use of existing mandates, authorities and programmes to finance initiatives. There was an agreement by each party to use funding available from existing federal, provincial and municipal programmes to finance projects and programmes and to strategically focus a portion of those expenditures on agreed-upon activities.

Sources: Adapted from OECD (2006^[17]), *Competitive Cities in the Global Economy*, <http://dx.doi.org/10.1787/79789264027091-en>; Vancouver Agreement (n.d.^[18]), *The Agreement*, www.vancouveragreement.ca/the-agreement.

Better inter-regional co-ordination to support the internationalisation of SMEs and the mining network

Co-ordination of North Karelia with neighbouring regions can create a strong business environment that serves as a platform to upscale local business and integrate the local assets in the development of the mining sector.

There are various voluntary collaborations between regions in north and east Finland, including a co-operation area with seven regions involved. Furthermore, the Euregio Karelia forum for cross-border collaboration between Finland and Russia comprises three Finnish regions (Kainuu, North Karelia and Northern Ostrobothnia) and the Republic of Karelia in Russia. This forum was founded in 2000 with the aim to develop the viability of the region and the living conditions of the inhabitants via cross-border co-operation. Its board consists of leading political representatives of the member regions and meets annually to prepare and carry out co-operation projects for the development of the border regions (e.g. developing transport connections and infrastructure, promoting economic co-operation, improving social well-being and addressing environmental issues) and supervise the regions' interests.

However, the predominance of the national government in the definition of the regional economic strategy leads regions to strengthen integration with national agencies and ministries rather than with other regions. The current forms of co-operation between the regions of north and east Finland are relatively weak and narrow (OECD, 2017^[11]). Furthermore, the current infrastructure mainly promotes economic and commercial relations with Helsinki, with few connections between east and west regions. The North-South Highway (Route No. 6) has a larger traffic capacity than the East-West Highway (Route No. 9). The lower quality of east-west infrastructure hampers North Karelia's and Outokumpu's capacity to provide mining services solutions to the mining region in the west, where there is currently a high mineral potential.

The co-ordination with other regions can be used to improve the co-ordination of smart specialisation strategies and boost economic sectors. Currently, national programmes take the main co-ordinating lead in some sectors. For example, in the tourism sector, Visit Finland plays a co-ordinating role to ensure complementarities between different destinations and encourages regions to develop their own strengths and themes with the

national government. However, direct inter-regional co-ordination could lead to developing closer links among destination management companies at a regional level and ensure their work is connected to broader opportunities (OECD, 2017^[1]). Collaboration between Eastern Finland and Lapland and regions in Norway, Russia and Sweden can also spur new business opportunities.

North Karelia could also improve the synergies between Joensuu and Kuopio. Both urban and administrative regional centres have special characteristics that can be complementary to each other and, in turn, benefit the economic activity of the region. Kuopio's expertise and educational institutions are focused on well-being and medicine, while Joensuu leans towards forestry and manufacturing.

The development of a strong mining network in Finland requires better co-ordination among regions that develop or have the potential for mining activities. The region can unlock synergies in different areas and can exploit their particular links with the mining sector. For example, the regions in the north of the country have the largest share of active mines and mining investments, and can partner with eastern regions to leverage on their industrial and manufacturing know-how. In the west of Finland, various exploration projects can benefit from the experience of mining-related companies in North Karelia. To make the most of this network, the Ministry of Economic Affairs should create mechanisms of regional co-ordination for mining activities. It can benefit from the experience of the association of regions in the Czech Republic and Germany (Box 3.8).

Box 3.8. Mechanisms for regional co-ordination in OECD countries

The governments of the German *Länder* co-operate through the Council of Prime Ministers and 19 subject-specific permanent conferences of ministers. The council/standing conferences are not part of the German government and cannot pass legislation. Nevertheless, they play an important role in the federal system. Councils have two primary functions:

- In policy fields where legislative powers reside with the *Länder*, they are the main forum for policy co-ordination across the *Länder*.
- In policy fields where the *Länder* have limited powers, council/conference resolutions articulate common interests of the *Länder* to other actors, such as the federal government or the European Commission.

Co-operation in the council/conferences is consensus-based and most decisions are made unanimously. The Council of Prime Ministers and most other permanent conferences require the formal approval from 13 of the 16 German *Länder* to pass a resolution. Although resolutions are not legally binding, they have strong symbolic power and are almost always enacted by *Länder* governments.

Some permanent conferences also draft model laws and regulations to support state administrations and to further harmonise laws across states. The Council of Prime Ministers convenes four times a year. After the council meetings, prime ministers meet with the German Chancellor. Subject-specific permanent conferences have their own meetings scheduled and tend to meet between one and four times a year. The federal minister in charge of the respective portfolio typically attends the meeting as an observer. Several permanent conferences have established additional committees to discuss particular topics in more detail. The administrative structure of permanent conferences varies depending on their responsibilities. Some permanent conferences have their own permanent secretariats with sizable staff numbers, while others use the administration of the state that holds the rotating presidency of the permanent conference.

The Association of Regions of the Czech Republic (AK CR) was founded in 2001 to represent the collective voice of the Czech regions. It associates the Czech Republic's 13 regions and the capital Prague. The supreme body of the AK CR is the council composed of the president of each region and the mayor of the capital, Prague. The association offers services ranging from representing regional interests in parliament, the cabinet and European institutions, to drawing up various reports, standpoints and initiatives. The council elects a chairman and three vice-chairmen, and decides on setting up commissions. Commissions serve as advisors to the council. Current commissions include the Commission for Regional Development, the Commission for Public Administration, the Commission for Regional Financing, the Commission for Education, the Commission for Health Services, the Commission for the Environment and Agriculture, and the Commission for Transportation. Commission sessions serve for monitoring and issuing position papers/recommendations on major national and European issues in their area of competency. The council meets once every six to eight weeks on a rotating basis in one of the regions. External guests, from the central government administration, members of parliament, public organisations or international companies may also be invited to the meetings. The association has a small secretariat and is financed through membership fees.

Source: OECD (2014^[19]), *Spain: From Administrative Reform to Continuous Improvement*, <http://dx.doi.org/10.1787/9789264210592-en>.

Note

¹ The Talvivaara mine located in the Sotkamo area of Eastern Finland experienced the first pollutant leaks containing uranium in 2010. In 2012, two other major leaks released pollutants into the surrounding area. The first took place in November 2012 and also involved a leakage from a gypsum waste pond, discharging nickel, uranium and other toxic metals and effluents into nearby surroundings and lakes. This leakage spawned a large demonstration, with local people from Eastern Finland demanding the mine's closure.

References

- Ahrend, R. et al. (2014), “What Makes Cities More Productive? Evidence on the Role of Urban Governance from Five OECD Countries”, *OECD Regional Development Working Papers*, No. 2014/5, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5jz432cf2d8p-en>. [16]
- Business Joensuu (n.d.), *Homepage*, <https://www.businessjoensuu.fi/> (accessed on 15 March 2019). [2]
- Charbit, C. (2011), “Governance of Public Policies in Decentralised Contexts: The Multi-level Approach”, *OECD Regional Development Working Papers*, No. 2011/4, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5kg883pkxkhc-en>. [14]
- Finnish Trade Organization (2016), *Finnish Mining Cluster*. [3]
- Government of Ontario (2015), *Municipal Performance Measures*, Ministry of Municipal Affairs and Housing, Government of Ontario, <http://www.mah.gov.on.ca/Page297.aspx> (accessed on 6 February 2019). [12]
- Ministry of Economic Affairs and Employment (2019), *Minerals Policy*, <https://tem.fi/en/minerals-policy> (accessed on 22 January 2019). [5]
- OECD (2017), *OECD Territorial Reviews: Morelos, Mexico*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264267817-en>. [13]
- OECD (2017), *OECD Territorial Reviews: Northern Sparsely Populated Areas*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264268234-en>. [1]
- OECD (2016), *OECD Territorial Reviews: Bergamo, Italy*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264251984-en>. [15]
- OECD (2016), *OECD Territorial Reviews: Córdoba, Argentina*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264262201-en>. [7]
- OECD (2014), *Spain: From Administrative Reform to Continuous Improvement*, OECD Public Governance Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264210592-en>. [19]
- OECD (2011), *Estonia: Towards a Single Government Approach*, OECD Public Governance Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264104860-en>. [8]
- OECD (2006), *Competitive Cities in the Global Economy*, OECD Territorial Reviews, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264027091-en>. [17]
- Outokumpu Municipality (2018), *Corporate Strategy 2018-2021*, <http://www.outokummunkaupunki.fi/documents/291232/298182/Outokummun+kaupungin+konsernistrategia+Kumpukartta+2018-2021%2C+kvalt+27.11.2017%2C+voimaan+1.1.2018.pdf/5a953d57-1739-4207-dc2e-9e9e0b9601b8> (accessed on 6 February 2019). [10]

- Sarapuu, K. (2010), “Comparative analysis of state administrations: The size of state as an independent variable”, *Halduskultuur – Administrative Culture*, Vol. 11/1, pp. 30-43. [9]
- Schumann, A. (2016), “Using Outcome Indicators to Improve Policies: Methods, Design Strategies and Implementation”, *OECD Regional Development Working Papers*, No. 2016/2, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5jm5cgr8j532-en>. [11]
- Tiainen, H., R. Sairinen and O. Sidorengo (2015), “Governance of sustainable mining in arctic countries”, *Arctic Yearbook 2015*, https://www.researchgate.net/publication/283510080_Governance_of_Sustainable_Mining_in_Arctic_Countries (accessed on 4 February 2019). [6]
- Tukes (2019), *Mining Activity*, <https://tukes.fi/en/mining> (accessed on 6 February 2019). [4]
- Vancouver Agreement (n.d.), *The Agreement*, <http://www.vancouveragreement.ca/the-agreement>. [18]

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD Rural Policy Reviews

OECD Mining Regions and Cities Case Study

OUTOKUMPU AND NORTH KARELIA, FINLAND

This report identifies 12 recommendations that can assist the municipality of Outokumpu and the region of North Karelia in Finland to become key players in the national mining strategy and attain sustainable economic growth by: focusing on mobilising the potential of the local mining value chain, diversifying and developing new sources of economic growth, and improving governance co-ordination. It is part of a project that is building a platform for knowledge sharing and co-operation on increasing productivity and enhancing the well-being of cities and regions with a specialisation in the mining and extractive sector (metals, minerals, and energy resources).

Consult this publication on line at <https://doi.org/10.1787/cd72611b-en>.

This work is published on the OECD iLibrary, which gathers all OECD books, periodicals and statistical databases. Visit www.oecd-ilibrary.org for more information.

