

Petrodevelopment 2030

Socio-economic consequences of an extensive oil and gas development in the Barents Sea



A report prepared for StatoilHydro by a group of researchers from
Norwegian College of Fishery Science, University of Tromsø,
Norut - Northern Research Institute, Alta, and
Institute for Economic Studies, Kola Science Centre

Title: **Petrodevelopment 2030**
Socio-economic consequences of an extensive oil and gas development in the Barents Sea

Authors: Peter Arbo, Vladimir Didyk, Bjørn Hersoug, Inge Berg Nilssen, Vigdis Nygaard, Larissa Riabova, Jan Yngve Sand and Stein Østbye

Joint report: Norwegian College of Fishery Science, University of Tromsø
Norut – Northern Research Institute, Alta
Institute for Economic Studies, Kola Science Centre

Commissioned by: StatoilHydro

Project leader: Peter Arbo

Quality assurance: Bjørn Hersoug

Summary: The theme of this report is the regional socio-economic consequences of an extensive oil and gas development in the Barents Sea. The regional focus area includes Finnmark County and Murmansk Oblast. The introductory chapter explains the purpose of the study and the way the work has been done. The next two chapters provide a detailed account of the region and its basic characteristics. The general finding is that the region strongly needs a new stimulus to growth, but that it is badly prepared for receiving a coming oil and gas boom.

The following chapter gives a brief overview of the oil and gas sectors in Norway and Russia and introduces the baseline scenario, which indicates the expected scale and scope of future petroleum activity in the Barents Sea. After this three scenarios are presented. They all have 2030 as their time horizon. The first scenario depicts the frontier - the Arctic vanguard – which is a flourishing region by 2030. The second scenario tells the story of the Arctic outsider; a region becoming more and more marginalized. The third scenario foresees a shifting balance, where oil and gas development mainly takes place on the Russian side of the border, leaving the whole region in the shadow of the new energy superpower.

The final chapter sums up the key challenges of the region, discusses the scenarios, and highlights the basic preconditions for an extensive oil and gas development to benefit the region.

Key words: Oil and gas, Barents Sea, socio-economic consequences, scenarios

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Disclaimer

This report represents the views of the authors only and does not necessarily reflect the position of StatoilHydro ASA.

Preface

This report on socio-economic consequences of an extensive oil and gas development in the Barents Sea has been commissioned by StatoilHydro and undertaken by a group of researchers from the University of Tromsø, Norut Alta and Kola Science Centre. The report is based on several unpublished working papers.

StatoilHydro ASA has commissioned four parallel scenario reports for the Barents Region on respectively climate change, socio-economic consequences, environmental issues and reindeer husbandry.

The joint project was initiated as part of StatoilHydro's preparations for a strategic action plan for future oil and gas developments in the High North.

We would like to thank the stakeholders in Murmansk Oblast and Finnmark County who have shared their information and views with us. We would also like to acknowledge the contribution of StatoilHydro and the other participants of the joint project.

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1 Introduction

In this chapter we introduce the topic of the report and the main purpose of making scenarios for the High North. The chapter also indicates which data sources that have been used and gives a brief outline of the report.

1.1 Focus on the Barents Sea

There is an international race going on for oil and natural gas resources. Petroleum is the dominant global source of energy and the lubricant of the world economy. At the same time, available reserves are highly concentrated to a few regions of the world. Booming Asian economies now put strong pressures on energy supplies. According to the U.S. Geological Survey, a quarter of the world's remaining undiscovered petroleum reserves are to be found in the Arctic. Many actors are therefore looking to the riches of the north. One of the spots attracting increasing political and economic attention is the Barents Sea. The Barents Sea makes up a large area with a significant resource potential and is, in addition, an important gateway to further exploration and strategic positioning in the Arctic.

This implies that the region is of great interest from a long-term energy security point of view. Distinct from the Middle East and Central Asia, the Barents Region represents a peaceful and politically stable supply area. Distances to the central markets in the USA and Europe are comparatively short. With rising energy demand and high oil and gas prices, the Barents Sea thus stands out as an attractive region for future petroleum activity.

The Snøhvit gas field, which will start its production in 2007, marks the opening of what many in Norway envisage as Europe's new leading oil and gas region offshore. It is assumed that the LNG plant on Melkøya close to the town of Hammerfest is only a prelude to a more comprehensive oil and gas development. The industrial perspectives now taking shape, have led to great expectations about the growth impetus which will be triggered off in the High North in the years to come.

Nonetheless, the exploitation of the region's natural resources is facing a number of challenges. Offshore petroleum development under Arctic conditions is very demanding and costly. Pioneering technological solutions and new logistic systems are needed. This is reinforced by the strict environmental regulations to which the companies must adhere to protect a vulnerable nature and vital living marine resources. Global warming contributes to making the polar areas more accessible for petroleum extraction and shipping, but climate change also leads to questions being asked about the future of carbon-emitting fossil fuels.

Another complicating matter is the fact that the Barents Sea is divided between two countries, Norway and Russia, who are still not in agreement about important border and sovereignty issues. The disputes concern the boundary line in the Barents Sea and the

legal status of the continental shelf surrounding Svalbard, where the Norwegian position is contested by Russia and has found little support from other countries. Hence, there are many uncertainties regarding what will happen in the High North.

1.2 Regional socio-economic effects

The theme of this study is the possible socio-economic effects of an extensive oil and gas development in the Barents Sea. To what extent will such a development benefit the region? What will the impacts be in terms of trade and industry, settlement structure and living conditions in the adjacent areas on both the Russian and Norwegian sides of the border? How will cross-border cooperation develop? The geographical area dealt with in this report is first and foremost the Finnmark County and Murmansk Oblast, which make up an interesting border region with a peculiar history. As ground work for the study, a baseline scenario has been provided by StatoilHydro indicating the industrial options to be pursued in the Barents Sea towards 2030. Using this as reference, we have built alternative scenarios for the social and economic impacts of new petroleum activities.

The scenarios are no attempt to predict the future. Our basic hypothesis is that developments in the High North will be shaped by a number of actions and events emanating both from within and from outside the region. We have little or no information about much of this today. The main purpose of the scenarios is therefore to identify and highlight the range of regional opportunities and challenges associated with an extensive oil and gas development in the Barents Sea. The scenarios give an account of major trends and uncertainties and reflect upon how various factors might interact and lead to different outcomes. While they all take the baseline scenario as their point of departure, they arrive at dissimilar regional futures.

1.3 Sources

During our work we have made comprehensive use of a number of data sources. To obtain a general overview of the High North, the bordering countries, international energy markets, energy and climate policies, etc., we have searched for and reviewed relevant reports, books, scientific articles, news and various information retrieved from Internet. Available statistics have been used to analyse the basic pattern of change that has characterized the region during the last fifteen to twenty years. In addition, we have carried out consultations with key stakeholders both in the county of Finnmark and in Murmansk Oblast. These consultations have been based on a semi-structured interview guide, which has formed the basis for open discussions about current trends and future prospects of selected local communities and the region as a whole.

1.4 Outline of the report

The report begins by taking a historical retrospective look at the High North. To be able to say something about the future, it is necessary to know something about the past. We then take a closer look at the development which has made its mark on the region during the last decades. This is followed by a brief overview of the oil and gas sectors in Norway and Russia and a summary and discussion of the baseline scenario, which for the purpose of this study defines the trajectory of future oil and gas development in the High North. After some reflections on main drivers and key factors, we present three alternative scenarios for the northern region, including close-ups of selected local areas in Norway and Russia. Finally, we discuss the strategic implications of the scenarios.

2 The northern periphery – historical lines

This chapter gives a general review of the development of the northern region and its basic socio-economic characteristics. The main aim is to provide a backcloth to the more detailed description of recent trends and current status in the following chapter.

2.1 Terra incognita

The High North today has a lure which appears to have a long prehistory. Already in ancient Greek and Roman literature we find references to *Ultima Thule*, an area far north, beyond the borders of the known world. Thule is said to be found icebound beneath the Polaris star, with day and night taking continual turns for six months each. Another legend tells about the Hyperboreans, a mythical people who lived far north; beyond the north wind (Boreas). Hyperborea was described as being a perfect country, where people lived happily in the sunshine 24 hours a day and became very old.

Also in the Middle Ages there were many notions about Northern Scandinavia as being a fabulously rich place. In Olaus Magnus' History of the Northern People (*Historia de gentibus septentrionalibus*), which was printed in Rome 1555, he depicted an Arctic Eden. The High North has therefore for a long period of time had something rather exotic, secretive and fascinating about it. It has been a distant and unknown world, which at the same time has been conceived of as virgin, open and unlimited.

2.2 Colonization

The colonization of the High North increased from about 1200 A.D.¹ Before that time the complete coastline from Malangen in Northern Norway and eastward to the White Sea area, as well as inner areas of northern Fennoscandia and Kola Peninsula, were mainly populated by scattered groups of nomadic Saami people. Now an important trading centre developed at the White Sea in the east, ruled by Novgorod, while in the west the Norse settlements expanded northward along the coast. The area soon became part of the Hanseatic League's extensive trading network, with fur skins and stockfish as the most important trading goods. The increase in trade went hand-in-hand with the expansion of taxation and Christianization. The Saami people saw their territory and rights diminishing. Gradually the surrounding powers began to divide the vast area between themselves in spheres of influence and taxation. The fact that these were largely overlapping made fighting and double or even triple taxation common. The Norwegian kings showed their presence by building Vardøhus Fortress and new churches, and

¹ Hansen, L. I. & B. Olsen 2004: *Samenes historie fram til 1750*. Oslo: Cappelen Akademisk Forlag.

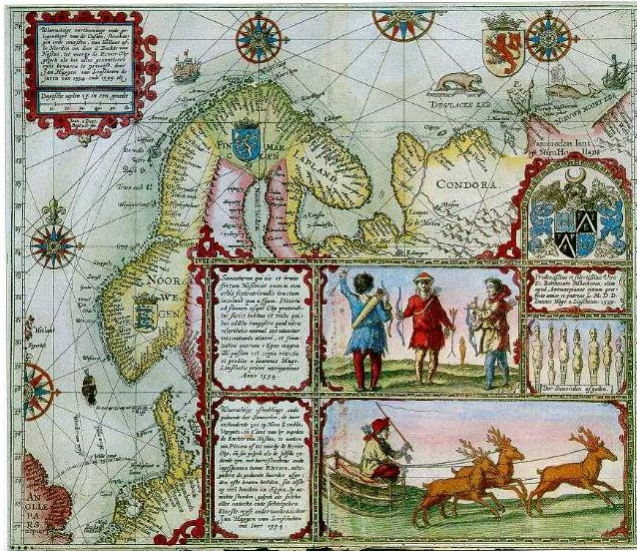
similarly, in the east, a number of monasteries were established round the White Sea and the Kola Peninsula.

In the sixteenth century competition intensified concerning the natural resources in the north. Furriery experienced a rapid boom, the European distant fishing expanded considerably and English and Dutch traders began annually to send ships all the way to the White Sea. The White Sea hunters and merchants explored uncharted land towards the north and east. After Willem Barentz in 1596 discovered the Bear Island and Spitsbergen while looking for a northern sea route to Asia, large-scale Arctic whaling began. During the following two hundred years great amounts of blubber and whale oil was delivered to the European market. At the height of this development almost 10,000 men participated.² That was the first real oil adventure in the north.

2.3 State expansion and consolidation

Concurrently, the territorial states strengthened their position. The Republic of Novgorod was, at the end of 1400 A.D., placed under the Grand Duchy of Moscow, which from that point became the new eastern centre of power. Russia, Sweden and Denmark-Norway were all involved in a struggle for hegemony over the North Calotte and control with the main sea routes. As Sweden had command of the Baltic Sea, the White Sea then became the only route open for Moscow to get to the sea. The town of Arkhangelsk was founded in 1584 and was the most important Russian port up until Peter I managed to drive the Swedish army back and founded St. Petersburg in 1704. Arkhangelsk had close trading links with all major European cities.

During the 1600s and 1700s the states moved forward in the north both administratively and militarily. Mapping and scientific investigations were carried out parallel with the



development of trade and missionary work. Conquering of the wilderness now became a sign of civilizations' progress and people's triumph over nature. New cultivation of land and promotion of forestry and mining were high on the agenda. This was in keeping with the time's Mercantilist ideas about utilizing all available natural resources to increase the nation's wealth. At the same time, it was also regarded as a link towards fulfilling the Bible's plan for creation that people should replenish the

earth. No matter the point of departure, exploitation of raw materials and human civilization was basically seen as two sides of the same coin.³

² Drivenes, E.-A. & H. D. Jølle (eds.) 2006: *Into the Ice. The History of Norway and the Polar Regions*. Oslo: Gyldendal akademisk.

³ Sörlin, S. 1988: *Framtidslandet. Debatten om Norrland och naturresurserna under det industriella genombrottet*. Stockholm: Carlsson Bokförlag.

2.4 Porous borders

Today's borders are the result of a long period of rivalry. After the Great Northern War (1700-21), the border lines in the north between Sweden and Denmark-Norway were laid down in 1751. Russia annexed Finland in 1809 as a buffer against Sweden, and in 1826 the border between Russia and Norway was determined. Although this ratified the territorial monopoly of the states, the borders in the north were open and permeable for a long time. The Saami people continued to cross the borders as part of their semi-nomadic way of life. In fact, the border treaties included provisions that acknowledged the Saami people's rights to reindeer herding and fishing in their traditional territories.⁴ It was also usual for Norwegian and Russian fishermen to operate on both sides of the border, depending upon the catching conditions. If they had no success fishing off the Finnmark coast, they could go to the Murman coast and vice versa. The whole length of coast from the Lofoten Islands to the Kola Peninsula in effect made up a continuous fishing ground for various seasonal fisheries.

During the 1700s fishermen from the White Sea area gradually began to exchange Russian grain and wood products for fish delivered by Norwegian and Saami fishermen. This developed into what became known as the Pomor trade, which was a bartering of goods. The Pomor trade grew considerably, not least after the Napoleonic Wars.⁵ In principle, merchants in Bergen and Copenhagen held a trading monopoly with Finnmark, but in practice the Pomor traders were accepted as they provided vital necessities for the local population and gave them the possibility to sell their fish in the summer season, when it was otherwise difficult to produce stockfish. Both Norwegian and Russian authorities therefore welcomed this trade. The official trading monopoly was abandoned in 1787 and this liberalization was followed by the setting up of market towns in Hammerfest (1789), Vardø (1789) and Tromsø (1794).

2.5 Arctic hunting and polar expeditions

As the Pomors reduced their stake in fishing operations, they continued to hunt and trap in Arctic regions. They also over-wintered at Spitsbergen. Here they ruled supreme for over a hundred years, after the Dutch, Germans and the British had given up their whaling and hunting activities. From the middle of the 1800s, however, these areas were gradually taken over by Norwegian sealers and hunters. They extended their catching ground to include the region round Svalbard and eastward to the Kara Sea and Novaya Zemlya. At this point of time Northern Norway experienced a growth of population and economic progress. The development of steamship routes, telegraph and roads contributed to a flourishing prosperity in trade and industrial activities, something which created a growing contrast between Northern Norway and Northern Russia.⁶ Up until the Crimean War (1853-55), Russian authorities paid relatively little attention to the northern areas and trade via Arkhangelsk had been put into the shade by the Baltic trading. During the Crimean war the British Royal Navy attacked the northern coast of the Kola Peninsula and destroyed the town of Kola.

⁴ NOU 1994: 21 Bruk av land og vann i Finnmark i historisk perspektiv. Oslo: Justis- og politidepartementet.

⁵ Niemi, E. (ed.) 1992: Pomor. Nord-Norge og Nord-Russland gjennom tusen år. Oslo: Gyldendal.

⁶ Nielsen, J. P. 2001: Russian-Norwegian relations in Arctic Europe: The history of the "Barents Euro-Arctic Region", *East European Quarterly* 35 (2): 163-182.



Following in the wake of the Arctic travellers, came a number of Polar expeditions and an increasing research activity. Nordenskiöld sailed through the Northeast Passage in 1878-1879, and a few years later Nansen drifted through the Polar Sea in 'Fram'. Sweden, Britain, Germany and the Netherlands escalated their scientific efforts in the Arctic and in Russian waters. Once again the northern areas became a place for conquering and heroic deeds. This also created a growing interest in Russia for participating in the race for the Arctic and to secure the possessions in the north. A series of Russian expeditions were initiated. After the railway was completed between Arkhangelsk and Moscow, Arkhangelsk experienced an upswing through an increase in the export of timber. In 1899 a new administrative centre was founded in Kola Fjord (today's Polyarny), while Murmansk was founded in 1916 when the railway to Kola was finished. The main reason was that Russia needed an ice-free harbour for the landing of allied supplies during the First World War. Besides the trade port a marine base was built.

2.6 Industrialization and war

The High North was integrated into a comprehensive economic network already by the colonization of the region. For centuries, it was the surplus produced by a traditional economy, based on hunting, fishing, trapping, felling timber and boat building, which was channelled into an exchange of goods. Between the immediate producers and the users of the region's products there was a small group of tax collectors, transporters and traders. The transformation of the production processes in the form of manufacturing and wage labour began comparatively late. The first industrialisation in Northern Norway started around 1830, concentrated on the mining industry, which was based on foreign capital and expertise. In Finnmark, the Kåfjord mines and later AS Sydvaranger became the largest places of work. With the arrival of the steamship routes and motorization of the fishing fleet, a modernization also took place in fishing and processing, accompanied by

additional supplier industries. Much of that industry disappeared, however, during the economic crisis in the mid-war years, when Northern Norway was especially hard hit.

While Norway was a neutral country during the First World War, Russia experienced a great upheaval. War and revolution, followed by civil war, left a lasting impression. The fighting between the Red Army and the anti-Bolshevik White Army, supported by Western military intervention, was violent in the north. The Kola and Arkhangelsk region was not brought under Soviet control before 1920. Pechenga (in Finnish Petsamo), the area east of the Norwegian border, was taken by Finland, which proclaimed itself an independent state in 1917. The corridor thus provided gave Finland admittance to the Arctic Ocean. This tract of land was officially returned to the Soviet Union in 1946. During the First World War the Pomor trade collapsed. The Svalbard Treaty, signed in 1920, placed the archipelago of Spitsbergen under Norway's sovereignty, while at the same time granting citizens and companies from all signatories equal rights to residence and to engage in commercial activities on the islands.

Industrialization in Northwest Russia first took off around 1930 within the framework of the Soviet command economy. The basic industries were the mining and metallurgic industry, the forest and wood-processing industry, the fishing industry and the shipbuilding industry. Murmansk was especially important because of its ice-free harbour and naval base. The development of new industrial towns along the northern coast of Siberia also led to an increase in cargo transport and necessitated a fleet of ice-breakers, which was stationed in Murmansk.



The Soviet Union's attack on Finland in 1939 and the German occupation in 1941 resulted in extensive destruction in the north. The Red Army fought against Nazi Germany, using Petsamo as a bridgehead to attack towards Murmansk. At the same time the Arctic Convoys carried vital provisions from Europe and the USA to Arkhangelsk and Murmansk. The Germans never managed to capture Murmansk and the vital Karelian railway. While the Finnish troops drove the Germans out of northern Finland, the Red Army advanced westward and liberated even Finnmark in the Petsamo-Kirkenes offensive. As the Germans retreated from Finnmark and northern Troms, they used the scorched earth tactic, burning almost everything in their path. Murmansk came second to Stalingrad as being the Soviet city

that had the most destruction during the war. Consequently, the rebuilding task after the war was formidable both on the eastern and western sides of the border. Infrastructure and industry had to be rebuilt from scratch.

This fate meant that Finnmark and Northwest Russia came to look very much alike in some respects. In both cases the resulting rebuilding and industrialization was led by the state and heavily influenced by political decisions. One party dominated the political system in each of the countries. The main approach was to take out raw materials from the region, something which gave a very one-sided production profile. The central role of the state also implied that the regional actors became very focused on the state. All blessings apparently came from the state, but so did all the curses. A well-known response pattern of state-dependent regions is to appeal for assistance by resorting to some kind of crisis maximization.

The greatest difference between the two regions was that one of them was part of a democratic political system and the other a totalitarian regime. Another major difference was the size of the settlements, which were much bigger in Northwest Russia than in Northern Norway and Finnmark. In addition, the Soviet Union was building extensive agro-industrial, forest-industrial, fishing-industrial and military-industrial complexes. Similar large-scale cooperatives and industrial complexes were not erected in Northern Norway. In 1920, the total population on the Kola Peninsula was about 19,000 and Finnmark's population was twice that large. By the end of the 1980s, the population of Murmansk Oblast had reached 1.2 million inhabitants, while the equivalent number for Finnmark was only 74,000, down from a top of 79,400 in 1975.

2.7 Assimilation of the Saami people

The Saami people saw themselves more and more encircled by majority populations encroaching on their former territories. After the national borders had been fixed, a process of national homogenization was set in train. This took initially the form of a political and administrative integration, which was coupled with a fairly benign policy towards Saami culture. The Saami people became ordinary citizens of nation states, but retained their traditional ways of life. A shift occurred, however, in the late nineteenth century, as cultural and ethnic integration was put on the agenda. This implied a more deliberate policy of assimilation, which was influenced by the rise of nationalism, fear of Finnish expansion in the north and social Darwinist ideas about progress and the inevitable extinction of primitive cultures.⁷ The Saami people should forget about their language, culture and history. In order to survive, minority peoples had to adapt to their changing environments, something which justified an active policy of Norwegianizing and Russification respectively.

The social issues brought forth by industrialization and the rise to power of communist and social democratic parties in the two countries also downplayed the role of ethnic identity. Society was conceived of in terms of social classes. In the Soviet Union, all groups of people were portrayed as brothers and sisters in the building of communism. Although the pressure for assimilation was strong in both countries, only the Soviet government implemented a forced collectivization which even included reindeer husbandry. More than 30 Saami villages were abandoned. The Saami population on the Kola Peninsula was repeatedly relocated to ever larger state or collective farms.⁸

⁷ Eriksen, K. E. & E. Niemi 1981: *Den finske fare. Sikkerhetsproblemer og minoritetspolitikk i nord 1860-1940*. Oslo: Universitetsforlaget.

⁸ Kurs, O. 1994: Indigenous Finnic Population of NW Russia, *GeoJournal* **34** (4): 447-456.

2.8 The Cold War and the development of the welfare state

The Cold War made the High North into one of the most militarized zones in the world. Together with Turkey, Norway was the only NATO member country to have a joint border with the Soviet Union. On the Kola Peninsula, the Soviet Northern Fleet was stationed with its naval and submarine bases, shipyards and other installations. Not least the nuclear submarines played a decisive role in Soviet Union's intercontinental ballistic missile system. During the Cold War, the border in the north was almost hermetically sealed. On both sides an intense monitoring, surveillance and control was carried out. What previously had been an area with considerable trade and contact across the border was now divided into two clearly separate parts, marked by tension and mutual suspicion. There were, however, some important exceptions. In connection with the United Nations Convention on Law of the Sea, both countries established a 200 nautical miles Exclusive Economic Zone and managed to organize a close co-operation in fisheries research and management, including a joint inspection and control regime for the Grey Zone, which was established due to overlapping claims.

One effect of the Cold War was that in both countries priority was given to maintaining settlements in the border areas and to make the inhabitants as friendly disposed as possible towards their own governments. In Finnmark this was done by means of active regional policy and building of the welfare state. Various instruments were employed directed towards industry, local municipalities and individual citizens. More than in any other part of Norway, the public sector came to play a key role regarding employment, income and provision of services. In a similar way, the Soviet authorities tried to provide people good living conditions in order to keep them in the north.⁹ The inhabitants received pay rises more quickly, they were given extra holidays, travel was paid for and they received higher pensions than people in the south. In the midst of a scarcity economy, the northerners were also better off in terms of supplies and services.

2.9 Farewell to old liturgies

The fall of the Berlin Wall, the dissolution of the Soviet Union and the end of the Cold War created a new situation in the north. The old friend/foe images of the world and their concomitant rituals were no longer valid. Borders were opened, and once again there was a growing contact and exchange between the peoples of the two countries. The establishing of the Barents Euro-Arctic Region in 1993 was an initiative to promote stability, cooperation and development in the region. Members of the Barents Euro-Arctic Council are Denmark, Finland, Iceland, Norway, Russia, Sweden and The European Commission, with nine other countries as observers. The parallel Barents Regional Council is made up of the governors of the 13 northernmost counties in Norway, Sweden, Finland and Northwest Russia and a representative of the indigenous people. Another high-level intergovernmental forum is the Arctic Council, which was established in 1996. The Arctic Council is engaged in all dimensions of sustainable development in the Arctic and involves Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States. In addition, representatives of

⁹ Round, J. 2005: Rescaling Russia's geography: the challenges of depopulating the Northern periphery, *Europe-Asia Studies* 57 (5): 705-727.

the indigenous people in the Arctic take part in the work in full consultation with governments.

The end of the Cold War has released a new dynamic in the region. New initiatives have been launched and cross-border collaboration has been strengthened. Indigenous rights have also become a hot topic, especially in Norway. On the other hand, old safety nets have partly been removed. In Norway, this can be seen through the reformulation of regional policy. To a greater extent it is now up to each individual region to take responsibility for its own development. The presumption is that they should utilize their own inner potential and create their future through mobilization and partnership. In Russia, there has been an even greater change, with the transition to a market economy and governmental withdrawal in many fields of life. At the same time the legal, political and cultural conditions are still affected by the communist legacy and complex struggles for power. Therefore a common denominator for the whole region is a search for a new identity and for new opportunities.

3 Characteristics of the region

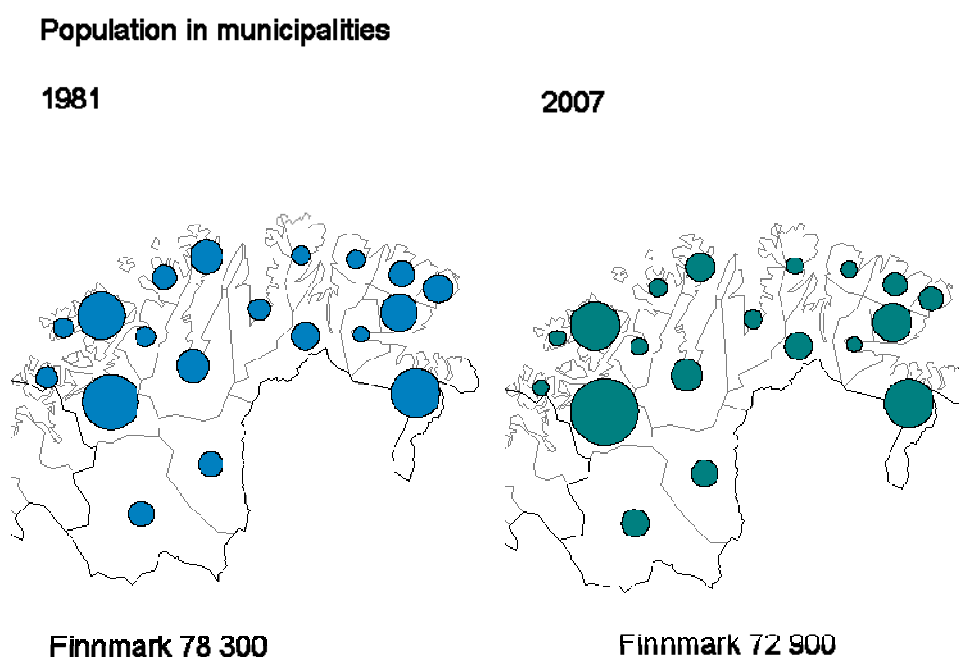
In this chapter we provide a more detailed description of the region and how it has developed during the last two decades in terms of population, settlement, industrial structure, employment, education, etc. The chapter starts with the county of Finnmark and proceeds with the Murmansk Oblast. The main aim of the chapter is to highlight the region's preconditions for taking part in and benefiting from an extensive oil and gas development in the Barents Sea.

3.1 Finnmark fylke

3.1.1 Population, settlement structure and migration

The present settlement in Finnmark is based on old trade routes built up along the coast and fjords where fishing and trading were the main sources of living. The settlement in the inland follows the main rivers (Tana, Alta) and is predominately populated by the Saami people. The importance of fishing for the employment has decreased along with a greater importance of administrative and service-related employment. This is reflected in changes in the settlement structure. 60 % of the population today lives in the four biggest municipalities Alta, Hammerfest, Sør-Varanger and Vadsø compared to 50 % in 1981.

Figure 3.1: Population in municipalities, Finnmark, 1981 and 2007



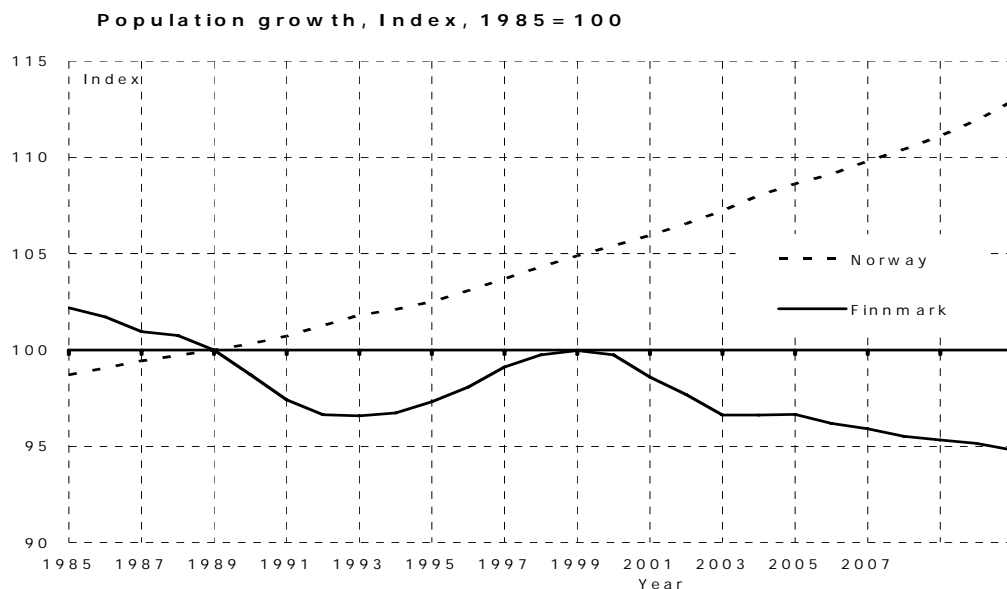
The settlement structure can also be analysed according to population density (table 3.1).

Table 3.1: Urban/rural settlement 2006, Finnmark and Norway

2006	Finnmark	Norway
Rural areas ¹⁰	27 %	22 %
Urban settlements 200-2500	35 %	13 %
Urban settlements 2501-20000	38 %	20 %
Urban settlements >20000	0 %	45 %
Total	100 %	100 %

The Norwegian population has grown steadily during the last 20 years (12 % growth), while the population of Finnmark has experienced a general negative trend. The decrease started already a decade before, and by 1985 the figures continued to go down till 1990. A small increase started and continued till mid 1990s, to be followed by a continuous decrease to reach 72,665 inhabitants by January 2007. This adds up to a 5 % population decline in the period 1985-2007.

Figure 3.2: Population growth index, Finnmark 1981-2007(1985=100)

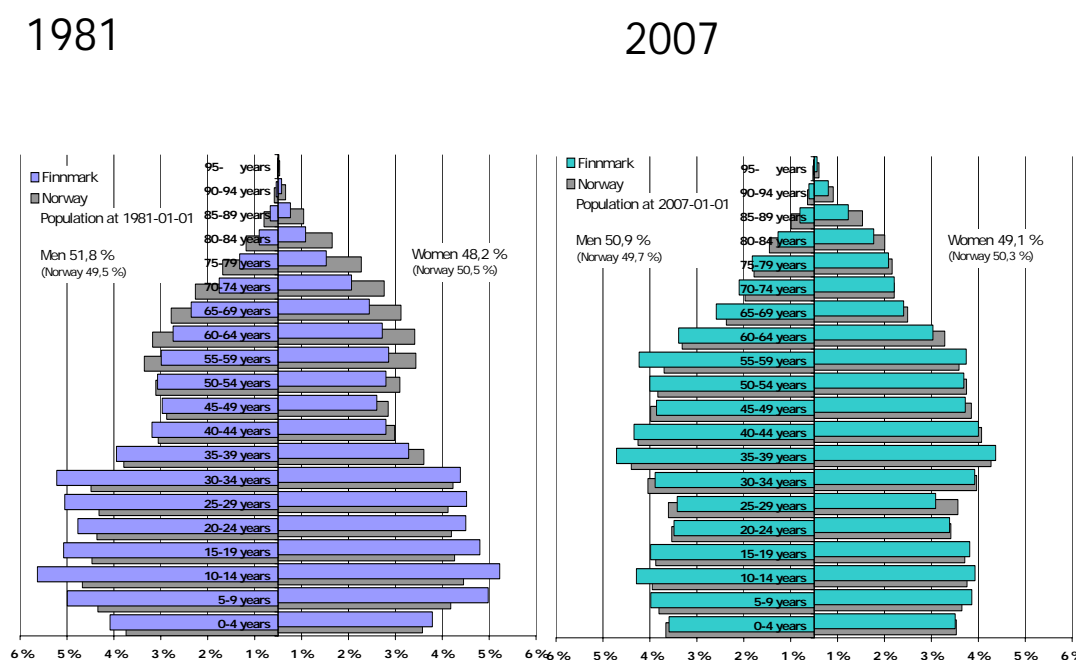


By decomposing population growth, we will take a closer look at the different trends that have affected the figures; natural growth, migration, and balance between sexes. Natural growth, the balance between births and deaths, has been positive and above the national average. The growth in most of the period has been between 5 and 7 ‰, approximately 4 ‰ above the national average. This is explained by a high number of women in fertile age and more children born per woman in Finnmark. This tendency started to drop in 1996, and is now on the national average, a growth slightly under 4 ‰.

¹⁰ The definition of “rural area” is less than 200 inhabitants and maximum 50 meters between the houses.

This will be more evident by looking at the population pyramids. In 1981 the young population up to 34 years in Finnmark was considerably higher than the national average. This is a consequence of the post-war baby-boom where the “babies” by 1981 were in fertile age and settled with their own families. The population pyramid of 2007 shows that this age group is no longer bigger than the national average, a consequence of out-migration that will be explained later on. Another characteristic of the 2007 pyramid is that the “middle-age group” has not been able to reproduce itself as the 0-29 year group is considerably smaller in 2006 compared to 1981. The size of the 5-19 year groups is still above the national average, while the 20-29 year group is slightly under.

Figure 3.3: Population by sex and age, Finnmark



Internal migration in Finnmark has earlier been described as centralisation. This centralisation takes place on several levels. One tendency is the strengthening of the municipal centre where people move from the smaller villages to the administrative hub of the same municipality. This migration is usually explained by the fact that previous work in the primary sector has been replaced with work in the service sector. Other explanations are schooling and study opportunities and better service, particularly for old aged people in need for care. There is also a considerable migration *across* municipal borders and this tendency is more marked as a migration from small municipalities to bigger. Work and studies are the driving forces, and this makes Alta the winning city with a variety of businesses and a regional university college.

The internal migration is nevertheless modest compared to the migration in and out of the region. Migration is a result of the development in the sending region as well as in the receiving region, and is explained by push and pulls factors. During the time span of the last 25 years net migration between Finnmark and other parts of Norway has been negative. More people left the region than coming. The period 1988-92 was an exception when the migration was almost in balance. The out-migration became a real problem in the mid 1980s, with the crisis in fishing industry causing increased unemployment on the

coast. The pull factor was the so-called Yuppi-period where considerable numbers left Finnmark, mainly for the Oslo area and rest of the southern Norway. This was a boom period with optimism in the national economy, increasing interest rates and high public and private spending. Young people gathered in the capital area to get a piece of the cake. The bust period started at the end of the 1980s leaving ordinary people with debts they could not maintain. This is clearly visible in the figure below. After 1988 the net migration almost stopped, fewer people left Finnmark and some probably returned back. Finnmark experienced a general employment increase up to 1996, to be followed by a decline. Mining in Kirkenes stopped in 1995, and a new crisis in the fishing industry started in the beginning of year 2000.

This is actually the paradox of the migration flow to and from Finnmark; a general optimism in the economy leads to out-migration while depression makes people stay or return to Finnmark. The in-migration consists of southerners often tempted by the economic privileges and work in public sector and returned (often young) people that has spent some time in the south, studying and working, arriving back when it is time to settle with a family.

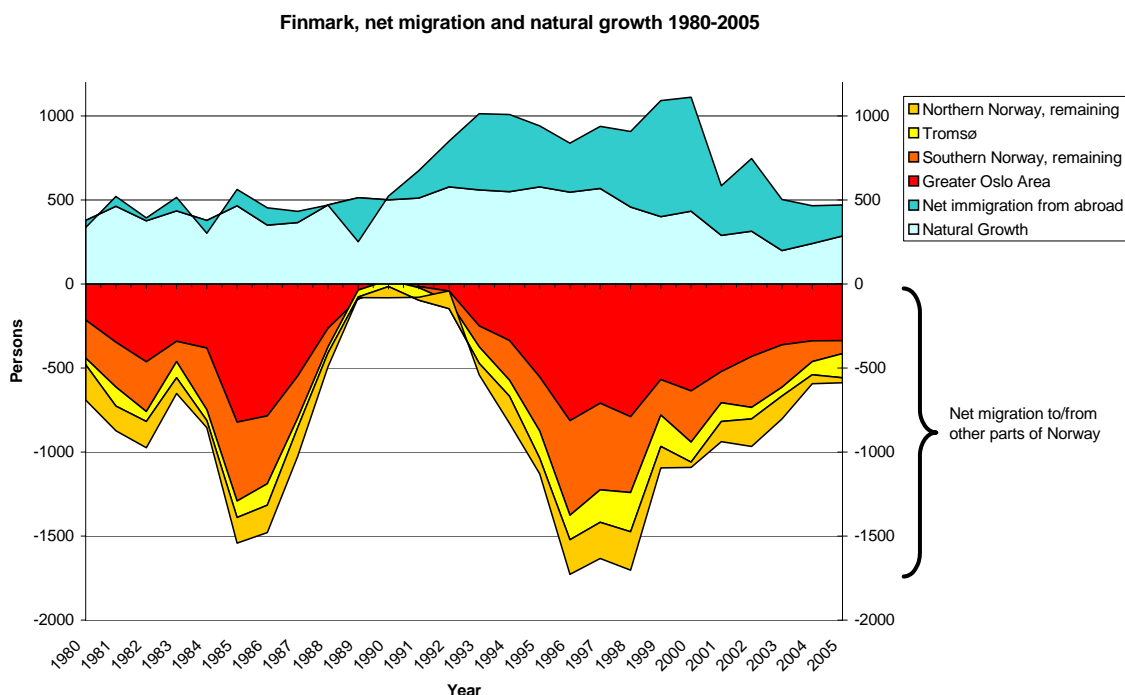
Migration from other countries is also important for the population growth. This migration was modest up to 1990 when most of the immigrants were short-term workers in the fishing industry from Finland, Sweden and Sri-Lanka and health workers from the Nordic countries, leaving Finnmark after a period. This changed in the beginning of the 1990s when reception centres for asylum seekers opened in a number of municipalities, and Finnmark got asylum seekers and refugees from several conflict-ridden countries.¹¹ Another new trend is international migration through marriage, where the biggest groups are women from Russia and Asia. This migration is more stable than the early work-related migration and refugee-migration and makes an impact on the total migration pattern in Finnmark. The new work migration from Eastern Europe, following the establishment of a free labour market within the EU, is still not much visible in Finnmark.

The gender balance in fertility age is one measurement of a sound development in the population structure. In 1981, Finnmark had 86 women per 100 men, but improved to almost 95 in 2007. This is explained by a high out-migration among women in the early period, but gradually men have followed the same pattern. Another explanation is that women today have better chances of finding work in Finnmark because of the expansion in the public service sector.

Summing up, the high out-migration rate has partly been compensated by a high fertility rate among a young population, and from 1990 onwards by immigration from abroad. This tendency is now decreasing in all parts of Finnmark, except for Alta. The population decreases, the number of fertile and able-bodied diminishes, creating a shortage on the labour market. Secondly, the population decreases in the smaller municipalities creating a challenge for the public sector, trying to maintain the service level with an ever decreasing population.

¹¹ Asylums seekers and refugees permanently settled in Finnmark have a high tendency to leave for southern Norway.

Figure 3.4: Net migration, Finnmark 1980-2005



3.1.2 Industrial structure and employment

In the late 1980s Norway had a cyclical downturn with a low point for employment in 1992. Finnmark followed the downturn, mainly because of decline in the fisheries and the fishing industry. With improving conditions for the fisheries from 1992 onwards, Finnmark experienced a revival. However, while the rest of the nation experienced a continuous employment growth from 1992 up to 2002, Finnmark had a steady employment decline in the same period. Except from a smaller downturn in 2003, Norway has had an improvement in economic conditions and employment growth also the last three years. The same has happened in Finnmark except that the region still has considerable unemployment in some coastal communities.

In 2006, the number of employed persons in Finnmark was 35,000. This is about 400 fewer than in 1990. Of the 35,000, 9 % or around 3,300 persons worked in the fisheries, agriculture, aquaculture and fish processing industry, which is strongly connected to the preceding links in the fisheries value chain. At the national level these industries, with a total of 90,000 employees, represent only 4 % of the workforce. In 1995 around 5,000 persons in Finnmark were employed in these industries (14 % of the employees) while the national figure stood at 6 %.

Figure 3.5: Employment growth 1986 – 2006, index, Finnmark and Norway

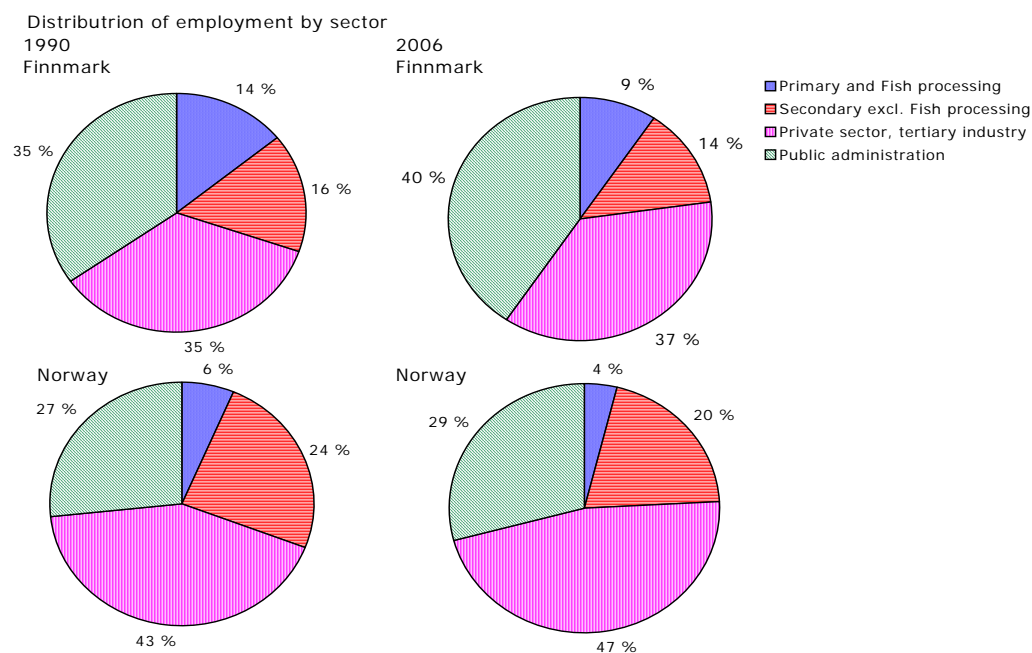


Except for the fish processing industry, the secondary industries, consisting of manufacturing industries, power and water supply and the construction industry, employed around 4,700 persons in Finnmark in 2006, representing 14 % of total employment as compared to 20 % on the national level. In Finnmark this sector has declined since 1995. Since 2004 this sector has increased, both in Norway and in Finnmark.

About 12,700 persons in Finnmark, or 37 %, were employed in the private tertiary sector (retail and wholesale trade, hotel and restaurant industry, business and personal service industries) in 2006. This is lower than in Norway as a whole, where 47 % of the employees are engaged in the private service sector. Nationally the employment in the tertiary sector has been growing steadily (from 880,000 persons in 1990 to over 1.1 million persons in 2006), while in Finnmark, this sector has only been growing since 2000, after a decline since 1994.

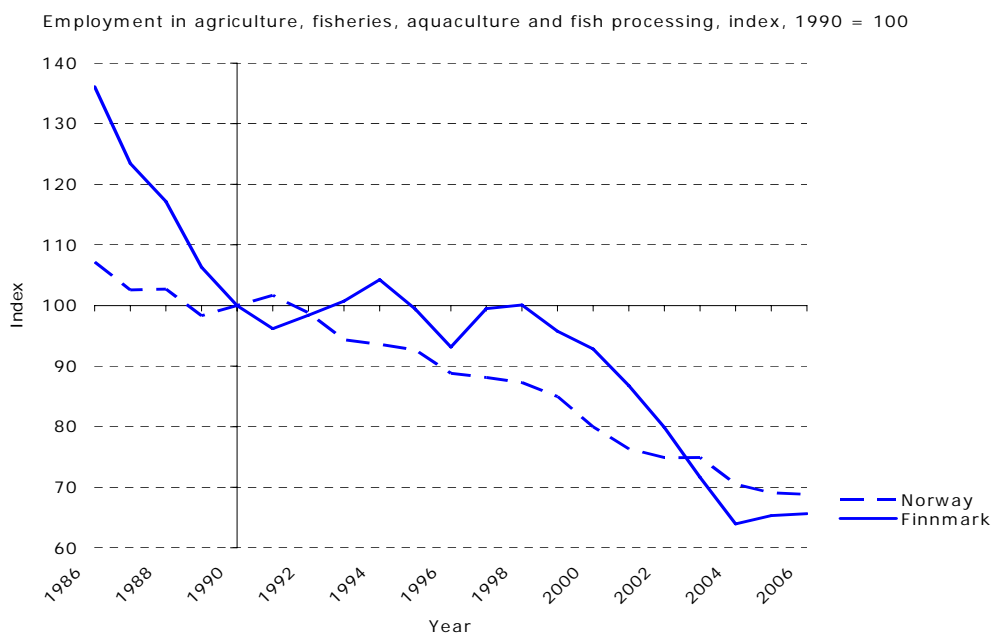
The public administration is large in Finnmark, with more than 14,000 employees in 2006 representing 41% of total employment in the region compared to the national figure of 29 %. This is partly due to a weakly developed private tertiary industry in many smaller communities, partly due to the high density of teacher and health personnel in the smaller communities caused by diseconomies of scale.

Figure 3.6: Distribution of employment by sector, Finnmark and Norway 1990 and 2006



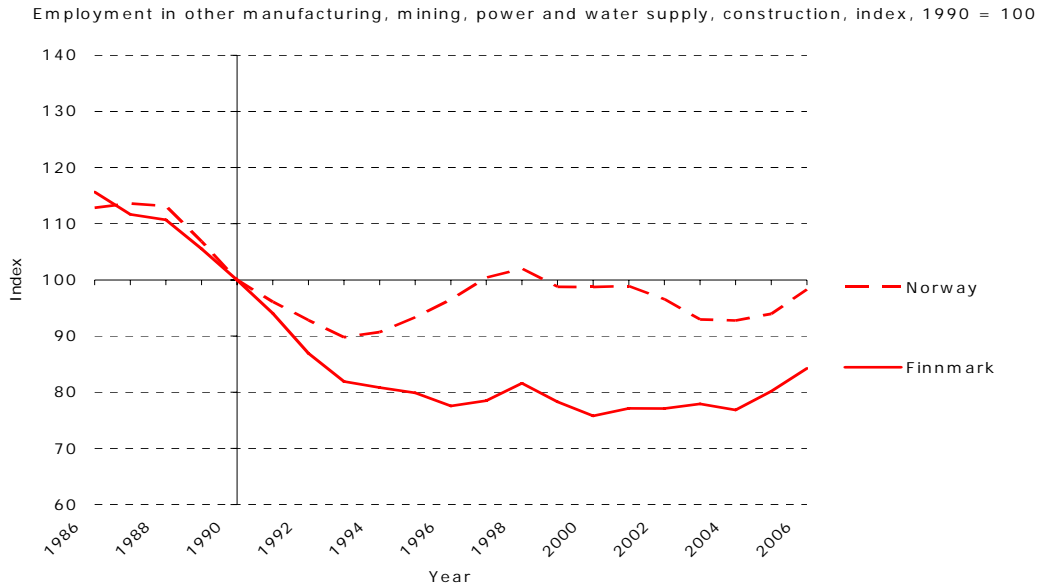
Looking at the separate sectors it is evident from figure 3.6 that employment in the primary industries, including fish processing has experienced a serious downturn over the last twenty years.

Figure 3.7: Employment in primary industries and fish processing



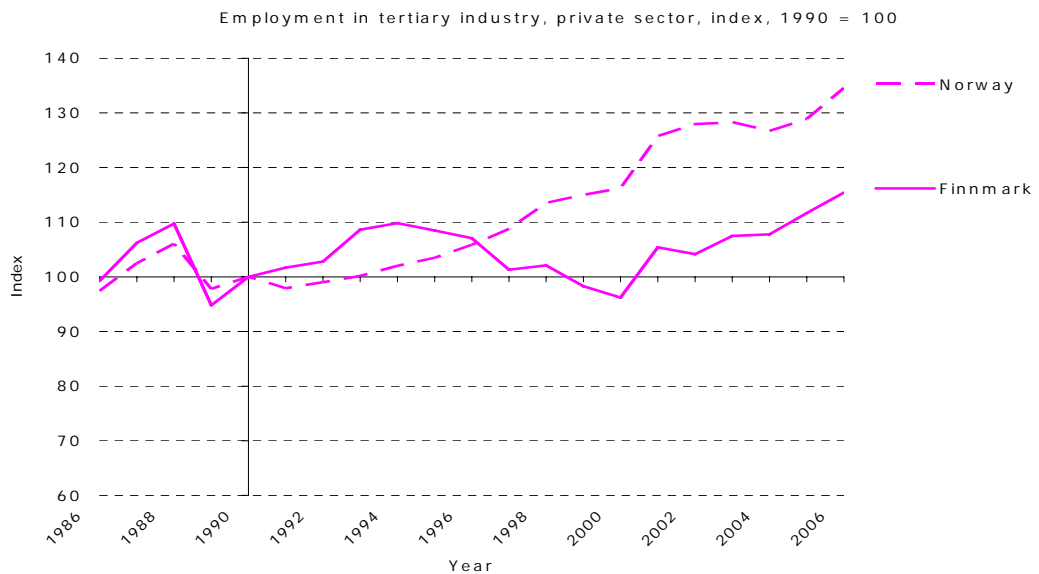
Secondary industries except fish processing comprises other manufacturing industries, mining, power and water supply and construction. As can be seen from the figure 3.8, Finnmark has had a strong decline since 1990, while employment in this sector has been relatively stable in the country.

Figure 3.8: Employment in other manufacturing industry, mining, power and water supply, and construction. Index, 1990=100



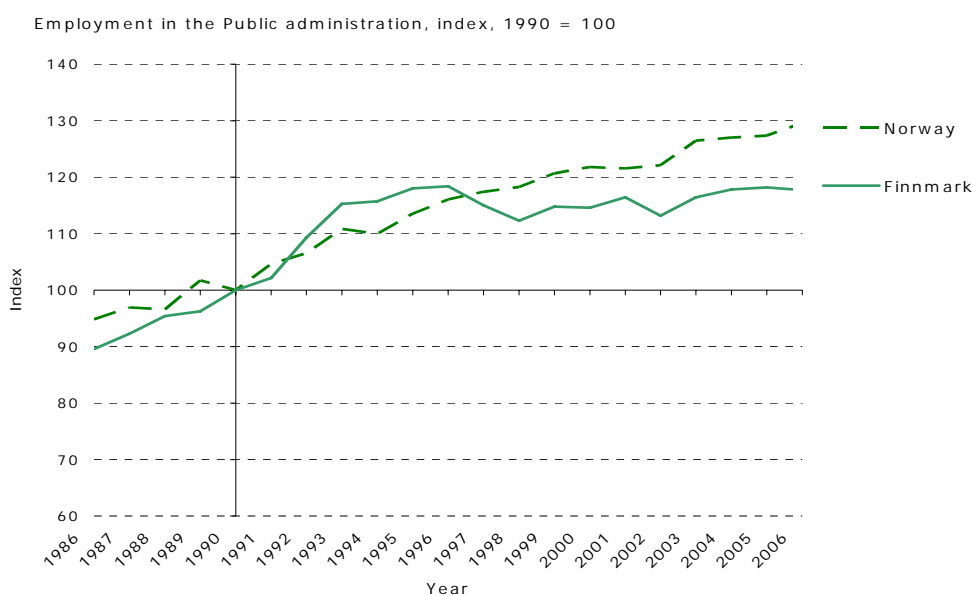
The private tertiary sector comprises commodity trade, hotel and restaurant industry, business and personal service industries. In Norway this sector has experienced strong growth since 1990, while in Finnmark the growth has been considerably more modest and uneven.

Figure 3.9: Employment in tertiary industry, private sector. Index, 1990=100



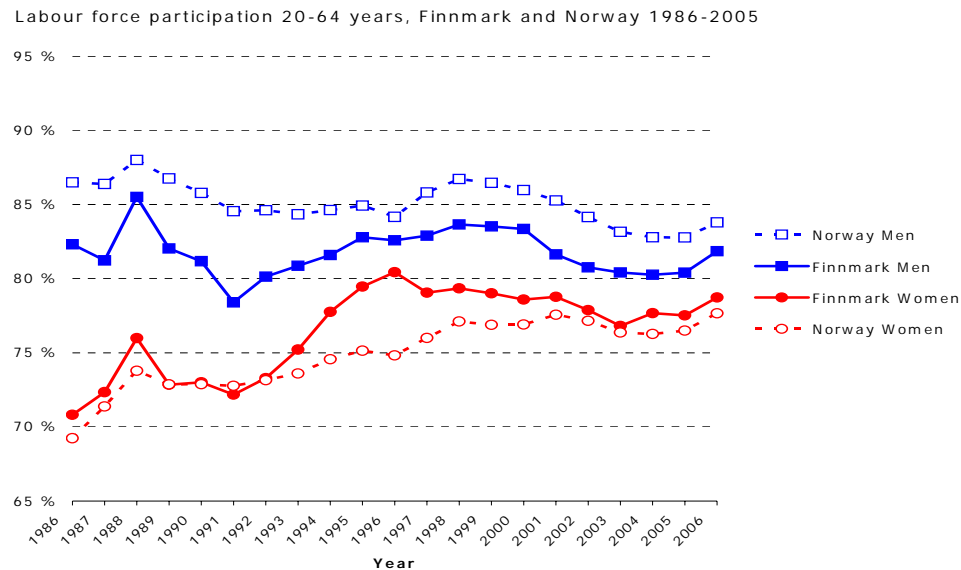
Employment in the public administrative sector has increased in Norway, relatively independent of economical cyclical movements, trying to keep up with the increased demands in the old age welfare services and the education sector. Finnmark followed the national trend until the mid 1990s, but since then the expansion has stagnated. Although the number of employees has not increased since 1995, the sector's share of total employment has increased because of decline in employment in other sectors. Further stagnation in this sector will imply increased problems of providing full employment in Finnmark, especially of women.

Figure 3.10: Employment in the public administration, Finnmark and Norway. Index, 1990=100



Labour force participation is measured as the percentage of the population in the economically active age groups participating in the labour force (employed and unemployed). For women the changes are produced as a result of increased participation for subsequent birth cohorts and short term cyclical movements conditioned by the state of the market. For men, the short term cyclical movements are the dominant, especially for the age groups most marginal to the labour market. An increased number of disabled pensioners also affect the labour force participation.

While women still lag behind men in terms of participation, women in Finnmark are more active on the labour market than the national average, while for men the situation is opposite.

Figure 3.11: Labour force participation 20-64 years, Finnmark and Norway (per cent)

Contrary to the previous period, the share of elderly persons in the labour force in Norway has increased since 1994, a development that will continue the following years. Finnmark has traditionally had a younger working force than the national average, but the ageing effect is now stronger because of emigration of large parts of the younger labour force. The age structure of the labour force in Finnmark is therefore approaching the national structure. Future emigration at the same levels as in the past will boost the ageing of the labour force in the county.

3.1.3 Educational level and knowledge infrastructure

This section will focus on the education level and infrastructure beyond the compulsory 10 years¹² of schooling. Statistics Norway (SSB) has recently changed the definitions of educational categories to be more in line with international standards. This has led to a stricter definition on upper secondary education¹³, but has marginal effects on the higher education. Figures used in this chapter are according to the new definitions, if not otherwise mentioned, and historical data has been updated in line with the new categories.

Finnmark have eight upper secondary schools run by the regional level. The schools are located to Kirkenes, Vadsø, Vardø, Tana, Lakselv, Hammerfest, Honningsvåg and Alta. Upper secondary schools offer a three year study programme and students are usually in the age group 16-19 years. The schools offer vocational and general courses. The school in Honningsvåg has branches in other settlements, making it possible for students to study the first year without moving to the educational centre with a boarding school. Branches are found in Gamvik, Hasvik, Lebesby, Måsøy, Loppa and Berlevåg and are a part of the LOSA program (local training in cooperation with businesses). The Saami upper secondary school is located to Karasjok and Kautokeino and is run by the state. In

¹² 9 years compulsory schooling was extended to 10 years in 1997 by starting one year earlier by the age of 6.

¹³ This 3 year education must now be fully completed while it previous was sufficient to finish parts of it to be defined in this category.

addition to general programmes, the school offers courses directed towards Saami language, culture and businesses.

Several efforts have been made to develop new educational programs directed towards the new oil and gas boom in Finnmark in general and in Hammerfest in particular. Some has failed, but one successfully started in 2006 with the launch of Arctic Learning Centre for Energy in Hammerfest. New courses are developed as part of the vocational education at Hammerfest upper secondary school to be in line with the needs of the local labour market.

The challenge for the regional administration running most of the upper secondary schools is to give a variety of educational programs near the home of the students. Because of the low density of students in Finnmark, it is often difficult to fill up classes, and programs are often run with a limited number of students. This is first of all expensive¹⁴, and sometimes difficult to plan as a small drop in student numbers can lead to a closure of a particular program. A third challenge is to offer programs the local/regional labour market demands and that students actually will apply for these programs. What is popular among students is not always what the market needs and the schools can offer.

The main centre of higher education is in Alta at Finnmark University College. The college is a merger of the previous teachers college, the regional college and the nursing college. The university college has several branches; the most important is Hammerfest with the nursing school, but decentralised courses are also arranged in Vadsø, Kirkenes and Tromsø.

Finnmark University College has approximately 2,000 students, and offers bachelor degrees in pedagogic education (teacher, nursery nurse, and child welfare), media, economic and administrative subjects, tourism administration, sports and outdoor life, social work, nursing, art, information technology, nature resource management. A master degree is also offered in tourist management. In addition, the university college arranges shorter courses for private businesses and public administration.

The university college is active in arranging decentralised and part-time studies outside Alta to attract students not willing to move or working students. One example is the new Border Business Studies starting up in Kirkenes in 2007. The college is also oriented towards internationalisation, making it possible to take parts of a degree in a foreign country. International students are welcomed, and the two main groups dominating are Russian and Chinese nationals. Narvik University College has a branch located to Finnmark University College offering the first year of engineering studies. Students have traditionally continued with advanced courses in Narvik, but this will soon be offered in Finnmark.

The Saami University College in Kautokeino is the second higher educational institution in Finnmark. The college offers teacher and child care education, Saami language and culture, journalist studies, Saami handicraft and reindeer herding. All lines of education have a Saami or indigenous perspective. The college has approximately 120 students. The Saami University College is also attracting international students with an indigenous background.

Higher educational institutions in Finnmark have traditionally lacked technological lines of education directed towards the new needs related to petroleum development. This challenge has now resulted in the Arctic Learning Centre for Energy (ALE) in

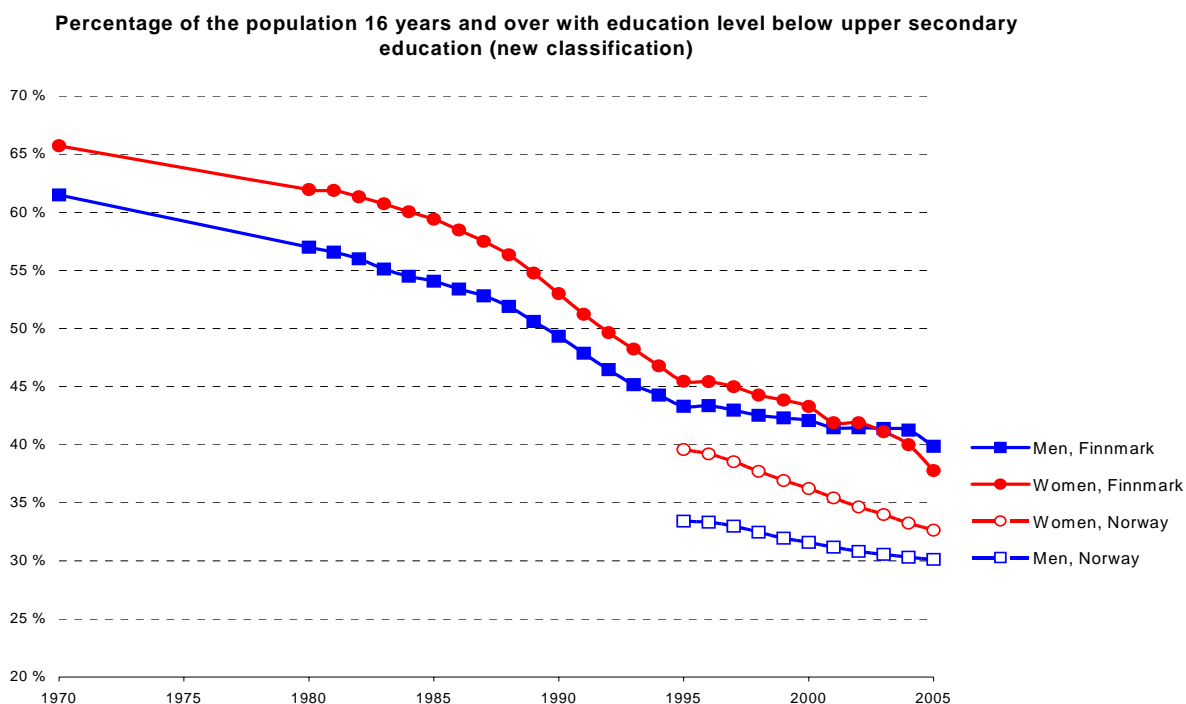
¹⁴ Finnmark region has the highest costs per students in upper secondary schools in Norway.

Hammerfest, starting a bachelor program in technology in 2008. A master programme in gas technology is planned from 2009. Several higher educational institutions¹⁵ and companies¹⁶ are together with Finnmark County and Hammerfest municipality engaged in the ALE.

Students from Finnmark do not necessarily choose to study with the higher educational institutions in the county. Only 39 % of the students in 2003 chose Finnmark University College or the Saami University College. The most popular institutions outside Finnmark are the University of Tromsø (15%), Tromsø University College (7 %), and Narvik University College.¹⁷ This gives an indication of a big outflow of students that cannot find their preferred line of studies in Finnmark or leave the region for other reasons. It should, however, be noted that men to a much larger degree than women prefer to study outside the region (72 % versus 56 %). This is probably a result of the course structure, with a concentration on public service studies in Finnmark while technical studies have to be found outside the region.

The educational boom during the last twenty years is a national trend that Finnmark has followed. The number of inhabitants with only compulsory education has decreased from about 57 % in 1985 to 40 % in 2005. This is still a higher number than the national average, showing that Finnmark still lags behind in terms of education.

Figure 3.12: Percentage of the population 16 years and over with education level below upper secondary education¹⁸



¹⁵ NTNU, University of Tromsø, University of Stavanger, Finnmark University College, Narvik University College, Tromsø University College.

¹⁶ Statoil, ProBarents

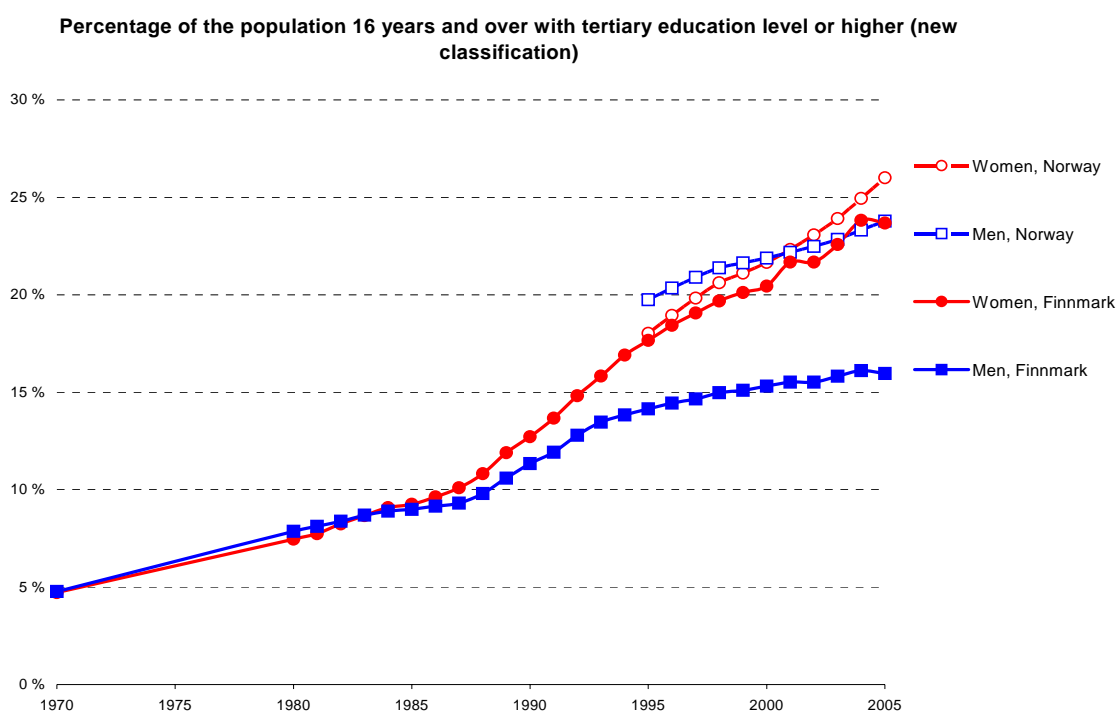
¹⁷ Some of the students at Narvik University College study the first year in Alta.

¹⁸ National figures after the new classification in not published prior to 1995.

The actual increase in the educational level is visible for the share of people with upper secondary and higher education. The figure below places these two categories together. The most striking aspect is that the educational level of females in Finnmark has increased significantly, following the national curve closely, while the educational level for men shows a moderate increase, almost stagnating at the end of the period.¹⁹

A static view of the present educational level of Finnmark shows a population with general lower education level compared to the national average. 41 % of the male population and 35 % of the female had upper secondary education as the highest education in 2005. This is 6-7 percentage points under the national average. The population with higher education in Finnmark is about 5 % lower than the national average, but here is the gap between male and female considerable. 24 % of the females and 16 % of the males have higher education. The general lower educational level in Finnmark can be explained by older generations not able to take upper secondary or higher education due to lost educational possibilities during the war and limited educational possibilities in the remote parts of the region. While the educational possibilities today are much better in Finnmark, and it is easier (in practical and economic terms) to study outside the region, the limited number with higher education and the educational mismatch (lack of higher technical education) will prove a challenge for the development of the oil and gas sector in Finnmark. Without new and improved initiatives many of the new employment possibilities will have to be covered by employees from other parts of the country.

Figure 3.13: Percentage of the population 16 years and over with tertiary level or higher



¹⁹ The decrease in educational level from 2004 to 2005 for both sexes in Finnmark is a result of the new classification and not a real reduction.

3.1.4 Physical infrastructure

The trunk road system is the backbone in the Norwegian primary transport system. It interconnects the regions and supports transportation to and from foreign countries. At the same time the trunk roads play important roles at the intraregional and local levels. Finnmark County is characterised by long distances between the various settlements. The distance along the European Highway E6 between the western county border and Kirkenes in the east is 600 km, a travel that takes 9-10 hours by car or bus. In addition to E6, the trunk road system in Finnmark includes three highways from the border to Finland, two short connections from the Finnish road system in the east and middle parts of Finnmark, and one connection in the west from Finland to the E6 in Alta. Highways from the Russian border, from Vardø, from the North Cape and from Hammerfest are also connections to the trunk road system.

Some parts of the trunk road system are hit by passage obstructions during wintertime; particularly the E6 mountain passes Sennalandet and Hatter. The E6 highway west of Alta is in a bad condition, and upgrading of this part has commenced. There is also a need to upgrade other sections of E6 having narrow roadway, low carrying capacity, and low-standard bridges.

Figure 3.14: The European highway and other highways in Finnmark



Sea transport plays a more important role in this region than in the rest of the country. The ports need to develop an efficient and solid sea transportation supply to keep up

competitiveness and reduce the remoteness disadvantages. Hammerfest and Honningsvåg are the main refuelling ports in Finnmark, and they are also the main cruise ship ports in the county. The port of Kirkenes has been pointed out as the freight gateway to Russia. The main offshore petroleum activities out off Finnmark have the Polarbase petroleum base outside Hammerfest as point of departure, a base that has been upgraded and developed during the development of the Snøhvit field and the construction of the LNG plant at Melkøya.

Main airports in Norway are airports constructed with minimum 1,600 m runways. Three of the airports in Finnmark; Alta, Banak and Kirkenes are connection hubs, where the bulk of the long-distance regular air services is done by medium size jet aircrafts of the Boeing 737 and MD80-classes. Along the coastline, eight of 27 Norwegian regional airports are mainly served by the DHC-8-100-type of aircraft. Some of the regional airports have low regularity due to difficult weather conditions. The regional air connections are generally subsidised by the CPS (commitment to public service) air routes, feeding into the main airports. The present operation pattern implies feeding from the regional airports in Finnmark to Tromsø airport with further connections southwards. This is an impeding factor for the internal air transport in Finnmark between the main cities of Hammerfest, Alta and Kirkenes.

Personell exchanges and long-distance commuting to Hammerfest during the Snøhvit project construction phase was accomplished by charter and scheduled flights between the regions of Stavanger/Stord/Oslo and Alta and forward transportation to and from Hammerfest partly by bus and partly by catamaran vessels. The passenger transport in the western parts of Finnmark has been substantially improved in the wake of this project. In addition to new bus and boat connections between Hammerfest and Alta, the air travel frequency between Hammerfest and Tromsø has increased. The carrying traffic, which also has increased considerably in the construction period, has generally been accommodated to the previously established transport structure, due to the localisation of the LNG plant close to a city with well-functioning infrastructure. A more remote localisation of onshore facilities in a future petroleum development will imply more difficult logistic challenges.

3.1.5 Political-administrative organization

Finnmark County is one of 19 regional administrative units, and has since 1976 been governed by a popular, directly elected council²⁰. The council of 43 representatives reflects the national party flora, but has from time to time representatives from local electoral lists. Participation in regional elections has gradually decreased (in Finnmark and nationally) and is now just over 50 %. The low participation is a challenge for democratic co-determination and legitimacy of the regional bureaucracy. The main task of the regional administration is community development in cooperation with municipalities, state bodies and businesses. The role of the regional administration has changed during the last two decades. First, the number of tasks has decreased as important tasks like business development²¹ and health care were transferred to the state level. As a consequence the regional administration acting as employer for these services lost a large number of employees. There are few new tasks, except increased international cooperation, mainly with Northern Russia, Finland and Sweden.

²⁰ Prior to this, the Council constituted municipal mayors and members of the national parliament.

²¹ SND split off in 1996 and later became Innovation Norway – IN. The two hospitals in Hammerfest and Kirkenes were transferred to Health North in 2002.

A considerable part of the regional budget is transfers from the national level, traditionally earmarked for specific tasks. The so-called “responsibility-reform” from 2003 resulted in a part of the transfers as a lump sum which gave the county administration more power to prioritise the financial means according to local needs and priorities.

The County Administration’s main responsibility is presently education, culture, transport, industry and commerce, and health. The central administration is located to Vadsø, with approximately 140 employees. Upper secondary education is the biggest task with responsibility for running nine schools. This constitutes the majority of the regional budget and employment, making an impact in the cities/villages where the schools are located.

The regional level has been under pressure in the national debate, and many would like to see the County administration and its elected Council abolished. A regional reform is underway and a green paper is out on hearing. The present government will transfer some tasks from the state to the regional level, but some would say this is not enough to strengthen and maintain the county administration. The reform also includes a possible territorial change where Finnmark could be merged with Troms or possibly with Nordland to a large North Norwegian region. This could have important effects also on oil and gas development.

All state bodies on a regional level are subordinated to a national ministry, and the Governor (fylkesmannen) located to Vadsø, has a coordinating function for most of these bodies.²² The Governor is appointed by the government, and is responsible for implementing state policy in the region, and act as a link between the state and municipalities in the region. Other state bodies outside the Governor’s jurisdiction are labour market services, the road administration, social security offices and police. State bodies in the region are important for the employment in the biggest municipalities, but also in some smaller.

The different state bodies on regional level have a highly sector-oriented approach. The recent reforms on the regional level aim at a more comprehensive scope and closer partnership with the regional administration. One possible development is the transfer of tasks from the state to the regional administration, to make them more in line with regional needs. Environmental protection is one of the proposed tasks for such a transfer, but the final outcome of the reform is still unclear.

The 19 municipalities in Finnmark are responsible for the core tasks in connection to child care, schools, health care, old age welfare service, water supply and municipal roads. The municipal council is elected every fourth year and reflects mainly the national party flora, in addition to local electoral lists. Participation in local elections is now down to 55 % in Finnmark, 4 percentage points under the national level.

The Saami population in Norway, Sweden, Finland and Russia has gradually gained more codetermination and power, but the Norwegian Saami were in the forefront with the first representative democratic institution. The conflict over development of a hydropower plant in the Alta River and the damming of Saami villages raised the issue of Saami rights in Norway. The Norwegian parliament passed a special Saami Act that laid the foundation of the first Saami Parliament in 1989, located to Karasjok in the interior of Finnmark.

²² Among his responsibilities are education, environment protection, municipal economy, agriculture, security and emergency preparedness.

The parliament represents the whole Saami population in Norway, and is elected according to 13 election constituencies, of which 6 are located to Finnmark. Elections take place every four years at the same time as the elections to the national parliament. A register of voters is based on self-defined ethnic belonging to the Saami people. Election to the parliament is mainly based on electoral lists of Saami cultural organisations. The Norwegian Saami National Assembly (NSR) has dominated the parliament and the presidency since the beginning. Except from the Labour party, national political parties are not represented in the Saami parliament. In the 2005 elections to the Saami parliament 72.6 % of the registered voters participated.²³ Nevertheless, the challenge is to get more Saami people to register as the majority of ethnic Saami remains outside the voting register.

The Saami parliament promotes political initiatives to strengthen Saami culture, language and social life, and has administrative functions delegated from the state. The Saami parliament funds Saami organisations, finance Saami handicraft, cultural and language initiatives and administrate a fund for Saami business development. The Saami parliament and main administration is located to Karasjok, and is an important employer in the area.

The Saami parliament has gradually gained more power nationally and is active in several international organisations for indigenous peoples. As an indigenous population the Saami people has the right to be consulted on important national matters. This right was formalized in 2005, and the whole state administration must take Saami interest into account when they may be affected. There are examples of Saami discontent on this matter, as when the Saami parliament claims not to have been consulted in the case of restructuring the fishing fleet which is bound to affect the coastal Saami directly.

The municipalities of Karasjok, Kautokeino and Porsanger defined themselves as an indigenous population region – Ávjovárri in 2006. The municipalities cooperate to solve more efficiently municipal tasks, where the Saami language and culture are common and the competence can be used across the municipal borders.

3.1.6 Basic living conditions

While Murmansk Oblast used to be among the wealthiest regions in the Soviet Union but has experienced a relative deprivation during the last 15 years (see 3.2), the county of Finnmark has always been below the national average in terms of value creation, but thanks to public transfers and provision of services the income disparities have narrowed. However, on most indicators used for measuring living conditions, Finnmark consistently scores below the national average. While education, health services and disability grants follow Norwegian standards, the extent of education is lower, the health situation worse and the extent of disability grants are still higher than in most other parts of the country. The same applies to unemployment and average income.

Also *within Finnmark* there are large differences, with the coastal communities in East Finnmark having the lowest score. Due to the rapid development in the three centres (Alta, Hammerfest and Kirkenes) living conditions have improved consistently over the last few years, bringing these communities (municipalities) above the national average on several indicators. It is also worthwhile to consider the development of the typical Saami communities, where especially the massive investments in Karasjok (with the Saami

²³ This is relative high compared to participation in local and regional elections in Finnmark, and 2 % above the participation in the election to the national parliament in Finnmark.

parliament and administration) have brought this municipality above the Finnmark average.

As demonstrated in the case of Snøhvit, the size and complexity of the development of this project does not lend itself easily to employment of the local labour force. Even though the local employment effects of Snøhvit have been larger than anticipated, the sheer size of the project and the mismatch between the type of competence needed and the qualifications of the local labour force have not produced the full employment that many had expected. With further development of the oil and gas sector, much depend on how the companies structure their projects and how local authorities are able to meet the requirements of the new industry.

The development of Hammerfest may be a telling case, with dramatic improvements in many sectors, but also with people falling outside the development effects, having to live with higher housing prices, higher prices for certain commodities and services. On the other hand, the social infrastructure, benefiting all inhabitants, has been improved in most sectors.

3.1.7 The Saami situation²⁴

Finnmark region is the core area for the Saami population in Norway. Regarding the more precise number of the Saami population there are several uncertainties as there is no official register²⁵. Two estimates are frequently used, one based of self identity and one of territorial residency. The Saami voting register is based on people identifying themselves as belonging to the Saami ethnic group. One must be in this register in order to vote for the Saami Parliament. One guiding requirement is that at least one of your grandparents use(d) the Saami language on a daily basis, but after all, it is a question about own identity and feeling of belonging to the Saami culture. Before the last Saami Parliament election in 2005 7,107 persons had registered in Finnmark.

The other way of counting the Saami population is to use the geographical extent of the Saami Development Found (SUF) defining the areas with a predominantly Saami population that are eligible for business support from the Saami Parliament. The requirement is to live in the Saami area and not necessarily to have a Saami ethnic identity. As ethnic Norwegians also will be included, the numbers based on SUF-area are probably exaggerated. The numbers based on the Saami election register are on the other hand underrated, as they do not include children and youngsters under voting age and other Saami not interested in voting.

Table 3.2: Saami population in Norway (2005)

	Number in Finnmark	Number in Norway
Saami voting register	7,107	12,538
SUF area North of Saltfjellet	20,646	38,518

The SUF-area is mostly rural, and these areas are as other rural areas experiencing a decline in population. The number of Saami according to the SUF-area is therefore decreasing. The Saami voting register is on the other hand, gradually increasing.

²⁴ All figures in this chapter are from *Samisk statistikk 2006*, SSB

²⁵ This is contrary to the Russian Saami that have their ethnicity written in the passport, usually from birth.

Consequently, the number of Saami population is not so much about population dynamics (births and deaths), but about an increased awareness of cultural identity and being proud of their ethnic origin.

The Saami population is traditionally divided in two groups; mountain Saami residing in the Inland and traditionally employed with reindeer husbandry, and the coastal Saami usually living from a combination of small-scale fishing and agriculture. These two groups had different opportunities for keeping their language and traditions alive during hundreds of years of Norwegian assimilation. The mountain Saami, particularly in the municipalities of Karasjok and Kautokeino, kept their language alive, and lived in societies where the Saami culture dominated. The coastal Saami lived as minorities in a Norwegian dominated society and most lost their Saami identity. The Second World War generation often lacked sufficient education and a better Saami education only developed from the 1980s.

The Saami Language Law reform played an important role as more municipalities gradually decided to belong to the Saami Language Area. This makes it obligatory for the municipalities to follow the Saami curriculum at school, and all communication with municipal officials shall be answered in the language preferred by the citizen. This has increased the number of children taught in Saami, learning Saami as a second language or learning about Saami culture. The development of Saami textbooks and literature has given the younger generation a much better foundation for acquiring an education based on Saami culture and belonging. The foundation of several Saami state institutions requires employees with higher education, and the educational level among young people in Karasjok is today the highest in Finnmark. The vitality of the Saami culture has first and foremost benefited the Inland and Saami dominated areas. The coastal Saami have not to the same extent benefited, and they still have a long way to go to reach the same level of Saami identity and self confidence.

Reindeer herding employed 2,152 persons in Finnmark in 2005. This involved 894 households and 764 man-labour years. The activity is still important as culture bearer, but the role as the main source of income is reduced. Reindeer herding is, particularly in Finnmark, under strong pressure. The pasture land is reduced by development of housing, cottages, roads and other infrastructure. Too many reindeers on a territory where practically all pastures are utilized, has led to an active state policy to reduce the number of reindeers in Finnmark. This policy had some effect up to 2000/01 when reindeer herders were paid to leave the business, but the number increased shortly afterwards, reaching more than 170,000 animals in 2003/4.

The increased motorization of the reindeer herding has made the activity more costly and it is hard to survive for small units. Climate changes affect the productivity as well as loss of animals to predators. The meat is in strong demand, but the market possibilities are not fully utilized, and the business is heavily dependent on state subsidies. The traditional combination of reindeer herding with river and lake fishing, berry picking and handicraft is also losing importance as a source of income. More and more people take up ordinary work, often in the public sector. Particularly women in reindeer herders' families often have full time work in the health or educational sector.

While the inland Saami communities have been able to survive and even increase their population, the coastal Saami communities, especially in the fjords, have experienced a continuous decline. For years they were threatened by the development of large-scale fishing, reducing the local fish stocks. Later in the 1980s and 1990s they were hit by abnormal natural conditions, such as the invasion of seals and later king crabs, seriously affecting their traditional fisheries. The coastal Saami culture is today seen as seriously

threatened, and a public commission (*Kystfiskeutvalget for Finnmark*) is now working to assess the rights of “Saami and others” to the marine resources outside Finnmark.

Regarding land resources, the management of Finnmark (or 95% of the land area), previously managed by a state entity (*Statsskog*), has now been turned into a regional management set-up. This new organisation (*A/S Finnmarkseiendommen*) is headed by an elected board with three representatives nominated by the Saami Parliament and three from Finnmark County (*fylke*). After more than 20 years of struggle the debate over who had the rights to Finnmark’s land and inland waters was finally terminated in 2005, when the Norwegian parliament approved the Finnmark Act (*Finnmarksloven*). However, the discussion over private and public rights is by no means finished, as the new administrative entity is required to hear and evaluate all property claims raised by private and collective interests.

The new law (*Finnmarksloven*) is based on the fact that Norway has ratified ILO’s convention on indigenous rights, and hence to secure also the material basis for the Saami culture. Whether a similar scheme will be the result for marine resources, and in particular fish, remains to be seen. Fish stocks outside Finnmark are today managed as *national property*, where fishers from Finnmark, whether of Saami or Norwegian origin, have no special privileges.

Shortly summarised, while Saami communities in Finnmark to a limited degree will be directly affected by offshore oil and gas development, all onshore installations are bound to affect Saami interests and they will be in a position to influence the development. Unlike their Russian neighbours (the Kola Saami) the Saami has a strong political and administrative position in the Norwegian system. With less than 20 % of Finnmark’s population (eligible voters) registered in the Saami Register, the Saami has a strong mandate in the management of the land based resources in Finnmark. They are, largely due to the dramatic improvements in education (especially for women), also able to participate in the new industry, although most direct effects on the labour market will probably be in certain selected coastal towns.

3.2 Murmansk Oblast

The Murmansk Oblast is one of the most industrially developed territories of the Russian high North. Historically the basis for the intensive development of the territory was the construction of the railway in 1915-1916, which connected central regions of the country with the Kola bay coast where the sea port and the city of Murmansk were founded. Territories adjacent to the railway are still the most densely populated, where most of the company towns of the Oblast are concentrated.

Two major factors causing development of the territory and its infrastructure in the previous period can be pointed out; first, the geopolitical and military strategic considerations, leading to the construction of the railway during the First World War. Later, during the Soviet period, the Kola Peninsula became the basis for the powerful military group of the Northern Navy and its service infrastructure, including shipyards, construction and other enterprises as well as social infrastructure of defence-related ministries.

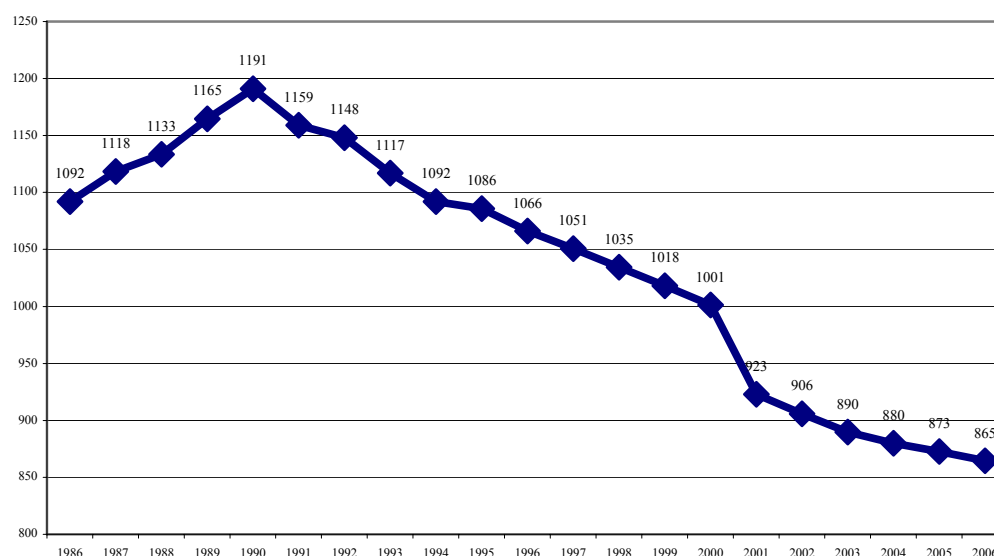
Second, the natural resource potential became a key factor of the region’s development, where the mineral and biological (fish) resources played the major role. These resources defined the industrial specialization of the region, representing mining, metallurgical and

fishing sectors. The region is responsible for a considerable part of Russia's total production of non-ferrous metals (nickel, copper, cobalt, metals of platinum group, aluminium), iron ore, apatite and nepheline concentrates, and fish products. With less than 1 % of the Russian population, the region produces 100 % of apatite and nepheline concentrate, 35 % of nickel, 26 % of cobalt, 17 % of copper, 9 % of iron ore concentrate, and about 17 % of fish and other marine products. The region is also responsible for almost 40 % of Russian sea transport.

3.2.1 Population, settlement structure and migration

Population dynamics in the Murmansk Oblast during the last two decades can be characterized by two opposing processes: up to the year of 1990, the population grew, but from the beginning of 1991 up till today it has continuously decreased (see figure 3.15) The period of intensive population growth was connected with the policy of the former Soviet power, directed to attract people to the northern regions.

Figure 3.15: Population in Murmansk Oblast 1986-2006 (in 1,000)

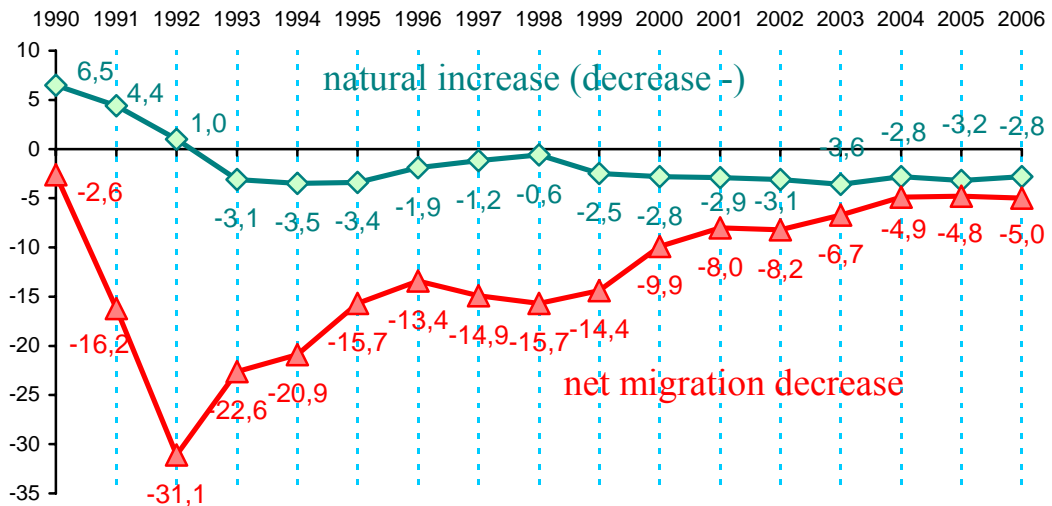


Source: Rosstat, Murmanskstat

Since 1991 the process of population decrease was caused first of all by deep political and socio-economic transformations, accompanied by the dissolution of the Soviet Union and the subsequent economic crisis and transition to a market system in the “new Russia” – the Russian Federation. Hence, the main factor behind the population decline was out-migration of residents to other Russian regions in the south. The process is typical for all northern regions in Russia. It is explained by both the aggravation of the situation on the labour market and the devaluation of the state's northern guarantees and bonuses, which were created to compensate harsh climatic and other unfavourable conditions for people living in the extreme north. A natural population decrease (the death rate exceeds the birth rate) was (and still continues to be) an additional factor explaining the population reduction.

In total, for the period 1990-2006 the population in the Oblast dropped by 334,000 people (or by 28 % compared to the 1990 level). Of them 296,600 were lost due to emigrational outflow and 37,400 because of the natural decrease. Figure 3.16 shows the annual dynamics of the processes during this period. Despite the fact that the emigration tends to diminish, its continuation could be regarded as an indication of less favourable living conditions in the Oblast compared to other Russian regions.

Figure 3.16: Natural population change and migration in the Murmansk Oblast (in 1000)



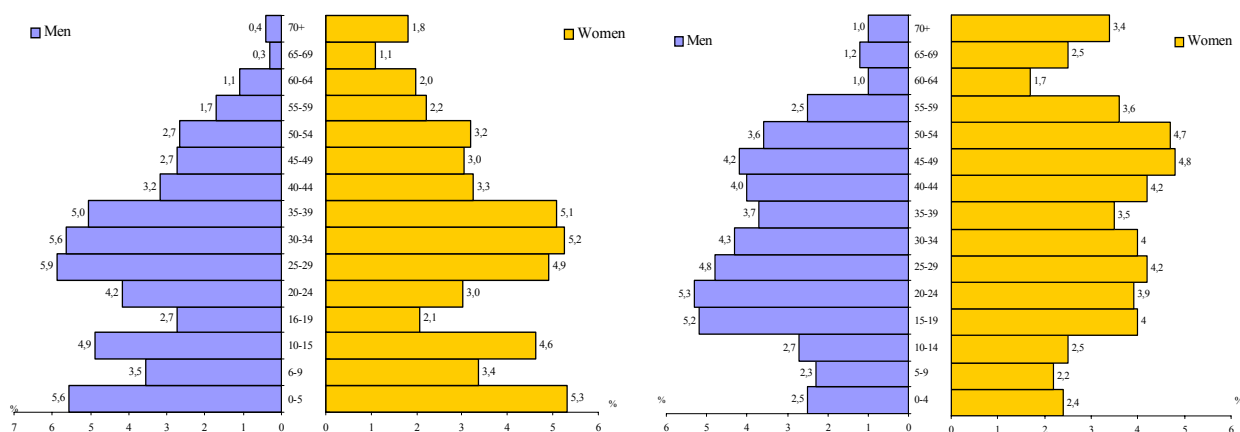
Two factors influencing the migration level in the Oblast could be pointed out. First, there is a state assistance program for resettlement of certain categories of people from the northern regions to other parts of Russia. However, the financing of the program has so far not satisfied all the people eligible for it. Therefore, the program has had minor impact on the general migration processes. It is estimated that the share of those who left the region with assistance of the program did not exceed 10 %.

Second, there are also circumstances slowing down the out-migration from the Oblast. The most important is the cost of housing in the south, making it unaffordable for most people to resettle. Migration outflow of population, death rate growth and birth rate fall have caused the unfavourable tendencies in demographic changes in the Murmansk Oblast – the decrease of children in the population and the increase of retired people, as well as the decrease of life expectancy. The indicator of life expectancy at birth declined from 70.6 years in 1991 (with the Russian average of 69.0 years) to 63.6 years in 2004 (the Russian average was then 65.3 years). Consequently, measured by this important indicator life quality Murmansk Oblast lost its advantages compared to most other Russian regions. The Oblast's advantage regarding the average age of the population has been maintained so far but is gradually lost. At the beginning of 2005 it amounted to 35.6 years (32.9 for men and 38.2 for women) compared to the Russian average of 37.7 years.

Table 3.3: Population structure of the Murmansk region by age groups and sex (in %)

	2001	2002	2003	2004	2005
Total	100	100	100	100	100
Under able-bodied age,	18,9	18,5	17,9	17,2	16,6
of them: men	51,3	51,3	51,3	51,4	51,4
women	48,7	48,7	48,7	48,6	48,6
Able-bodied age,	67,9	68,0	68,6	69,2	69,4
of them:					
Men	52,7	52,6	52,6	52,7	52,9
Women	47,3	47,4	47,4	47,3	47,1
Over able-bodied age,	13,2	13,5	13,5	13,6	14,0
of them:					
Men	27,1	27,0	25,7	24,3	23,0
Women	72,9	73,0	74,3	75,7	77,0

Figure 3.17 illustrates the more detailed population structure in 2006 compared to 1989.

Figure 3.17: Population by sex and age, Murmansk Oblast

A) At the beginning of 1989

B) At the beginning of 2006

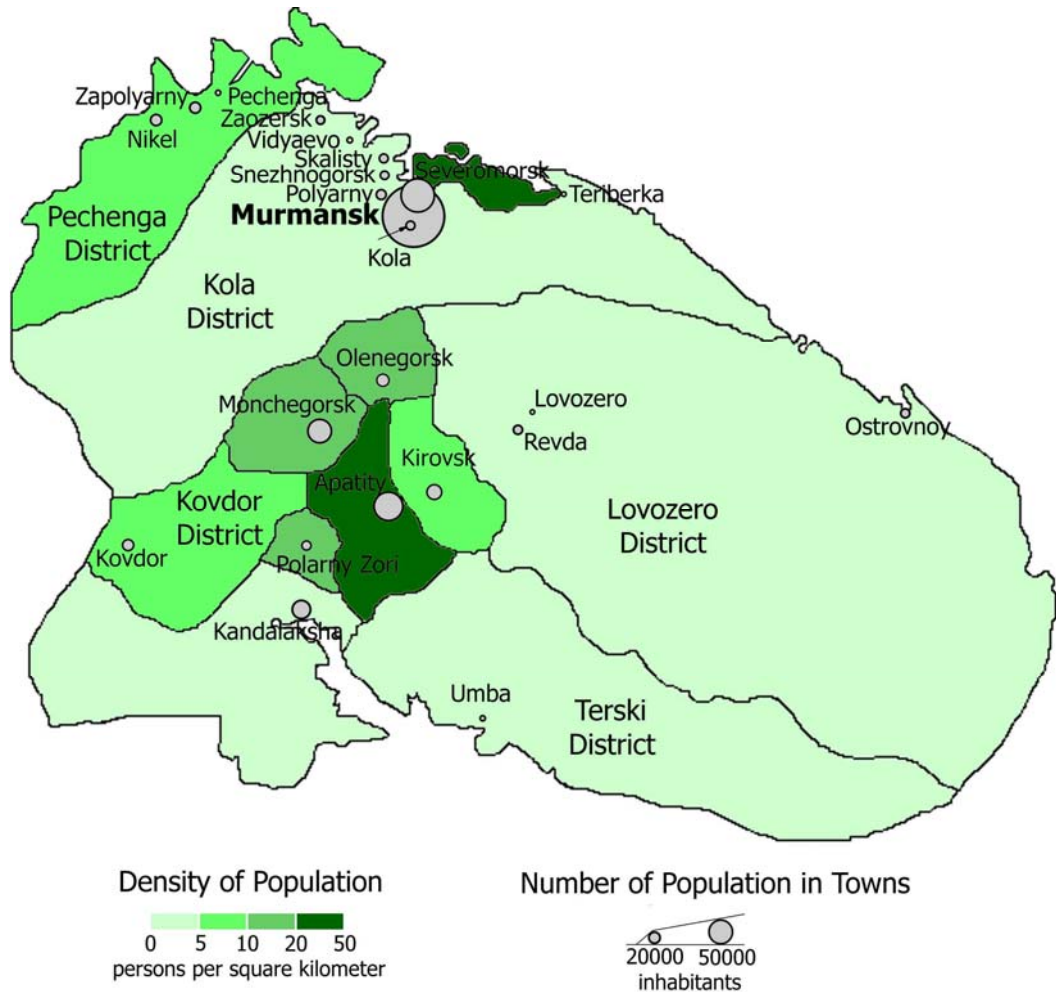
It can be noticed that the configuration of both years does not correspond to the pyramid that would have been “normal” in the case of a natural distribution of population by age groups. In 1989 a gap in the number of people in the age group of 16-19 years is observed. This is explained as a demographic consequence of the Second World War, with a small parent generation born in 1941-1945. In 2006 there was a new “gap” in numbers in the younger age groups, especially 5-9 years that is explained by the influence of two unfavourable factors; the second wave of consequences of the war of 1941-1945, and the birth rate slump during the crisis of the 1990s.

Based on the data of the present population’s age structure, it can be predicted that the Murmansk region during the next few years will experience a reduced inflow of young people attending educational institutions, and in the next round relatively few will join the active work force. On the other hand, in the next few years the birth rate is expected to

increase, as a relatively large group is in the reproductive age group and furthermore, the socio-economic situation tends to improve.

The settlement structure of the Murmansk Oblast was formed under the influence of the territory's development specificity. Most of the settlements are concentrated along the railway and the highway St. Petersburg-Murmansk, in areas based on natural resource exploitation as well as in places of military importance. The map (figure 3.18) shows the major settlements and administrative districts of the Murmansk Oblast with data on the size and density of their populations.

Figure 3.18: Map of Murmansk Oblast with population size and density



The regional centre Murmansk is the largest city in the world located beyond the Arctic Circle. However, its population has dropped substantially during two last decades. Population changes in towns and districts of the region are given in table 3.4.

Table 3.4: Population by towns and districts of the Murmansk Oblast (in 1000)

	1986	2006	Change 1986-2006 per cent
The city of Murmansk	425,5	321,0	-24,6
Towns with suburbs:			
Olenegorsk	38,9	32,7	-15,9
Monchegorsk	69,6	53,2	-23,6
Kirovsk	45	33,7	-25,1
Apatity	78,1	62,9	-19,5
Polyarnye Zori	21,3	18,5	-13,1
Kandalaksha	73,1	57,7	-21,1
Districts:			
Kolskiy district	68,8	50,7	-26,3
Kovdor	34,8	23,2	-33,3
Lovozero	16,1	13,5	-16,1
Pechenga	56,7	45,4	-19,9
Terskiy	9,3	6,8	-26,9
Murmansk region, total	1100,5	864,6	-21,4

3.2.2 Industrial structure and employment

For the period from the beginning of market reforms (since the 1990s) deep structural changes took place in the economy of the Murmansk Oblast as well as in the country in general. Price liberalization, privatization, and a competitive struggle among enterprises at the domestic and foreign markets became the main factors of change. Unfavourable natural-climatic conditions in the Murmansk Oblast, which caused higher production costs compared to central and southern regions of the country, became additional “stress” factors influencing the economic structure and employment in the new system.

It should be noted that comparable statistical data for a quantitative evaluation of changes in the employment structure for a long period are available only until 2004. Starting from 2005 Russian statistical bodies switched to a new accounting classification of economic activities, which is close to the standards accepted in the EU countries. Therefore, in table 3.5 data on distribution of employees by economic sectors for the period 1990-2004 is given according to the old classification system.

As can be seen, the structure of employment according to sector had changed considerably by 2004 compared to the 1990 pre-reform period. For instance, the share of employees in construction decreased by 2.7 times, in industry by 1.4 times, in agriculture and in science and science services by 1.8 times. In most public sectors (health care, education, culture and arts, state and municipal governance) the share of employees grew. However, taking into account a considerable decrease in the total number employed in the economy, there was no absolute growth of employees in these sectors. There are only few sectors where the number of employees increased both in absolute and relative terms. Among them are trade and public catering, finance and insurance, state and municipal administration.

Table 3.5: Employment structure by sector of the economy of the Murmansk Oblast

	1990		2001		2004	
	Employment (1000)	Share, %	Employment (1000)	Share, %	Employment (1000)	Share, %
Industry	201,4	35,7	115,4	26,6	112,8	25,3
Agriculture & forestry	13,1	2,3	9,1	2,1	7,3	1,6
Transport & communication	54,6	9,7	45,1	10,4	47,7	10,7
Construction	83,7	14,9	19,9	4,6	22,8	5,1
Trade & public catering	54,4	9,7	73	16,8	76,2	17,1
Housing & municipal services	29,8	5,3	30,2	7,0	29,1	6,5
Health, sports & social security	34,9	6,2	37,5	8,7	38,2	8,6
Education, culture & art	55,1	9,8	47,6	11,0	48	10,8
Science & scientific services	8,2	1,5	4,9	1,1	3,7	0,8
Credit, finance & insurance	3,8	0,7	4,2	1,0	5,2	1,2
State and municipal administration	10,2	1,8	34,5	8,0	39,3	8,8
Other	14,2	2,5	12,1	2,8	15,7	3,5
Total	563,4	100,0	433,5	100,0	446	100,0

The structural changes can be explained by several factors. First, the sharp decrease of employees in industry, agriculture and construction was conditioned, on the one hand, by the reduced physical volume of production in these sectors. On the other hand, the need to cut personnel to enhance labour productivity under pressure of market competition also started to play a role. Second, growth of employment in such sectors as trade and public catering, finance and insurance is explained by under-development of these services in the former centrally planned economy. The liberalization of the economy and growth of entrepreneurial activity resulted in saturation of the relatively free niches. Third, employment in most public service sectors demonstrated less elasticity to changes in the economy, except staff working for the state and municipal administrations, where considerable growth of personnel can be explained by the new role of the regional and municipal level in the Russian socio-political system compared to the old Soviet model.

The structural changes of the region's economy can be given on the basis of cost proportions of the gross regional product (GRP).

Table 3.6: Structure of the GRP in the Murmansk Oblast, %

	2001	2002	2003	2004
1. Share in GRP:				
production of goods;	54,7	48,5	47,7	57,7
production of services;	45,7	50,2	51,4	41,7
Net taxes on goods.	-0,4	1,3	0,9	0,6
2. Contribution of sectors to production of GRP:				
industry;	46,7	42,2	40,4	51,8
Construction;	6,3	5,2	6,0	5,1
Transport	11,2	10,6	12,1	9,3
3. Share of consumed GRP in produced GRP	92,3	92,1	96,2	76,3
4. Share in produced GRP:				
expenditures for final consumption;	72,1	76,6	78,2	62,8
gross accumulation of fixed capital	20,1	15,5	18,0	13,6

Source: Calculated on the basis of data from Murmanskstat.

Analysis of data from table 3.6 makes it possible to conclude that in the GRP structure up to 2003 there prevailed a tendency of a decreasing share of production of goods (from 54.6 % in 1994 to 47.7 % in 2003) in favour of growing share of services (from 41.8 % to 51.4 % respectively). The changes corresponded to general economic trends typical for countries and regions with a developed market economy. However, by 2004 the share of goods production grew again (to 57.7 %). This was caused by a favourable situation both at the domestic and foreign markets for products of the main industrial enterprises of the region, and annual profits increased sharply compared to the previous years. As a result the share of industry in the GRP structure of the region increased to 51.8 % (the Russian average is about 30 %). In the GRP structure by sectors the tendency to an increasing transport share was also observed. However, by 2004 it returned to the level of the mid-1990s.

The ratio between produced and consumed GRP reflects the fact that the Murmansk Oblast by its contribution of value added refers to regions/donors within the national economy. In 2004 this role was especially strengthened, when the excess of production over consumption reached 23.6 %.

The decreasing share of gross accumulation of fixed capital was an unfavourable change in the structure of the gross regional product. It implies that the investment level of the economy diminished in a situation of urgent need for renovation of fixed capital and availability of the necessary internal resources.

Hence, measured by basic macroeconomic indicators the Murmansk Oblast is characterized by both positive and negative trends.

Measured by indicators of employment and unemployment, the Murmansk Oblast lags behind the Russian average level despite some improvements of the situation during the last few years. According to the methodology of the International Labour Organization (ILO) used in Russian statistics, these indicators are calculated as a ratio to the number of economically active in the population. The latter is defined as “the part of the population in the age of 15-72 supplying the labour force for production of commodities and services in the considered period. Economically active population includes employed in the economy and unemployed”.²⁶ Number of employed/unemployed is determined on the

²⁶ Methodical explanation in the statistical collection “Statistical year-book, 2004”: / Federal service of state statistics, Territorial body of state statistics in the Murmansk region, / Murmanskstat, 2005, p. 59.

basis of data from selective surveys. The corresponding indicators for the Murmansk region and Russia are given in table 3.7.

Table 3.7: Unemployment level in the Murmansk region (per cent)²⁷

	1992	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Murmansk region:												
General (ILO methodology)	5,8	12,4	19,7	21,3	16,4	12,8	15,3	13,4	11,9	11,0	8,8	8,7
Officially registered	1,9	5,7	5,1	6,0	4,0	3,3	3,9	4,6	4,4	4,4	3,7	3,5
Russia:												
General (ILO methodology)	4,7	9,5	11,8	13,3	13,0	10,5	9,0	7,1	8,0	8,5	7,6	7,1
Officially registered	0,8	3,3	2,9	2,9	1,7	1,4	1,6	1,8	1,8	2,6	2,4	2,4

During the period 1991-2005 the economically active population in Murmansk region decreased by 116,000 people and the number of employees by 81,800 people. The main factors forming supply and demand of labour in the region in this period were the following: demographic – decrease of population in the region due to a high level of migration outside the region and a birth rate decline; socio-economic – considerable production slump in the basic sectors of the economy, investment crisis and low rates of entrepreneurship development in the region; institutional – change of ownership structure as a result of privatization and establishment of private enterprises as well as change of labour legislation and principals of labour relations organization. During the 1990s the number of unemployed more than doubled, reaching almost 75,000 in year 2000. In terms of percentage the unemployment level reached its maximum in 1998 (21.3 %), almost twice the Russian average level.

Starting with the year 2000 the situation at the regional labour market is characterized by relative stability: the number of labour resources and economic activity of the population remain stable, employment grows although insignificantly, and levels of both total and officially registered unemployment decrease. The level of economic activity (share of economically active population) remains at the level of 51 %.

However, by all of the main parameters (levels of total and officially registered unemployment, coefficient of tension²⁸), characterizing the situation at the regional labour market, the Murmansk region occupies one of the last places among regions of the north-western federal district and lags behind the Russian average indicators. During a number of years the main problem at the regional labour market was mismatch between the supply and demand of labour both in quantitative and professional-qualification terms, which is displayed not only in the high level of officially registered unemployment but also in the high indicators of tension at the labour market. Tension coefficient values at the regional labour market during the last years constantly exceed 2-3 times the Russian

²⁷ Number of unemployed in per cent of the economically active population.

²⁸ Load of unemployed population per vacancy (people).

average (in 2001 5.6 persons per vacancy in the Murmansk region against 1.5 as the average for the country, in 2005; 4.9 persons against the Russian average of 2.7).

At the same time in many towns of the region load per vacancy is considerably higher than the region's average: in Polyarnye Zori; 7.8, in Kandalaksha; 10.2, in Olenegorsk; 11, in Monchegorsk; 17.9, in Kirovsk; 18, in Apatity; 34 people per vacancy. The situation in rural and coastal settlements is even more complicated. For instance, in the Terskiy district on the White Sea coast the level of officially registered unemployment reaches 30 % and the coefficient of tension is 600 people per vacancy! Every year the regional employment service registers 3,500 – 4,000 school-leavers and graduates of secondary and higher education institutions. As a rule only 41-45 % of the youth and 30-39 % of women obtain jobs.

The main reasons behind this difficult employment situation is the low degree of economic diversification in the region, the prevalence of single industry company towns and the poor development of the small-scale business sector.

3.2.3 Educational level and knowledge infrastructure

In the Murmansk Oblast the education level of the population is quite high: 300 people per 1,000 have secondary vocational education while the Russian average is 271, and 155 people per 1,000 have higher education compared to the Russian average of 160 per 1,000.

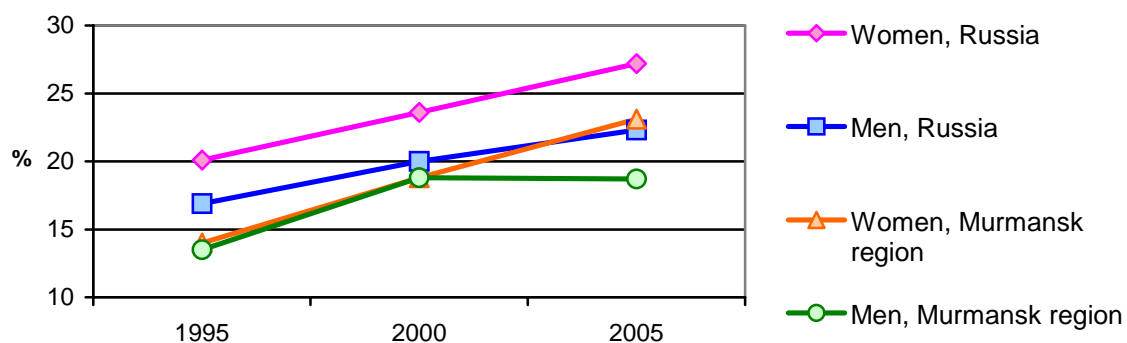
Table 3.8: Educational level of the population in the Murmansk Oblast, age 15 and older. Number of persons per 1,000 of total population.

Years	Per 1000 of population of the corresponding age have education							
	higher vocational	incomplete higher vocational	secondary vocational	primary vocational	secondary (complete) general	basic general	primary general	have no primary general
1989	139	12	238	168	196	147	72	27
2002	155	25	300	157	190	118	39	14
Russia 2002	160	31	271	n/a	258 ²⁹	182	77	n/a

The share of people in the Murmansk Oblast having higher and secondary vocational education is higher among females. The national trend is that females dominate in most educational institutions, especially in those of higher education. At the same time the share of women with higher education in the Murmansk Oblast grows quicker than the Russian average. Similar to the situation we found in Finnmark, the educational level of females is increasing significantly, while the educational level for males shows practically no increase. At the same time we find that the share of unemployed persons with higher education *decreases* in Russia, while it *increases* in the Murmansk Oblast. While higher education normally will serve to improve a person's standing in the labour market, this is not so in Murmansk, partly due to the special structure of the economy in the region.

²⁹ Including persons finished vocational schools. According to the law "On education", they are registered as those who have primary vocational education.

Figure 3.19: Share of population with higher vocational education employed in the economy, women and men, Russia and Murmansk Oblast. Per cent.



From the mid 1990s the educational sphere entered into a period of dramatic transformation. By 2006 compared to 1986, the number of pre-school educational institutions has been reduced to almost half, as a result of a sharp decline in the birth rate in the region. In this period the number of secondary schools decreased by 7 % and the number of institutions working with primary vocational education by 25 %.

At the same time the Murmansk Oblast experienced a boom of higher education. While the region had relatively few students by the early 1990s, the Murmansk Oblast is today one of the leaders in terms of growth of students enrolled in university education. Their number increased 4.3 times for the period 1990-2006, that is, with a growth rate considerably higher than for the country in general.

By 2006 in the Murmansk Oblast there are 13 secondary special educational institutions and 15 branches of such educational institutions, 4 separate higher educational institutions as well as 14 branches of state higher educational institutions and 11 branches of non-state ones. As local educational institutions are supplemented by a wide range of branches of the institutions located outside of the Murmansk Oblast, paid education becomes more widespread in the region. The most popular specialties among university entrants are economics, banking, management, and law. However, educational specialists in these fields are difficult to find and maintain at the universities.

One of the serious problems of vocational education in the Murmansk Oblast is a considerable disproportion between the training of specialists versus generalists. Among the graduating students the share with secondary and higher education accounts for over 70 %, while those with secondary vocational education represent 30 %. At the same time, the demand for personnel in the Murmansk Oblast is the opposite: over 70 % of announced vacancies are asking for working professionals that need secondary vocational education and less than 30 % are demanding office staff, managers and engineers' positions that need higher education.

In the Murmansk Oblast, there are 29 research organizations. The core of the research complex of the region is the Kola science centre of the Russian Academy of Sciences (KSC RAS) in Apatity. Besides, there are two state universities involved in research; the technical and pedagogical universities in Murmansk, as well as a number of university branches. The largest of them is the Kola branch of Petrozavodsk state university in Apatity. Total number of personnel engaged in research in the Oblast is about 3,000, of them 100 doctors and 400 candidates of sciences.

Table 3.9: Main research organizations of the Murmansk Oblast

<i>Organization</i>	<i>Activities</i>
1. The Kola Science Centre RAS	Includes 11 research organizations, carrying out fundamental and applied research in various sciences – geology, chemistry, economics, ecology, etc.
2. Murmansk state technical university (MSTU)	Training of specialists in 31 speciality and 10 fields at 12 faculties. On the basis of MSTU there was established an international centre for transfer of innovations, the main task of which is to promote elaborations of the university and to assist in commercialization of applied research
3. Murmansk state pedagogical university	Training of specialists in a wide range of humanities. Scholars at 33 departments and 7 research laboratories carry out fundamental and applied research in various fields
4. Murmansk centre of scientific and technical information (CSTI)	A research non-commercial organization in the form of a state institution is part of the single information-technological complex – association “Rosinformresurs” (the Ministry of industry and science of the RF) uniting 69 regional centres
5. LLC “Sevrybproekt”	Participates in innovation development of the fishery complex regarding development of ocean fisheries and creation of new technologies for yielding ground fish species meeting the nature protection requirements
6. Open joint stock company “Research and technical firm “Complex systems”	Elaboration, introduction and maintenance of information systems and computer technologies for the fishing industry, monitoring complexes using satellite communication, elaboration of information systems within the Federal program “World ocean”. On the basis of the firm there was created the first in the RF Regional centre of fishery monitoring using satellite systems ARGOS, INMARSAT
7. Kola regional seismological centre (KRSC GS RAS)	Monitoring of natural and technogenic seismic level in the Euro-Arctic region using the network of stations located in the Murmansk and Arkhangelsk regions and on Svalbard Archipelago
8. Open joint stock company “Kola geological information-laboratory centre”	Research works in the field of geology, geophysics, geochemistry, geological mapping, reconnaissance and prospecting of deposits, ecology
9. Research-production centre ‘Kola super-deep’	The only in the world cognition tool allowing to explore the nature of interactions between the physical fields of the Earth (seismic, thermal, magnetic, electric, etc.). On the basis of the deepest in the world borehole (12262 m) Kola abyssal geo-laboratory carries out complex research of spatial and temporal variations of geo-fields and properties of the geological medium allowing to forecast natural calamities
10. Federal state enterprise “Research Institute of marine geophysics”	Elaborations on prospecting of sea oil and gas fields on sea shelf including that on navigation system of safe taking out of tanker and ice-breaker to underwater sea terminals
11. “Sea Arctic geological prospecting expedition” (SAGE)	Complex geological-geophysical studies in the Arctic and Antarctic Seas, on shelf of Svalbard Archipelago, assessment of prospects of the Barents and Cara Seas on hydrocarbon resources

The Kola Science Centre RAS plays a major role in the area of science in the region. It includes 11 research organizations, with a total number of employees around 1,900, of them 4 Academicians, 2 corresponding members of the Russian Academy of sciences, over 100 doctors and over 300 candidates of sciences. Actually, the Kola Science Centre contains more than half the research personnel of the Murmansk Oblast and about 90 % of doctors and candidates of sciences.

The government of the Murmansk Oblast has implemented various measures for strengthening the regional scientific and technical potential. “The Strategy of development of science, scientific-technical and innovation activities for the period to 2015” is adopted, and annual regional scientific-technical programs are elaborated and realized. Infrastructure needed for realization of innovation projects is created, including

the recently established “Technopark - Apatity”, as well as regional Centres for transfer of technologies and business-incubators in the towns of the Oblast.

3.2.4 Physical infrastructure

Transport infrastructure in the Murmansk Oblast consists of four universal types; railway, sea, road and air transport. The network serves both internal demands of the Oblast for transportation, including deliveries of products in and out of the Oblast and transit cargo traffic connected to export-import deliveries of commodities via sea ports of the region as well as along the Northern Sea route.

Based on their share of total cargo volume railway transport is responsible for 80 %, sea transport for 18 % and road transport (by car) for 2 %. Compared to the situation in 1985 all transport carriers lost cargo traffic, measured in physical terms.³⁰

In 2006 the length of railways in general use within the Oblast was 870 km, of which 356 km (41 %) is part of the main line from Murmansk to the southern border of the Oblast. The remaining 514 km represent various branches from the mainline. The railway line from Apatity station to the southern border of the Oblast is double-track, while north of Apatity there are no continuous second tracks. In 1986 the cargo traffic level was approximately 80 %, which was close to the technological maximum, taking into consideration the uneven seasonal cargo traffic and the weather conditions. Thus at present there is some reserve of the railway’s traffic capacity (about 40 % of the level of the current cargo traffic or 12-14 million tons a year). However, according to the development forecast of the Murmansk Sea Transport Centre already by 2010 the level of cargo traffic can amount to 50 million tons, which is close to the maximum traffic capacity of the existing railway network. By 2020 over 70 million tons of cargo traffic is expected. This implies that in the near future large investments will be required in order to increase the traffic capacity.

Four sea ports are located on the territory of the Murmansk Oblast: two in the Kola Bay (Murmansk sea trade and fishing ports), and two on the White sea coast (Kandalaksha sea trade port and the specialized oil port of Vitino). Murmansk sea trade and fishing ports are located on the eastern coast of the Kola Bay. The bay has unique possibilities: a deep-water non-freezing water area with the full complex of navigation safety and open outlet to the ocean. In addition there is an extended territory for expansion and development of the port on the western coast. This serves as a good precondition for planning of investment projects for development of the port facilities. At federal level the creation of a legislative base for so called “port special economic zones” is being prepared. The Murmansk port is a real claimant for receiving this status, which implies preferential terms of taxation and a simplified customs regime.

In 2005 the total volume of cargo reloading in the ports of Kola Bay including floating oil-reloading complexes³¹ amounted to 27 million tons, of which 11 million tons of coal and 13 million tons of oil and oil products.

The ports are administrated by different companies. The open joint stock company “*Murmansk sea trade port*” was created in 1994, in the process of privatization of state

³⁰ In 2006 total volume of cargo transported by various type of transport amounted 34.3 million tons, including 27.7 by railway, 5.9 by sea transport, 0,7 by motor cars and 300 tons by airplanes.

³¹ In the Kola Bay there are three floating oil-reloading complexes, the largest of them is “Belokamenka” (a tanker with deadweight of 300,000 tons) and with annual reloading capacity of 6 million tons of oil.

enterprise with the same name. This is the northernmost of non-freezing ports of Russia as well as the largest port in the world beyond the Polar circle. The port's territory is 104 hectares; with 19 cargo moorings and a total length of 3.8 km and depths to 15 meters. At present the Murmansk sea trade port is the only one in the north-west of Russia having the possibility to treat vessels with deadweight over 140,000 tons. In 2005 the total cargo turnover of the port amounted to 14.5 million tons, of which export of coal amounted to 11 million tons.

The open stock company "*Murmansk sea fishing port*" was also created in 2004 as a result of privatization of the state enterprise with the same name. The port occupies 160 hectares and is located in the southern part of the Kola Bay. In the Murmansk sea fishing port there are approximately 50 short moorings with depths from 6 to 8.5 meters with a total length of 3.86 km. The reloading complex of the port consists of three cargo districts; the southern, northern and a transport-storage complex (the coal base). In 2005 the total cargo turnover of the Murmansk Sea fishing port amounted 2.1 million tons, of which only 10 % were fish products and over 85 % represented oil products.

Kandalaksha sea port was a federal enterprise until 2004. After the bankruptcy procedure it was privatized and became a closed stock company with the same name. The port's capacity is 1.5 million tons of cargo annually, of which only one third is currently utilized. The new owner of the port is a group of companies "TalTEK" (the Kemerovo Oblast), which plans to invest 10-15 million US\$ in development of the port's infrastructure and to increase capacities of the terminals to 4.5 mln tons.

Port Vitino, which located in Kandalaksha Bay (White Sea), is owned by a group of Russian oil companies and specialized in reloading of oil and oil products. The oil is delivered to the port mainly by railway to transport it to Murmansk port for further reloading on large tankers. The port receives tankers with carrying capacity to 50.000 tons. Cargo processing amounts to 6 million tons of oil products per year.

The total network of roads in the Murmansk Oblast amounts to 3,518 km of which 948 km are owned by enterprises (as they are used for specific technological goals). The main problem of the road network is the extremely low quality, lack of maintenance and few road-building companies with the necessary equipment. One of the reasons is limited financing of the sector, a situation that was aggravated after the abolition (in 2002) of the specialized extra-budget financial road funds, formed at the expense of targeted taxes collected from all enterprises.

Air transport in the Oblast is primarily passenger transport. However, the existing gap between the tariff level and the solvency of the population complicates the task of ensuring a profitable level for the air companies. In the sphere of air transport on the territory of the Murmansk Oblast two enterprises are operating: the open joint stock company "*Airport Murmansk*" and open joint stock company "*Airport*" (Khibiny). The airports carry out local, domestic and international traffic (passengers, cargo, post).

In 2005 in the Murmansk Oblast passenger traffic was carried out by nine air companies. Almost half of trips were carried out by the open joint stock company "Aeroflot-Nord". The only local air transport company is LLC "*Murmansk aviation company*", which carries out irregular transportation of cargo, post and passengers within the Oblast.

The system of energy supplies in the Murmansk Oblast is based on enterprises of various forms of ownership, generating electricity and heating. Enterprises generating electric power located in the region fully satisfy internal demands and deliver part of the total

produced energy (about one fourth) outside the Oblast – to the Karelian Republic and as export to Finland and Norway.

The largest producer of electric power in the Oblast is Kola nuclear power plant (NPP), which is part of the state company “*Rosenergoatom*”. It covers about 60 % of the territory’s demand for electric power. Before 1990 the plant generated up to 13 billion kWh of electric power, which almost corresponded to its full capacity. Lately the production volume at the Kola NPP has not exceeded 10 billion kWh, that is, about 30 % of the capacity is not used. Two of the four power units of the Kola NPP have been working for over 30 years, exceeding the planned exploitation period. However, the plant works to extend the production period up to 2018.

Another large electric power producer is a subdivision of the Russian joint stock company (RAO) “*EES of Russia*” – “Kola branch of JSC “Territorial generating company No.1” (“TGC-1”). This subdivision includes 17 hydropower stations, two thermoelectric power stations, electric networks as well as an experimental tide station on the Barents Sea coast. In total there are five thermoelectric power stations in the Oblast, the largest of them in Apatity and Murmansk, while three belong to mining-industrial enterprises of the Oblast.

Centralized heat supply in the Oblast is carried out from the thermoelectric power station and boiler-houses. About 80 % of heat is produced from furnace black oil (*mazut*), which is supplied from outside the Oblast by railway. Heat to the two largest towns of the Oblast – Apatity and Murmansk – is supplied respectively by Apatity TEC (uses coal) and Murmansk TEC (uses black oil). Besides in Murmansk heat for one third of houses is supplied by “TEKOS”.

In the Murmansk Oblast telecommunication infrastructure of general use is represented by electric communications (telephone, etc.), cell communication GSM, IMT-MC-450 (or CDMA-450) and Internet. The communication sector is the most dynamic developing sector in the Oblast. During the period 2000-2006, the growth was 17-20 % per annum, compared to the average growth in the industry of 2-3 % per year. Recently (2000-2006) the average deflated increase of communication services accounted for 17-20 % (at the average production growth in industry 2-3 %).

Traditional electric communications is presented by “Murmanelektrosvyaz” (MELS – a branch of open joint stock company “North-western telecom” and “North-western company on telecommunications and informatics” (SZKTI)). In 2006 the total capacity of the communication network of “MELS” reached 309,000 numbers. The company actively introduces new technologies. In general for the Oblast the coverage with digital telephone communications is 69 %, while in some municipalities it has reached 100 %. From 1990 to 2005 provision of traditional telephone communication in the Oblast increased from 11.7 numbers to 41.1 per 100 residents, i.e. almost four times.

Introduction and rapid spread of cell (mobile radiotelephone) communications in the Murmansk Oblast occurred during the last decade. In 1999 cell network subscribers numbered 4,800 people, while by 2006 the number of connected subscriber terminals (SIM cards) had increased to 852,000.³² In terms of cell communication development Murmansk Oblast is one of the five leaders among the 89 subjects of the RF (over 46%).

At present market of cell communications in the Oblast is practically divided among the three major national companies of cell communications: “Megafon”, “MTS” and

³² By data of the Federal statistical service number of subscribers is fewer than the indicated number of SIM cards as one subscriber can use several of them.

“Beeline”. The largest market share is owned by brand “Megafon” (over 75 %, or more than 300,000 subscribers). “MTS” and “Beeline” have approximately equal shares.

In the Murmansk Oblast there are the following types of Internet access: specialized lines; DSL technology; ISDN technology; access via satellite channel; GPRS; access via telephone line (dial-up), and IP-telephony. The largest Internet provider in the Oblast is “MELS”, providing both commutated access via telephone line (dial-up) and ADSL technology access (from 2004). In the Oblast also there are providers from other regions: “Apanet” (Moscow company “Elvis-Telecom” having an own line to St. Petersburg), “ASPOL-Diamant Murmansk” (branch of “Peter-Star”³³), satellite providers - Satgate, Raduga, SpaceGate, PlanetSky, Otik-Internet, and several local companies.

In 2007 in accordance with the National project “Education” all of the schools providing general education in the Oblast will receive access to the Internet via rapidly operating channels.

Within the ongoing reformation of state and local power bodies and the Federal target program “Electronic Russia” a special program has been approved, making it possible to create information portals/sites of the regional and municipal power bodies. By 2009 all of the executive power bodies in the region will have their own official Internet sites.

3.2.5 Political-administrative organization

The Murmansk Oblast is one of 89 regions – all subjects of the Russian Federation. According to the Constitution of the RF (article 77) subjects of the Federation determine the system of their state power bodies themselves on the basis of the principles of organization of legislative and executive bodies of state power regulated by federal laws. The Constitution of the Russian Federation also fixes that the regions carry out their own legislative regulation including adoption of laws on issues not included in the authorities of the Russian Federation or joint jurisdiction of the RF and regions.

It should be noted that with the new Constitution adopted in 1993 the roles of the federal power bodies have changed considerably over the years. While during the period of president Jeltsin it was a focus on strengthening the rights of the regions, with little control from the federal centre, this policy was largely reversed by president Putin, from 2000 onwards. A number of measures were introduced in order to strengthen the central power and limit the rights and authorities of the regions. First, the country’s territory was divided into seven federal districts (Federal Okrugs) headed by plenipotentiaries of the RF President³⁴. The President’s plenipotentiaries as well as federal inspectors for every subject of the Federation are called upon to carry out control over execution of the federal legislation in the regions, to coordinate activities of the federal executive power bodies, and to provide their interactions with regional power bodies.

Second, the order of direct elections of the regions’ heads (supreme officials of the Federation subjects) by popular vote was abolished. Now the appointment of the region’s head (the Governor) is done by the President, who also has the right to force the Governor’s resignation in case of not fulfilling his obligations. The RF President is also

³³ The main shareholder is: Metromedia International Telecommunications Inc. (USA) and holding “Telecominvest”.

³⁴ The Murmansk region became part of the North-western Federal district (NWFD) uniting 11 regions -subjects of the Federation, including Karelian Republic, Komi Republic, Arkhangelsk region with its part Nenets autonomous okrug, Vologda, Kaliningrad, Leningrad, Novgorod, Pskov regions and St. Petersburg.

entitled to dissolve the legislative power body of the Oblast in cases regulated by the federal legislation.

Third, there were changes in the tax and budget codes fixing a new order of formation of budget revenues by different levels of the budget system. According to the order the federal budget was favored while municipal budgets ended up in the most unfavorable and dependent situation. This to a considerable extent weakened the basis for formation of local self-government, in spite of the declared independence of this level.

While these reforms applied to the whole of Russia, their implementation was also influenced by local conditions. In the case of Murmansk Oblast these refer to: 1) the special economic structure oriented towards mining and primary processing of natural resources by large enterprises; 2) high militarization level of the territory; 3) unfavorable natural-climatic conditions that restrict development of many sectors of the economy; (4) the border location of the Oblast and its participation in regional and international cooperation; (5) existence of territories originally inhabited by the northern minority – the Kola Saami.

Bases of state power organization in the Murmansk Oblast, its administrative-territorial structure and other fundamental political-legal issues are fixed in the Charter of the Murmansk Oblast. It was adopted by the Murmansk Regional Duma in 1997 and during the last ten years nine additional laws, introducing amendments and changes to its text, were adopted. According to the Charter the system of state power-bodies in the Murmansk Oblast consists of:

- Legislative (representative) state power-body – the regional Duma;
- Supreme executive power-body – the Government of the Murmansk Oblast headed by the Governor of the Oblast;
- Other state power-bodies formed in accordance with the Charter of the Oblast.

From the beginning of 2006 the new federal law “On general principles of local self-government organization” (No. 131-FZ, adopted in 2003) was put in force. It considerably reformed the system of local self-government in the country. According to the law four types of municipal entities having different status and plenary powers are determined: urban okrugs, municipal districts, urban and rural settlements. At present there are 42 municipal entities of various statuses in the Murmansk Oblast, of which 18 were created in 2005 within the new reform of local self-government.

Authorities of the state power bodies in the Oblast and the supreme official of the Murmansk Oblast – the Governor – are fixed by the Constitution of the RF, the Charter and laws of the Murmansk Oblast. The regional Duma is the supreme body of legislative power in the Murmansk Oblast and is the successor of the Regional Council of People’s Deputies elected before 1993. Deputies of the regional Duma are elected by the region’s population, on the basis of equal and direct suffrage with a secret ballot.

The regional Duma carries out its authorities by adoption of legislative acts of the Oblast, conducting control activities within its scope as well as by participation in the formation of bodies of the regional state power. The Duma is competent to adopt the Charter, laws of the Murmansk Oblast, resolutions, legislative initiatives to the State Duma of Russia as well as to approve the regional budget, programs and plans of socio-economic development of the Oblast, and to carry out control functions over the execution of the regional legislation. The current Duma was elected in March 2007, based on the new rules. The specificity of the new order was that half of the fixed number of deputies of the

regional Duma was elected from two-mandate election districts³⁵, while the other half from the single election district in proportion to the number of votes given for single lists of candidates proposed by election associations (parties). At the same time, in order to stimulate activities of the political parties and their regional divisions in the Oblast there was fixed a 7 % “threshold” for participation of election associations in the distribution of deputy mandates. The number of deputies of the regional Duma was increased from 25 elected in the three previous convocations to 32 representatives, starting from the present fourth convocation. The most numerous deputy fraction of the present Duma is “Single Russia”, which is considered to be the “pro-governmental” and “pro-president” party also constituting the majority in the State Duma of the Russian Federation.

Executive power in the Murmansk Oblast is carried out by the Governor – the supreme official of the Murmansk Oblast and a system of executive power bodies (administration of the Murmansk Oblast). The latter includes the region’s Government and other executive power bodies formed in accordance with the region’s Charter. The present Governor of the Oblast – Yuri Evdokimov was elected to this position three times by the region’s population at general elections (first in 1996) and in 2007 he was delegated the Governor’s authorities by the President’s representation. His term will last to 2012.

The Governor has the authority to decide the structure of the executive power bodies in the Oblast, the formation of the regional Government and to make decisions on its resignation, and oversee appointments and resignations of leaders of executive power-bodies in cases regulated by federal law. The Governor heads the regional Government and chairs its meetings, submits draft regional budget and report on its execution to the regional Duma. It should be noted that the regional Duma is entitled to express distrust with the region’s Governor. Such claims should be directed to the President of the country who makes the decision on the eventual dismissal of the Governor.

The system of the *regional administration* includes 7 departments (finances, economic development, industry and transport, the fishing industry, etc.), 11 committees (on health care, labour and social development, on education, etc.) and 2 inspections (the state housing inspection and the state inspection on control over technical condition of self-propelled and other machinery). The largest subdivisions of the regional administration (Departments) are oriented towards development of the economy and its sectors (the fishing industry, transport, construction and housing and communal economy). The subdivisions which specialize in solving issues of social policy have a relatively lower status (Committees and Directorates). There are no special subdivisions dealing with issues of the northern minorities residing in the region (see section 3.2.7).

In 2006 the Government of the Murmansk Oblast elaborated and adopted a number of documents directed to the implementation of the second stage of the administrative reform going on in the country. The first stage of the reform in 2003-2005 was directed to the formation at federal level of the necessary preconditions for a modernization of the complex system of state government and local self-government. The goal of the second stage of the administrative reform is to increase the efficiency of the state government by cardinal improvement of activities of the executive power bodies and spreading the reform to the regional level. In order to attain this goal a specific program was elaborated (“Carrying out administrative reform in the Murmansk Oblast” for 2006-2008). Among the Program’s tasks are the following:

³⁵ For elections of deputies of the regional Duma of the fourth convocation there was suggested the scheme of 8 two-mandate districts with 87848 voters in a district (proceeding from the fact that total number of voters in the region was 702787 and number of deputy mandates distributed among the districts should be 16 with the average representation norm of 43924 people).

- Standardization of governmental services and regulation of governmental functions of executive power bodies in the Murmansk Oblast;
- Introduction of principles and procedures of governance by results;
- Introduction of mechanisms for counteracting corruption in the executive power bodies of the Murmansk Oblast;
- Increasing efficiency of interactions between executive power bodies in the Murmansk Oblast and the civil society as well as transparency of activities of the executive power bodies.

Precise indicators have been elaborated, and if successful the program could imply an improvement of the socio-economic conditions in the Oblast. At the same time it is obvious that the quality of the state administration to a large extent is determined by the competence level and moral-psychological characteristics of the managerial personnel that hardly can be cardinally changed within such a short period.

3.2.6 Basic living conditions

Before 1990s, the Murmansk Oblast was one of the most prosperous territories of the USSR. Here, due to high wages including northern bonuses, average income was twice the country's average. During the economic slump, following the market reforms of the 1990s, changes in the state's social policy led to a considerable reduction in the living standard in the region. In 1992, price liberalization provoked a steep decline of real disposable income for most people in the province. Basic indicators describing the living standard in the region compared to the Russian average are given in table 3.10.

Table 3.10: Indicators of living standard for the population in the Murmansk region

	1986	1991	1995	2000	2001	2002	2003	2004	2005	2006
Monthly per capita income, RUR nominal	217	642	739, 8 ³⁶	3550,1	4620,2	5892,5	7134,7	8367	10073	12381
Index of real disposable incomes, % to the previous year:										
Murmansk region	101.4	114.8	86	115.1	102	104.5	101.9	103.4	109.5	111
Russia	102,7	116,0	87	109,1	108,5	118,8	114,9	107,8	111,1	110,0
Average monthly wage per worker (RUR):										
Murmansk region	339.9	795	851.5	3747	5387	7223	8645	10404	12522	14984
Russia	207.8	548	472.4	2259	3240	4360	5512	6828	8550	10736
Ratio of average wage in the region to average wage in Russia	1.64	1.45	1.80	1.66	1.66	1.63	1.57	1.52	1.46	1.39

After the hard period of economic stagnation in the 1990s, growth in real income was at last registered in 2000, although it only accounted for 50 % of the 1991 level. Then in 2001-2004 income growth rates in the Murmansk Oblast were considerably behind the Russian average. The main reason behind the stagnation of real incomes contrary to the general trend in Russia was the chronically slow growth rates of salaries coupled with the

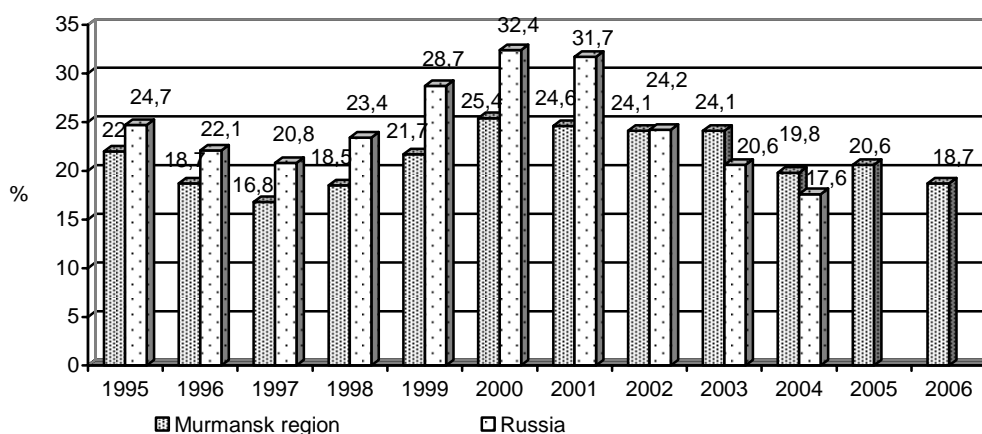
³⁶ From 1993 to 1998 – thousand RUR.

high rate of inflation. Only in 2005 there was a noticeable growth (by 9.5 %) which continued in 2006, exceeding the average Russian level.

Sectoral and territorial income differences remain a serious problem. The average wage in the social sphere financed from the budget (education, culture, etc.) as well as in the agriculture is less than 50 % of the level in the industry. Regarding territorial differences, the average wage is higher in districts characterised by industry and energy production, while we find the lowest wages in coastal and rural districts. Thus in 2006 in the Terskiy district on the White Sea coast the average wage amounted to 9,600 RUR, or 64 % of the regional average.

Poverty is still a serious problem both in Russia and in the Murmansk Oblast. Before 2002 the share of poor was stably lower than the Russian average but from 2003 it began to exceed average values for the country (figure 3.20). Regarding the last two years (2005-2006), growth of real income in the region corresponded to the Russian average level, and the poverty level began to decrease. The positive trends in the last years are confirmed not only by statistics but also by results of sociological surveys of the province's population.³⁷ In 2006 the share of residents referring to themselves as "poor" and "very poor" decreased considerably and amounted to 35 % (in 2005: 50 %).

Figure 3.20: Poverty level in the Murmansk region and in Russia (share of population with incomes below the subsistence minimum), per cent



3.2.7 The Saami situation

On the modern ethnical map of the Murmansk Oblast the Saami constitute an insignificant minority among a poly-ethnic majority, mainly formed by migrants during the last hundred years as a result of the intensive industrial development of the region and its strategic importance. Today the number of Saami residing on the Kola Peninsula is only 0.2 % of the total regional population or 1,795 persons in total.³⁸

According to the statistical data, during the 1990s the total number of Saami population increased by approximately 18 %. However, this growth is mainly explained by the

³⁷ Since 2000 sociological surveys of the Murmansk province's population are regularly carried out by the Institute for Economic Studies of the Kola Science Centre RAS.

³⁸ Bogdanov N.B. 'O demografii, chislennosti i trudozanyatosti Kol'skih Saamov' in «Lovozer'skaya pravda» № 31, 32, August 2005.

strengthened ethnical identity of the indigenous population during this period.³⁹ Recently there has been a significant decrease in the number of Kola Saami. From 1999 to 2005 the number was reduced by almost 10 %. In this regard it should be noted that the death rate of the Kola Saami has increased considerably, from 10.2 deaths per 1,000 in 1998 to 14.2 in 2005. In general, the death rate in the Murmansk region during the mentioned period increased dramatically, while among the Saami it always exceeded the regional average, and this trend seems to persist.

At the same time, it should be noted that the birth rate in the residence territories of the indigenous population remains stably low: 9.5 births per 1,000 inhabitants in 1998 and 9.8 in 2005.⁴⁰ For comparison, in the early 1990s this indicator amounted to 19.5 per 1,000 inhabitants.⁴¹ As a result the average modern Saami family consists of 3-4 persons.⁴² Another important recent tendency is the increased level of urbanization among the Kola Saami. In 1998 the rural Saami residents accounted for 75 %, while in 2005 the figure was only 66 %.⁴³

In general there are a number of trends among the Kola Saami that do not coincide with the regional trends. The Kola Saami are older than the population of the region as a whole, and men constitute the majority, especially in remote settlements, while at the regional level women constitute about 51 % of the population. Unlike the general trend of stable population outflow to areas outside the region, the Kola Saami has a low migration rate. Only 11 % of the Russian Saami live outside the Murmansk region.⁴⁴

The most mobile segments of the Saami population are women and youths, changing residence for work or studies. Often women do not come back to their native settlements as they are getting married to men of other nationalities. As a result, mixed marriages among Saami account for about 80 %⁴⁵ of all marriages, a fact contributing to an acceleration of the assimilation process among the Kola Saami during the last years. However, since children born in mixed families are often registered as Saami, the ongoing assimilation processes cannot be described in correct statistical terms.

Places with a high concentration of Saami population are Lovozerskiy, Kovdorskiy (Yonskaya village administration) and Kolskiy districts of the Murmansk region. In all

³⁹ Gutsol N.N., Ryabova L.A. Vinogradova S.N. 'Sovremennoe polozhenie Kol'skih Saamov kak rezultat socialno-ekonomicheskikh transformacii 1990-h godov' in *Etnokulturnye processy na Kol'skom Severe* (Apatity: KSC RAS, 2004), p. 25.

⁴⁰ Basic indicators of socio-economic situation in the districts of indigenous people compact residence on the territory of Murmansk oblast in 1998 year, Murmansk, Oblkomstat, 1999.; Data about national structure of population in towns and districts of the Murmansk oblast (according to census of enumeration 2002). Murmanskstat, 2006.

⁴¹ Gutsol N.N., Ryabova L.A. Vinogradova S.N. 'Sovremennoe polozhenie Kol'skih Saamov kak rezultat socialno-ekonomicheskikh transformacii 1990-h godov' in *Etnokulturnye processy na Kol'skom Severe* (Apatity: KSC RAS, 2004), pp. 22-37.

⁴² Ibid., p. 26.

⁴³ Basic indicators of socio-economic situation in the districts of indigenous people compact residence on the territory of Murmansk oblast in 1998 year (Murmansk, Oblkomstat, 1999); Basic indicators of socio-economic situation in the districts of indigenous people compact residence on the territory of Murmansk oblast in 2005 year, (Murmansk, Murmanskstat, 2006).

⁴⁴ Vinogradova S.N. 'Saami Kol'skogo poluostrova: osnovnye tendencii sovremennoi zhizni' in *Formirovanie osnov sovremennoi strategii prirodopol'zovaniya v Evro-Arkticheskom regione* (Apatity: KSC RAS, 2005) p. 424-434.

⁴⁵ Gutsol N.N., Ryabova L.A. Vinogradova S.N. 'Sovremennoe polozhenie Kol'skih Saamov kak rezultat socialno-ekonomicheskikh transformacii 1990-h godov' in *Etnokulturnye processy na Kol'skom Severe* (Apatity: KSC RAS, 2004), pp. 22-37.

the settlements where Saami reside they constitute an absolute minority. 40 % (715 persons) of all Saami in the Murmansk region live in the village of Lovozero, but they account for only 22 % of the total Lovozero population.⁴⁶ The present settlement pattern of the Kola Saami only slightly coincides with the traditional one. A considerable part of national Saami settlements of the Kola Peninsula was liquidated in the 1950s and 1960s as a result of alienation of territories for military and industrial needs. At present only a few Saami settlements on the Kola Peninsula are located within their traditional areas. Based on an analysis of the socio-economic situation, the Kola Saami is one of the most socially vulnerable population groups of the Murmansk region.

By income level the Kola Saami is one of the poorest population categories in the Murmansk region.⁴⁷ According to the data of the Saami Public organization of the Murmansk region (OOSMO) about 65 % of able-bodied indigenous population are unemployed.⁴⁸

Agriculture and education remain the main sectors for employment of the indigenous population, i.e. spheres with the lowest wages. Traditional economic activities such as fishing and hunting as well as handicraft industry have lost their economic importance for the Kola Saami. There is no commercial hunting on the Saami territory of the Murmansk region. River, lake and coastal fishing became inaccessible for the Kola Saami due to limited access to resources. The Kola Saami are allowed to fish for free but only for their own needs and within fixed catch limits.

As a result the traditional economy of the Saami is limited to reindeer-herding. In the Murmansk region about 7200,000 hectares of pastures are allocated for reindeer-herding activities, or almost half the territory. At the same time reindeer-herding is an insignificant sector of the economy of the Murmansk region. The share of agriculture in the gross regional product does not exceed 1 %, and consequently, the share of reindeer-herding is even smaller.⁴⁹ For the last twenty years reindeer-herding in Murmansk Oblast has undergone dramatic changes. The reindeer-herding sector has been involved in the state program of privatization, which started in 1992. At that time all the collective farms had been destroyed and the reindeers had been displayed for sale.⁵⁰ At present, only 5 % of all reindeers on the Kola Peninsula are registered as state property.⁵¹

During the 1990s the slump of reindeer livestock took place in Murmansk Oblast, reducing the stock from 79,000 animals in 1991 to 60,000 as per 2005. During the Soviet period reindeer herders belonged to the group of highly paid workers in the country. The state subsidies of that time allowed reindeer-herding enterprises to maintain stable high wages as well as maintaining the infrastructure of the reindeer-herding bases. During the market reforms the situation has changed sharply. In 1999 the wage of reindeer herders was in average 1,200 RUR, or less than 50 % of the average monthly salary in the region, practically corresponding to the defined subsistence minimum at that time.⁵² The last years are defined by certain comparative stability in reindeer herding. In spite of all

⁴⁶ Ibid.

⁴⁷ N. Kuznetsova Olenevodam ne nado vesel'ia. Khibinskiy vestnik, 5 April 2007

⁴⁸ L.Avdeeva - Representative of the Saami Public organization of the Murmansk region (OOSMO)

⁴⁹ Report about socio-economical situation of Murmansk oblast in 2006 <http://gov.murman.ru> .

⁵⁰ Gutsol N.N., Ryabova L.A. Vinogradova S.N. 'Sovremennoe polozhenie Kol'skih Saamov kak rezultat socialno-ekonomicheskikh transformacii 1990-h godov' in *Etnokulturnye processy na Kol'skom Severe* (Apatity: KSC RAS, 2004), pp. 22-37.

⁵¹ Ibid.

⁵² Ibid.

difficulties, the sector has succeeded in keeping the main reindeer-herding enterprises, maintaining the reindeer livestock and little by little renewing the material resources.

Reindeer-herding in the Murmansk region is represented by various forms. Productive trade is concentrated to the two reindeer-herding enterprises “Tundra” and “Olenevod” being agricultural cooperatives in the Lovozero district. Besides, there is a state experimental production enterprise of the Murmansk station of the Russian Academy of Agricultural Sciences, as well as small reindeer-herding enterprises and farms. However, participation of the indigenous population in the mentioned reindeer-herding enterprises is extremely low. By the beginning of 2005 employees of the reindeer-herding enterprises numbered 766 persons, of them 129 Saami or 7 % of total indigenous population (Bogdanov, 2005). At the same time there are a number of reindeer-owners not registered in the official statistics. As a rule private reindeers belong to herdsmen working for reindeer farms or to their relatives. According to data for 2002 in the Murmansk region the number of such reindeers reached 7,000 heads. Reindeer herding in tribal communities began to develop comparatively recently, with the adaptation in 2002 of the RF law “On general organization principles of communities of indigenous national minorities of the North, Siberia and Far East of the Russian Federation”. Regarding the territory of the Murmansk region there are registered 14 Saami tribal and territorial-neighbour communities aiming at the revival of the traditional economy, everyday life and spiritual culture.⁵³

However, effective development of Saami communities is complicated on the Kola Peninsula. The main problem is connected to the allocation of pastures. Lack of available land suitable for reindeer-herding results in a collision of interests between Saami communities and other land users (mainly large enterprises). At the same time lack of regional legislation fixing priority rights of the indigenous population as well as lack of interest of regional authorities in development of Saami communities make a solution difficult. As of 2005 lands for reindeer-herding were allocated to only five communities, amounting to 250,000 hectares or 3.5 % of the total pastures in the region.⁵⁴

When the Perestroika started, positive changes took place in life of the indigenous population. Researchers noted a growth in self-identity among the representatives of national minorities during this period, intensive processes of formation of Saami public organizations, active contacts with foreign Saami groups and organizations and representatives of other national minorities of Russia.⁵⁵ The Russian Federation has recently adopted many documents concerning rights of indigenous peoples. First of all, according to the new Russian Federation Constitution indigenous minorities are guaranteed rights in accordance with the generally accepted principles and norms of international legislation.⁵⁶ Several fundamental laws determining the rights of indigenous people in Russia were passed at the same time. However, the legal system on these issues is contradictory as it has been developed rather chaotically and as a result it is largely inefficient.

⁵³Bogdanov N.B. O demografii, chislennosti i trudozanyatosti Kol'skih Saamov. «Lovozerkaya pravda» № 31, 32, August 2005.

⁵⁴ Ibid.

⁵⁵Gutsol N.N., Ryabova L.A. Vinogradova S.N. Sovremennoe polozhenie Kol'skih Saamov kak rezultat socialno-ekonomicheskikh transformacii 1990-h godov // Etnokulturnye processy na Kol'skom Severe – Apatity: KSC RAS, 2004. - p. 22-37.; Lukyanchenko T.V. Gosudarstvennaya politika i tradicionnaya kultura Saamov. Problemy vozrozhdeniya.// Otchet o konferencii v Neidene 17-18 sentyabrya 1997 g. Istoriya saamskoi kulturey, ohrana kulturnyh pamyatnikov i vozrozhdenie kulturey. Kirkinen. 1999.

⁵⁶ RF Constitution, Article 69.

The legislative basis of the Murmansk region concerning indigenous people can be described as legal vacuum. During the 1990s repeated attempts to adopt a regional law on rights and guarantees of indigenous minorities of the north on the territory of the Murmansk region remained unrealized. There are no territories of traditional Saami nature with special legal status. On the other hand, the period from 1980 can be characterized as a boom for Saami culture; traditional handicrafts were revived, a National museum and a National cultural centre of indigenous peoples were established in the village of Lovozero, teaching of the Saami language at schools was resumed, books of Saami authors were published, national folklore groups were created, and a Saami radio station started working. The Saami culture became an integral part of the regional cultural environment. However, the language remains a problem. By late 1990s not more than 40 % of the Saami living in Russia knew and spoke various dialects of the Saami language.⁵⁷

In political terms the Kola Saami gained considerable attention during the last twenty years; passing from an almost imperceptible small ethnic group dependent on the interests of the Soviet state to an ethnically and politically significant community. In the 1990s two important public organizations; the Association of the Kola Saami and the non-governmental Saami Organization of the Murmansk region (OOSMO) began to function. At present they work actively, supplementing each other. Since 1992 the Saami of the Russian Federation became members of the international organization "Saami Council", and in 2005 a Russian representative was elected as its head.

In general terms the situation of the Kola Saami can be characterized by poverty, mass unemployment and a destroyed traditional economy, but from another angle by cultural revival, political activity and intensive international contacts.

3.3 The regional paradox

As this account of the current situation in Finnmark County and Murmansk Oblast shows, the northern region is characterized by population decline, a very one-sided industrial structure heavily specialized in processing of raw materials, and a relatively high rate of unemployment. From a regional development point of view, the region clearly needs a new engine of growth. The prospects of an extensive oil and gas development in the Barents Sea have thus led to great expectations about the regional effects this will create.

On the other hand, the account has also demonstrated that the region is badly prepared for receiving the new oil and gas industry and to make the most out of the coming petroleum activity. The existing industry, infrastructure and knowledge and skills are not very well adapted to the needs of an oil and gas industry which is facing great technological and logistic challenges in offshore Barents Sea operations. This mismatch is the paradox of the region.

This situation is further aggravated by the lack of strong political organisations on the regional level. Both in Finnmark and in Murmansk the regional political-administrative level is relatively weak, being completely dependent on transfers from the central government. Also on industry level, this dependence is characteristic, with many isolated company-towns dependent on the extraction of natural resources, where the main offices normally are located further south, that is, in Moscow or Oslo.

⁵⁷ Basic indicators of socio-economic situation in the districts of indigenous people compact residence on the territory of Murmansk oblast in 1998 year, Murmansk, Murmanskstat, 2006.

4 Oil and gas in the High North

The previous chapter gave an account of recent trends and characteristics of the northern region, defined as the Finnmark County and the Murmansk Oblast. The new element which is now introduced is the prospect of an extensive oil and gas development in the Barents Sea. How will this affect and transform the region? Before we assess the possible impacts, we will provide some background information about the industry currently moving into the region. The first part of the chapter thus contains some “stylized facts” about the oil and gas sectors of Norway and Russia. In addition, we will present and discuss the development perspectives outlined by the Norwegian consultancy company Barlindhaug. We have been asked to take their assumptions regarding the scale and scope of future petroleum activity in the High North as our point of departure.

4.1 Setting the scene

The High North is a meeting place for Norway and Russia, two highly different countries in terms of size, population, political history and culture. At the same time they are neighbouring countries with some important similarities. In both countries the oil and gas industry plays a decisive role. In 2005, the petroleum sector accounted for 25 % of Norway’s gross domestic product (GDP), 52 % of the country’s export revenues and 33 % of net government income.⁵⁸ Although the estimates for Russia vary widely, the IMF and the World Bank suggest that in 2005 the oil and gas sector represented about 20 % of Russia’s GDP, more than 60 % of its export revenues and at least 40 % of the government’s budget.⁵⁹ This makes the two countries vulnerable to fluctuations in world oil prices.

A common feature of both countries is that production of natural gas is gradually becoming more important as compared to oil production. Gas is the cleanest of the fossil fuels and the least harmful to the environment. Internationally, gas is now gaining ground as an energy carrier and the demand for LNG is rising faster than the demand for pipelined gas. Norway and Russia are also similar in the sense that the oil and gas industry is dominated by a few large corporations with a strong element of public ownership and close ties to political authorities. The leading Russian companies are Gazprom and Rosneft, while the much smaller Norwegian counterparts are Statoil and Norsk Hydro, which are currently in a process of merging their oil and gas operations.

Basically, the logic of oil and gas development is the same in every country. Petroleum production is a mining industry exploiting non-renewable resources. The normal steps involve receiving licences to an area for exploration and drilling; discovering recoverable

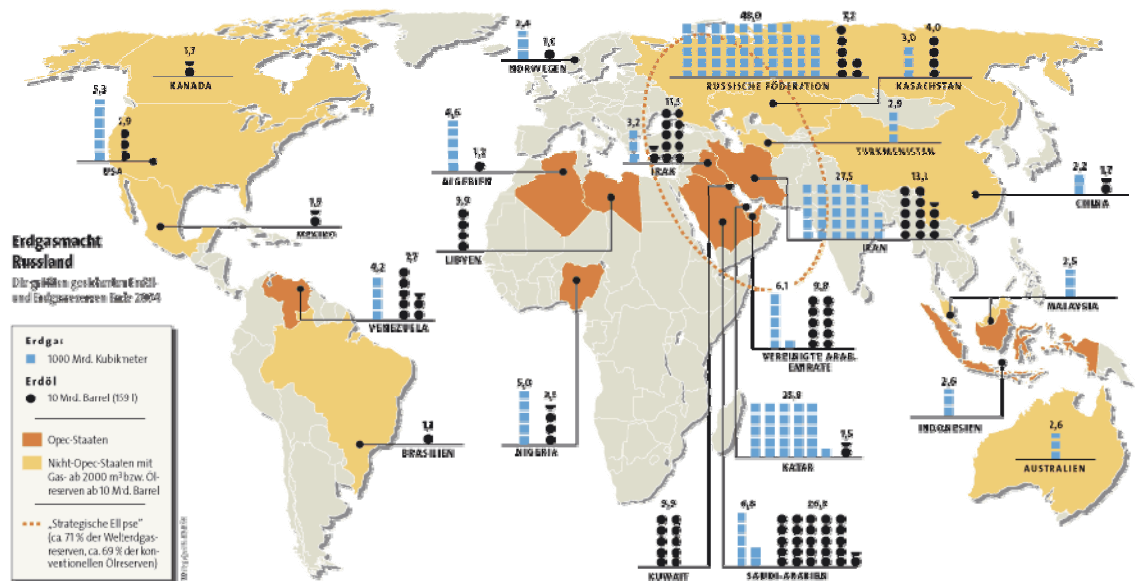
⁵⁸ Facts 2006 – The Norwegian Petroleum Sector, The Norwegian ministry of petroleum and energy/The Norwegian Petroleum Directorate.

⁵⁹ Energy Information Administration, Country Analysis Briefs, Russia.

deposits; obtaining production permission; extracting, processing and marketing the products; and hopefully moving on to a new and sizable field before the old one is depleted.

The resource potential of Russia is beyond comparison much larger than that of Norway. Russia has more proven natural gas reserves than any other country and is among the top ten in proven oil reserves. Norway is still a comparatively large exporter of oil and gas, but this is partly due to the low level of domestic consumption. North Sea oil and gas production has probably reached its peak and exploration of new areas is therefore vital in order to maintain production in the longer term. The differences are visualized in the following figure:

Figure 4.1: Proven oil and gas reserves 2004. Source: Frankfurter Rundschau



While the petroleum industry in Norway dates back to the late 1960s, with production start at the Ekofisk field in 1971 and the establishment of Statoil and the Norwegian Petroleum Directorate in 1972 as milestones, Russian petroleum industry has a much longer prehistory. Two pioneers were actually Robert and Ludvig Nobel, brothers of the Nobel price founder Alfred Nobel, who in 1876 started an oil company called Branobel to exploit the oil wells in Baku. The Baku region was at that time part of the Russian Empire. Among the technical and commercial innovations they introduced, were pipelines for the transport of oil and oil tankers built in sections in Sweden and assembled on the Caspian Sea.

Another major difference between Norway and Russia is the predominant type of oil and gas production. Russia has been exploiting onshore fields. Starting in the Caspian and North Caucasus, production was in the 1930s extended to the Volga-Ural region and in the 1960s to Western Siberia. The Western Siberia basin still holds the most sizeable reserves in Russia. The only Russian offshore field currently in operation is Lukoil's Kravtsovskoye oilfield in the Baltic Sea. Sevmorneftegaz's Prirazlomnoye oilfield in the Pechora Sea and the Sakhalin II LNG Project in the Sea of Okhotsk, operated by Sakhalin Energy Investment Company, are still under construction. In Norway production has only

been offshore, concentrated to the North Sea and gradually extended to the Norwegian Sea.

These differences are also reflected in the pipeline systems of the two countries. The Norwegian pipelines are placed on the ocean floor with terminal points at the seashore in the Netherlands, Great Britain and Germany. The Russian pipelines, on the other hand, are mainly crossing the land and even the territories of many neighbouring countries. During Soviet times, the whole of Eastern Europe was linked up to and dependent on Russian supply of energy. After the dissolution of the Soviet Union and the end of the COMECON, Russia has been eager to increase its oil and gas export to Western Europe and to recover world market prices, provoking disputes with several neighbouring transit countries. To avoid such transit over foreign territory, new pipelines are now to be built on the seabed in the Baltic Sea (Nord Stream) and through the Black Sea (South Stream). Russia also looks both east and west and is keen to capture the burgeoning markets in Asia. The rising demand for energy has apparently triggered off an arms race in pipeline building, with new plans and major contracts being announced nearly every day.

Oil and gas development typically implies mega projects. The petroleum industry is capital-intensive, that is, bringing the resources up from the ground and all the way to the markets involves a chain of huge investments. The employment effects tend to be quite modest. This is illustrated by the Norwegian oil and gas industry. In spite of the sector looming large in the Norwegian economy, the total direct and indirect employment is about 80,000 people, which is less than 4 % of total employment. The general trend is more and more automatized production processes and use of prefabricated modules. In the Barents Sea, sub-sea facilities will probably play a major role in the production of hydrocarbons. Multiple wells are then connected to manifolds via pipelines and the well stream is routed to a process facility offshore or on land.

Oil and gas development includes some low-skilled work in the fields of construction and building, transportation, and hotel and catering, but by and large the sector is dominated by experts and specialists. All stages of oil and gas activity today take the shape of complex projects, with a strong need for co-ordination within tight time schedules, which in turn requires professional management. Due to the high economic and ecological risks, the sector is also replete of rules and strict regulations which must be adhered to.

The oil and gas industry acts as a catalyst for technology development. There are strong incentives for innovation and improvement in the fields of seismology, interpretation of exploration data, drilling of wells, increasing the recovery factor, multi-flow transportation, integrated operations, etc. Other important issues are environment, health and safety. Some of the relevant knowledge is held as proprietary knowledge by the oil companies, but to a large extent innovation takes place in close co-operation between the oil companies, leading research centres, and key suppliers.

In order to qualify as a contractor to the industry, supplier companies must normally be approved and satisfy documented quality standards. Once approved, however, the suppliers are short-listed for recurrent commissions and may become part of running framework contracts. One characteristic feature of the oil and gas sector is therefore high barriers to entry. Many are called, but few are chosen. Simultaneously, the companies involved in the oil and gas industry are often important carriers of sophisticated knowledge and technology. Relocation of such companies to less developed regions can, *under favourable conditions*, lead to an upgrading of the local economy.

The High North, which is envisaged as the new offshore petroleum province, is a divided region. Although the iron curtain is gone, the connections between Norway and Russia

are still not normalized in the sense that cross-border contact and exchange is as simple as that between for example Norway and its other neighbouring countries. It is hard to neglect the legacy of history and the imbalance between a small country and a great power, spanning 11 time zones and stretching from Europe to the Far East. The border between Norway and Russia is now part of the external border of the Schengen area, and co-operation is also hampered by the lack of a defined maritime boundary.

As noted in chapter 3, the whole region is sparsely populated and characterized by scattered settlements and vast distances. The climate conditions are harsh. The economic structure is characterized by resource-extracting industries and government services, and the region is witnessing a declining population. Both Northern Norway and Northwest Russia have for a long time figured as national peripheries or Arctic outposts. Links have traditionally been oriented north-south, with the northern areas subordinated to southern metropolitan regions.

At the same time, the two parts of the northern region are dissimilar in many other respects. The population of Murmansk Oblast is more than ten times bigger than that of Finnmark County. The Kola Peninsula is still highly militarized and dominated by large-scale industrial complexes. There is also a huge gap in income levels, living standards and public health situation. Murmansk Oblast used to be among the wealthiest regions in the Soviet Union but has experienced a relative deprivation during the last 15 years. The county of Finnmark has always been below the national average in terms of value creation, but thanks to public transfers and provision of services the income disparities have narrowed.

Oil and gas development is more controversial in the High North than in many other places. On the one hand, it is welcomed as a new potential growth industry which might bring prosperity and a new dynamic spirit to the region. For all those dreaming of a coming industrial take-off, the problem is that this has been talked about for decades, but little has happened. High expectations followed by meagre results can easily lead to disillusionment. On the other hand, oil and gas development in the High North seems to be running into several conflict zones. The rich marine resources of the Barents Sea are one source of worry. Can fisheries and the protection of valuable spawning, juvenile and feeding areas go hand in hand with an extensive oil and gas activity? Another challenge is the issue of climate change and a fragile environment. Is it advisable to open for a widespread oil and gas development in the Arctic? As a third complicating factor, the rights of indigenous peoples have been put on the agenda. How should they be accounted for when a new industry is introduced?

The two parts of the northern region have different preconditions for oil and gas engagement. On the Kola Peninsula there are a number of shipyards and an engineering industry which can serve as bridgeheads for oil and gas development in the Barents Sea. The naval and icebreaker fleet and its officers know much about maritime cold weather operations. The Murmansk region also has several scientific institutions specialized in relevant fields of knowledge. The industrial base and knowledge infrastructure is much weaker in the Finnmark County. The Snøhvit project has given the county a head start, but in general there is less human and physical capital to build on. The main advantage of Finnmark is probably a more conducive institutional environment, which allows for higher flexibility and easier operations. Apart from that, the size of the settlements is important. It must be presumed that the larger the centre, the more oil and gas related functions can be harboured locally, due to the available supply of knowledge and services. However, the smaller the centre, the larger are also the separate impacts of the oil and gas industry when it possibly arrives.

The framework conditions for petroleum development is perhaps what distinguishes the Norwegian and the Russian part of the region the most. The national policies of the two countries have diverged in essential ways. In Norway the early stage of petroleum development was about nationalization. Priority number one in the 1970s was building up a national petroleum industry, including the knowledge and skills required to manage this new sector in the national interest. This gave a large burst to the Stavanger region, the new oil capital, where the international oil companies already had gathered for their North Sea operations. National energy policy, in effect, turned out to be a strong regional policy, favouring the south-western part of Norway. At the same time, Statoil was given a privileged position on the Norwegian shelf. From the late 1980s, increasing energy policy liberalization took place, paralleled by a stepping up of the global businesses of the key Norwegian oil companies. Deregulation of the sector continued during the 1990s, as Norway approached the EU and had to accept EU's competition rules and the Gas directive.

In Russia the end of communism brought a wholesale privatization of major national industries. Giant values were handed over to a small group of tycoons, bent on asset stripping. In the 1990s, when oil prices were low, foreign oil companies were also invited in on favourable terms. Under president Putin this trend has been reversed. The Federal state has pursued to retake control over main revenue sources and privatization has been rolled back. To justify the backing of national champions like Gazprom and Rosneft, the Russian government has used arguments akin to those applied by the Norwegian authorities in the 1970s. Increasingly, Russia has striven to gain control over pipelines, refineries and distribution nets closer to the end users of Russian oil and gas abroad. Rocketing oil and gas prices have also made it possible for the Russian state to pay off its foreign debt and to accumulate a growing capital surplus. This new resource wealth has paved the way for a more self-assured Russia willing to use energy as a political and diplomatic weapon.

While the Norwegian energy markets have been liberalized, the environmental regulations have become tighter. The further north the oil and gas activities are moving, the more severe the environmental restrictions tend to be. Strong pressure from environmentalist NGOs has led to the introduction of an integrated management plan for the Barents Sea – Lofoten area with protection of particularly valuable and vulnerable areas and zero emissions requirements in connection with petroleum activity. Russia has also issued a large body of environmental regulations. The implementation and enforcement of the rules, however, seems to be more relaxed. If a company is breaking the rules, this is a negotiable issue normally solved by fines or other payments. Russia has not prepared any management plan for the marine environment of the Barents Sea equivalent to the Norwegian plan. Nor do environmental NGOs play any prominent political role in Russia.

To sum up the overall scene, oil and gas development has arrived as a driving force in the north. What we are witnessing is a well-established and mature petroleum industry entering a new and remote region. Although oil and gas development in the region starts from scratch, the industry already has its networks of affiliated suppliers from outside the region. The region concerned is a typical resource-based periphery embracing parts of two different countries with unresolved boundary issues. In addition, energy policy is now increasingly becoming fused with strategic foreign policy and climate and environmental policy.

4.2 Development perspectives for the Barents Sea

The Barlindhaug report⁶⁰ proclaims that the Barents Sea, which is more than three times the size of the Norwegian continental shelf south of the 62 degree of latitude, is about to



become a new major petroleum province. Petroleum exploration and production is gradually extended from the North Sea and the Norwegian Sea into the Barents Sea. A similar process is taking place on the Russian side of the border.

The report emphasises that Russia has large oil and gas resources onshore in Eastern and Western Siberia and offshore in the north and east. Russian authorities may prefer to develop the gas fields in Western Siberia in order to serve the European market by gas through pipelines, but it is assumed that they will urge the development of the Shtokman gas field with a view to moving into LNG production, diversifying global markets and gaining a foothold in the Barents Sea.

Hence, there will be an increasing petroleum exploration and production on both sides of the disputed area in the

Barents Sea. This offers promising opportunities for Northern Norway. The region will be furnished with a new basic industry that can act as a supplement to traditional industries like fisheries, aquaculture and tourism.

The report divides the future development into three phases, covering the periods 2006–2012, 2012–2020 and after 2020. For each phase the major new activities and installations are indicated. Estimates are also made of total investment costs, input shares from various geographical areas and concomitant employment effects. These calculations are based on experience data from the Snøhvit and Ormen Lange projects.

Until 2020, total investments in Norwegian oil and gas projects in the region will amount to about 300 billion Norwegian kroner. It is assumed that 60 % of all inputs will be supplied by national industry. North Norwegian industry is expected to capture a share of about 8 %, which implies contracts for more than 20 billion Norwegian kroner the next 15 to 20 years. The annual direct and indirect employment effects in the region are claimed to be more than 4,000 man-labour years.

Table 4.1 shows the development projects included in the Barlindhaug report.

⁶⁰ J. P. Barlindhaug 2005: Petroleumsvirksomhet i Barentshavet. Utbyggingsperspektiver og ringvirkninger. Tromsø: Barlindhaug.

Table 4.1: Main development projects in the Barents Sea in the period 2006 – 2020

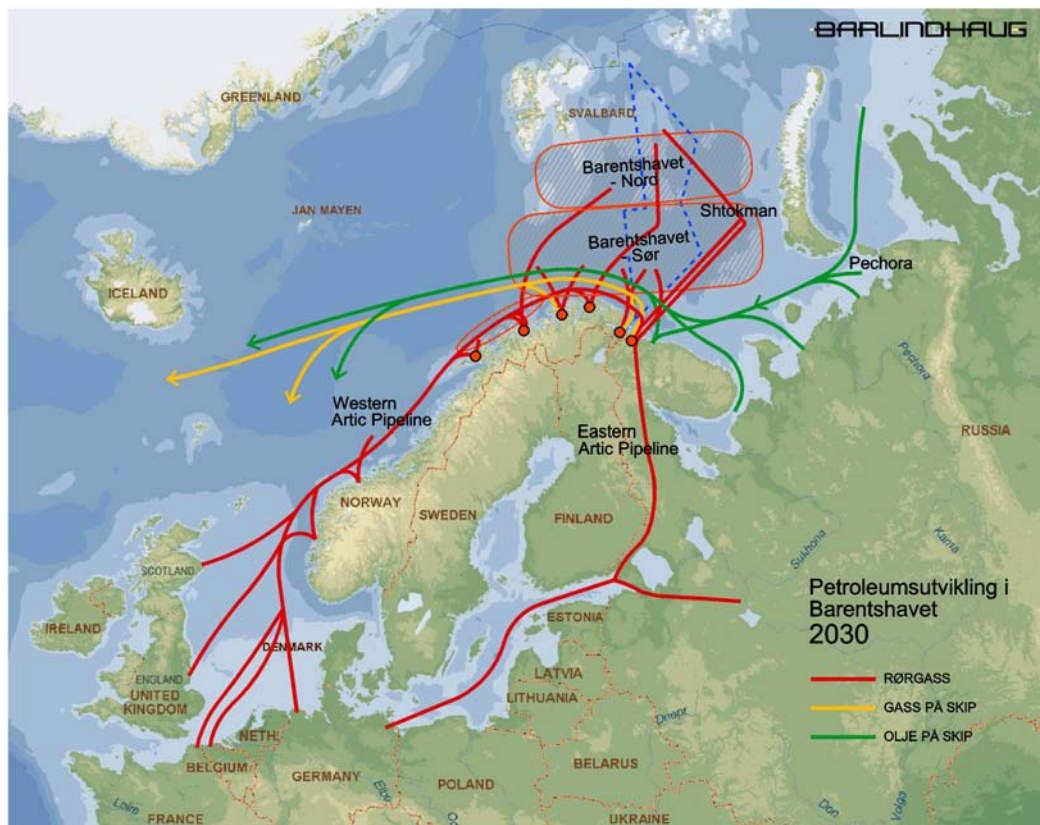
Development project	
Snøhvit LNG train 1	Shtokman LNG 2
Snøhvit LNG train 2	Eastern Arctic Pipeline Shtokman gaspipe 1
Goliat oil field	Western Arctic Pipeline Troms II
Shtokman LNG 1	Western Arctic Pipeline Vesterålen
Snøhvit LNG train 3	Crude oil terminal Vesterålen
Western Arctic Pipeline to Eastern Finnmark	Crude oil terminal Eastern Finnmark
Eastern Finnmark LNG	Crude oil terminal Western Finnmark/Troms

The short term perspective (2006 – 2012) investigates the time horizon where all planned projects are under development or completed. Snøhvit LNG train 1 is put into operation and the Goliat oil field is developed. This will be followed by Snøhvit LNG train 2 based on additional deposits in the same area. The 19th and 20th licensing rounds will also imply increasing exploration activity. The first step of the development of the Shtokman field is expected to take place in this period, and the Baltic Sea pipeline between Vyborg and Greifswald will be completed. In addition, new oil fields are going to be developed in the Pechora Sea (Prirazlomnoye and Doginskaya). In the short term, the main mode of transportation of crude oil and gas from the Barents Sea is assumed to be shipping. There will also be an increasing transshipment of Russian oil from the Pechora Sea and the Kara Sea, with some reloading on the Norwegian side of the border.

In the medium term (2012 – 2020), the petroleum activities will include the operation, maintenance and modification of Snøhvit LNG 1 and 2, Shtokman LNG 1 and the Goliat field. Exploration will be intensified. The next development projects envisaged are Snøhvit LNG train 3, the extension of the Western Arctic Pipeline from Mid-Norway to Eastern Finnmark, Shtokman LNG train 2 and subsequent construction of the Eastern Arctic Pipeline to be connected to the Russian-German pipeline in the Baltic Sea. Moreover, a number of gas processing plants for pipeline and LNG transportation will be built in Eastern Finnmark, Vesterålen and Troms, fed by gas from new deposits being discovered. This means that the Western Arctic Pipeline will have several offshoots in the region. In connection with some of the plants, oil terminals and processing facilities will also be built.

In the long term (the period after 2020), all of the projects under development in the medium term are assumed to be fully operational. The report foresees an extensive oil and gas development in the eastern part of the Barents Sea and in the disputed area. The major new step is the expansion of the petroleum activity into the Barents Sea North. Consequently, the Western Arctic Pipeline will be extended both northwards and eastwards so that it will be serving as an additional export route for gas from the disputed area as well as the Russian sector. The perspectives for 2030 are illustrated as follows:

Figure 4.2: Oil and gas development in the Barents Sea by 2030



4.3 Underlying assumptions and limitations

The Barlindhaug report is clearly written from a Norwegian point of view. It mainly deals with Norwegian energy policy and petroleum development projects off the coast of Northern Norway. The basic premises of the report are that Norway is in possession of large sea territories in the north, that Europe and the USA are now looking towards the Barents Sea to ensure long-term energy security, that Norway has already invested substantially in an oil and gas transportation infrastructure linking the North Sea and the Norwegian Sea to Europe, and that the recoverable resources in the Barents Sea probably are more significant on the Russian shelf and in the disputed area than on the Norwegian shelf.

According to the report, this combination of factors entails several risks. Norwegian sovereignty and territorial claims can be put under pressure and Norway may become an insignificant player in the north with little influence on the overall management of the Barents Sea and strategic decisions regarding the region's future industrial architecture.

The report therefore calls for an active and comprehensive Norwegian policy in the High North. Norwegian authorities are advised to push for petroleum development in the southern part of the Barents Sea and clearly express its intended long-term development strategy. Operational presence and detailed knowledge of the area are seen as keys to secure national control, viable management and sustainable development. The main message is that Norway should set the stage for the type of petroleum development and the choice of technology and environmental standards. The transportation infrastructure

that is being developed will also have a considerable impact on how to ensure stable oil and gas supplies in the future.

The Barlindhaug report underscores that the interests of the major oil and gas importing countries must be taken into account. At the same time it emphasizes the common interests of Norway and Russia in the High North. The Barents Sea is one ecosystem. Resource extraction in the disputed area requires that Norway and Russia reach an agreement. Norway has relevant technology and expertise regarding offshore petroleum production and by involving foreign partners on the Russian shelf Russian authorities can put more efforts into developing the remaining fields on the mainland. Hence, the two countries should strengthen their industrial and management co-operation and establish a close partnership in the Barents Sea.

Another main message of the report is that oil and gas development is likely to become a blessing for the northern region. The construction and running of large-scale petroleum installations, including landing and processing facilities, will pump huge investments into the region and leverage industrial development, employment and regional growth. Although the report focuses on Northern Norway, it implicitly claims that the regional effects of an extensive oil and gas development in the Barents Sea will be even more substantial in Northwest Russia. The boom in the Barents Sea will be radiating throughout the whole region.

The development perspectives outlined in the Barlindhaug report is based on an assessment of geopolitical forces, market conditions and a set of assumptions related to environmental aspects, available infrastructure, key technological developments, and exploration activities. Furthermore, the perspectives are constructed to be flexible in terms of serving the two main segments of the gas market (LNG and pipeline), with both shipping options and pipelined gas. A number of “facts” are thus taken for granted:

- Large areas will be opened for exploration and drilling in the Barents Sea despite environmental scepticism and the restrictions set by the Integrated Management Plan concerning the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands.
- New discoveries of recoverable fields will be made off the coast of Finnmark, in the area Tromsøflaket – Lofoten, and in the disputed zone, which will assist making viable the necessary investments in the Western Arctic Pipeline.
- The existing technological obstacles to separation and landing of gas from dispersed deposits far away from the coast and under low temperature will be solved.
- Oil and gas prices will stay high enough to defend the additional costs of petroleum production under Arctic conditions.
- The oil companies, which operate globally, will consider the Barents Sea as an attractive investment option and see development projects in this region as more interesting than competing investment opportunities world-wide.
- Russia will be opting for offshore gas production in the Barents Sea and start developing the Shtokman field in the impending future. Russian authorities and companies will also consider the Norwegian pipeline system as a possible outlet for Russian gas export.

- The Barents Sea will remain a peaceful and politically stable area characterised by ever closer co-operation between Norway and Russia, including an agreement on the disputed area and joint industrial development.

If we accept all these assumptions, little space is left for constructing different socio-economic scenarios for the overall northern region. The Barlindhaug report specifies a certain path of development and restricts the range of futures to be imagined. But as admitted in the report, many of the above mentioned assumptions are debatable. The further into the future one tries to look, the greater are the uncertainties. Hence, the suggested time horizons, the ordering and magnitude of the projects, the location of activities, their regional effects, etc., are only indicative. They are meant to be illustrations.

It should be added that the report was written two years ago, before Russia flexed muscles by cutting gas export to Ukraine, threatening to cut supplies to Belarus, and Gazprom announced that it would develop the vast Shtokman gas field without foreign partners and reorient the project towards Europe rather than LNG supplies to the United States. It was also written before Gazprom had chosen the French oil major Total to help develop the Sthokman field. The report should therefore not be read too literally as a prognosis or prediction of what will happen.

Bearing in mind the highly contested nature of the issue of Arctic oil and gas development, it is probably most correct to see the Barlindhaug report as a *vision*. It is not a neutral and non-partisan study, but a contribution to an ongoing debate, which ultimately turns on hopes and fears. From this point of view, the very report may be interpreted as an attempt to pave the way for its own assumptions to become true. That is, it tries to produce self-fulfilling prophecies; to be future-making. What it actually presents is qualified guesswork mixed with dreams and aspirations.

This should give us some leeway in the construction of our own scenarios, especially when we go down to the sub-regional or local level. In accordance with the Barlindhaug report, we assume that an extensive oil and gas development will take place in the Barents Sea. Yet, we depart from some of the assumptions contained in that report and add some new ones. By modifying the assumptions and focusing more in detail on various localities we increase the span of socio-economic processes and regional impacts that might be brought about by an extensive oil and gas development in the High North.

This implies that our report can not claim to be more scientific, disinterested or true than the Barlindhaug report. Both are based on qualified guesswork. Although we try to cover the Finnmark County and the Murmansk Oblast as two parts of the same region, even this report has a Norwegian bias. The main difference between the two reports is that we allow for *alternative futures*. We try to grasp the preconditions for certain developments to occur and how actions and events may interact and produce various outcomes. Accordingly, in the following scenarios we meet contrasting images of the region.

5 Three scenarios for the High North

Given that the Barents Sea is designated to become the scene of an extensive oil and gas development, this can affect the northern region in different ways. In this chapter we start with some methodological considerations. This is followed by a discussion of the main factors shaping the regional effects of oil and gas development. Then we present three scenarios for the High North, all premised on the notion of the Barents Sea as a new European offshore petroleum province.

5.1 Looking into the future

Scenarios are no attempt at predicting or forecasting the future. The basic rationale for developing scenarios is that the future is open. It is not pre-determined. There are many possible futures, of which some are more desirable than others. Scenarios are also premised on the assumption that the course of events at least to some extent can be influenced. The future has to be built or constructed. The future can evolve in different directions which will be shaped by the actions of various players and the decisions taken today.

By developing alternative scenarios, a more reflective attitude towards the future and a better preparedness for upcoming developments can be achieved. However, what makes the use of scenarios highly relevant is also what makes them rapidly outdated. Scenarios are never able to cater for real uncertainty and unpredictability generated by an interconnected world of constant change. Our anticipations of future situations are filtered by previous experiences and the limited horizons of our own expectations. They always are restricted by our fixed place and present time. Scenarios are simplifications, based on limited knowledge. Even the best scenarios inevitably are disproved and invalidated by history.

Typical weaknesses of most types of foresight and road-mapping exercises are:

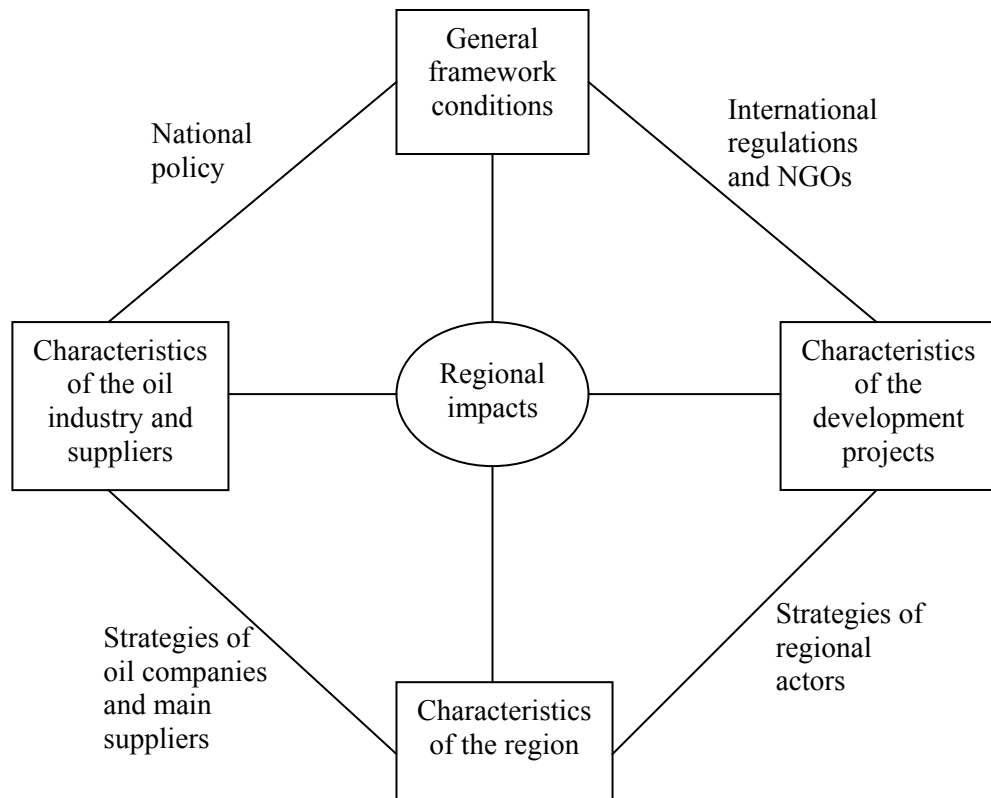
- The boundaries of the relevant environment are defined too narrow
- The influence of external developments are ignored
- The scenarios tend to depict continuous processes and underestimate discontinuity and uncertainty
- Focus is concentrated on states and properties, not on the processes through which they are realized
- The roles and actions of stakeholders are not sufficiently taken into account
- Emerging lifestyles and new ways of thinking are rudimentary covered
- The scenarios, which should be images of the future, are not very visual after all

Even though we are well aware of these challenges, several of the above mentioned weaknesses also apply to the scenarios presented in this report.

5.2 Oil and gas as a driver for regional development

There is no obvious link between petroleum development and regional development. Oil and gas can in principle be extracted offshore without leaving any onshore effects in the adjacent region. One aspect is the level of investments and activity in the petroleum sector, another aspect is the impetus and repercussions perhaps created in the nearby region. This raises the principle question of how petroleum development is translated into regional development. Clearly, this issue has several aspects. A simplified model is shown in figure 5.1.

Figure 5.1: Factors influencing the regional impacts of petroleum development



We presume that the regional effects will depend upon:

- the characteristics of the petroleum industry entering the region,
- the types of development projects undertaken,
- the characteristics of the region, and
- the general framework conditions for petroleum development.

The regional impacts will then be shaped by the ways these circumstances successively are linked, utilized and modified through the strategies of various actors. The most relevant actors in connection with oil and gas development are government agencies at different levels, oil companies and their main suppliers, regional industry and other regional stakeholders, and international bodies and NGOs, as indicated in figure 5.1.

How is this model to be specified? For the time being, we omit the strategies and actions bringing dynamics into the picture. This will be dealt with as part of the scenarios. In this section we will concentrate on the other elements. Which characteristics may contribute to producing differential outcomes? As a preliminary catalogue we would suggest the following cues:

- Characteristics of the oil companies and their suppliers: Infant or mature industry; pattern of specialisation; country of origin; principal location; government affinity; network structure; portfolio of exploration and development prospects; idle capacity or not in other regions; corporate social responsibility.
- Characteristics of the development project: Size of investment; operation time; oil or gas deposits; offshore or onshore development; distance to markets; mode of transportation; location of production facilities, terminals and base and operational functions; off-the-shelf or leading edge technology; contract arrangements; work organization during construction period.
- Characteristics of the region: Climate and topography; population; industrial structure; size and diversity of the labour markets; existing oil- and gas-related competency; available infrastructure and amenities; knowledge institutions; level of association and political articulation; ethnic composition and rights of indigenous people; potential land and sea use conflicts.
- General framework conditions for petroleum development: Petroleum resource base; geopolitics; world economic growth; energy markets; national legal and fiscal system; regulations and taxes pertaining to petroleum activity; predictability and transparency of decisions; regional policy; climate and environmental concerns.

The list above refers to factors which will influence the regional impacts of oil and gas development, notably in a situation where a new region is opened up for petroleum activity. Many of the factors will also be the targets of various actors' strategies as they both pursue their own interests and try to alter the rules of the games.

As the list clearly indicates, predicting the future development of the High North is no straightforward exercise. We can launch visions, but the number of uncertainties is legion. The alternative is therefore to create scenarios with an open eye to uncertainties. As Peter Schwartz⁶¹ reminds us, scenarios are ways of rehearsing the future. They are devices for identifying emergent trends and combining relevant factors in creative ways. Scenarios resemble a set of stories built around carefully constructed plots. The evolution of the story depends on the question being focused or the decision to be made, a set of driving forces, and so-called critical uncertainties. Each scenario thus presents an image of the future based on a storyline which, in principle, should be internally consistent, plausible and illuminating.

⁶¹ P. Schwartz 1998: *The art of the long view. Planning for the future in an uncertain world*. Chichester: John Wiley & Sons.

In the following scenarios we see the hunt for oil and gas resources and political attempts to gain control of prospective areas and valuable supplies as the main drivers of change in the High North. We also assume that new technology and a shrinking ice cap will enlarge the area of potential petroleum operation and that energy prices stay high enough to sustain the realization of expensive projects. If development decisions are left to the oil companies alone, they will go for the solutions which they deem as the most cost-efficient and profitable. These factors are the invariable features of the scenarios presented in this report. What gives the scenarios different flavour is the intervening role of various events and circumstances at the international, national and regional level.

At the international level the main variables are the following:

- Peaceful co-operation and adherence to international rules of law or escalating tensions and struggles between the global powers on issues of arms, trade, investments, energy, and exploitation of the resources of the Arctic?
- Close mutually beneficial co-operation between Norway and Russia on management of the Barents Sea, development of the shelf oil and gas resources and coordination of energy strategies or rivalry and unsettled disputes?

At the national level in Norway and Russia these variables are important:

- Credible and efficient public institutions under democratic control or arbitrary decisions, lack of transparency and corruption?
- Local self-government and funds at disposal or centralized power and lack of income transfer systems?
- Open or isolationistic policy towards foreign oil and gas companies?
- Environmental protection or economic growth as policy priorities?
- The existence or not of institutional mechanisms ensuring socially responsible behaviour of the companies and observance of the interests of the region's population when large-scale development projects are undertaken?

At the regional level the variables which make a difference are:

- The development of public-private partnerships
- The ability to launch industrial initiatives and to build new clusters
- The degree of regional co-ordination and complementary upgrading of skills, infrastructure and services
- The strength of lobbying towards central authorities

What then are the prospects for the High North? How will the region be affected by an extensive oil and gas development in the Barents Sea? In the following three scenarios we jump to the year 2030 and look back.

5.3 The frontier

In 2030, the High North is a flourishing region which has experienced a long period of rapid economic growth. Optimism is omnipresent. Total population is slightly higher than it was in 2005, and many people want to invest their future in the region. The former disparities between Norway and Russia have been substantially reduced. There are dense social and cultural networks across the border. The High North has become a symbol of successful natural resource-based development to be followed by other regions. How did this happen?

The international demand for energy was continuously growing. In the 19th and 20th concession rounds on the Norwegian shelf, sizeable discoveries were made off the coast of Finnmark. Luckily, the deposits mainly contained natural gas and condensate. This made it easier for many people to accept petroleum development in the north. Their greatest cause of concern had been the harmful effects of oil-spills and pollution to the fisheries and the marine environment. Gas was generally regarded as less problematic. The oil companies also stuck to high standards of operation. While the oil industry thereby strengthened its image, the fishing industry and notably the trawlers were haunted by shocking reports on over-fishing, depletion of stocks and destruction of the seabed. Hence, by the revision of the integrated management plan in 2010, Nordland VI and VII, Troms II and part of the previously restricted coastal areas were opened for petroleum exploration. Instead of freezing large areas, a case-by-case approach was chosen, assessing risk factors and appropriate countervailing measures in connection with each prospect. In the 21th concession round additional sizable discoveries of oil and gas were made. This led to an expansion of the LNG facilities in the Hammerfest region and new LNG plants in Vesterålen and the Varanger fjord, including processing plants and terminals for oil.

The LNG market really took off. In 2007, when the Snøhvit project was put in operation, LNG accounted for a quarter of the global trade in natural gas. This share was rapidly growing as all major energy consuming countries set their stakes on the shipping alternative. Already in 2010 there were close to 50 LNG terminals in the USA. Europe, which had relied on pipelined gas, feared to become too dependent on Russia and followed suit. In this way, the old links between oil and gas were upset. Gas had usually been traded by long-term contracts following the price of oil, but now a separate spot market for gas evolved. The flexibility of the liquefied natural gas provided access to more high value markets.

Hand in hand

The shift to LNG, the development on the Norwegian shelf, and the need for a corresponding Russian presence in the High North, spurred Russian authorities to hasten the Shtokman project. Other fields closer to the shore were also given priority. Although the Baltic pipeline was delayed, production from the Shtokman field commenced in 2014. A large LNG plant with accompanying facilities was erected in the Pechenga fjord. This location was an issue of much dispute. Initially Gazprom had only considered Vidyaevo and Teriberka, but Pechenga turned out to be the best alternative in terms of access, depths of water, available land, and overland connections. At the same time it was an invitation to cross-border co-operation. The choice resonated well with the ideas of establishing a Murmansk corridor or a Pomor zone, which had circulated in the region for

a while. Gazprom wanted Norwegian partners on board to join forces in project management and technology and Russian authorities also emphasized the mutual interest of the two countries in other respects: They shared the Barents Sea, exploited the same resources and were competing for the same markets. Why not walk together?

This laid the foundation for a comprehensive collaboration in the High North, which was facilitated by Russian WTO membership in 2012. An agreement was reached on the disputed area in 2015. Russia got the lions' share and in return endorsed the Norwegian position that the continental shelf around the Svalbard Islands is part of the Norwegian continental shelf and not subject to the provisions of the Svalbard Treaty. The collaboration between the two countries gradually encompassed oil and gas development, joint use of infrastructure and facilities, development of new technology, environmental monitoring and research, oil spill contingency, and rescue coordination. When the new gas fields in the former disputed area were set in production in the 2020s, they were connected to both the Nord Stream pipeline and the Norwegian Gassled pipeline system, which did not use its full capacity anymore. By that time, great improvements had been made in the technology for long distance power supply, sub-sea processing and multiphase transportation over long distances. In recent years, the two partner countries have been breaking new ground in the development of the rich resources in the northern part of the Barents Sea. An extensive oil and gas development is also on the way in the Kara Sea.

Climate change was a hot issue back in 2007, and still is today. But the doomsday prophecies of a man-made catastrophe are no more in vogue. Major steps have been taken to reduce greenhouse emissions. After the Bush presidency, the USA started to take environmental issues seriously and great efforts were put into combating global warming. The debate was concentrated on finding effective measures. The oil companies realized that they had to make the Barents Sea a show case and clearly display their concern for the environment and sustainable economic and social development in the host communities. A management plan for the marine environment of the whole Barents Sea was put in place in 2016.

Strict environmental regulations promoted technology development, and the leading oil companies and major suppliers came to see the Barents Sea as test ground number one for environment-friendly solutions, which actually gave them an advantage in global competition. Under the new international climate policy regime no company could prosper without operating responsibly and using state of the art technology. The large-scale projects for carbon capture and storage in the North Sea also demonstrated that the oil industry was part of the solution, and not only the problem. Carbon re-injection became a profitable industry as the prices for CO₂ quotas eventually increased. Depleted reservoirs of natural gas were regarded as the best locations because of the good covering, knowledge of the geological formation, and the available infrastructure.

A lever for regional development

The regional impacts of the petroleum development were significant. Several factors contributed to the pronounced upswing which the region has witnessed. First was the fact that oil and as gas was landed in the region for processing onshore. This was the demand advanced by regional actors, which soon received strong support from the national governments. Norwegian authorities were keen to see the petroleum activity being oriented towards the mainland. The government feared that if the Norwegian position was overrun and Svalbard should emerge as the platform for future Barents Sea operations, the special tax regime of the archipelago would imply that the government was denied

access to three-quarter of the running revenues from oil and gas production in this area. Such a nightmare served to underscore the importance of the northern region.

Secondly, the arrival of new international oil and gas companies had a major impact. In Norway the amalgamation of Statoil and Hydro made it topical to involve other companies on the Norwegian shelf with different experiences and exploration models. Russian authorities also realized the need for foreign technology and investments in order to boost production. Moreover, to gauge the performance of the Russian champions, they needed foreign companies as a yardstick. Some of the foreign companies, which were not already established in the southern parts of the two countries, chose the High North as their location and brought with them several of their existing sub-suppliers. This created a kind of band-wagon effect. As the activities expanded, other companies joined in, stepped up their operations and got a foothold in the north. Regional presence and closeness to the operations affected the companies' contract and purchasing strategies. Instead of automatically relying on their standard framework contracts, they opened up for local suppliers. When freight costs were taken into account, it turned out that in many cases local suppliers could compete with large and distant vendors. Consequently, the economic base was diversified.

A third important factor was the ambitious upstream electrification project. This was initially resisted by the oil companies and the national governments. However, the petroleum industry was responsible for significant emissions of CO₂ and NO_x, which had to be cut. Instead of using gas for powering turbo-generators, compressors and heating systems, it was decided to use electricity. This step was facilitated by the fact that all major new installations in the north were set up onshore and could be coordinated from land. In the long-term perspective carbon neutral production also benefited the industry by increasing the exploitation rate, reducing costly emissions, and providing more gas for sale. The electrification was combined with carbon storage and sequestration, following the example of the Snøhvit project. Electrification was first established as part of the license conditions for new oil and gas projects on the Norwegian shelf of the Barents Sea, and subsequently extended to the Russian sector as the joint management plan was launched in 2016. The electrification requirements and the associated government economic incentives for generation of new energy led to a massive development of offshore wind power, wave power and tidal power stations, involving all the energy companies of the region. Simultaneously, the grid and main transmissions lines were upgraded. On the Kola Peninsula the generation of electricity from hydropower also increased. The first two reactors of the Kola Nuclear Power Plant were shut down in 2018 and new ones installed.

Fourthly, the supplier development programmes and the deliberate attempts by the major oil companies at upgrading regional industry should also be mentioned. In this process the associations of suppliers for oil and gas industry – the Petro Arctic and the Murmanskshelf – played a pivotal role, supported by regional authorities in both countries. To an impressive degree, regional industry has managed to link up with the oil companies and the big contractors. When regional actors saw that Snøhvit was no dayfly and that the Shtokman project was on its way, they really mobilized to harness the opportunities and capture benefits from oil and gas development. The regional companies are not only operating in the low-skilled end anymore, but have successively moved up the ladder, developed their knowledge and skills, and got hold of more demanding jobs. The oil industry commissions have provided a learning arena and a springboard for new ventures inside and outside the region. The worlds' leading producers of oil-spill recovery equipment and subsea compressors are now to be found in the High North.

Fifthly, oil and gas development went hand in hand with a comprehensive build-up of infrastructure, specialized services and education and research. This was part of the High North policies of the Russian and the Norwegian governments, aiming at making the region a platform for Arctic oil and gas development. Seaports, airports and roads have been modernized, and the frequency and regularity of all kinds of transportation has substantially improved. During the last two decades, many new jobs have been created in the fields of traffic co-ordination, oil-spill contingency measures, rescue services, and environment monitoring and control. New educational programmes in technology and engineering, Arctic maritime operations, and environment, health and security have also been developed. The special campaigns for recruiting young women to these programmes paid off. Furthermore, there has been a proliferation of student exchange programmes, involving young people from both Northern Norway and Northwest Russia, and the main research institutions and hospitals of the regions have all strengthened their oil- and gas-related engagement and extended their collaboration.

Spill-over effects

Interesting synergies were also created between the oil and gas sector and other regional industries. In the early days of petroleum development in the Barents Sea, ‘co-existence’ was a popular notion. The underlying assumption was that the new industry was in conflict with the traditional regional industries. Measures had to be taken to strike a balance. These conflicts never materialized. Even though there has been some competition for qualified labour, which has put an upward pressure on wage levels, oil and gas development has first and foremost opened up new industrial opportunities. The “Barents Sea on the web” project and the closer Russian-Norwegian co-operation brought an end to the illegal and unreported fisheries in the Barents Sea. Next, the duties levied on CO₂ and NO_x led to a decommissioning of much of the ocean-going fleet. At the same time, the coastal fisheries and the sale of fresh fish to the Russian and European market experienced a great upsurge, not at least thanks to the modernized transport infrastructure. New standby and contingency services also were to the benefit of the fishermen. The aquaculture and tourist industries saw similar growth records. Interestingly, many of the new regional businesses have emerged at the boundaries of new and traditional industries. Fishing tourism and petroleum tourism are just two examples. Based on the experiences from Melkøya, where many people came to visit the new facilities, High North petroleum development has been turned into a big tourist attraction.

Another impetus was linked to downstream use of natural gas in the region. In the Murmansk Oblast the switch from heavy fuel oil (mazut) to gas for power and heat generation has improved the city environments and reduced pollution considerably. The general conversion to gas as fuel for ships and motor vehicles has also been a large commercial success with accompanying cuts in greenhouse emissions. After the Russian aircraft manufacturer Tupolev started producing LNG- and hydrogen-powered aircrafts, there has been a noticeable shift to gas in airborne traffic, too. In some fields, the northern region has definitely been a pioneer in the use of natural gas as raw material for industrial purposes. One example is the bacterial protein meal produced on natural gas. The single-cell protein, which has a composition and amino acid profile similar to high-quality fish meal, is used as a feed ingredient to partly replace fish meal in the diets of salmon and trout. By establishing such new value-chains, the initial value of the gas has been increased and provided visible effects in the region. Also the traditional mining and metal industries of the north have been able to use gas as energy to further refine processing facilities and thus maintaining a sizeable employment in the already established industries in the area.

“Murmansk - the new capital of the Arctic”

In 2030 Murmansk justified and even exceeded expectations of the youth who in the 2007 within the international project “Innovation circle” discussed development plans of the city by its 100th anniversary in 2016. The title of the seminar was eloquent – “Murmansk, the capital of the Arctic”. Indeed, according to Russian leaders, measured by any standard (population, education, level of economic activity and culture) Murmansk can hardly be contested by any other city in the north! Although the city did not recover its maximum number of inhabitants (480 000 in the 1980s), the city started growing again in 2010: from 317 000 to 350 000 in 2030.

Population growth was not only connected to the extraction, transportation and prospecting of Arctic oil and gas resources but also to the important role as a logistic centre of the new transport corridor for freight from the South-east Asia to Europe and North America using the Trans-Siberian Railway and its reloading to large transport vessels in the port of Murmansk. The modern container terminal located on the Western side of the Kola Bay processes up to 1 million containers (12 million tons) a year. It is one of the elements created in 2009 as a Port Special Economic Zone (PSEZ), having a privileged tax and customs regime granted for 49 years.

The construction project of the Western Coast of the Kola Bay became the pride of Murmansk. It was planned to realize the idea of a complex development of a new district as an industrial-logistic park in combination with a housing complex and social infrastructure, meeting the highest modern requirements. This was attained owing to various forms of private-public partnership. The program was funded from many sources. For creation of physical and social infrastructure funds from the regional and municipal budgets were used as well as financial contributions from the oil-and-gas companies and loans from the Federal Investment Development Fund. Production facilities and dwelling houses were funded by private investors. In the industrial-logistic park favourable conditions were created for establishment and activities of new innovative firms, with the Western Coast area acting as an incubator of small businesses.

Murmansk did not lose its role as the fishing capital of Northwest Russia. Modern fishing and fish-processing enterprises successfully competed, not only at the Russian but also at the world market with a variety of marine products. After years of heavy over-fishing in the early 2000s, Russian fisheries authorities have implemented an effective quota and control system, giving few opportunities of IUU fishing, thus increasing annual catches from the Barents Sea.

The status of Murmansk as students’ city had also been strengthened. Though the absolute number of students did not grow compared to the beginning of the century (around 30 000 students) the quality of education increased considerably, including international master-programs for training of specialists for the oil and gas sector. Intensive exchange programs for students and teachers with universities of the Barents region and other countries have been carried out for several years. Murmansk is an open and vibrant city, acting as an important meeting point for all people related to oil and gas development in the north.

Finally, the general increase in incomes and the altered composition of the population and the workforce brought about further changes. This can be noticed in the supply of services, cultural activities, outdoor life, housing conditions, and the range of lifestyles manifesting themselves in the region. Border passing was facilitated by simplified control, and all the cultural events gathering young people across the border contributed to reducing the cultural barriers. A new and more entrepreneurial mentality has spread in the High North, coupled with a higher self-esteem and self-confidence.

General modernization

The transformations induced by the oil and gas activity have changed the outlook of both parts of the region. The impacts have been most profound in Russia, where the average standard of living has more than tripled during the last 25 years. When economic growth gathered headway and the federal towns saw their former privileged position removed, the regional backing of the military-industrial complex was reduced. This obviously contributed to the easing of the East-West relations. The Pechenga area, partly including Kirkenes, has been the powerhouse of the High North. What previously was a military hub, has now become an industrial hub with highly developed communications. For the majority of the people, however, the most striking feature is probably the change of the urban landscapes. Notably Murmansk has seen a complete face-lifting. The former worn-down city has been turned into a modern vibrating metropolis with many small and medium-sized enterprises. The rehabilitation of the residential and business areas, the replacement of the energy supplies, and the new public transport system implied huge investments, but the concentrated urban area has rendered possible very rational solutions regarding energy and environment and a fascinating architectural design. Murmansk has clearly become the capital of the High North.

On the Russian side this development was not only due to the oil and gas development but also on major changes in the Russian management set-up. During the period 2010-2015 the regions received stronger rights to appropriate part of the natural resource rent. This enabled the Murmansk Oblast and most of its municipalities to reach larger self-sufficiency in terms of budgets, and hence a greater possibility of actively influencing its own development.

In Northern Norway the biggest towns have seen the most rapid growth. Tromsø has been strengthened as a business and knowledge centre. The same holds for Bodø, which accommodates important functions related to the activity off the coast of Lofoten and Vesterålen. Harstad is the management centre for StatoilHydro's oil and gas exploration and operation in the Norwegian part of the Barents Sea, but several of the new companies have settled in Tromsø and Kirkenes. The fact that Tromsø is the hub for flight connections to different destinations in Finnmark and to Murmansk, has given this city an advantage. Tromsø is also the capital of North Norway, which was established as a formal region in 2014. The counties of Nordland, Troms and Finnmark were then phased out. The industrial clusters in Helgeland, Salten and Vesterålen are all heavily involved in offshore supply services.

In Finnmark the main beneficiaries have been Hammerfest and Kirkenes, located as they are at the end of the pipelines. Even though transportation has improved considerably, the internal communications in Finnmark are still not very well developed. Proximity to the oil and gas operations is therefore vital. This has been to the detriment of Alta, which is situated outside daily commuting distance of the two petroleum cities. Kirkenes has become part of an integrated labour market across the border and is now the most preferred location in Finnmark.

“Hammerfest - from fish processing to gas-based industries”

Participating at the twentieth anniversary of Hammerfest LNG in December 2027 at the well-worn and crowded Arctic Cultural Centre in the middle of the city, the new managing director of StatoilHydro ASA, the then 39 year old Hilde Olsen could span a society that during nearly 30 years construction and operation of the successive phases of the LNG-factory north of the town had undergone a tremendous transformation, from a worn-down industrial town in decline, to a pulsating urban hot spot in the north.

Some important events had contributed to the transformation. The merger of Hammerfest and Kvalsund municipalities back in 2010 had laid the ground for a site planning and house construction policy that could keep pace with the continuous net immigration and a population growth of 1,2 percent per year on average. The breakthrough inside the Salen-Molla-tunnel in 2014 came as a relief to city dwellers tired of noise and traffic jam. Now the heavy transport could be directed away from the city streets, and construction of pedestrian precincts crossing the city centre could be put into effect, as private cars were directed to the mountain hall parking areas.

As more of the Western Norway-based offshore supply companies had moved their Hammerfest branches eastwards to Kirkenes, to participate in the exploration and operation activities at Finnmark East and Fedyn Arch from the beginning of the 2020s, the downstream natural gas industries had become a more prominent part of the city's economic life. After political intervention, the Hammerfest Energy Company was finally granted the necessary licences to build its power plants with CO₂-removal and -disposal. Subsequent to a phase of thoroughly revising the technical design and new profitability calculations, the 100 MW prototype was put into operation by 2009, followed by the construction of the 1000 MW full-scale installation in 2014-2015, providing electrical power to the several offshore installations at Tromsøflaket and Finnmark West by cable.

After years of market development, the Barents Natural Gas company reached break-even in 2011, delivering LNG-shipments by small-scale vessel to Northern Norway and Russian coastal industrial sites from the Pechenga Industrial Park in the east to Glomfjord in the south and by tank lorries to the Rovaniemi Tourist Resort Centre, thereby substituting heavy oil as energy supply with the cleaner natural gas. However, the most astonishing feature was the rapid growth of Hammerfest maritime natural gas propulsion supply industry, following the wake of IMO's strict regulations of NO_x-emissions in international waters and the corresponding national statutory framework. These events made the operation of the traditional Norwegian fishing and transport fleets unprofitable. Since the beginning of the new era and the first generation of natural gas fuelled vessel, Hammerfest had been in the forefront as a refuelling station and service provider. The establishment of Veolia's Fast Ferry R&D-division in Hammerfest in 2015 also boosted the growth of this small, but competent industrial cluster. In addition, the income from Hammerfest Strøm's tidal power development projects, patent and licence rights, constituted a significant part of the city's stock of capital for investment in new innovation projects in the renewable energy areas.

Kirkenes - from border trade to transport center

When Randi Olsen, as a representative of one of the partners in the joint Norwegian-Russian licence of Finnmark East, two years later attended the button-pushing ceremony when the King officially opened the Kirkenes LNG Train 2, she could glance at a thriving Kirkenes downtown and heavy activity at the nearby Kirkenes Maritime Industrial Park. The companies in the park represented a wide range of offshore supply companies and mechanical industry, mainly affiliated to Western Norwegian owners, but to a large extent manned by Russian skilled workers and engineers. However, the development of a hub for the northern oil spill prevention industry still was concentrated to Honningsvåg together with the Arctic Emergency Preparedness Centre. In Kirkenes, the combined icebreakers/tugboats “Kraft Johanssen II” and “Kraft Johanssen III” were busy keeping the inner part of the Bøkfjord fairway ice-free for the LNG carriers heading for Cove Point and the supply vessels shuttling to and from the Fedyn Arch and other gas fields. Servicing the large 100 000 ton bulk carriers loaded with high quality rock phosphate fertilisers from Apatity bound for overseas markets in China, Indonesia, Pakistan and India, and Japan by the Northern Sea Route is also a part of the tugboats’ duties. Iron ore from Sydvaranger and iron ore concentrate and super-concentrate from the Olenegorsk iron mine about 100 km south of Murmansk are also shipped to the European market from Kirkenes. The remaining 40 km of the 1520 km Russian railway link from Nikel to Kirkenes Port was completed in 2017, connecting Kirkenes to the Russian railway network. Extensive wagon transport of crude oil the first years after construction contributed to a brief pay-back on investments in port facilities and railway connection, with large volumes of ore and fertiliser bulk transportation and export as the core of the long-term business concept.

Alta – outside the core areas but still in the game

Randi Olsen never went to Alta to lay down foundation stones or push start-up buttons. Alta was not a part of StatoilHydro-land. Nevertheless, Alta was a place that had benefited considerably from the favourable petroleum-driven development in the region. It all started when local and regional investment and energy companies came together in 2007 and established the North Energy Company. The following capital expansions were oversubscribed, the second in 2009 mainly by foreign pension funds eager to get access the Norwegian shelf operations. North Energy went public in 2017, fulfilling its goal of becoming a medium-sized Norwegian oil company. The company also succeeded in recruiting a highly competent and experienced core team of geologists, geophysicists and reservoir engineers, and was pre-qualified as concessionary and operator already in 2009. During the 20th and 21st licensing round it acquired license shares in 17 licences, of which two as operator. The company declared its ambitions of becoming a medium sized independent oil company on the Norwegian shelf, focusing on upstream activities. Gradually the tail production in the North Sea and the mature areas of the Norwegian Sea were phased out, and several minor oil companies were looking for new opportunities. They selected Alta as their new location, due to the already established small, but competent group of persons with highly specialised knowledge. Good communications to Southern Norway was an important location criteria for many of the companies, and in 2012, the airline Norwegian made a daring decision to set up a direct route between Stavanger and Alta. It soon became a success, facilitating the exchange of personnel and knowledge.

Some areas have got very little out of the oil and gas bonanza. The losers are many of the small coastal communities. They have seen a continuous population decline and in many places you only find summer houses left along the coast. Depopulation of many coastal communities increased when the municipalities were merged as part of the regional reform in 2014. The loss of the county administration was also a deathblow to Vadsø, the former capital of the Finnmark County. Inner Finnmark has seen modest effects of the petroleum activity, but this part of the region has nevertheless benefited. Tourism has increased and the strong Saami institutions have managed to obtain compensation for the oil and gas industry's use of Saami territories. The government transfers have secured a well-developed infrastructure and a high level of public services. In Murmansk Oblast the oil and gas activities did not in any serious way affect the indigenous peoples. Among the Russian Saami the number of reindeers increased, with more than one third belonging to private reindeer herders, the remaining two thirds to large herding enterprises. These enterprises gradually turned into more vertically integrated companies, involving themselves in processing and marketing of fine foods. The Saami has been able to secure more than 7 mill hectares for reindeer herding, or nearly 50 % of the total area of the Murmansk Oblast.

In Finnmark as well as in Murmansk Oblast a more dual structure has evolved with clearer distinctions between the haves and the have-nots. The effects of the oil and gas development have radiated throughout the region, but they have not trickled down in every local community. The region has become a kind of two-speed society. The new element is that the border between Russia and Norway is insignificant in this context. The internal differentiation has increased on both sides. Nevertheless, the majority of the people are economically well off and proud of their region.

“Saami consolidation”

The stable population growth continues in Inner Finnmark. A slightly negative migration rate is equalized by a high birth rate and a young population. Inner Finnmark is still a place with low mobility. Young people often leave the area to get higher education, but most of them come back when settling with a family. The predominantly Saami population want to live in the Saami core areas, and development over the last 25 years has strengthened this identity.

Some critic arose around 2008 about StatoilHydro’s lack of social responsibility towards the Saami population. In 2009 the company made an agreement with the Saami parliament to establish a “resource-fund” for financing cultural and business activities in the Saami areas. StatoilHydro agreed to contribute with a substantial sum of money annually, and most of the resources were distributed among the different Saami development funds already established. The new financial possibilities also made it possible to strengthen the cultural identity among the costal Saami population, which brought them closer to the inland Saami population. StatoilHydro sat an example with the resource-fund, and in 2010, Eni signed a similar agreement with the Sami parliament. In the following years other foreign petroleum companies active in the Norwegian part of the Barents Sea, signed parallel agreements.

StatoilHydro also made an agreement with the Saami College in 2008 to support research on indigenous population and the effect of petroleum development. This activity has made it possible for the college to expand its activities and built up competence needed for the petroleum companies. The Saami College runs a network of global research on energy and indigenous population, and arranged an international conference in 2012 that made an impact on how companies must take the indigenous voice into account. The college developed as an international centre for indigenous studies and presently has researchers from all parts of the indigenous world.

The different onshore instalments along the Finnmark coast have made some impact on the reindeer herding in these areas. The petroleum companies have tried to limit the damage to areas used for reindeer breeding by involving the stakeholders at an early stage. Affected reindeer districts have been paid compensation for lost land, and due to a reduced number of reindeers in Finnmark after 2010, it has been possible to find alternative grazing land. The number of reindeers in the period from 2010 to 2030 was cut by half, making the activity more professional and sustainable. Many reindeer breeders have chosen to combine their traditional business with tourism as the demand for authentic, environmental friendly and exotic adventures has increased.

The petroleum activities had limited direct affect on the societies in Inner Finnmark as very few found the employment in the sector attractive. The indirect effect has mainly been through substantial as increased financial resources which have made it possible to develop these societies on their own terms and to strengthen Inner Finnmark as the “capital of the Saami culture”.

5.4 The marginalized region

In 2030, there is an extensive oil and gas activity going on in the Barents Sea, but the development has left few traces in Northern Norway and Northwest Russia. The widespread expectation of a petroleum-driven boom in the north, which was so typical 25 years ago, has dwindled. Since 2007 the total population has been significantly reduced in both regions. The region has a higher percentage of elderly people and a lower level of economic growth than the national average of the two countries. Although the cross-border disparities have been reduced during the last decades, the region as a whole is lagging behind. This is no dynamic region, but rather an area which is tapped and drained for all kinds of resources. The High North is associated with remoteness, standstill and primitive masculinity. The women are leaving, thus aggravating the population situation even further. How did this happen?

The international demand for oil and gas was insatiable. The Russian authorities saw this as a great opportunity for regaining Russia's lost power. New trunk pipeline projects and contracts for petroleum delivery were continuously signed with both European and Asian countries. However, the Russian oil and gas companies did not invest sufficiently to meet both new export commitments and the requirements of the domestic market. Attempts were made to boost production by taking over licenses and shares from foreign companies which had invested in Russia, but this turned out to be a boomerang. Lack of foreign technology and capital eventually hampered Russian production. The response was to seek new strategic alliances with foreign companies in order to increase production and transportation capacity. At the same time, a comprehensive federal programme for upgrading the domestic distribution system and reducing the enormous waste of energy in Russia was launched as part of the new "Energy Strategy for the Russian Federation until 2030". Should Russia be able to increase export, the domestic low energy efficiency and high loss in pipelines and grids had to be ameliorated.

Russia still had large oil and gas reserves in Western and Eastern Siberia. Even though many of the fields had been mismanaged during the Soviet period, the size of the recoverable reserves and the available infrastructure put the Siberian projects on top of the list. The Timan-Pechora region was also given high priority. The main corridor chosen for the oil and gas export from the western regions was the Baltic Sea. The Baltic Pipeline System to Primorsk was expanded and oil volumes previously exported through the Druzhba pipeline via Belarus and Ukraine were redirected. Sweden, Finland and the Baltic countries protested against the new pipelines and increased tanker traffic in the Baltic Sea, but in vain. Before the new gas pipeline on the seabed of the Baltic Sea was completed in 2010, the large LNG plant and the dedicated tanker port near St. Petersburg started operating. The successive enlargement of these facilities provided LNG for the North-American and European markets. Russia was in no hurry in the Barents Sea. This in turn meant that the large plans for Murmansk as a transport hub were not realized.

On the Norwegian shelf, a series of petroleum discoveries were made in Finnmark West in addition to Tornerose, Goliat, Uranus and Nucula. Prospecting was also successful in other blocks such as the Loppa Ridge/North Cape Basin and the Bear Isle South. The new gas development was linked to the existing LNG infrastructure in Hammerfest, where train 2 was followed by train 3 and 4. An oil terminal and processing plant was built on

the Nordkyn Peninsula. The main mode of development, however, was multiple field processing and floating production, storage and offloading. According to the international oil companies, Finnmark's small population centres and weak industrial preconditions worked against onshore facilities in the region. The advancement of technology, with separation of oil, gas and water even under the seabed, pointed in the same direction. In addition, the international oil companies and other newcomers wanted to have control with their own infrastructure and not be locked in by StatoilHydro's solutions.

The region was divided on these issues. The municipalities that expected to be in the end of a pipeline were in favour of onshore production, but many others, like Alta municipality, set their stakes on offshore production. This implied that the interests of the oil companies led the way. The lack of development in the Russian part of the Barents Sea and the restrictions imposed by the integrated management plan made the Norwegian part of the Barents Sea less attractive. Hence, from a national economic point of view it was important to please the oil companies and meet their demands, not to impose unrealistic local demands for compensations and employment.

Old structures making their mark

The preparations which had been initiated in the Murmansk Oblast for regional industry to take part in the Shtokman development were soon forgotten. The region's mining and metallurgic industry benefited from high prices on nickel, cobalt, apatite and copper, but the profits were siphoned off to external owners and very little was reinvested in the region. The plants were run down and working at these places with great health hazards was not very popular. The level of pollution was also extremely high. In spite of foreign initiatives for the reduction of sulphur emissions in towns like Nikel, nothing was done. At the same time, the situation with company-towns and the heavy hands of both the industrial owners and the military establishment rendered new ventures and entrepreneurial activities difficult. The transition from a centrally planned economy to a market economy seemed to be more complicated on the Kola Peninsula than in other Russian regions. The military-industrial complex and the tradition of exploiting raw-materials still asserted a strong influence. The regional authorities were eager to see a change, but the strengthened power of the Federal government gave limited freedom of action. The association of suppliers for the oil and gas industry "Murmanshelf" that was established in 2006 with support of Statoil reduced its activities due to insufficient demand for its services.

The major new element in the Murmansk Oblast was the increasing volumes of crude oil in transshipment from the Pechora Sea, the Kara Sea and the Laptev Sea to the international markets. This oil was reloaded in the Kola Bay and the ports on the White Sea coast, which also handled increasing levels of cargo transported by the railway. Although the Murmansk port handled increasing cargo landings, the port did not obtain status as a port special economic zone (PSEZ) with special tax and customs privileges. This made the harbour less attractive also for the fishing industry. As the ocean-going fleet was squeezed by high oil and gas prices, the Murmansk fishing industry largely disappeared.

By 2016 the Shtokman project once again was set in motion. The accident with the North Stream Pipeline, and the big oil tanker shipwreck in the Bosphorus Strait two years before, brought the environmental and safety hazards posed by the increasing oil and gas transportation into the headlines. Both in the Bosphorus and in the Baltic Sea the coastal states, backed by international environmentalist NGOs, imposed much stricter safety regulations on all traffic. These measures were approved by the International Maritime

“Vidyaevo - from military base to gas base”

The decision to locate a gas processing enterprise in the former military settlement Vidyaevo, to which a pipeline from the Shtockman GCF was laid in 2018, radically changed its socio-economic situation by 2030. One part of the settlement's population, mainly the youth, welcomed the decision. A large industrial construction and the inflow of many new people produced new attractions in the city, such as restaurants, clubs, and cinemas – popular with the youth. Most young people were also glad to have a prospect of getting a well-paid job in their native town.

However, a large part of the population was worried by such changes. Many military servicemen that used to consider themselves “masters of the town”, felt uncomfortable as the prestige of their former position had been lost. The material situation of even the high rank officers, to say nothing of the medium-level officers, turned out to be considerably lower than that of the large group of specialists employed at the new gas-processing enterprise. The cost of living in the settlement increased, especially affecting the low-income groups in the population and in particular the retired. The possibility of obtaining jobs in the gas industry had also been difficult for women, with many unemployed women in the settlement. The prices of apartments increased dramatically and municipal housing was not able to cope with the demand, thus making the situation difficult for all low income groups.

New medical, sport and culture facilities appeared in the settlement but their affordability for the population with low incomes even decreased compared to the period before the large-scale construction because even more services had to be paid for. Many places which previously were used for recreation and fishing were occupied by gas-processing activities, which turned out to be painful for many people, used to have open access to outdoor life and natural resources.

The situation was aggravated by the fact that the municipal administration did not provide any efficient measures of social support to those population categories whose interests were infringed with appearance of the new enterprises. “The new masters” – the gas processors – did not care about establishing compensations to those citizens whose situation worsened, claiming this was a state responsibility. On the other hand, the citizens themselves were not very active in organizing resistance to this development. One of the most negative consequences was sharp population stratification in the small town, with confrontations between different social groups and as a result, loss of solidarity, and less ability to cooperate in order to achieve common goals. The level of social capital in the local community decreased sharply, although the ones with jobs in the oil and gas industry were happy. Vidyaevo was still a “company town”, but now with the new oil and gas employees at top, having replaced the old military establishment.

Organization (IMO). With new restrictions on the Baltic Sea shipments, the Russian government pushed on for developing the Shtokman field and necessary port and processing facilities near Murmansk. New expectations were raised in the Murmansk Oblast. The Norwegian oil companies and the oil and gas suppliers, which had been dreaming of Shtokman for a long time, finally got involved. This was arranged by an asset exchange between the Russian and Norwegian companies.

Migration of people and operations

The development of the vast fields in the eastern part of the Barents Sea could have been a turning point for the High North, but it did not turn out that way. The out-migration and depopulation process already had gone too far. The region had lost its most talented youths. Young women had opted for higher education and successively left the region, while those who stayed were mainly elderly people and young men without much formal education. When the Shtokman project finally started, the same happened as when the fields off the coast of Finnmark were developed. Maximum prefabrication, standardized components, and standardized maintenance were key ingredients of the development concept. This was deemed crucial for cost effective project execution under harsh weather conditions and with limited regional infrastructure. Even though some regional companies managed to capture a few smaller contracts, the typical pattern was that big companies from outside the region came in and hoovered the market. All the large contracts in the phases of exploration and construction were handled by highly specialized and internationally experienced oil and gas suppliers.

For these companies the local labour market was of little interest. The companies were organized on the basis of mobile project teams, which moved from place to place and brought with them the most vital equipment. The workers – nearly all of them men – stayed at the drilling platforms or construction sites during their working weeks, and then left for time off. The same happened in the operation phase. The limited number of people working on the highly automated and remotely controlled installations had a shift-work system, flying in and out. High wages meant that they could afford to live wherever they wanted. Usually that was in the most affluent parts of the country or in some vacation paradise. If people from the High North were employed at all, they rarely settled in the region afterwards, moving on together with the company. Thus, the oil and gas industry was never embedded in the region. It lived a life of its own, separated from the rest of the region. The oil terminal and processing plant on the Nordkyn Peninsula was a typical example. This really was a “cathedral in the desert”.

Northern Norway was hit in several ways: On the one hand, the region captured very few benefits from the oil and gas development in the Barents Sea. The situation in some respects paralleled what had happened with the growth of the aquaculture industry a couple of decades before. From being a decentralized and locally owned industry, proclaimed to be the salvation of the rural areas, the aquaculture industry was transformed into a large-scale industry dominated by listed multinational companies. The local communities were faced with an industry occupying valuable areas while not providing local jobs or tax incomes in return. On the other hand, the very notion of the new petroleum province and all the great visions for the High North had convinced central decision-makers that the region did not need regional policy support anymore. Hence, the special schemes which had favoured the northern region for more than half a century were discontinued. Neither the market nor the state provided any rescue.

Another challenge was created by the onward march of indigenous peoples. In Norway, the Saami parliament and the Saami organizations continued their successful struggle for indigenous rights. After the establishment of rights to land and inland waters, which were

“From game to blame”

Lise Bjørkby, Chief Engineer at the construction firm Vestfinnmark Entreprenør took a last glance at the calculations in the company’s tender document for construction of the Loppa Ridge Helicopter Base office building. She knew it was in vain, it was a waste of time and resources. But she had made up her mind to submit this tender almost in defiance, to demonstrate that Finnmark contractors are competitive *if the developers could accommodate the compact contracts by splitting engineering, procurement and construction into manageable work packages*. But the developers never did, not even for straightforward construction projects like this, and Finnmark contractors never had found a counter strategy to meet this challenge. The construction industry in Finnmark was small-scale, scattered, and fragmented and had not won a significant petroleum contract for years. The petroleum developers maintained their usual contract partners and their established supplier networks in Stavanger, Bergen and Stord, flying in equipment and personnel. There was an attempt to join forces from the Alta contractors early in the Snøhvit Train 1 construction phase, but the balloon fizzled out when they lost the administration building contract. And 19 years after the “Rogge massacre” in 2011, the Finnmark construction industry still hadn’t fully recuperated.

Apart from some wholesale contracts for catering services, business life in Tromsø never got a grip on supplier services to the petroleum industry. Instead, in the run-up for the Olympic Committee candidate city selection process, large parts of Tromsø’s entrepreneurs concentrated their efforts on property acquisition and property development. As a component in their strategic positioning, a group of Tromsø property developers purchased large parts of the construction industry in Troms and a sizeable part of the western Finnmark construction firms. When IOC-president Jaques Rogge on July 4, 2011 uttered the infamous words: “The decision is München”, this cardhouse collapsed into bankruptcy, with several Finnmark firms following suite. Finnmark as well as Tromsø were back to square one and Bjørkeby wondered whether she should spend the next ten years on the reconstruction, or rather take an early retirement package and move to Spain, as so many of the former Olympic Games activists had already done. Back home attention had shifted from game to blame and there was not much interest for new, large projects to “save the north”. Yet another gold digging project had folded, but in Tromsø’s famous waterholes (Skarven and G) the new generation had already started the discussion over the Olympic Games in 2034.

managed by the Finnmark Property (*Finnmarkseiendommen*), rights were extended to include the coastal zone of Finnmark, from 2012 managed by the “Finnmark Sea”. In the case of the petroleum industry, this has largely been a question of price. When pipelines or other installations are intruding Saami territory, consent can normally be obtained by paying compensation. Other companies have experienced greater difficulties. With reference to the notion of “maintaining the material basis for Saami culture”, several new industrial initiatives have been blocked. Consequently, the Saami Parliament has been accused of frustrating regional development. The accumulation of Saami veto-rights and privileges created growing tensions between the Norwegian majority population and the Saami minority population. From 2015 till 2019 the Saami Parliament was actually taken over by groups belonging to the Norwegian majority, who registered themselves as eligible electors to the Saami Parliament. Since then, a *modus vivendi* seems to have been achieved.

On the Russian side lack of legislation and the weak position of the Saami, meant that the reindeer herders were even more marginalized. The large reindeer enterprises went bankrupt and the private operators, who tried to establish themselves on traditional territories, gradually had to give in, being denied legal protection and affected by large-scale poaching. As a result by 2030 reindeer herding as an economic activity on the Kola Peninsula had stopped.

The rapid oil and gas development in the Russian part of the Barents Sea led to a resumption of the negotiations concerning the disputed area, but no agreement has been reached yet. The idea of extending the Norwegian pipeline system into the Barents Sea has also been suggested. During the last ten years, there has been idle capacity in Gassled. Russian authorities have expressed their interest in using Gassled as a supplementary pipeline for Russian gas. However, the different regimes of the two countries represent an important obstacle. While the Norwegian pipeline system is based on the principle of open access and ownership unbundling in accordance with EU rules, Gazprom has insisted on private ownership and shared control of the pipelines.

Growing decline

Today, the Barents Sea attracts considerable interest – more than it has done for many years. The Barents Sea is first and foremost the playground for big companies and national governments. The region and the regional interests have resided in the background. For the activities in the Barents Sea, the northern region appears to be an insignificant borderland which can largely be neglected. This is also reflected in the regional landscape. The overall picture is characterized by stagnation, even if there are some exceptions. One of them is Hammerfest. The development of the LNG facilities was an engine driving local growth. The town has currently 11,000 inhabitants, up from 9,000 in 2005. Modern buildings, a high level of services and a well developed infrastructure, including a new airport, are among the qualities that the town can display. Nevertheless, Hammerfest looks like it has been invaded and besieged by the gas complex. Recruiting and retaining qualified people is a permanent problem. The labour market is obviously too narrow for many couples with higher education and the town has a high turnover of people in the labour force.

Another exception is Murmansk. Murmansk has seen an upswing during the last ten years thanks to the Shtokman project and the large reloading facilities for oil. Although the city has become an important centre for logistics and support services, no powerful industry cluster has developed in the region. Murmansk is mainly a supply base, serving as a terminal, storage facility and distribution point for personnel, materials and provisions going to or coming from the oil and gas installations. The difficult housing situation in

“Inner Finnmark - decline and Norwegian revenge”

All the petroleum activities in Finnmark are located offshore, and Inner Finnmark has seen little direct effect from these developments. No effort has been made to attract local people to the construction and production phase as most workers are transported from abroad and from Southern Norway.

The Saami parliament made use of the consultation rights and was able to block several land based initiatives connected to the petroleum development. The Nordkyn terminal and processing plant was blocked for several years, and could only be realised in 2020. The Finnmark Property and Finnmark Sea have given Saami user groups a lion's share of land and fishing rights in Finnmark, and this has led to numerous confrontations with the Norwegian majority population.

The financial resources for use in Saami areas have been dramatically reduced as state transfers to the Saami parliament and its development funds gradually disappeared. The coastal-based Norwegian population took over the majority in the Saami parliament in 2015, and this was the nail in the coffin for Saami self-determination. The Saami parliament was turned into a arena for confrontations between different extremist groups and lost all legitimacy as a speaker for Saami right. The Saami institutions in Inner Finnmark also struggle to survive with reduced budgets and tasks. This led to unemployment among well educated people that could not find alternative employment locally. The positive population trend with a high number of young people and limited emigration turned in 2017 when a substantial number of younger families left for Southern Norway to obtain work.

Reindeer herding as a bearer of Saami cultural identity has experienced a dramatic decline. Conflict between different reindeer districts occurred as a result of overpopulation of reindeers. As the industry would not reduce the numbers by voluntarily means, the state, in 2010 introduced a new policy reducing public funding for reindeer herding to a minimum. Only the larger and most effective units were able to survive, and small family units had to quit, which also stopped their traditional way of life. The older generation was not able to find alternative work and had to rely on unemployment benefits and pensions, while the younger generation largely left the region.

The only positive aspect in terms of employment was the discovery of gold in Karasjok in 2008, where the Norwegian company Store Norske (a mining company based on Spitzbergen) prepared for industrial extraction. This initiative was blocked by a strong protest by local stakeholders; Saami NGOs, reindeer herders and political parties. This split the society in Karasjok in two wings; one for development of the gold deposits and new workplaces, and one against gold and for protection of the tundra. The Saami parliament heard the case for almost two years, but finally decided to go against the development. This deadlock lasted till 2016 when the Saami parliament, now lead by a Norwegian majority, gave a go to Store Norske. The company started to recruit and educate local people for work in the mines, but it was difficult to find enough people willing to take up this kind of employment. In 2021 Store Norske was bought up by Anglo Gold and this lead to a massive development of the deposit. Due to high Norwegian salaries, Anglo Gold started to use immigrant workers and only some lower manager posts were held by local people. In this manner Inner Finnmark gradually acquired many of the traits typical for the oil and gas areas on the coast, with a transitory work-force, with little or no connection to the area of living.

Murmansk improved somewhat when the total population declined, but living standards are still way below standards on the Norwegian side of the border. In recent years the petroleum “jet set” has transformed part of the city and created an enclosed community with all sorts of special facilities. Cultural life has also changed. However, the distance between the rich and the poor is alarming. Crime, violence and brutality are the nasty sides of the sudden wealth acquired by the few.

Most other places in the High North are in a state of decline. Even university towns like Tromsø and Bodø have big problems attracting leading professors and students. The relevant age groups are small and many tend to leave the region for studying further south. It was a great blow to Harstad when StatoilHydro closed the Arctic Operation Centre and moved all exploration and co-ordination of activities in the Barents Sea to Stavanger. The regional reform which took place in 2014 never suited Finnmark. Instead of counties, the idea was to create enlarged municipalities covering labour, service and housing markets which made up an integrated area. Each municipality should have minimum 20,000 inhabitants. In Finnmark, with its small and scattered settlements, this local government structure never worked out. The result was that the Saami Parliament strengthened its position.

On the Russian side regional and local authorities never managed to obtain some type of devolved political powers, and hence they became totally dependent on economic transfers, having very limited budgets of their own. This in turn meant that local and regional authorities did not have resources to initiate local development initiatives. They hardly had money to sustain the public service level obtained after the crisis in the 1990s and poverty was actually increasing.

Although the oil and gas activity has benefited the northern region, the effects have primarily been indirect through increased government revenues and a generous public transfer system. No doubt, the health, social and elderly care organized in Norway is premised on the government revenues from the petroleum sector. The welfare system has improved in Russia, too, although there still is a substantial gap between the two countries. There is a regular flow of trade, tourism and professional exchange taking place across the border in the north. Nevertheless, east-west mobility is relatively low. The prospering centres are to be found further south, outside the region. It is also very difficult for Russian people to take up a job in Norway. Despite fine words about contact and mutual understanding, reiterated in official speeches, there are many obstacles for those who try. Norwegian companies can easily hire skilled workers from Poland (being a member of the EU), but they cannot hire Russian workers with similar qualifications. Tourism in Finnmark is now more and more becoming an appendix to the big tourist destinations and operators in northern Finland, and in Russia the fishing and hunting tourism is largely run from Moscow- and St. Petersburg-based tourist companies.

Looking back, people in the north generally agree that the visions once presented of oil and gas development in the Barents Sea as a lever for regional development was mainly a rhetorical device. The purpose was to obtain their support for opening up the Barents Sea. In reality, petroleum development in the Barents Sea has not enabled a comprehensive regional development. The oil and gas industry has created a few prosperous enclaves in the regional economy, while most remaining areas have fallen behind. “The people from Sunnmøre took the fish, and the people from Rogaland took the oil and gas”, has become a widespread saying in Northern Norway. From a regional development point of view, the High North now appears to be a forgotten region.

5.5 The shifting balance

In 2030 there is a high degree of oil and gas activity in the High North, but most of the activities take place within the Russian sector. In Northern Norway the promising start made just after year 2000 and the following years has not been sustainable. Oil and gas is still a marginal industry in Finnmark and the population has decreased substantially over the last 25 years. Also in the Murmansk Oblast the population has decreased slightly, but the level of employment has increased and the region is back again as one of the most favorable in Russia in terms of employment and income. For young Russian people with adequate technical education there are plenty of opportunities in the north, which due to the shift system in the oil and gas industry can be combined with long vacations and even family homes further south.

There is a high degree of interaction between Norway and Russia, but mainly in terms of tourism and related shopping trips both ways. Relatively few firms in Finnmark are involved in supplying equipment and services to the Russian oil and gas development, and due to language problems and different ideas about working conditions very few Norwegians have obtained jobs on the Russian side. In Finnmark, the main industry is related to fisheries and aquaculture with tourism as the second most important. However, the county is still heavily dependent on governmental transfers and many, notably elderly inhabitants, see the dominating conservation ethics applied in Finnmark and the northern areas as an attempt to turn Finnmark into a large “nature museum”. This tendency has been reinforced by Saami authorities trying to protect as much as possible of land areas while protesting against further oil and gas developments, largely a result of their claims for part of the petroleum revenues not being accepted by the Norwegian government.

While the “High North” in Norway was considered a land of promise around 2005-2010, this is no longer the case. Finnmark is again relegated to a place for the especially interested; the tourists and the tourist sector providers, the few remaining occupied with fishing and aquaculture and a large segment based on public and private services. With only 50,000 inhabitants left (out of more than 5 million in Norway), Finnmark does not have much political clout. Although Finnmarkseiendommen and Finnmarkshavet manage the land-based and the marine resources as best they can, this is not sufficient to secure an increased standard of living for the population of Finnmark. There is now a growing discrepancy between the economic development in Northwest Russia and in Northern Norway. The question is then, as in the previous scenarios: how did we arrive at this situation?

The Snøhvit LNG project did not herald any extensive oil and gas development on the Norwegian shelf of the Barents Sea. The integrated management plan continued to freeze considerable areas and no large discoveries were made in the new blocks opened up for exploration and drilling in the 19th and 20th concessions rounds. Those who had argued that the oil and gas resources probably had leaked out long time ago seemed to be right. The bulk of new investments took place in the Norwegian Sea, benefiting the Mid-Norway region. Both the Norwegian and the international oil companies soon lost their

interest in the prospects off the coast of Finnmark, which became a niche for newcomer companies specialized in tail production and development of small oil and gas fields. The leading oil and gas companies in Norway decided to use their resources on more promising fields in developing countries around the world. Kazakhstan, Angola, Algeria and Venezuela had been among the most popular sites, but now the rapidly growing activities off the coast of Vietnam, Cambodia, Thailand and Myanmar attracted special attention. Access to new fields and obtaining production licenses involved high risks and costs, but if the projects succeeded, the subsequent costs of development and production were normally much lower than in Norway, partly due to more relaxed government regulations.

Energy superpower

At the same time, Russia's ambitions to become a worldwide energy supplier surged. After the collapse of the Soviet Union, the Russian Federation only comprised 50 % of the Soviet population, 60 % of its industrial capacity and 70 % of its former territories. Russia was faced with a Western world that had advanced to its doorsteps with the U.S. as the only remaining superpower, a radicalized Islamic South and the rising economic power of China and Japan in the East. The Russian authorities decided to meet this situation by using the country's energy resources and location as a trump card. This led to growing tensions with the U.S. government, which pursued its global strategies to ensure long-term energy supplies. The Russian government skillfully played Europe, North America and Asia out against each other while simultaneously entertaining close bilateral collaboration with single European countries in order to avoid a concerted EU energy policy. As the conflicts over NATO enlargements, new missile defense systems in Europe, control with the oil fields in Iraq, intervention in Iran, etc., escalated, the main European powers turned out to be Russia's closest allies. Russia's claim to wide areas of undersea Arctic territory also soured the relationships with the other circumpolar countries – Canada, Denmark, Norway and the United States.

In the development of the Shtokman field, with 3.6 trillion cubic meters natural gas, equivalent to seven times the annual consumption of the EU member states, only companies from key EU countries became consortium partners. German companies (BASF and E.ON) were already involved in the North Stream project. In the South Stream project a strategic alliance was built with ENI and the Italian government. After Italy, France was the second largest market for LNG in Europe. In Russia's attempts to create a gas cartel imitating OPEC, France and Total were important players with close links to Algeria and Iran. When Britain started to keep an arms-length to U.S. policy, the foundation was also laid for a stronger involvement of British companies in the Russian energy sector. In this way, Russia got access to the main European markets.

Aker Kværner and a few other Norwegian oil and gas suppliers took part in the Shtokman project, but Norwegian oil companies did not get the sizeable share they had hoped for. Snøhvit, which was thought to be a benchmark project for Arctic offshore and LNG technology, turned out to be no reference project. The processing facilities on Melkøya ran into great problems already during the first year of operation because they were not able to withstand winter storms and icing. However, when StatoilHydro saw the big troubles that Total eventually encountered in its co-operation with Gazprom, the Norwegian company was very happy that it did not become a Shtokman partner and thereby a scapegoat for all kinds of project failures in the Barents Sea. In return for the stake in the Shtokman operating company, Total had also offered Gazprom its stakes in Norwegian offshore fields and in international terminals for reconverting liquefied natural gas.

The development of the Shtokman field, which started operation in 2013, was a major lever for the development of the Murmansk region. Huge investments were undertaken to modernize infrastructure and transportation systems. Besides the large LNG plant and the oil reloading facilities built close to the city of Murmansk, a new Murmansk pipeline was built from the fields in the Western Siberia and Timan-Pechora basins, increasing significantly the volumes of oil and gas handled in Murmansk. The big yards on the Kola Peninsula were mobilized and converted to oil and gas suppliers, and many foreign companies set up branches and established joint-ventures with Russian companies. A new chemical industry based on gas was also established. This took place under strong Federal leadership. The strategy of the Russian government was to increase the global competitiveness of Russian industry by creating large, vertically integrated companies, which was done in aircraft manufacturing (Unified Aircraft Corp.), nuclear power (Atomenergoprom) and all strategic industries. Another impetus to growth was the opening of the Northern Sea Route between Europe and Asia, where the nuclear ice-breakers in Murmansk played an important role. To attract people to the region, favourable government schemes were introduced and a whole range of public services and facilities were provided. Furthermore, research and education were strengthened and redirected to better serve the oil and gas complex.

Conservation efforts

The new developments in the High North clearly made Norwegian authorities much more reluctant to push for oil and gas development in the Barents Sea. The old ideas about Norway taking the lead and thereby influencing Russian oil and gas development and setting environmental standards in the north were dropped. The promising start made in 2007 of settling the border disputes between Norway and Russia stalled. While fisheries co-operation still took place in the Norwegian Russian Fisheries Commission and the fishing activities in the Grey Zone were regulated as before, Russia put a stronger pressure on Norway in order to obtain the entire disputed area. Following up the claim to the large areas around the North Pole basin, which due to climatic changes gradually became more accessible, Russia also challenged Norwegian sovereignty over Svalbard and launched great plans for oil and gas exploration and the establishment of a major transit harbour on the islands. While Norway in the past could rely on support from NATO partners as well as the EU, this support withered away as most European countries were more concerned with securing steady access to oil and gas, a situation that was aggravated by the more or less permanent unrest in the Middle East. Supporting Russian claims also proved to grant European oil companies access to participation in large development projects in the Russian sector.

The response of the Norwegian authorities was to reinforce its policy from the 1990s of declaring even larger parts of Svalbard as national parks and marine protected areas. This policy received the full support of most national and international environmental NGOs, and due to the limited prospects for oil and gas development in the Norwegian sector in the north, there was not much protest against such a solution among most politicians. Those who had been strongly committed to a petro-development off the coast of Finnmark were quickly overrun by environmental interests, from 2010 onwards with increasing support from all those concerned with climatic changes in the north, and whose direct interests in terms of employment or salaries were not affected anyway. The environmental lobby had for years put pressure on the politicians for securing the safe transport of oil and gas through the waters outside Finnmark, and making Svalbard a protected area, available for all sorts of research related to the Arctic, had broad support in the Norwegian population. In this way environmental protection became instrumental in

“Kirkenes – closed shop, end of (oil) story”

On a cold September morning, Håkon Fuglebakken is standing outside his now empty franchised grocery shop in the dusty border town of Kirkenes, locking the door for the last time. The opening of the newest seven-store mall in central Murmansk in May was the last nail in the coffin for Håkon’s shop; the accounts have shown red figures now for five consecutive years since 2025. The increase in living standard and income in Russia has not been beneficial for Kirkenes. The well-off Russians prefer to go shopping at their own new and fancy well assorted malls instead of travelling to remote and unattractive Kirkenes. The trade flows have been reversed, and now hundreds of Kirkenes people goes cross-border shopping in Zapoljarnie or takes weekend off, going to Murmansk for shopping and leisure.

As he is standing there holding the key in his hand, Håkon recalls the 22 years that has passed since he opened the shop in 2008. Back then optimism ruled, new enterprises were established and property prices were sky-rocketing, causing him to pay for high loan instalments on the shop for several years. Then came the 20th licensing round and the companies drilled several holes in the Finnmark East and in the North Cape Basin. There were findings of hydrocarbons, but none of them viable. At the same time the Russians started to turn their backs on Kirkenes. Optimism faded and the city went into a hibernating mood for many years

In the meantime the oil companies revised their exploration programs and armed with their new knowledge they started afresh on the next exploration round. Then, by a stroke of luck, a medium size gas field was found, probably commercially viable. Everybody was happy, and the mayor encouraged the citizens to hoist their flags. A new wave of conferences and big words about the “gateway to Russia” were sweeping over Kirkenes, while the operator analysed the field data over and over again, calculating on whether to plan for development and operation or not, keeping a good dialogue with the Norwegian Petroleum Directorate.

Only weeks before the programme for accomplishment of the PDO was to be sent to public inquiry, a sudden replacement of ownership in the licence took place, with the local company selling out a major stake to a foreign oil company. Soon it was revealed that the new owner wanted to postpone the development of the Finnmark East field for at least six years so that it could be fitted in behind more urgent field developments on the Russian side. This event instantly caused much political turmoil in the Norwegian Parliament, but now, two years after, the Finnmark East field development is still in limbo.

- “Sooner or later they will make gas findings sufficient for a commercial processing in Kirkenes”, Håkon says, “but I do not have the patience to wait for that. I’m going south”.

reducing the pressure on Svalbard and the disputed area. This approach was also supported by the government and strong environmental groups in the United States.

Beyond petroleum

In Northern Norway and in particular in Finnmark there was originally disappointment with the very moderate results obtained by the once so promising oil and gas development on the Norwegian shelf of the Barents Sea. However, after 2004 the level of Norwegian petroleum production steadily declined. Gradually it became obvious that transformations had to be done in the entire country. Norway was in much of the same situation as Finland when the old Soviet Union was dissolved; new approaches had to be found, partly based on new technology and with a view to new markets. The most oil-dependent areas in the western part of Norway were actually facing the greatest challenges. The oil fortune, well administrated through the Norwegian petroleum fund, granted investments for a major shift to new energy technologies, including fast thorium breeder reactors, solar cell technology and other renewable energy concepts. The core of the transformation strategy was a more intelligent and sustainable use of the country's natural and human resources, and with a relatively small percentage of the working population occupied directly in the oil sector, the transformation on a national scale was quite successful.

In Finnmark, many people came to realize that it was an advantage that the region had not become more heavily involved in the oil and gas industry. The good news for Northern Norway were actually the bad news for most of Europe and the rest of Norway; warmer climate meant that southern waters became more unsuitable for aquaculture and both the established salmon industry and the new cod industry had to move further north, thus creating more employment in the fjord areas of Finnmark. However, due to the large degree of automatization and the shift system among employees, the local settlement effects were very moderate. Pressure from the local municipalities finally resulted in the industry paying an annual area tax, thus securing a certain income for the affected municipalities. The amounts were moderate, though, and they were partly offset by reduced income transfers from the state to these same municipalities.

The Murmansk region has seen a tremendous oil- and gas-driven growth during the last two decades. While the region is much better off in economic terms, the changes that have taken place have also entailed a number of costs. Murmansk city has become an area under stress. The oil and gas traffic has turned the whole area into a junction weighed down by congestion and pollution. Despite the increased wealth, no one can say that Murmansk today is a nice and pleasant place. General scepticism towards the Russian development model has also increased.

Economic activities on the oil and gas fields and the creation of the Murmansk Port Special Economic Zone increased revenues of the state budget system. Due to the heavy political centralization, most of these funds ended up at the federal level, leaving little for direct local public consumption. Funding from the federal budget and direct allocations from the oil companies have contributed to a modernization of the oil related infrastructure, i.e. main roads, railways, the Murmansk airport, etc. but more local infrastructure is still lagging behind.

This is also the situation regarding the local production facilities. The service sector catering for the oil and gas sector has expanded, but mainly with low-qualified labour, while the local industrial companies only to a limited degree have managed to obtain contracts within the new, large projects. In the mining sector there is business as usual, but due to exhaustion of resources, there is a steady reduction of employment affecting

“A continuous struggle for the Saami population”

In 2030 the Kola Saami remains one of the most socially vulnerable population groups in the north, characterized by poverty and unemployment. The number of indigenous population decreased to 1,500 people in 2000-2010 and remains relatively stable, but the population is considerably older in average than in the rest of the Oblast. The number of mixed marriages grows, by many seen as an indication of a successful assimilation process. The traditional economic activities of the Kola Saami are on the decline and only play the role of subsistence economy. At the same time there is a high level of ethnic identity among the Saami, with political mobilization and development of links with not only the Scandinavian Saami organizations but also with aboriginals of the Northern Canada and the USA.

The policy regarding the indigenous population both at the federal and regional levels remains a policy of state paternalism and has declarative and fragmented nature. Ratification by Russia in 2010 of the Convention 169 of the ILO “On indigenous nations and nations having tribal life style in independent countries” assumes that the RF is responsible for protecting the rights of these peoples and respects their integrity. In particular the Convention envisages that on lands used by indigenous peoples the state can only realize development projects provided consultations and payment of compensations for damages. However, as oil and gas projects on the Kola Peninsula did not directly affect territories of the Saami and the institutional mechanism for ensuring cooperation were lacking, the interests of the indigenous population in the initial stages of oil and gas development were largely ignored.

In the period 2010 - 2015 there were carried out numerous protest actions that were supported by regional public organizations (environmental, women’s, youth, etc.) and they also attracted international response. As a result, in 2015 by the initiative of foreign operators participating in development of oil and gas resource of the Barents Sea there was established a Commission on regulation of relations between the indigenous population, oil and gas companies and the regional government. However, the activities of the Commission were of purely advisory nature. The funds that were allocated to the Saami and their cultural revival were mainly used by the large reindeer herding companies, employing a majority of non-indigenous workers.

The land issue regarding the indigenous population remains unsettled. The problem of allocation of territories for traditional nature management in the RF remained unsolved. Tribal communities still have the possibility to receive land only for long-term use with a leasing arrangement, implying payment for lands that under the conditions of rigid competition for access to land resources hampers development of tribal communities. As a result, out of 25 tribal communities registered in 2010 only 10 are in existence in 2030.

the traditional mining towns. The Saami population on the tundra is only marginally affected by the offshore development, although they feel the consequences of pipelines and the gas-related industries. Neither the Russian federal authorities nor the oil companies have been much interested in their fate and they have not obtained any financial compensation. Life conditions for the local reindeer herders are hard, as in the old Soviet days, while the more industrialised herding companies barely survive, partly based on regional subsidies.

Fragile legitimacy

The Russian acquisition of assets and take-over of western companies soon became a highly disputed issue. In contrast to the Norwegian petroleum fund which made financial portfolio investments in foreign companies, Russian actors invested strategically in telecom, energy, aerospace and defence equipment with the aim of building Russia as an economic superpower. Thus in 2017, when Aker Kværner no longer was bound to Norwegian ownership, Russian interests bought Aker Kværner as well as other major Norwegian suppliers. This was met with considerable public disapproval, but Norwegian authorities did not stop these transactions like the authorities did in many similar cases in other countries. Nevertheless, the liberal notion of markets as places with free flow of goods, capital and ownership rights was cast in serious doubt.

On the other hand, the environmental aspects of Arctic oil and gas development attracted increasing attention. Russia appeared to be an environmental villain, disregarding broadly acknowledged climate and environmental concerns. Neither corporate social responsibility nor obligations towards sustainability seemed to be high on the Russian agenda. This made it difficult for Russia to pursue its Arctic claims and annex a large part of the North Pole area, which was estimated to contain at least 10 billion tonnes of gas and oil deposits and significant sources of diamonds, gold, tin, manganese, nickel, lead and platinum. The race-for-riches approach to managing the Arctic Ocean seabed was finally rejected. After the U.S. government ratified the UN convention on the Law of the Sea, the North Pole area remained under the administration of the International Seabed Authority as it was decided that none of the five Arctic states – Canada, Denmark (as owner of Greenland), Norway, Russia, and the U.S. – was entitled to more than the 200-mile economic zone around their coasts irrespective of whether their continental shelf extended beyond the 200 miles or not. This also had consequences for the Norwegian position regarding the continental shelf around Svalbard.

In Finnmark, focus is today on the sectors where the region may have some comparative advantages, that is, tourism, fishing, aquaculture and marine bio-prospecting. While some new companies in these fields have been established, most of the research and development work is taking place further south, in Tromsø, Bergen, and Trondheim. There are no large centres in Finnmark. Hammerfest has consolidated its status, largely due to Snøhvit, but it remains a small town. Alta is the educational hub of Finnmark and also serves as a gateway to Finnmark in terms of tourism. This has implied a certain degree of concentration of the regional population. Kirkenes keeps waiting for the big petroleum take-off, but is still involved in trans-border trade and tourism (the Norwegian gateway to Russia), and in Inner Finnmark the typical Saami communities have been able to survive, largely due to a greater control of the resources and an increasing tourism, interested in aboriginal peoples and their history. In the more typical Saami districts in the fjords, the limited control with fish resources have secured some settlements, while others have been abandoned, except in the summer months, when they are used for recreational purposes. A large part of the original settlements along the fjords have been bought up by

“southerners” and increasingly by foreigners, having discovered the value of space and silence.

Finnmark’s problem as per 2030 is more or less the same as in the period 1980-2007; the county exports people southwards as soon as there is a boom period in the national economy. Tourism, fishing and aquaculture and public services are not sufficient to meet the needs for employment, and due to a certain mismatch between educational opportunities and working opportunities a large part of youths from Finnmark still have to continue their working careers further south. In recent years, the lack of young people has led to a growing outsourcing of hospital treatment and care of the elderly. These services are provided much cheaper in countries like Thailand and Hungary, having specialized in such services. Thus, after the young generations have left the region, the older generations now seem to follow suit.

Finnmark is providing for a reasonably good life for the ones lucky enough to have employment and living in places where public and private infrastructure is well functioning. However, neither fisheries and aquaculture, nor tourism and related services are sufficient to maintain the population as in year 2007, and the settlement pattern has been even more centralized. While this causes political attention in Finnmark, the national attention to the problems is minimal. Less people mean less problems!

6 Conclusions

In this final chapter we summarize the main challenges of the region and discuss the scenarios and their strategic implications.

6.1 The challenges of the region

As we have pointed out, the Murmansk Oblast and the Finnmark fylke are facing massive challenges at the onset of an Arctic oil and gas boom. The main challenges of the Murmansk Oblast can be divided in three groups; economic, institutional and social.

In the economic sphere the traditional industries of the Oblast have nearly exhausted their growth potential. They suffer from lack of sufficient investment for comprehensive renovation of their production assets and diversification. Stagnation of economic development of the Oblast during last few years is mainly explained by this situation. Regarding the regional construction complex, especially the building material industry, this industry did not fully recover from the economic crises of the 1990s. Realization of new large-scale oil and gas projects will need the attention of a considerable number of construction firms and personnel from outside the Oblast. With regard to physical infrastructure the quality is highly variable, although still in operation. The railway connection to the rest of the country has some non-used capacity, but not to the extent that is necessary to realize planned projects. Roads are in bad condition and require substantial reconstruction. Energy supply is currently reliable, but future stability of electric power supply will depend on a positive decision regarding the substitution of the Kola NPP, which is planned to stop in 2018.

On the institutional side there is a lack of real power of regional public administration due to federal policy of centralization. Centralization of state power is also going on within the administrative and budget reforms that started from the beginning of the 2000s. This situation makes it difficult for the regional government to realize its own socio-economic policy, intended to benefit the region. Furthermore, the economic development in and of the region is highly dependent on a few main enterprises with headquarters outside the region (mainly in Moscow). Aggravating the situation is a lack of a legislative base and of public institutions (including norms of behaviour for companies and citizens) ensuring protection of socio-economic interests of local population in the course of large-scale industrial development.

In the social sphere there is now a strong differentiation of population by income level and this continues to grow. The poverty level is also high (in 2006 18.7 % of population had incomes below subsistence minimum). Measured by poverty level the Murmansk Oblast occupies one of the first places among the regions of Northwest Russia. In demographic terms the situation is also difficult with death rates exceeding birth rates, and the average life expectancy is low (63.8 years compared to the Russian average of 65.3 years). The unemployment level exceeds national average, and there is a problem of unbalanced demand and supply on the labour market, both by professions and educational

levels. There is a deficit of qualified workers and oversupply of graduates from higher educational institutions, especially economists, lawyers, managers.

In total, Murmansk Oblast has never recovered the old position of being a favoured region in Russia, with living standard above the average. The crucial question is whether oil and gas exploration on a large scale is going to improve this situation.

In Finnmark the economic structure is characterized by many of the same weaknesses as in Murmansk, although numbers are smaller. The county is largely based on the extraction of natural resources, with large distances to the main markets. Many of the larger companies have their main offices further south, thus giving Finnmark a position somewhat akin to a colony. Although fisheries and aquaculture have recovered from the slump in the 1990s, they do not provide much employment, due to heavy mechanization of most processes.

The settlement structure, largely based on small towns and villages, is not conducive to larger integrated labour markets and although the national rate of unemployment is low, it may occasionally be high in many of Finnmark's municipalities.

There has been a steady out-migration from Finnmark, especially of younger people, and this tendency is particularly strong when there are large development projects in the south, requiring manpower of all sorts. Due to strong ethnic identification the Saami core areas in Inner Finnmark have survived considerably better than many of the fjord communities based on the coastal Saami population.

The political organization on county level is relatively weak and Finnmark has never played an important role in regional organizations. The establishment of the Saami parliament in Karasjok played an important role in restituting Saami culture and in securing a total shift in the management of Finnmark's land areas, now being the responsibility of the Finnmark property, an organ with shared responsibility (the Board shared 50/50 between the county assembly and the Saami parliament). However, this management has also turned out to be a highly divisive issue, and for a large part of the population in Finnmark, the Saami parliament does not enjoy legitimacy. Whatever the local situation, all local structures (parliament, county and municipalities) are critically dependent on transfers from the national level in order to carry out their obligations.

In social terms the population in Finnmark enjoys a high standard of living, largely due to heavy state transfers. Many have retired or live from disability pensions, while the welfare services for obvious reasons are better in the towns and villages than in the more sparsely populated rural areas. However, the choice of living in Finnmark is also a question of life style, which partly attracts people born outside the county. Access to natural resources will for many be as important as access to many cultural diversions.

The educational level in Finnmark is gradually picking up, but in relation to the oil and gas sector there is a certain mismatch in the education system, still catering best for the public welfare professions. Even with the relatively low level of permanent employment in today's oil and gas sector, a large part of the labour force is based on commuters.

For hundred years Finnmark was an open frontier society, receiving large groups of people from the south of Norway, from Finland and from other countries, all seeking to improve their economic prospects. The question today is to what extent the oil and gas development will contribute to a sustainable development in Finnmark, not enhancing the previous status as a colony far north, where everything of importance had to be decided in Oslo.

6.2 Assessment of the scenarios

The three scenarios presented in the previous chapter provide different images of the region's future and the transformations brought about by an extensive petroleum development in the Barents Sea. In 2030, the first scenario depicts the frontier - the Arctic vanguard – which is a flourishing region. The second scenario tells the story of the Arctic outsider; a region becoming more and more marginalized. The third scenario foresees a shifting balance, where oil and gas development mainly takes place on the Russian side of the border, leaving the whole region in the shadow of the new energy superpower. The central characteristics are summarized in table 6.1.

Table 6.1: Summary of the scenarios

	<i>The frontier</i>	<i>The marginalized region</i>	<i>The shifting balance</i>
Scale and speed of development	High	High	High
Mode of development	Landing and onshore production	Offshore production	Offshore production and landing
Geographical centre of gravity	Both Norway and Russia	Norway first, then Russia	Mainly Russia
Oil companies	Keen on creating a regional platform	Cheap solutions and without obligations	Squeezed in Norway, free rein in Russia
Supplying industries	Moving core activities northwards	Serving the region from the south	Operating from Russian territory
National governments	Facilitating regional development	Protecting established industry	Green policy and petro-nationalism
Regional actors	Concerted actions, strong engagement	Minor role	Minor role
Main beneficiaries	Murmansk, Hammerfest, Kirkenes	Murmansk, Hammerfest	Murmansk

Are these scenarios probable, consistent and relevant? As they all are based on observations of driving forces and present trends, which are cultivated and stretched into the future, they definitely have an element of probability. They prolong current developments and try to see how emergent issues might play out under certain conditions. In this sense, they are not inconceivable. Nevertheless, we could have introduced more “wild cards”, that is, disrupting events and coincidences. Nor do the scenarios provide any complete catalogue of possible major developments. We could have constructed four, five or six scenarios, each arriving at the same indicated futures by different routes or pointing in other directions. For instance, none of the scenarios include political instability, military confrontations or major disasters. We have not touched upon the high concentration of military and nuclear installations on the Kola Peninsula and the unsafely

stored waste, with concomitant dangers of terrorism and nuclear proliferation. And as we all know, valuable and scarce resources may serve as the seeds of conflict. Wars have been waged for securing access to oil and gas, and this event is no less likely in the future.⁶²

We have tried to make the scenarios reasonable consistent. Although numbers and time milestones are largely missing, the different elements are put together so that they should not be internally contradictory. One question that can be raised is whether the upstream electrification project in the first scenario fits well with the downstream use of gas in the region. Another is the assumption that the U.S., which has not ratified the Tokyo protocol or taken any decisive steps in the direction of reducing greenhouse emissions, in the third scenario ends up as a devoted environmentalist in the High North. But by the end of the day more unlikely things will probably happen than we currently are able to imagine.

The most important question is whether the scenarios are relevant and meaningful. We admit that the three scenarios from one point of view might appear as the good, the bad and the ugly. They could have been more balanced. On the other hand, they force us to think ahead, evaluate existing predictions, and question our inherited mental maps and operational models. The scenarios underscore the complexity of the issues. They show that an extensive oil and gas development in the Barents Sea can take many shapes and have various regional impacts. By using the scenarios as a basis for strategic discussions, they can help us identifying preconditions and measures which are important for capturing optimal regional benefits from an extensive oil and gas development in the north. In this way, the scenarios can act as tools for guiding thinking. In hindsight they can even remind us about our own ignorance and lack of knowledge and thereby caution against human arrogance and hubris.

6.3 Lessons and strategic implications

In general terms, there are three important lessons which can be derived from the scenarios. First, there is no one-to-one relationship between an extensive oil and gas development in the Barents Sea and the effects created in the adjacent region. Oil and gas involves concentrated capital-intensive exploitation, which can take place with very few linkages to the rest of the economy. The regional impacts will therefore depend upon the licensing conditions, the development concepts, the size and lifetime of the projects, the companies' contracting and purchasing strategies, the characteristics of the receiving region, the choice of location, the development of local and regional suppliers, the networks built to harness opportunities, etc.

Second, many actors do play an important role. The oil companies and their major suppliers are key actors, but the oil and gas industry is a highly politicized industry. Hence, national governments, regional actors, NGOs and international regulatory bodies also have a strong influence. As the scenarios show, there are many things all of them can do to promote sustainable development and to ensure that oil and gas development in the Barents Sea is not passing *over* the region but becomes embedded *in* the region. The production of regional effects can hardly be left to the regional actors alone.

Third, the developments in the High North are influenced by a range of other factors, only marginally linked to the oil and gas activities as such. Oil and gas development is part of a much larger picture of parallel processes. Demographic trends, labour markets, availability and quality of public infrastructure, technological change, energy supply and

⁶² M. Kaldor, T. L. Karl & Y. Said (eds.) 2007: *Oil wars*. London: Pluto Press.

demand, energy security, international co-operation, climate and environmental policy, and ecological awareness are only some of the factors that are now becoming increasingly interconnected.

To identify and analyze the relevant drivers, barriers, change dynamics and pathways is not easy. This big puzzle lies beyond conventional cause-effect explanations. Rather, we must turn to models of non-linearity, where initial conditions and path dependency are central aspects. At the same time it is emphasized that gradual changes within a system suddenly can shift to either a breakdown of the system or a breakthrough to a new system level or both. Such models invite us to look for the perpetual stabilizations and destabilizations which are creating the future. For one thing is sure about oil and gas development in the High North: There will be obstacles and surprises. The basic lesson of the scenarios is that we must be prepared and expect the unexpected. How do we prepare for the unexpected? Normally, by building robust strategies, introducing back-up programmes and demonstrating ability to adjust.

Nevertheless, what all the scenarios underscore is that *if* oil and gas development is to benefit the region, the region must become something more than a terminal for on- and offloading of primary commodities, equipment and personnel. Without decision-making centres and core knowledge functions located in the region, the traditional periphery status will be reproduced. Consequently, it is crucial that old and new oil companies establish their Barents operation centres in the region; that main suppliers settle in the region with a long-term commitment; that regional industry is mobilized and qualified for participation in exploration, exploitation and transportation of oil and gas and associated services; and that money is channelled into a comprehensive modernization of the region's physical, social and knowledge infrastructures.

This can hardly be achieved without a strong backing from national governments willing to impose both strict environmental regulations and a set of regional obligations to which the oil companies must adhere. When oil majors arrive in the High North, there is a large power asymmetry between the companies and the northern region. The companies have their expertise, capital and powerful networks, and they know how to move into new areas and handle local actors in order to serve their own interests. The local actors, on the other hand, are small and dispersed and lack all the corresponding resources. To create a better balance, central authorities must frame the rules of the game and take decisive steps to ensure empowerment and development of the region. The rules of the game also play a key role in the relationship between Norway and Russia. The fact that the Barents Sea is divided between the two countries, makes peaceful co-existence and close collaboration vital prerequisites for a mutual beneficial development in the High North.