

Institutions and the Emergence of Markets - Transition in the Murmansk Forest Sector

Ivanova, L. and Nygaard, V.

**IIASA Interim Report
December 1999**



Ivanova L and Nygaard V (1999) Institutions and the Emergence of Markets - Transition in the Murmansk Forest Sector.
IIASA Interim Report. IR-99-071, IIASA, Laxenburg, Austria Copyright © 1999 by the author(s). <http://pure.iiasa.ac.at/5878/>

Interim Reports on work of the International Institute for Applied Systems Analysis receive only limited review. Views or opinions expressed herein do not necessarily represent those of the Institute, its National Member Organizations, or other organizations supporting the work. All rights reserved. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage. All copies must bear this notice and the full citation on the first page. For other purposes, to republish, to post on servers or to redistribute to lists, permission must be sought by contacting repository@iiasa.ac.at

Interim Report

IR-99-071

Institutions and the Emergence of Markets — Transition in the Murmansk Forest Sector

Lyudmila Ivanova (ivanova@iep.kolasc.net.ru)
Vigdis Nygaard (vigdis.nygaard@nibr.no)

Approved by

Sten Nilsson (nilsson@iiasa.ac.at)
Leader, Forest Resources Project

December 1999

Contents

1. INTRODUCTION	1
The Structure of the Report	2
Methodology	3
Data Collection	5
2. THE RESOURCE BASE — FORESTS IN MURMANSK OBLAST	6
Species Composition	8
Harvesting	10
Ecological Problems	12
Infrastructure	14
Summary	16
3. SOCIOECONOMIC CHARACTERISTICS OF MURMANSK OBLAST	16
Changes in the Demographic Situation	17
The Educational Level	20
Changes in the Workforce	21
Economic Structure	22
Industrial Development	23
Salaries	24
Summary	26
4. MANAGEMENT IN MURMANSK FORESTRY — RULES IN USE	27
Forest Management in the Tsarist Period	27
Forest Management in the Soviet Period	27
The Perestroika Period	28
Laws, Regulations and Instructions	29
Forest Management in Russia Today	30
Forest Management in Murmansk Oblast	31
The Role of the <i>Leskhozy</i>	33
Economic Problems of the <i>Leskhozy</i>	34
Murmansk Regional (Oblast) Administration	36
State Committee on Environmental Protection	37
The Regional Program “Forests of Murmansk Oblast”	38
Summary	38

5. THE FOREST AND WOOD PROCESSING INDUSTRY IN TRANSITION	40
The System of Privatization in Russia	40
Changing Property Forms in Murmansk Forest Sector	41
Changing Terms of Timber Acquisition	45
Auction	45
Leasing	46
The Forest and Wood Processing Industry in Murmansk Oblast	48
Summary	50
6. BUSINESS BEHAVIOR	50
Production	51
Workforce	52
Social Responsibilities	53
Investments in the Company	55
Bank Relations in Connection to Investments	57
Timber Supply	57
Terms of Acquisition, Payment and Contracts	59
Non-Monetary Arrangements	60
Violation of Buying Agreements	62
Customers/Markets	63
Exports	63
Arrangement of Selling Agreement, Contract and Payment	65
Violation of Selling Agreement	67
Enterprises' Perceptions of Laws and Rules	69
Most Binding Restriction for the Operation of the Region's Forest Companies	71
Changes of Rules and Laws	71
Summary	72
7. EVALUATION CRITERIA AND CONCLUSIONS	73
Evaluation Criteria	73
Conclusion	77
Does Murmansk Oblast Need a Forest Industry in the Future?	79
Can the Forest Industry Survive?	80
REFERENCES	82

Acknowledgments

Lyudmila Ivanova and Vigdis Nygaard participated in IIASA's Young Scientists Summer Program (YSSP) in the summer of 1999.

We would first of all like to thank our supervisors at IIASA, Mats-Olov Olsson, Lars Carlsson, Nils Gustav Lundgren and the leader of IIASA's forestry project, Sten Nilsson, who have read through the numerous drafts of our report and made valuable comments.

We would also like to thank Tamara Malkova and Larissa Riabova, researchers at the Institute for Economic Problems of the RAS Kola Science Center, Apatity, for assistance in making enterprise interviews.

The research for this report was part of the project "Institutional Change in Forestry Management in Murmansk Oblast" funded by NFR, the Research Council of Norway (Program for East- and Central Europe). NFR is the Norwegian National Member Organization of the International Institute for Applied Systems Analysis (IIASA) and the work has been performed in collaboration with IIASA's Sustainable Boreal Forest Resources (FOR) project. We also would like to thank the Norwegian and Russian National Member Organizations of IIASA, which funded the authors' participation in IIASA's Young Scientists Summer Program in 1999.

About the Authors

Lyudmila Ivanova is a Ph.D. student at the Institute for Economic Problems of the RAS Kola Science Center in Apatity, Murmansk Oblast, Russia. She is working on a thesis on the economics and management of forest resources in the Russian North.

Vigdis Nygaard is a Political Scientist and graduated from the University of Oslo. She works as a researcher on Russian and East European issues at the Norwegian Institute of Urban and Regional Research (NIBR) in Alta, Norway.

Institutions and the Emergence of Markets — Transition in the Murmansk Forest Sector

Lyudmila Ivanova and Vigdis Nygaard

1. Introduction

IIASA has devoted several studies to the sustainability of Russian forests in the period of transition. The aim of this study is to describe and analyze the current institutional framework of the Russian forest sector. For this purpose, several Russian regions have been chosen for study. The Institute has already published reports on the regions of Tomsk, Arkhangelsk, Moscow, Khabarovsk and Karelia. The reports on Irkutsk and Krasnoyarsk are currently being prepared for publication.¹ This report deals with Murmansk Oblast.² The region differs from other Russian regions involved in the study, where the forest industry is large and of significant economic importance. In contrast, the forest industry in Murmansk Oblast has never played a significant role for the economy at large. Forest resources in the region are not abundant. Severe climatic conditions cause low productivity of the forests. Under these conditions the problem of sustainable management seems to be of special relevance for the region's forests.

The forest industry in the region has never been profitable. Currently it experiences a deep economic crisis. Disintegration of old production links and the end of subsidies from the center have led to a dramatic production fall. Many forest companies have gone bankrupt, as they have not managed to adapt to the new economic conditions. Those still operating are mostly oriented to a survival strategy. Wood processing companies suffer from the lack of money to buy raw materials, while harvesting companies have problems selling their products. Remoteness and high transport tariffs restrain expansion of the market for their production.

Even though the existing companies possess facilities for harvesting and processing of timber, most of them lack modern machinery. There is a need for a restructuring of the production facilities to meet market demands for quality products. Our research seeks to establish whether the industry is needed for the regional wood demand and, if so, how it can be developed.

¹ See, Carlsson and Olsson (1998); Carlsson *et al.* (1999a); Carlsson *et al.* (1999b); Efremov *et al.* (1999); Kleinhof *et al.* (1999); Piipponen (1999); Blam *et al.* (2000, forthcoming); and Sokolova (2000, forthcoming).

² A companion piece dealing with the practice of timber auctions in Murmansk Oblast has also recently been published by IIASA (see, Jacobsen, 1999).

However, the future development of the forest sector is to a large extent dependent upon the institutional structure provided to help the sector enter the market economy. A largely new institutional structure is needed for the successful functioning of the industry in its new context.

That institutions affect economic performance is hardly controversial. That the differential performance of economies over time is fundamentally influenced by the way institutions evolve is also not controversial (North, 1997:1).

This is confirmed by the situation in the Murmansk forest industry. The old institutional structure has disintegrated, its rules are no longer valid, but a new one has not yet been established.

We have conducted a survey among companies in the Murmansk forest sector and this report presents the results of our findings. Our study reveals and discusses the rules guiding enterprises' behavior in the sector. Based on an analysis of the current situation we evaluate the prospects of the forest industry in the region.

The Structure of the Report

The report includes seven chapters describing the idea of the work, the resource base, the socioeconomic situation in the region, the structure of forest management, transition and business behavior in the forest industry. The report ends with conclusions and recommendations. In the introductory chapter, we describe why it is important to study the institutional structure of the forest sector. The methodology and data collection is also outlined in this chapter.

The second chapter "The Resource Base — Forests in Murmansk Oblast", depicts the physical attributes of the regional forests. It provides an explanation of such basic terms as classification of forests in Russia, annual allowable cuts, and it provides basic information about the applied method of harvesting, ecological problems, and the infrastructure.

The third chapter, "Socioeconomic Characteristics of Murmansk Oblast", gives an overview of the demographic situation in the region, the educational level of the population compared to some other regions of the Russian Federation, as well as changes in the workforce. The structure of the region's economy, its industrial development and salaries are also discussed.

In the fourth chapter, "Management in Murmansk Forestry — Rules in Use", we focus on institutional aspects. We begin with a brief overview of the development of forest management. Then we discuss the roles of various actors involved in forest management and how they are coping with the new situation.

The fifth chapter, "The Forest and Wood Processing Industry in Transition", is devoted to the transition process in the region's forest industry. After some general description of the privatization process in Russia, we discuss the basis of the interviews conducted with forest companies and how changing property forms have affected their business performance. Changing terms of timber acquisition is another topic of the chapter.

Finally, we describe the current situation in the forest and wood-processing industry and how this has affected production volumes.

The sixth chapter, “Business Behavior”, is based on the results of the survey among forest enterprises in Murmansk Oblast. Here the situation is depicted at the company level. Features and problems connected to the enterprise’s activity and the obstacles hindering transactions are analyzed and compared to some other regions involved in the study.

In the final chapter, “Evaluation Criteria and Conclusions”, we try to summarize our findings in Murmansk Oblast. The institutional structure connected to the forest sector is evaluated using a number of criteria. More details are given in the methodology part of this chapter. We discuss the sector’s future from both the demand side and its capability to adapt to the new conditions.

Methodology

In order to study the changes of institutions in the Russian forest sector we need a methodology making it possible to cover all the aspects concerning the institutional structure. It is well known that adopted laws and regulations are not the only rules guiding the relations between actors.

Formal rules include political (and judicial) rules, economic rules and contracts. [...] Informal constraints cannot be as precisely defined as formal rules. They are extensions, elaborations and qualifications of rules that “solve” innumerable exchange problems not completely covered by formal rules and that in consequence have tenacious survival activity (North, 1997:3).

We used the *Institutional Analysis and Development Framework* (IAD) to structure the study of the forest sector in the Murmansk Oblast. This framework has also been used in the project’s other case studies of Russian regions and has been widely used for institutional analysis. The advantage of using the framework is that it does not limit analysis to the use of one theory (Ostrom *et al.*, 1994). Transaction cost and property rights theories are used within the framework.

As the framework has already been developed in detail (Ostrom *et al.*, 1994) we will only describe how it is used in our report. The forest sector of Murmansk Oblast is considered as an *action arena*, which is the central focus of the study. The action arena includes two elements, namely action situations and actors.

A minimal action situation is characterized using seven clusters of variables: (1) participants, (2) positions, (3) actions, (4) potential outcomes, (5) a function that maps actions into realized outcomes, (6) information, and (7) the costs and benefits assigned to actions and outcomes. Actors are participants in action situation who have preferences, information-processing capabilities, selection criteria and resources outcomes (Ostrom *et al.*, 1994:29).

According to the IAD framework there are three sets of factors connected to the action arena: *attributes of the physical world*, *attributes of community*, and *rules-in-use*.

In our case study, the physical world attributes include such characteristics as the composition and quantity of forests in Murmansk Oblast. Indicators of the

socioeconomic situation in the region constitute the block of attributes of the community. Rules-in-use represent all kinds of norms and regulations being the basis of interactions within the action arena — the Murmansk forest sector in our case. All the three sets of variables affect the action arena producing different patterns of interactions. In turn they produce some results which can be evaluated using various criteria.

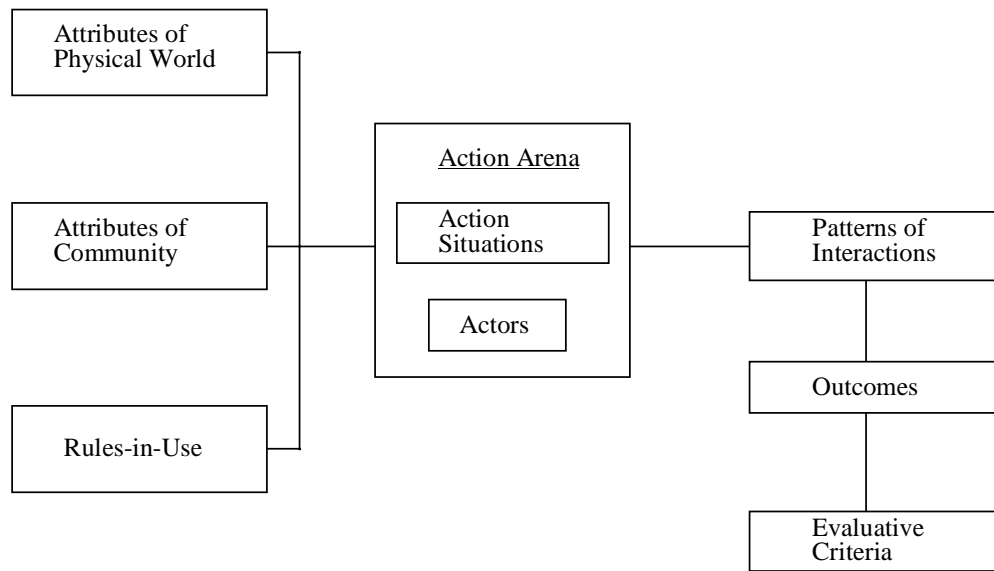


Figure 1:1. A framework for institutional analysis (Source: Ostrom et al., 1994:37).

As has been done in earlier IIASA reports describing other regions selected for case studies, we have adopted the following conditions as indicators of sustainable forest management. Using the same evaluative criteria enables us to make some comparisons with other regions in the study (cf. Carlsson and Olsson, 1998).

- Constitutional rules are acknowledged and transparent.
- The structure of property rights is settled and well defined, i.e., private actors can acquire property or acquire the right to utilize property for their own benefit.
- Rules and regulations from official authorities are regarded as legitimate and apply equally to similar actors.
- The market decides the prices of property and goods.
- Decision-making regarding collective choice and operational rules is decentralized.
- Private investors can realize the returns on their investments.
- Rules are enacted aimed at preventing the devastation of natural resources.
- Legitimate authorities take measures against violations of rules.

Throughout the report we verify to what extent the mentioned indicators of sustainable forest management are met by the real situation in the Murmansk forest sector.

Data Collection

To accumulate the necessary information we use various relevant sources. The data is collected so that it will be possible to trace the whole chain from the growing forest to the market. The timber is harvested and used as raw material supply in the processing and manufacturing of forest products.

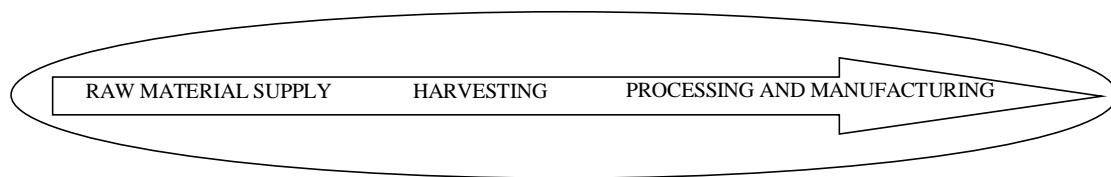


Figure 1:2. The chain of production in our action arena, Murmansk Oblast. (Source: Carlsson *et al.*, 1999a:6.)

Our sources used in the report can be classified according to the type of data.

- *Statistical data* about the regional socioeconomic conditions and industry are mainly collected from the regional office of Goskomstat: The Murmansk Oblast Committee on State Statistics. The Murmansk Forest Management produces statistical information about forestry and we also use some official statistics from the Murmansk Oblast Committee on Nature Protection. To some extent we use statistical data from all Russian regions that are drawn together in the IIASA Russian Forest Study database. This is particularly the case when we compare statistical information from Murmansk with other regions.
- *Newspaper articles* are used to monitor the regional and local discussion on forestry and forest industry issues. They enable us to follow the development through the public's contribution to the debate and from the point of view of "outside" journalists.
- *Laws and decrees* related to the forest sector are used to understand the formal rules in use. They can be federal laws adopted by the Duma, the President or other State organs, or they can be regional laws adopted by the regional Duma and the Governor.
- *Programs and regional analyses* are made to plan the future development of the sector. The Murmansk Forest Management and Murmansk Regional (Oblast) Administration are the main contributors of such planning documents.
- *Structured interviews* have been conducted with 24 forest companies in the Murmansk Oblast. The questionnaire was designed by IIASA and has been used in all the analyzed regions in the Institutional Framework Study. The total number of companies interviewed in different regions of Russia and Sweden is 245. The questionnaire consists of 4 parts: general description of the enterprise, input side of the enterprise, output side of the enterprise and institutional aspects.

- *Additional interviews* have been made to obtain supplementary information about the enterprises and the management of forestry. Interviews were made with representatives of Murmansk Forest Management and the Regional Administration.

Using interviews with individual companies is quite a new method of data collection in Russia. The Soviet centralized planning system gave all the statistics necessary to plan for the future, even though the figures did not always correspond with actual production numbers. They were used more as indicators of expected performances from the companies. The method of collecting statistical information in Russia is still troublesome and the figures must be handled with some caution. Using the method of interviews seems useful under the current circumstances in Russia, as it is a method aimed at revealing what is really happening at the company level. This is not only related to production numbers and economic performance, but also to how companies interact on the action arena and how the enterprises are linked to the institutional framework. In accordance with the IAD framework, we begin the report with a description of the physical attributes of the Murmansk Oblast and its forests.

2. The Resource Base — Forests in Murmansk Oblast

Murmansk Oblast was established on May 28, 1938. It is situated on the Kola Peninsula in Northwest Russia. Almost all of the region's territory is located above the Arctic Circle and covers two geographical zones: tundra and taiga. In the north the region is washed by the Barents Sea and in the south by the White Sea. The region's territory constitutes 144,900 km² (0.85% of Russia's entire territory).

The Kola Peninsula has always been sparsely populated. In the 14th century, the first settlers founded monasteries in what is now known as the town of Pechenga and Kola. Farmers came from the south and some forestry activities were going on along the rivers and around the town of Kola. The indigenous Saami population lived all over the North Calotte with their reindeer pastures and nomadic lifestyle. The first significant immigration started after the Russian revolution in 1917 when the city of Murmansk was founded and the Northern railway was prolonged. The industrialization based on the region's raw materials began and demanded huge amounts of workers. The region was part of Arkhangelsk Gubernia before it became a Soviet province in 1938.

At present, the large industrial complex in the region is based on the favorable geographical location (relative closeness to the industrially developed regions of Russia), the possibility of all-year-round navigation with direct outlets to international commercial routes and the region's unique mineral resources.

Although Murmansk Oblast has never been as rich in forest resources as some other Russian regions, logging was one of the first business activities started on the territory. Development of a forest industry in the region began in 1898 when the first sawmill was constructed in the settlement of Umba. By the beginning of the 20th century there were 6 sawmills in the region. However, due to climatic conditions the boreal forests in the region have low productivity. The share of the forest industry in the region's economy has never been high and has dramatically decreased during recent years.

The forests of Murmansk Oblast are the northern-most forests in the Russian European North. Out of the region's total area in 1999, 9.5 million ha (65%) belong to the State Forest Fund (*Goslesfond*).³ The State Forest Fund is subdivided into non-forest land (45.2%) and forestland (54.8%). The latter includes unforested and forested areas, which in turn include non-exploitable and exploitable forests.

Table 2:1. Forest resources in the Murmansk and Arkhangelsk regions seen in relation to total area and growing stock, 1998.

	Murmansk Oblast	Arkhangelsk Oblast
Total area (million ha)	14.5	58.7
State Forest Fund (million ha)	9.8	29.3
Forested area (million ha)	5.2	21.6
Growing stock (million m ³)	198.1	2392.1

Source: Murmansk Forest Management (1999); IIASA Russian Forest Study Database.

In Table 2:1 we want to show the different conditions of forest resources in Murmansk Oblast compared to one of the most intensive forest regions in Russia, Arkhangelsk Oblast. First of all, Arkhangelsk is a much larger region and only 50 percent of its territory belong to the State Forest Fund. The corresponding figure for Murmansk Oblast is 65 percent. The Forested Area constitutes 73 percent of the State Forest Fund in Arkhangelsk, while the figure for Murmansk is only 53 percent. The conditions can best be seen if we compare the growing stock in the two regions. The figure in Murmansk Oblast is under 200 million m³ while the growing stock of Arkhangelsk Oblast is nearly 2,400 million m³. This difference is the result of different climatic conditions and productivity of the forest in the two regions.

Forests of the State Forest Fund are divided into three groups according to their location and functions.

Table 2:2. Distribution of the forest fund in Murmansk by group classification, 1998.

Group	Million m³	Million ha	% of forest fund
Group I	112.9	6.274	64
Group II	0	0	0
Group III	85.2	3.506	36

Source: Murmansk Forest Management (1999).

According to the existing classification forests having protective functions are referred to Group I. Group II includes forests combining protective and economic functions, usually situated near densely populated areas. Forests belonging to Group III are the main source of industrial timber. In Murmansk, the majority of the forests belong to

³ The remaining area of the region (not included in the forest fund) belongs to other proprietors. One of the largest is the Ministry of Defence.

Group I, while no Group II forests exist. The percentage distribution is 64 percent for Group I and 36 percent of Group III.

There are no private forests in Murmansk Oblast. Here the situation resembles all the other Russian regions. The Federal Forest Service (FFS) owns the Forest Fund through its regional subdivisions. The Regional Forest Management in Murmansk Oblast (with its 10 local subdivisions, *leskhozy*) is responsible for management of the areas. Only two of the *leskhozy* — Murmanskii and Lovozerskii — lack industrial forests of Group III on their territory. The area of especially protected territories is 311,300 ha (including three natural reserves “Kandalakshskii”, “Laplandskii”, and “Pasvik”).

Forests located on areas submitted to the Ministry of Defence as well as those within urban borders are not incorporated in the Forest Fund.

Species Composition

The harsh climatic conditions and the poor soils of the Kola Peninsula bring about the peculiarities of the region’s forests, which are characterized by low density and low productivity. The northern part of the forests is regarded as tundra, southward — pretundra and then taiga. The three zones are evenly distributed and account for 34, 33 and 33 percent of the territory respectively.

The variety in species composition is low (Mal’kova and Peshev, 1997). The main species are pine, spruce and birch. As seen in Diagram 2:1 and Table 2:3, pine and spruce dominate the total forest stands with a rather high percentage of birch and a negligible share of aspen and larch. The forest stands can be measured in two ways; in hectares and cubic meters. The term forested area tells us the extension of the area where the different species are located and this is measured in hectares. The term growing stock refers to the density of the forests and is measured in cubic meters. In Diagram 2:1, spruce constitute 42 percent of the growing stock but only 30 percent of the forested area. This means that the spruce stands are more compact and dense compared to, for instance, the birch stands that covers 26 percent of the area but only 14 percent of growing stock.

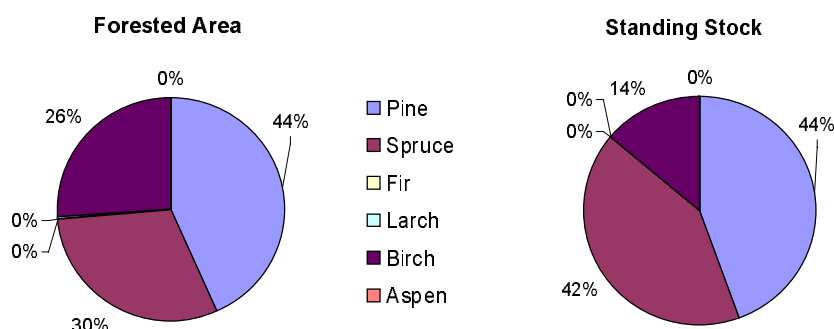


Diagram 2:1 Species composition of the forest fund in Murmansk Oblast. Percent.
(Source: Murmansk Forest Management, 1998.)

Table 2:3. Species composition in Murmansk Oblast in 1993 compared to the rest of Northwest Russia for forests managed by the Federal Forest Service of the Russian Federation (percent of forested area and percent of growing stock).

Species	Northwest Russia		Murmansk		Arkhangelsk		Vologda		Komi		Karelia	
	Area	Stock-ing	Area	Stock-ing	Area	Stock-ing	Area	Stock-ing	Area	Stock-ing	Area	Stock-ing
Pine	31.99	28.61	43.33	44.53	27.20	25.22	24.99	24.55	24.94	22.56	64.0	58.3
Spruce	47.96	54.13	30.45	41.68	56.91	65.33	29.67	31.07	56.21	60.91	25.6	32.0
Fir	0.22	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.66	0.0	0.0
Larch	0.37	0.47	0.01	0.00	0.28	0.42	0.02	0.01	0.69	0.82	0.0	0.0
Birch	17.30	13.31	26.19	13.78	14.55	7.81	37.14	35.36	15.29	11.35	9.7	8.8
Aspen	2.16	3.22	0.01	0.01	1.06	1.22	8.18	9.00	2.33	3.71	0.7	0.9
	100	100	100	100	100	100	100	100	100	100	100	100

Source: Carlsson *et al.* (1999b).

The average age of forests in Murmansk Oblast is rather high (103 years) but under these northern conditions stands of 180–200 years are not over-mature by their physical properties. The stands can still be used for industrial harvests.

Table 2:4. Development of mature and overmature stock of the state forest fund in Murmansk.

Year	Total forest fund area, million ha	Mature and overmature forested area		Growing stock	
		Million ha	% of total forest fund area	Total, million m ³	mature and over-mature, %
1969	9.81	2.25	23.0	238	54.6
1978	9.64	1.95	20.2	186	53.8
1988	9.52	2.11	22.2	201	57.8
1993	9.49	2.08	21.9	200	56.9
1999	9.47	2.06	21.8	198	56.5

Source: Murmansk Forest Management (1999).

As shown in Table 2:4, the shares of mature and over-mature stands of the total growing stock in the region was stable (more than 50%) throughout the period. Its area, however, only accounted for slightly more than 30 percent of the total Forest Fund. The difference can be explained by low density of forest stands in the region.

Clear cutting prevailed, as harvesting methods and regeneration were not sufficient. By 1970 the most productive pine stands were harvested. The valuable species were over-cut mainly during the construction of the Oktyabrskaya railroad and along rivers and

lakes. While the most valuable pine stands were intensively harvested, exploitation of over-mature spruce only accounted for 20–30 percent of the cutting (Mal'kova and Peshev, 1997). Later, however, the overutilization of mature pine led to the exploitation of spruce resources. Their share in harvesting volumes increased from 10 percent in 1970 to 35 percent in 1983 and 50 percent and more in the 1990s. Birch stands have no commercial value in the region due to insufficient stock per hectare and a very low productivity.

Forests in the region are highly affected by various diseases which, together with the harvesting methods and industrial pollution, make forest conditions as well as stock productivity worse.

Harvesting

Harvesting in Murmansk Oblast was especially intensive in the 1960s when production volumes were higher than 2 million m³. Since the 1970s, harvesting has been slightly decreasing until the beginning of the 1990s when volumes started to decrease significantly. Between 1992 and 1998 commercial harvesting was reduced from 11,448 to 1,318 hectares annually and production of commercial wood dropped from 690,000 m³ to 97,800 m³ (Goskomstat Murmansk, 1996; Murmansk Forest Management, 1998).

The concept of *Annual Allowable Cut* (AAC) is the measurement used for establishing sustainable levels of harvesting. The first reduction of the annual allowable cut happened in 1983 (from 1,260,000 m³ to 875,000 m³) and it was even more reduced in the subsequent years. In 1998 compared with 1980, the AAC was reduced by 58 percent, and since 1996 it amounts to 691,900 m³, of which not more than 25 percent is used annually (Regional Program “Forests of Murmansk Oblast”). The AAC decline was caused by earlier overuse of mature and over-mature stands as well as by a decrease in demand for timber products.

Table 2:5. Utilization of annual allowable cut in Murmansk Oblast.

Year	Utilization of AAC, %
1960	103.0
1970	108.6
1980	78.2
1985	90.9
1990	92.0
1991	79.0
1992	61.0
1993	25.0
1996	26.4

Source: Mal'kova and Peshev (1997).

From Table 2:5 we can see that, although overuse of valuable pine resources has taken place, the annual allowable cut has not been considerably exceeded throughout the years and it has especially fallen dramatically during recent years after the disintegration of the forest industry complex in the region.

Table 2:6. Harvesting in Murmansk Oblast 1992–1998.

	1992	1993	1994	1995	1996	1998
Industrial harvesting:						
Area, ha	<u>11,448</u>	<u>9,193</u>	<u>2,878</u>	<u>2,983</u>	<u>2,870</u>	<u>1,318</u>
Volume, m ³	690,000	532,000	198,000	192,000	183,000	97,800
Sanitary cuttings:						
Area, ha	<u>3,321</u>	<u>2,939</u>	<u>2,561</u>	<u>2,319</u>	<u>2,537</u>	<u>2,765</u>
Volume, m ³	54,000	41,100	32,100	43,400	40,800	46,800
Annual allowable cut, m ³	773	860.5	791.6	706.7	691.9	691.9

Source: Goskomstat Murmansk (1997).

As seen in Table 2:6 industrial harvesting has continuously decreased over the years because of the deep economic crisis experienced by the forest industry in Murmansk. Sanitary cuttings are fulfilled by subdivisions of the Murmansk Forest Management (*leskhozy*) and their volumes are relatively stable. As a result, in 1998 the area of sanitary cuttings (2,765 ha) more than twice exceeded that of industrial harvesting areas (1,318 ha). However, in contrast to industrial harvesting where clear-cut dominates (90%), sanitary cuttings are mostly selective which gives smaller volumes harvested.

Forest regeneration in the region includes artificial reforestation and assistance to natural reforestation with the latter prevailing. Seeds used for seedlings are delivered from other regions and often grow slowly or die. Although pine is basically harvested (72%), artificial reforestation is mostly made by spruce.

Table 2:7. Forest regeneration in Murmansk Oblast 1980–1996.

	1980	1985	1990	1991	1992	1993	1994	1995	1996
Regenerated areas, ha	10,800	9,700	11,000	11,900	9,950	11,901	13,590	13,592	7,573
Planting and sowing, ha	n.a.	n.a.	n.a.	n.a.	1,478	1,528	1,709	2,025	1,615
Of that mechanised, ha	n.a.	n.a.	n.a.	n.a.	674	473	792	808	715
Natural regeneration, ha	8,800	7,700	8,800	9,900	8,472	10,373	11,881	11,567	5958

Source: Goskomstat Murmansk (1997).

Reduced funding from the Federal budget caused the drastic drop in 1996. Due to the lack of necessary machinery, much of the sowing is done by hand which takes a lot of time and eventually has a negative effect on reforestation quality as a whole.

Preservation or harvesting?

There is a discussion going on about the exploitation of the boreal pristine forests along the borders to Finland and Norway. Environmental organizations and researchers from the Institute of North Ecology Problems (Kola Science Center RAS) argue that, in contrast to Karelia and Finland, pristine forests are still available on the Kola peninsula and must be preserved as a valuable part of the ecosystem. This movement is being strongly supported by the Finnish environmental organizations (Gerchina, 1999).

Murmansk Forest Management, however, as well as harvesting enterprises operating in these areas, are of the opinion that reasonable harvesting in these forests is needed since a considerable part of the region's territory has already been allotted for various reserves. They consider the intention to stop any cutting in the region as an attempt to exclude Russia from the market and to divert attention from such serious problems as damage caused by industrial pollution (Dvoriankin, 1997).

Ecological Problems

In general the ecological situation in Murmansk Oblast can be characterized as unfavorable. In 1996, industry emitted into the atmosphere 505,000 tonnes of pollutants. The most polluted areas in the region are Monchegorsk and Pechenga districts due to two large enterprises of the Russian stock company (RAO) "Norilskiy Nickel" producing non-ferrous and precious metals, namely the SC "GMK Pechenganickel" and SC "Kombinat Severonickel" which are located in these areas. These companies emit the major part of the atmospheric pollution (76% in 1996). The highest level of effluents and soil contamination is also registered here. The companies are sources of various cancerogenic substances, first of all heavy metals, affecting the environment. Concentration of large, ecologically dangerous productions, out-of-date technology and ineffective purification installations has resulted in considerable damage to the surrounding areas. The situation is aggravated by the circumstance that nature is ecologically vulnerable due to the unfavorable geographic and climatic conditions. Nature's assimilating ability is considerably lower than in central regions of Russia.

Around SC "GMK Pechenganickel" large forested areas have been devastated, ground water and soil near the town of Zapolyarny and the settlement of Nikel have been contaminated with heavy metals, mainly nickel. The nickel content exceeds the maximum allowable concentration by 25 times. Transboundary pollution from this combination negatively affects the neighboring countries (Goskomstat Murmansk, 1997).

Table 2:8. Emission volumes from the largest companies in Murmansk Oblast in 1996.

Company	Emissions, tonnes	Share in total emissions in Murmansk Oblast, %
SC “GMK Pechenganikel”	246,500	48.9
SC “Kombinat Severonikel”	122,000	24.2

Source: “Zelenyi Mir” (1997).

At present the area of forests damaged by industrial pollution amounts to 13,350 ha, out of which the area of dead forest is 7,469 ha (Regional program “Murmansk Oblast Forests”, 1998).

Table 2:9. Annual increase of forest stands damaged by industrial pollution in Murmansk Oblast.

Year	Devastated area, ha
1993	217
1994	75
1995	65
1996	61

Source: Goskomstat Murmansk (1997).

The emission decreases are caused by production decline rather than by any efforts to preserve the environment.

Together with soil and climatic conditions forest fires are one of the main factors influencing forest stock condition. Fires have affected species distribution on the peninsula, plant density, regeneration conditions as well as productivity of the forests. The damages by forest fires to the environment are significant (Mal’kova and Peshev, 1997).

Forest fires constitute a very big problem for Forest Management. Vast areas with no roads, lack of helicopters and financial problems hinder fire protection.

Table 2:10. Forest fires in Murmansk Oblast 1980–1996.

Year	Number of fires	Area, ha
1980	521	1,804
1985	364	255
1990	178	435
1991	157	100
1992	222	2,497
1993	136	334
1994	433	813
1995	138	262
1996	126	406

Source: Mal'kova and Peshev (1997).

Infrastructure

The western part of Murmansk Oblast is industrially developed. Most of the population is concentrated around industrial enterprises. Eastwards, the Kola Peninsula mostly presents wilderness with only few coastal settlements. The transportation network is unevenly distributed all over the region. Some places can only be reached by helicopter.

The road system is only well developed in the western part of the region. The total railway length amounts to 933 km. The main lines are between St. Petersburg, Moscow and Murmansk. In the north it ends up in the settlement of Nickel and in the west in the town of Kovdor.

The length of roads with hard cover is 2,300 km. The highway runs from Murmansk through Karelia to St. Petersburg. Of great importance are roads connecting the region to Norway and Finland. In general, the roads are of low quality, many lack hard cover and are poorly maintained.

Table 2:11. Total road (with hard cover) and railway density in 1996, km/1,000 km².

	Russia	North Russia	Arkhangelsk	Murmansk
Railways	9.2	10.8	7.8	6.5
Roads	40.9	28.3	15.5	15.9

Sources: Carlsson *et al.* (1999b); Goskmostat Murmansk (1996).

The road density in Murmansk Oblast is low compared with Russia as a whole and North Russia, although it is close to the Arkhangelsk figures.

Murmansk Oblast has two harbors — in Kandalaksha and Murmansk. The latter is much more important for the regional economy. This is a non-freezing port annually handling 5.4 million tonnes of cargo. Currently, however, waterways are not used for timber export.

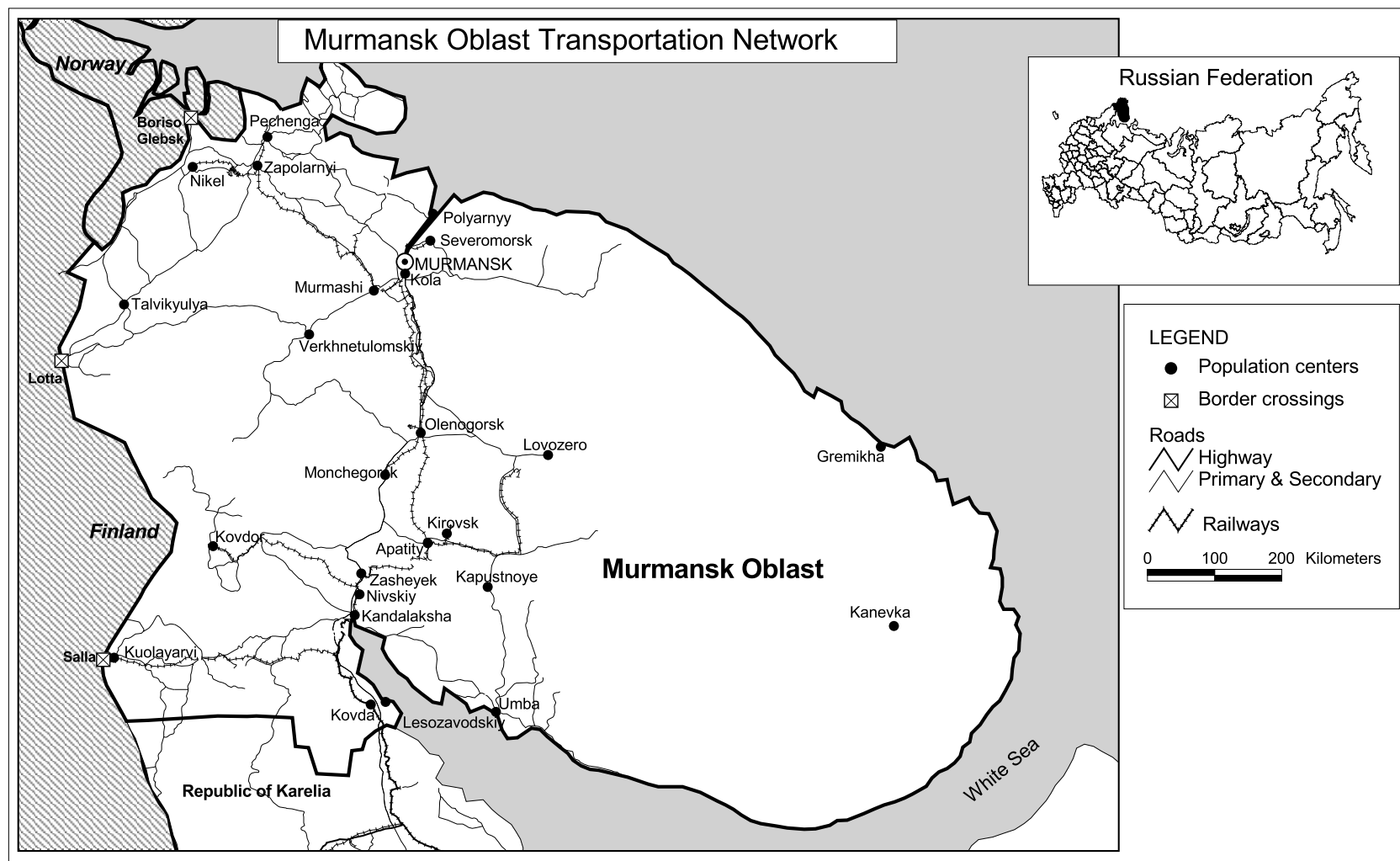


Figure 1 Transportation network in Murmansk Oblast.

(Data sources: Oblast boundary from IIASA Russian Forest Study Database, all other data from the Digital Chart of the World, Environmental Systems Research Institute Inc. (ESRI).

Running effective forestry and rational forest use are impossible without developing an adequate transportation system in the forest fund. At present the forest road network in the region is extremely insufficient and only amounts to 0.08 km per 100 km² of the Forest fund lands. This figure is very much lower than what is regarded as an optimum, 0.5 km forest roads/km² (Strakhov *et al.*, 1996:95). Recently, the construction of forest roads practically stopped.

Thus it can be concluded that considerable investments are needed to develop the forest road system in the region.

Summary

The conditions of the Murmansk forest resources and the physical environment can be summarized as follows:

- More than half of the region's forests is referred to Group I forests, which means they have protective functions. Forest stands are characterized by low density and productivity.
- The species composition is simple with a predominance of coniferous stands.
- The share of mature and overmature forests in the total growing stock in the region is more than 50 percent, while it only accounts for slightly more than 20 percent of the Forest Fund area.
- A dramatic drop in industrial harvesting took place between 1992 and 1998, while sanitary cuttings have been relatively stable.
- At present, areas of sanitary cuttings exceed those of industrial harvesting.
- Around 90 percent of all industrial harvesting is still made in the form of clear cutting.
- Industrial pollution, pests, diseases and forest fires cause significant loss of forest resources.
- The region lacks efficient forest road network development, which requires considerable investments.

3. Socioeconomic Characteristics of Murmansk Oblast

Murmansk Oblast is a sparsely populated territory with a population density of only 7.5 persons per km². The total population of the region is just above one million (0.7% of the Russian population). Urban settlements (company towns) based on huge mineral resources dominate the region. The most important towns for mining and metallurgical production are Apatity, Kirovsk, Monchegorsk, Nickel and Zapolyarny. Other important activities that form the basis for towns, are military presence and particularly the Northern Fleet that has important bases in the fjords by the Barents Sea shore. Most important is the town of Severomorsk with shipyards for repair of the military and commercial fleet. Fishing, food processing, and shipping are the main activities in the regional capital city of Murmansk. Slightly more than 92 percent of the population lives

in one of the 16 towns and 20 rural settlements, which is a very high degree of urbanization in relation to the Russian average.

Table 3:1. The largest towns in Murmansk Oblast (1,000 inhabitants).

Towns	1,000 inhabitants
Murmansk	390
Apatity	72
Monchegorsk	61
Severomorsk	58
Kandalaksha	48

Source: Luzin (1999).

The Russian population dominates the region with 83 percent of the inhabitants. Other important nationalities are Ukrainians (9%) and Belorussians (3%). The region has a traditional Saami indigenous population that is in danger of disappearing with less than 2,000 people. Nenets and Komi people have immigrated to the region from their home areas, and have traditionally worked together with the Saami population in reindeer herding in the middle and eastern part of the region. The Karelians constitute a small component of the population in the southern part of the region close to the Karelian Republic.

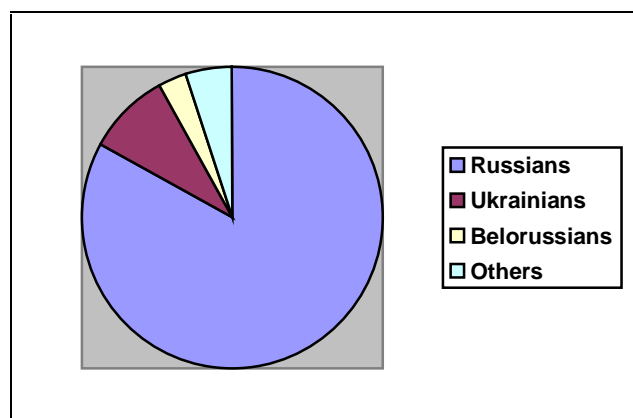


Diagram 3:1. Ethnic composition of Murmansk Oblast 1989. (Source: Goskomstat Murmansk, 1996.)

Changes in the Demographic Situation

Murmansk is the region in Northwest Russia that has been most seriously hit by a negative demographic trend in population. The main reasons are low birth and high death rates that have lead to lower total life expectancy. A second reason is that many people are moving to the south.

The region is currently, like the rest of Russia, experiencing a drop in birth rates and an increase in death rates. This is a typical feature of countries in economic crisis. It is hard and expensive to raise children and economic problems and unemployment have an effect on lifestyle and alcohol abuse that again cause lower life expectancy. The average death rate in 1995 in Murmansk Oblast (11.4 per thousand) was lower than the Russian average level of 14 per 1,000. The birth rate in the region dropped from 10 to 7.2 at the beginning of the 1990s, but increased again to 8.1 in 1995. Although the balance between birth and death rates is negative, the situation in Murmansk is not so dramatic as in other parts of Russia, but worse than in other parts of Northwest Russia.

Table 3:2. Birth and death rates in Murmansk Oblast (per 1,000 inhabitants) 1991–1995.

	1991	1993	1995	Average Russia 1995
Birth rate	10.0	7.2	8.1	9.3
Death rate	6.1	10.1	11.4	14
Balance	3.9	-2.9	-3.3	-5.6

Source: Goskomstat Murmansk (1996).

Changes in birth and death rates affect life expectancy figures. Between 1990 and 1995, life expectancy dropped by 7.6 years for men and 4 years for women. One explanation for this severe development could be the collapse of the safety net mainly affecting the old and weak portion of the population. Pensions became impossible to live on because of rising food-prices. The quality of medical treatment dropped and patients had to start paying for services. Another explanation is the lifestyle that the economic problems have caused with increasing alcohol problems and suicide among the population. From 1996, this serious development changed and life expectancy increased again. It is uncertain if this positive tendency will continue, as life has not become easier during the last few years. Quite the opposite; the August 1998 crisis has probably made it even worse, but figures for this period are not yet available.

Table 3:3. Change in life expectancy in the Murmansk Oblast 1978–1996.

	Men	Women
1978–79	61.5	72.9
1989–90	65.3	74.4
1995	57.7	70.4
1996	60.1	71.5

Source: Goskomstat Murmansk (1998b).

The changes in death rates and life expectancy are not necessarily completely related to adverse living standards. One other explanation could be the age structure of the population. More people of old age will naturally lead to higher death rates, as their health is poorer than the average. One explanation for more old-aged people is that

more old people and pensioners stay until they die in the Murmansk region, while others left earlier for the south and contributed to the death rate in some other region.

Migration from the Murmansk Oblast is nothing new. People saw the stay in the north as temporary and usually left when they became pensioners for an easier life in the south. The peak in 1992 can partly be explained by the dissolution of the Soviet Union. Many Ukrainians and Belorussians left to be sure of obtaining citizenship in the new independent states.⁴

Table 3:4. Population migration in Murmansk Oblast, 1991–1995.

	1991	1992	1993	1994	1995
Immigration	46,594	36,966	34,562	43,744	36,395
Emigration	55,916	63,075	57,447	57,432	52,412
Balance	-9,322	-26,109	-22,885	-13,688	-16,017

Source: Goskomstat Murmansk (1996; 1998a).

The demographic changes (caused by birth rates, death rates and migration) are summed up in Diagram 3:1. Compared to other regions in the North, Murmansk Oblast has experienced the biggest negative change in the population from 1987 to 1995 with more than 7 percent. The average of the northern regions was a 3 percent negative change for the same period.

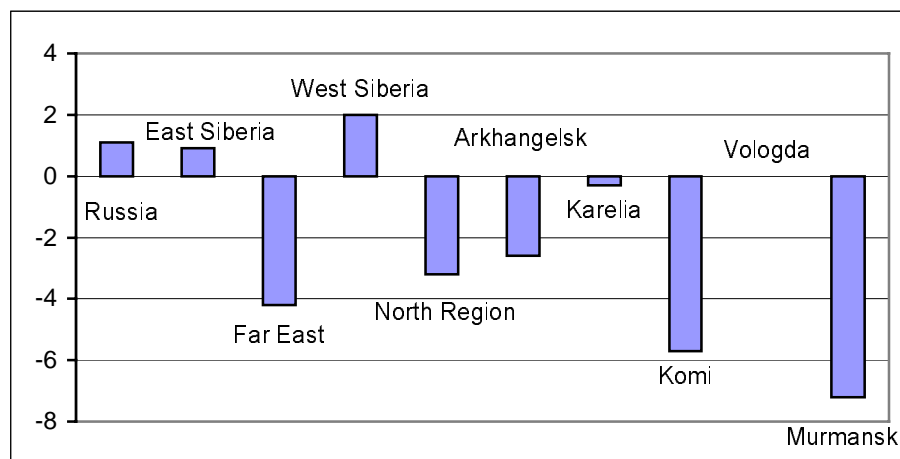


Diagram 3:1. Changes in population between 1987 and 1995. Percent. (Source: Carlsson et al., 1999b.)

⁴ See, Heleniak (1999) for data on net migration from Northern Russia and the reasons for the development.

The Educational Level

The region has a limited number of higher education institutions. An important factor has been the high number of specialists that have been educated in other parts of Russia who then moved to the Murmansk region. This was an element of the Soviet system where students were given free education and were then (to some extent) able to choose among some distant cities to contribute to the “industrial adventure”. Murmansk Oblast was quite popular, as it was not as far from central Russia as, for instance, Siberia. The graduates were given their own apartments and relatively good salaries. This tendency can be found in the statistical material where Murmansk is the region in Northwest Russia with the *highest* number of specialists with higher education (56 per 1,000 inhabitants in 1989). This is on the same level as the average for the Russian Federation. The discrepancy can be seen in the figures of students where Murmansk Oblast has the *lowest* number of students per 10,000 inhabitants in Northwest Russia with only 63. In comparison, the average number in the Russian Federation is 171 and the neighboring Republic of Karelia has twice as many students as Murmansk Oblast.

Table 3:5. Number of specialists and students in Northwest Russia.

Region	Specialists with higher education per 1,000 inhabitants in 1989	Students per 10,000 inhabitants in 1993
Russian Federation	56	171
Murmansk	56	63
Arkhangelsk	44	96
Karelia	55	121
Komi	50	88
Vologda	45	128

Source: IIASA Institutional Framework Database.

There have not been many possibilities to obtain a higher technical education for work in the specialized industry in the region. As a result, many young people left for St. Petersburg, Petrozavodsk or other Russian cities for education. The system of allocating graduated students to specific work has now ended and students are free to go wherever they wish after graduation. Nevertheless, the higher educational system in Murmansk Oblast has been through some reorganization during the last few years and more possibilities have opened for young students. The former State College has been split, private institutions have emerged, and new branches of Universities have been founded. Now, there are three higher education institutions located in Murmansk city: the State Technical University, the Humanitarian Institute, and the Pedagogical Institute. Recently, a branch of the St. Petersburg Academy of Engineering and Economics was founded in Apatity, which teaches management and economics. There is also a branch of the Petrozavodsk University dealing with economics, law and management.

The total number of students in Murmansk Oblast has increased during the last few years due to these new educational institutions. There are more possibilities for education in the region. Many universities and institutes outside the region now demand

payment for higher education and it has become more expensive for students to live separated from their parents. There are reasons to believe that the region in some years will soon have a better foundation for educating its own specialists. In any case, the subjects are not particularly related to the profile of the industry in the region but more to management skills in general. The question is whether these students will find the work they want or are educated for in Murmansk Oblast.

Murmansk City also hosts the research institute PINRO (Knipovich Polar Research Institute of Marine Fisheries and Oceanography). In Apatity, we find the Kola Science Center (KSC, the regional department of the Academy of Sciences) primarily dealing with mineral resources. KSC includes ten different institutes.

There is no higher educational institution in the region that provides a specific education in forestry. None of the research institutes are particularly working on the theme either. The only one with some specialists is the Institute of Economic Problems (IEP) and the Institute of Northern Ecological Problems (INEP) in the Kola Science Center.

Changes in the Workforce

The negative changes in the demographic situation have affected the number of people who are of working age. In addition, there are some other important reasons for the decreasing number of employees in the region; an ageing population with more pensioners and growing unemployment.

When it was industrialized, people coming from southern Russian regions and other Soviet republics inhabited the region. The first generation often kept their apartment in the south and moved back when they became pensioners. The region therefore had a high turnover and a young population of working age. This tendency has somewhat changed during the last few decades. Most second and third generation Kola inhabitants have lost their connection to the south and have nowhere to return when they retire. This has caused a new situation where the numbers of pensioners and non-working portion of the population are increasing.

The economically active part of the population has dropped from 600,000 to 540,000 during the period 1992–1996 but slightly increased in 1997. The reason for this has already been explained in the previous sections about the demographic situation.

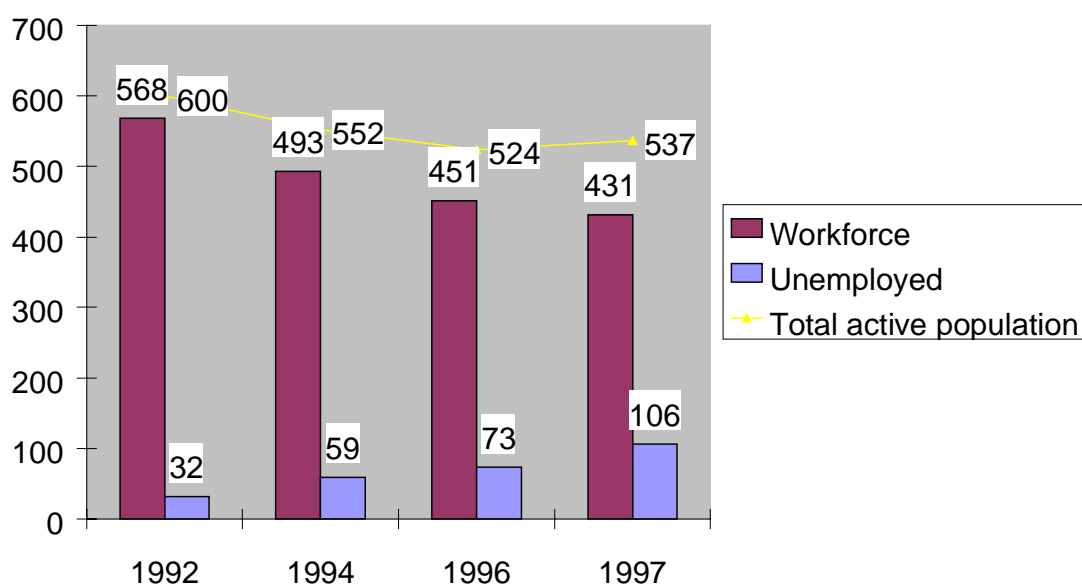


Diagram 3:3. Economically active population in Murmansk, 1,000 people. (Source: Goskomstat Murmansk, 1996, 1998a.)

The period of transition has coincided with the privatization of former state enterprises and the need for running business more efficiently. Some labor-intensive industries have cut down on the number of workers and both old and new enterprises experience bankruptcy when markets fail. The number of people without stable and regular work has increased during the 1990s. The official registration of unemployment increased from 5.3 percent in 1992 to 19.8 percent in 1997. This can look like a rather high number, but the real figure is probably even higher and we must be aware of the uncertainty of the figures. First, many would probably not bother to sign up in the unemployment queue, as the chances of getting new work or social payments are small. On the other hand, unofficial employment is quite widespread and some of the people in the unemployment queue might work illegally and still make a living.

Economic Structure

Murmansk is a region where the industry is important. In terms of employment, the industrial employment's share of the workforce has decreased from 33.6 percent in 1991 to 29.9 percent in 1997. Economic branches that have experienced serious drops in employment are construction (from 15.5 to 5.8%), and agriculture and transport. Public services such as education, health, social sphere, and administration, have experienced a stable development or even increasing employment.

Table 3:6. Distribution of the working population by branches of the economy 1991–1997 (1,000 people).

	1991	1992	1993	1994	1995	1996	1997
Total	559.8	568.1	519.5	493.0	471.7	450.5	431.4
Industry	187.6	173.3	168.4	151.5	141.9	137.5	125.8
Agriculture	12.0	12.0	11.6	10.8	9.5	7.9	8.3
Forestry	0.8	0.7	0.6	0.6	0.6	0.5	0.5
Transport	45.7	47.4	43.4	43.8	40.1	38.9	36.3
Communications	7.8	7.5	7.4	7.7	7.5	7.4	7.0
Construction	86.7	80.9	52.5	47.7	41.9	28.1	25.0
Trade, public catering, supply	52.8	57.0	56.6	58.2	54.9	48.4	57.3
Market organizations	-	0.5	0.9	0.7	0.9	1.1	1.9
Geology	5.6	5.1	4.1	3.6	4.0	5.1	4.1
Management of public housing, non-productive forms of domestic service	28.7	29.2	31.7	31.9	31.2	31.5	32.4
Health, sport, social activities	35.2	38.8	38.9	39.0	38.6	39.6	38.1
Education	47.2	54.9	52.9	47.7	45.7	45.5	43.3
Culture and art	8.2	9.0	8.9	8.7	8.9	8.2	7.7
Research	8.4	8.5	8.5	6.7	6.6	5.8	5.0
Finances, banking, insurance	4.1	4.5	4.6	5.7	6.0	5.0	4.5
Public administration	21.1	21.0	22.2	22.9	27.1	32.7	30.3
Other branches	6.9	17.8	6.3	5.8	6.3	7.3	3.9

Source: Goskomstat Murmansk (1998a).

The forestry figures in Table 3:6 only contain those involved in forest management (Murmansk Forest Management and *leskhozy*). Employment in this sector is rather stable and constitutes only 0.1 percent of employment during the whole period.

Industrial Development

The industrial branches in Murmansk Oblast employed about 431,000 persons in 1997. The food industry (fish industry included) and non-ferrous metallurgy are the most important sectors with more than 21 percent of employment in each. Other important branches are the machine building and chemical industries with 16 percent and 14 percent respectively. In terms of employment changes, the machine building, food industry and building materials experienced the largest decrease from 1996 to 1997.

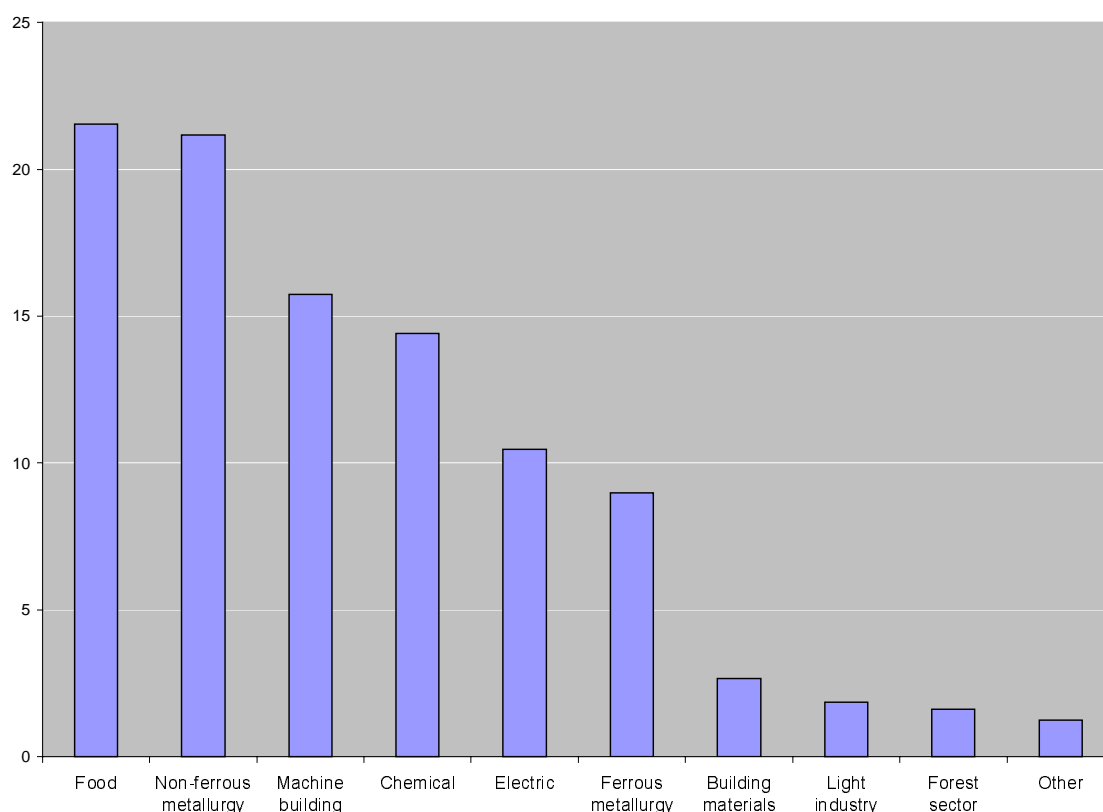


Diagram 3:4. Industrial structure in Murmansk Oblast 1997. Employment in different branches in percent of total industrial employment. (Source: Goskomstat Murmansk, 1998a.)

The shares of the output produced by the industries in Murmansk Oblast in 1997 does not always correspond with their shares of employment. The non-ferrous metallurgy industry contributed to 36 percent of the value of industrial output, with 21 percent of the labor force. Electricity occupies second place with 24 percent of the value and 10 percent of employment. At the other end of the scale we find machine building that has 16 percent of employment and only 5 percent of total value. The food industry is also very labor intensive with 14 percent of the value and 22 percent of employment.

Salaries

The average salary has grown from 55 US dollars in 1992 to 286 US dollars in 1997.⁵ This is an extensive increase but at the same time prices and living costs have grown dramatically. If the average monthly salary is seen in relation to prices, the average purchasing power grew until 1993. Then it started to reduce and in 1997 it was 79 percent of the 1991 level.

The salaries in Murmansk Oblast have traditionally been higher than the Russian average. This is due to special compensations that were given in the North and a

⁵ Because of inflation and devaluation, average monthly salaries were calculated using the current dollar exchange rate.

generally higher level of salary in the metallurgy industry. Columns 4 and 5 in Table 3:7 show the average monthly salary and social payments in relation to the minimum subsistence level in Murmansk Oblast and the Russian average. In 1997, the salaries in Murmansk were 293 percent of the official minimum subsistence level, while the average Russian figure was 219 percent.

Table 3:7. Salaries in Murmansk Oblast 1991–1997.

	Monthly average salary in USD	Actual salary in relation to prices in % of 1991	Salary* in relation to minimum subsistence standard in %	
			Murmansk Oblast	Russia average
1991	...	100
1992	55	104	...	299
1993	120	128	354	278
1994	190	103	257	248
1995	187	74	198	179
1996	273	79	266	197
1997	286	79	293	217

* Includes both salary and social payments.

Source: Goskomstat Murmansk (1998a).

The ruble devaluation in August 1998 dramatically changed the value of salaries in relation to dollars and in relation to average purchasing power. In any case, all these figures must be treated with some skepticism as they only take into account the official salary. Many people have unofficial incomes that will never be shown in any statistical information.

People working in the electricity branch have the highest income with nearly 3.3 million 1997 rubles a month. Other high-ranking branches are ferrous metallurgy and flour production. The lowest paid are people working in the light industry⁶ with only 877,000 rubles. The second lowest paid are workers in the harvesting and forest processing industry with 1.09 million rubles per month. This is only half of the average salary in Murmansk Oblast. These figures only include the industrial part of the forest sector (harvesting and processing) excluding forest management in the *leskhozy*.

⁶ The Russian term light industry includes textile production.

Table 3:8. Salaries in various branches in Murmansk Oblast in 1997 (1,000 rubles).

Branch	Average salary
Electricity	3,298
Ferrous metallurgy	1,970
Non-ferrous metallurgy	2,285
Chemical	1,709
Machine building and processing	1,588
Forest and forest processing industry	1,091
Building material industry	1,260
Light industry	877
Food industry	1,542
Flour production	2,008
Printing industry	1,303
Average salary	1,931

Source: Goskomstat Murmansk (1998a).

Summary

- Murmansk Oblast has a high proportion (92.3%) of people living in urban settlements that were built after the revolution and based on the region's rich mineral resources.
- Murmansk is the region in Northwestern Russia with the most serious negative demographic changes. Most important are emigration, low birth rates, and low life expectancy.
- The region has the highest number of educated specialists among the Northwestern regions due to the inflow of experts. At the same time, the region has the lowest number of students in higher education establishments.
- Demographic changes have reduced the economically active part of the population. The workforce has been reduced as official unemployment reached nearly 20 percent in 1997.
- The industrial sector still dominates the economic structure of the region, although its share of the total workforce reduced to less than 30 percent in 1997. Food processing and non-ferrous metallurgy occupies the leading positions in employment.
- Murmansk is still a region with high salaries, although the difference in relation to the Russian average has decreased in the second half of the 1990s.
- The highest salaries among the industrial branches are found in electricity and non-ferrous metallurgy; the lowest in the light industry and the forest and forest processing industry.

4. Management in Murmansk Forestry — Rules in Use

This chapter describes the institutional changes in forest management of Murmansk Oblast. We begin with a historical overview on how forest management was institutionalized and what rules have been in use. This description will focus on the general federal level, followed by an explanation of the regional and local level of forest management in Murmansk Oblast. The executive organ of the Federal Forest Service in the region is Murmansk Forest Management. We will describe its duties, how their local units (the *leskhozy*) are coping with the new tasks, and lastly, the changing economic conditions. The relation to the regional (oblast) administration will be described, and we conclude the chapter with a brief look into the Regional Program for Forest Management.

Forest Management in the Tsarist Period

The Russian tsarist period up to Peter the Great can be described as a system of open access to forest resources. There was no awareness of the forest as a limited resource that needed protection or regulation (Malmlov, 1997). Private property right systems were introduced late and in practice the population had access to and could use the forests without any official restrictions. From the late 17th century, harvesting became a commercial activity and woods were demanded for ship and house building. Wood was the main energy source and extensive cutting along the riverbanks and lakes caused over-harvesting and erosion. Tsar Peter the Great was the first ruler to understand the need for regulation and he issued the first forest-*ukaz* in 1703 regulating logging. About 200 forest regulations were imposed during Tsar Peter's reign, and he introduced the system of forest inspection in some regions after the German model.

Tsar Peter's successors did not pay much attention to forest management. The regulations were withdrawn, most forests were released for private ownership, and the old tradition of open access returned. The landlords had their own ways of taking advantage of and earning money from their forests by charging fees from the local population for timber and firewood. Logging usually took place where the forests were easily accessible and money could be earned quickly without bearing in mind the sustainability of the resources. But, there was still a smaller part of the forest belonging to the state and this was sold on stumpage auctions. In 1798, Tsar Pavel I organized the Russian Forest Department with provincial subdivisions, local management units (Sheingauz *et al.*, 1995). The first attempt to introduce a unified forest management system of the resources was made. The knowledge of sustainable management based on scientific criteria developed with expeditions and foreign contacts. As a result, the first federal forest tax was launched in 1898 and a huge re-plantation program was introduced.

Forest Management in the Soviet Period

By 1917, 64 percent of the Russian forests belonged to private owners, while the rest was state owned (Kopylova, 1999). The Russian revolution dramatically changed forest management and resource policy. All forests were transferred to "the people" through nationalization and expropriation of private property. Harvesting took place according

to the perceived needs without taking into account any discussions about sustainability. The first Soviet forest decree was adopted in 1918, and the Soviet republics followed with their own Forest Codes. As the former system of forest management was supposed to be part of a bourgeois tradition, the new Soviet authorities chose to break with the forest experts. From the late 1920s, forest management was split into several Ministries and lacked a general forest law. Forest enterprises were integrated in the central planning system, and the sector was divided into a federal forest department with provincial departments and local forest management units. In this period, until 1977, there were practically no laws regulating Russian forestry. Laws were replaced by resolutions made by the Communist party, the Central Committee and the Council of Ministers. The Republics' Councils made only a few resolutions as the Union level approved 92 percent of the resolutions.

In 1947, the USSR Council of Minister adopted a unified management system for the whole of the Soviet Union. This system remained unchanged until the Perestroika period, except for the Khrushchev epoch with its decentralized economic management system.

It was only in 1977 that the Soviet Union adopted a unified Forest Code that looked at the forest management system as a whole. The administrative structure was divided into executive, legislative and departmental levels. The changes were really not that significant since the different resolutions adopted during the last decades had all pointed in the same direction. Thus the Union level was responsible for (Sheingauz *et al.*, 1995):

- the determination of main forest management principles,
- setting the annual allowable cut and making plans for forest utilization,
- the classification of forest groups,
- setting standards for the forest inventory system, and
- the control of forest utilization.

The system had one important drawback. Power was delegated to the departmental bodies and actual decisions made by executive and legislative organs (particularly the local ones) were not always implemented. Centralism and departmental sub-laws dominated. This caused a non-sustainable utilization of the forest resources. The principles of “timber-mining” were introduced where transportation was profoundly subsidized to make it possible to develop huge production plants far away from the consumers.

The Perestroika Period

With Mikhail Gorbachev in charge, the Central Committee and Communist Party began to reform the forest legislation system in 1988. The main changes were that both the federal and regional levels now had the right to utilize natural resources. The central ministries were reorganized but the system did not function, as it was not adapted to a new market system. When the Soviet Union disintegrated and the new Russian Constitution was enacted, there was a need for more profound changes and the Russian legislators started to work on the New Forest Code. The most urgent need for clarification was the ownership question. Many regions had taken advantage of the

weak central control and had (through regional laws) implemented control of the resources. The other pressing issue was decentralization of forest management to local authorities.

The code was adopted in 1997 after several reviews, but has disappointed those who hoped for vital amendments. Although, the code sets new environmental standards based on sustainable forest management and preservation of biological diversity Nilsson and Shvidenko (1997) have given critical remarks of the Forest Code. The code:

- is still based on a centrally planned institutional framework,
- does not cover all the functions of forest resources, not even all of the forests in Russia,
- is complex and difficult to implement,
- is normative and descriptive without efficient mechanisms for implementation,
- is full of loopholes that leave room for corruption,
- does not secure popular participation by efficient mechanisms, only described as a right, and
- contradicts other legislation, regulations and the Constitution.

Laws, Regulations and Instructions

The Forest Code is now the most important law regulating forest management in Russia. There are, nevertheless, quite a lot of other regulations and instructions that affect more specific parts of the management. Listed below are the most important laws and regulations affecting Russian forestry and the forest industry,⁷ their registration number and date of adoption.

- The Forest Code (Code No. 22-F3, 29/1/1997).
- Statute of Timber Auction Holding Regulations (Order No. 99, 11/8/1997).
- Statute of Forest Competition Regulations for Assignments of Forest Stock Parcels for Leasing (Order No. 123, 30/9/1997).
- Government Resolution on Leasing of a Forest Parcel (No. 345, 24/3/1998).
- Regulations for Leasing Forest Fund Parcels (Order No. 55, 8/4/1998).
- Rules for Selling Standing Wood (Resolution No. 551, 1/6/1998).
- Instructions for Sanitary Cutting in the Russian Federation (Order No. 1458, 27/1/1998).
- Government Resolution on Minimum Payment Rates for Standing Timber Bought on Stump (Resolution No. 1199, 19/9/1997).
- Statute on Specially Protected Areas (Law No. 33-F3, 14/3/1995).

⁷ List borrowed from Pappila (1999).

- Statute on Environmental Protection (Law No. 2060-1, 19.12.1991; amendments in 1992 and 1993).
- Statute on Ecological Expertiza (Law No. 174-F3, 23/11/1995).

Forest Management in Russia Today

The Russian Government and its executive organ, the State Committee for Environmental Protection,⁸ heads the whole forest complex. The central body for forest management is the Federal Forest Service (FFS — *Rosleskhoz*). The organization consists of 81 regional units, mainly following the administrative structure of the federation. On the federal level the FFS has the following tasks:

- to prepare laws considering forest utilization, regeneration, protection and control,
- to organize state inspections of the condition and utilization of forests,
- to run research institutions and be responsible for international cooperation in forestry,
- to prepare federal programs for forest sector development,
- to make forest resource accounts and forest monitoring,
- to carry out forest regeneration, reforestation, airborne and ground-based forest protection and forest use control,
- to approve annual allowable cut (AAC) for final forest harvesting (in agreement with local executive organs and the State Committee),
- to determine norms on expenditures for forestry activities,
- to finance forestry activities by subordinated organs,
- to train and educate forestry personnel,
- to set up sectional tariff agreements, and
- to control the book-keeping of forest management bodies and compile summary accounts to be submitted to the Ministry of Finance, the Ministry of Economics, the State Committee for Statistics, and the State Taxation Service.

⁸ Former Ministry of Environmental Protection and Natural Resources.



Figure 4.1. Forest Management structure of the Russian Federation. (Source: Based on Burdin *et al.*, 1998.)

Forest Management in Murmansk Oblast

Murmansk Forest Management is one of 81 regional units of the Federal Forest Service. Murmansk Forest Management's main office⁹ is located in Murmansk City. It implements the resolutions and forest policy of the Ministry and the FFS in the region. It serves as an umbrella and coordinating body for the ten management units (*leskhozy*) on the local level.

The main tasks of the Murmansk Forest Management is to:

- prepare legislation on forest management in the region,
- provide state control of the condition, utilization, regeneration and protection of forests along with the regional (oblast) administration and the State Committee on Environmental Protection,
- make forest accounting,
- organize forest tenders,
- organize regeneration and forest protection,
- prepare proposals for local executive organs on the distribution of harvesting areas,
- fund *leskhozy* according to Federal budgetary requirements, distributed by the FFS of Russia,

⁹ Управление лесами Мурманской области.

- obtain funding for *leskhozy* from local budgets,
- involve the local population in forest fire control,
- prevent illegal forest use, and
- prosecute enterprises and citizens who illegally cut timber.

Due to reduced finances from federal authorities, the Murmansk Forest Management had to decrease the number of its staff. The total number of employees (*leskhozy* included) used to be 1,500 at the beginning of the decade, but is now as low as approximately 500. Of these, 280 are engaged in forest protection.¹⁰

The financial source for the activity of the Murmansk Forest Management has changed dramatically. In Soviet times, the federal authorities covered 70 percent of the expenses, in 1998 they financed 40 percent. Consequently, even more of the work must be financed through other incomes. In practice this means that much time and effort goes into making arrangements that can generate money to the daily tasks and salaries of Murmansk Forest Management.

Table 4.1. Financial sources of the Murmansk Forest Management 1997–1998. Percent.

	1997	1998
Federal budget	66	40
Regional and local budgets	-	2
Own sources	34	58

Source: Regional Program “Forest of Murmansk Oblast” (1997); Interview with Murmansk Forest Management (1998).

The Murmansk Forest Management sees some new opportunities to find new incomes. According to the new law, forest rangers are now allowed to bear weapons and intensify the search of illegal forest harvesting, hunting and fishing. In 1998, about 300 people were prosecuted for different violations, and those penalties have brought some money back to the forest management. Salmon fishing is popular in the pristine rivers of the region. Development of tourism and selling of fishing licenses to foreigners can also bring some extra money. This is stated as an uncomplicated matter by the Murmansk Forest Management, but has been a source of conflict with the indigenous Saami population, which has used the rivers as a source of income for generations. Other Russian residents might also be deprived of their fishing rights when rich foreigners buy them out.

¹⁰ Interview with Murmansk Forest Management in March 1999.

The Role of the *Leskhoz*

The local forest management is conducted by the 10 *leskhoz* in Murmansk Oblast.¹¹ A director and a chief forester (*glavny lesnichii*) head the *leskhoz* main office. It is usually situated in the center of the district and has a staff of secretaries and accountants.

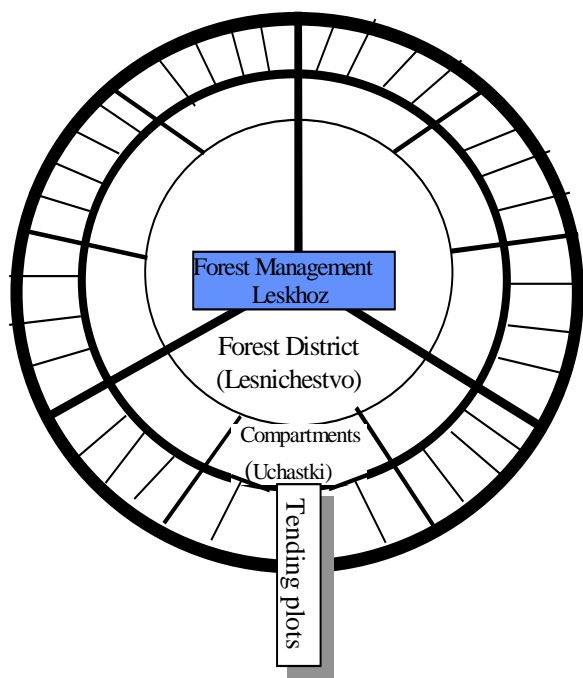


Figure 4.2. Geographical division of the *leskhoz*.

Each *leskhoz* is divided into 2 or 3 forest districts (*lesnichestvo*) that are located in forest villages. A forester (*lesnichii*) leads the *lesnichestvo* and has brigades working in compartments (*uchastki*). Each brigade is headed by a foreman who has some forest workers. These workers tend the plots.

The *leskhoz* have also gone through changes in their operations and tasks during the period of transition. In the Soviet period they had three main tasks, namely to:

1. Survey the forest resources.
2. Perform silvicultural operations.
3. Do some harvesting (industrial/sanitary cutting).

With the reforms in the management of the forest sector, the industrial harvesting tasks have been removed from the *leskhoz*. In the 1970/80s, the harvesting carried out by the *leskhoz* constituted about a quarter of the total harvest. Approximately 50 percent of the harvesting in the Soviet Union were industrial (clear cutting) and the rest sanitary cutting/thinning (Blandon, 1983:87). The substantial industrial harvest of the *leskhoz*

¹¹ See Table 4:2.

made it necessary to have equipment and sawmills for these operations. The earnings the *leskhoz* received from selling the timber to *lespromkhoz* and other customers were invested in the social infrastructure of the villages (housing, hospitals, etc.). After the management reform, this most important source of income for the *leskhoz* in the Murmansk Oblast was taken away. The *leskhoz* was, in principle, not allowed to do any clear cutting and the sales from sanitary cutting was not sufficient to cover the expenses in the other tasks. The sawmills that were built at the *leskhoz*, when they had industrial harvesting rights, were no longer used at their full capacity and became too expensive to maintain for the small amount of sanitary harvests. According to our interviews with *leskhoz* in Murmansk,¹² most of them have leased out or sold their sawmills to other companies.

The main tasks of the *leskhoz* after restructuring are to:

- undertake forest accounting,
- participate in forest inventory, planning and forest research,
- prepare classification of the forest resource according to management groups and protection categories,
- allocate felling sites,
- prepare long and short term leasing contracts and auctions, and grant corresponding harvesting licenses,
- undertake thinning and sanitary harvests,
- regenerate low-value stands, have seed orchards and nurseries,
- provide forest protection,
- provide state control of the condition, utilization, regeneration, and protection of the forests, and
- organize the utilization of forest by-products, timber-processing.

Economic Problems of the *Leskhoz*

After the important income from industrial harvesting was taken away from the *leskhoz*, they have faced financial problems. This should be compensated by the federal allocation of financial resources. We listed earlier the financial distribution of funds for forest management from the Federal Forest Service to the Murmansk Forest Management. The latter should, in turn, distribute part of the centrally allocated money to the *leskhoz*. According to information obtained through our interviews, only 28 percent of the income of the *leskhoz* came from federal authorities in 1998.¹³ As the support from local and regional (oblast) level are minimal (or mainly non-monetary), the *leskhoz* must find their own resources to maintain their tasks at a reasonable level. So how do they cope in this difficult period, where can they find additional income?

¹² Interviews were made in April–May 1999 with 6 of the existing 10 *leskhoz* in the region.

¹³ This was stated in some of the *leskhoz* we visited, but the figures can vary from *leskhoz* to *leskhoz*. The Murmansk Forest Service nevertheless confirmed the figure as an average in March 1999.

Our investigation reveals the following sources:

- sale of firewood to the local population,
- sale of timber from intermediary/sanitary harvests,
- penalties for illegal hunting and fishing,¹⁴
- fees for hunting and fishing,
- some lease their sawmills to private companies,
- sale of equipment and machinery,
- sale of harvesting licenses connected to auctions/leasing (registration fee),
- stumpage income (that exceeds the minimal fee) from forest leasing and auctions, and
- sale of maps.

For the moment, payments for timber from intermediate or sanitary harvests are the most important source of income for the *leskhoz*. These harvests must not necessarily be done by the *leskhoz* itself. Quite the opposite, they can hire private firms to do the job for them and the *leskhoz* is paid for the harvested timber. This timber is easier to sell than wood from industrial harvesting plots since it is exempted from forest fees, even if harvesting is performed by a commercial forest leaseholder.¹⁵

Some *leskhoz*y have income from harvesting rights sold to harvesting companies through leasing or auction.¹⁶ The *leskhoz*y only receive income from this activity if the plot is sold for more than the minimal stumpage fee set by the federal level. There are small chances for extra payments due to low competition and there is seldom more than one interested buyer. Those who can make some money are the *leskhoz*y in the southwest where markets are larger, forest quality is better and transportation costs are smaller.¹⁷

¹⁴ 50 percent goes to the *leskhoz*, 50 percent to the municipal budget.

¹⁵ Article 103 in the Forest Code.

¹⁶ The different terms of acquisition will be explained in the following chapters.

¹⁷ Kovdozerskij *leskhoz* arranged an auction in April 1999 and managed to sell 3 plots for 43 rubles per cubic meter. The initial price was 27 rubles and the *leskhoz* received a nice supplement to its budget.

Can a *Leskhoz* Die?

The *leskhoz*y are responsible for territories of different sizes and forest quality (see, Table 4:2). The harvesting activity therefore varies from *leskhoz* to *leskhoz*, depending upon the market for their products, accessibility and available transportation facilities.

Kirovskii is one of ten *leskhoz*y in Murmansk Oblast situated in the middle of the Kola Peninsula in a mining and processing district. Kirovskii *leskhoz* consists of three forest districts (*lesnichestva*): Apatitskoye, Kirovskoye and Verkhneumbskoye, each of which has six forest tending plots (*obkhody*). The *leskhoz* has, as others in the forest sector, gone through vital changes. The chief forester says that their work has been directed away from industrial harvesting to regulating utilization, from fighting diseases and fire control to the protection of animals. The *leskhoz* has, nevertheless, not sufficient economic resources to carry out its new functions. The reason can be found in the inability of this *leskhoz* to find money by its own means.

There was no industrial harvesting on the territory (Forest Fund) of the *leskhoz* during 1998, and this prevented the *leskhoz* from earning any money from leasing contracts. The chief forester explains that this is due to the lack of customers with too high prices (stumpage fee) compared with central Russia. There are no solvent buyers nearby and the *leskhoz* is located too far from the main markets of the region. Foreigners are not interested, as the transportation costs will be too high. There have been some auctions arranged for plots, but all agreements failed as the customers could not provide the money.

The *leskhoz* cut only 300 m³ as sanitary harvesting in 1998 and mainly sold it to the sawmill leased by the company *Rudnitskij*. Until 1992, the *leskhoz* used to manufacture 40 different products but had to lease out the sawmill when industrial harvesting was abolished. The most important customer of the *leskhoz* is *OOO Les* (a former *lespromkhoz*), but currently they are not interested in buying timber on prevailing terms. They have switched to another supplier, which belongs to the Ministry of Defence. The *leskhoz* has a limited demand for firewood from the local population. Those who need firewood usually help themselves without obtaining permission from the *leskhoz*.

The lack of customers soon led to an economic catastrophe for the *leskhoz*. They no longer had money to conduct their management tasks. The financial troubles forced the *leskhoz* to reorganize and in August 1998 a proposal was made to close down the whole *leskhoz* and merge it with the *Zasheykovsky leskhoz*. This was prevented, but they had to reduce the staff from 42 to 27 and eliminate the *lesnicestvo*-level, a move that affected chief foresters at the forest district levels.

Murmansk Regional (Oblast) Administration

The regional administration used to have a Committee of Industrial Development and a group of specialists that was responsible for the forest sector. The administration has been reorganized several times and the forestry department has been reduced. Until 1998, there was one person in the new Department of Industrial Development responsible for forestry (more or less due to her own interest and initiative), but this person has now other tasks. The Department of Production Forecasts has produced some recommendations for the forest industry, but it works with all kinds of branches and does not exclusively deal with the forest sector.

Clearly, the forest sector does not have any priority with the Administration and there are in fact no people who can promote the interests of the forest sector. This

development can be explained by the lack of pressure groups. In other regions, where forestry is more important for the economy (for example in Arkhangelsk and Karelia), a forestry lobby exists in the regional parliament and strong holding companies that represent the industry. The region lacks this kind of forest lobby structures and other branches, like fishery and metallurgy, dominate the agenda. Another reason for the passive attitude by the regional administration is that many of the tasks related to forestry that previously belonged to the regional administration level have been transferred to the Murmansk Forest Management. The Murmansk Forest Management now compiles most of the programs and resolutions related to forestry and the Governor then signs them.

According to article 106 of the Forest Code, 60 percent of the forest tax obtained from auctions and leasing (at the minimum stumpage fee rate) should revert to the regional budget. The remaining 40 percent should be allocated to the federal budget. There is an exception to this rule that affects Murmansk Oblast. *All* revenues should go to the regional budget in regions with less than 1 million m³ of industrial harvesting. This means that the regional administration receives 100 percent of the minimal stumpage fee paid by the forest users (this income was 2.38 billion rubles in 1997).¹⁸ The *leskhozy* acquire the additional sum if the agreement is set above the minimal fee. The code further says that part of the money the region receives from the stumpage fee shall be used for forest reproduction.

But what does the regional administration give back? Our investigation reveals that it is virtually nothing. In 1997, no income was returned to the forest sector. The money was used for other tasks. Two percent of the forestry activity in 1998 was financed from regional and local budgets according to the Murmansk Forest Management.¹⁹ As far as we know, very little of this money has been allocated by the regional administration.

State Committee on Environmental Protection

The State Committee on Environmental Protection is a federal institution with 13 regional units spread all over the Russian Federation. In Murmansk Oblast the committee has 13 different departments, each one responsible for different functions. In total, the Committee employs about 100 people in Murmansk Oblast.

The main task of the Committee is the control and regulation of nuclear and industrial pollution, but it has also duties connected to forest management. It is responsible for the conservation of national parks, nature memorials, and unique or cultivated species of plants and animals.

There are 106 specially protected areas of different kinds and sizes in Murmansk Oblast. Most of them are very small, but there are three larger forest reserves (*zapovedniki*). They are very large and all kinds of human activities are forbidden. There are plans to establish even more *zapovedniki* near the Finnish border. Furthermore, the Committee carries out impact assessments of activities in Group I forests. The Committee is allowed to stop all activities that are considered to pollute or damage nature. The decisions are formally taken in Moscow, but the regional court implements the resolution. The Committee has extensive contacts with foreign institutions, especially

¹⁸ Murmansk Regional Administration (1998). See also, Table 4:1.

¹⁹ Interview with representatives from the Murmansk Forest Management in March 1999.

the UN and Norwegian and Finnish organizations. It seems the Committee has defined its role to be nature's advocate in Murmansk Oblast, a position that may conflict with harvesting interests and the need for income in the region.

The Regional Program "Forests of Murmansk Oblast"

The regional program "Forests of Murmansk Oblast" for 1997–2000 was compiled by the Murmansk Forest Management to implement the resolution by the Russian Federation Government "On the Federal Program for the Forests of Russia for 1997–2000". The Murmansk Governor Evdokimov adopted the Regional program in May 1998.

The Program provides a total overview of the tasks of forest management in the region and the costs of carrying them out. The Program has been exclusively produced for forestry, and it does not involve any arrangements regarding the forest industry. It contains a description of the present condition of the Forest Fund, forest utilization and regeneration in the region. There is a chapter devoted to arrangements connected to forest management, reforestation, sanitary harvests, and protection against pests, diseases and industrial pollution as well as road construction, forest inventory and monitoring.

The Murmansk Forest Management, the Ministry of Defence (having its own forest fund) and the Murmansk Committee on Environmental Protection are appointed as the executors of the Program.

According to the Program the profitability of Murmansk forestry should start to increase from 1998. This is far from reality. Financial problems have increased during the last few years and the share of federal funding is decreasing.²⁰ More money must be found in the Forest Management's own budgets. The Program has a very optimistic figure for increasing the workforce engaged in forest management by 37.3 percent. In practice, the opposite process has taken place when the Murmansk Forest Management had to significantly reduce staff. Surprisingly, the Murmansk Forest Management nearly managed to obtain all the money needed according to the plan for 1998,²¹ but we believe that inflation, devaluation and price increases left a lot of tasks undone.

Summary

- The New Forest Code adopted in 1997 was expected to lay the foundation for a profitable forest sector. Decentralization of management to the regional and local level was one of the aims.
- The restructuring of the forest management system has affected the Murmansk Forest Management in terms of employment (staff reduction to one third) and a lack of economic freedom as federal funding has decreased considerably.
- When the possibility to carry out industrial harvests was taken away from the *leskhozy*, they lost their main source of income to fulfil their management tasks.

²⁰ See Table 4:1.

²¹ 14.85 million rubles out of the planned 15.5 million (investments excluded).

- As federal support decreased, the *leskhoz* has more or less become self-financing via other commercial activities. Forest protection has become a burden for them, as it does not generate any income.
- How the *leskhoz* are coping with the new economic situation is dependent upon the location, closeness to the markets and customers.
- The regional administration does not give priority to the forest sector, neither by supporting the forest management with the promised money nor with “moral” support. The region lacks a forest lobby that can push the problems onto the political agenda.

Table 4:2. *Leskhoz* in the Murmansk Oblast.

N	<i>Leskhoz</i>	<i>Lesnichestvo</i>	Total area 1000 ha	Forested area (ha)
1	Pechengskiy <i>leskhoz</i>		929.9	565.8
		Nikelskoe lesnichestvo	160.5	78.7
		Allorechenskoe lesnichestvo	239.3	125.1
		Lottskoe lesnichestvo	530.1	362.0
2	Kolskiy <i>leskhoz</i>		1518.7	911.0
		Girvasskoe lesnichestvo	706.5	459.9
		Murmashinskoe lesnichestvo	471.9	252.4
		Taubolskoe lesnichestvo	363.6	198.9
3	Murmanskiy <i>leskhoz</i>		45.6	29.2
		Tulomskoe lesnichestvo	12.8	7.1
		Prigorodnoe lesnichestvo	32.8	22.1
4	Monchegorskiy <i>leskhoz</i>		421.4	256.9
		Moncheozerskoe lesnichestvo	158.2	100.8
		Olenegorskoe lesnichestvo	145.8	105.2
		Monchegorskoe lesnichestvo	117.4	50.9
5	Zasheykovskiy <i>leskhoz</i>		681.6	428.1
		Kovdorskoe lesnichestvo	243.4	174.8
		Enskoe lesnichestvo	314.9	138.3
		Zasheykovskoe lesnichestvo	223.3	115.0
6	Kirovskiy <i>leskhoz</i>		682.6	311.4
		Kirovskoe lesnichestvo	179.1	50.7
		Verkhne-Umborskoe lesnichestvo	254.7	133.2
		Apatitskoe lesnichestvo	248.8	127.5
7	Kandalakshskiy <i>leskhoz</i>		938.5	638.0
		Alakkurtinskoe lesnichestvo	470.4	326.8
		Kandalakshskoe lesnichestvo	245.1	177.0
		Kolvitskoe lesnichestvo	223.0	134.2
8	Lovozerkiy <i>leskhoz</i>		1788.4	737.0
		Lovozerskoe lesnichestvo	537.8	223.5
		Verkhne-Ponoyskoe lesnichestvo	1250.6	513.5
9	Terskiy <i>leskhoz</i>		2085.0	853.1
		Indelskoe lesnichestvo	351.5	181.2
		Umborskoe lesnichestvo	248.8	144.1
		Varzugskoe lesnichestvo	1484.7	527.8
10	Kovdozerskiy <i>leskhoz</i>		400.7	243.2
		Zelenoborskoe lesnichestvo	129.6	70.1
		Kovdskoe lesnichestvo	145.8	89.1
		Kovdozerskoe lesnichestvo	125.3	84.0

Source: Eikeland *et al.* (1999).

5. The Forest and Wood Processing Industry in Transition

Forestry and the forest and wood-processing industry together form the so-called forest complex in the region. In earlier times, under the planned economy, all harvesting companies (*lespromkhozy*) in the region were state owned and united into the territorial production association *Murmanles*, which in turn was part of the Russian State forest industrial company *Roslesprom*. Activities of these enterprises were centrally planned, each *lespromkhoz* was assigned a particular harvesting area and certain purchasers of its production. Sawmills at the harvesting companies represented the wood-processing industry in the region. There were also two separate sawmills and a number of wood-processing companies subordinate to various Ministries.

In this chapter we will take a closer look at what has happened with the forest companies in the region when they went through the privatization process, how they are coping with the new property rights and how this has affected their production.

The System of Privatization in Russia

Property is a complex conception. This is true in any economic system due to many reasons (Reznik, 19968). As far as utilization of natural resources is concerned, property rights regimes are very important. Effective and sustainable management of natural resources to a large extent depends upon the allocation of property rights (Bac, 1998).

During the Soviet time, all natural resources were owned by the State. Later a debate on ownership of natural resources started between Moscow and the regions. The regions argued that they could better manage the natural resources located on their territory. Moscow, however, did not want to lose its control over resources. This problem does not yet seem to be completely solved. Forest resources are still State owned according to the Forest Code.

All of the enterprises were also state-owned. The privatization process in Russia started in 1992. In the privatization program there were five groups of businesses for which different terms of privatization were provided.

Different kinds of property were privatized under different conditions. Objects of national importance (for instance, natural resources) were not allowed to be privatized. Privatization of the others needed to be preceded by approvals from authorities of different levels or to be included into local privatization programs. Finally, privatization of objects of trade, construction and light industry as well as of unprofitable enterprises and unfinished construction was obligatory (Sutela, 1993).

The State Property Committee was established as a special administrative body to organize privatization. Among its functions was the preparation of the State Privatization Program and other relevant documents, control over its realization, making decisions on the privatization of State-owned companies, promoting the establishment of investment funds and holding companies. The Committee had its territorial subdivisions in regions and big cities. Their functions were similar to those of the supervising Committee but oriented to the republican and local levels. Another organization created for participation in the privatization process was the Russian Fund

of Federal Property. The Fund and its representatives were the only sellers of State property. Its republican and regional subdivisions were playing the same role at the respective levels. The main function of the Fund was temporary possession of property transferred to it by the State Property Committee.

The privatization of State and municipal companies could be initiated by the State Property Fund and its territorial subdivisions, leaders and workers of the company as well as by other companies, bank creditors and authorities.

The Russian Privatization Program was part of the process of transition to a market economy. However, it differed from other integral parts of the process, which progressed more slowly. Privatization in Russia was insufficiently considered and very fast. This process was totally new for the country, which for a long time lived under absolutely different conditions. No efficient institutional restructuring had been made before the process started (Joskow and Schmalensee, 1997). On the one hand, the current situation shows that privatization went the wrong way in many aspects and did not give the expected outcome. On the other hand, it enabled enterprising people to start their own business. An analysis of the situation at forest sector companies in Murmansk Oblast gives both types of examples.

Changing Property Forms in the Murmansk Forest Sector

Following the privatization program, which started in 1992, some *lespromkhozy* and wood processing enterprises became joint stock companies (Murmansk Regional Administration, 1998). Privatization, however, did not necessarily mean that people working for the enterprises became their real owners. An example of this in Murmansk Oblast is Kovdorskiy *lespromkhoz* — one of two harvesting companies still operating in the region — out of 11 formerly existing state harvesting companies. The enterprise is actually owned by the Federal Fund of State Property. Workers nominally have some portion of non-voting shares. Thus, the company is still state-owned.

In 1993, the state government adopted resolutions oriented to improving the situation in the forest industry, according to which the territorial production association Murmanles was supposed to become a regionally owned stock company. However, due to financial reasons these resolutions were not implemented and in 1996 Murmanles was liquidated and the industry lost its regional management.

Lately, as a result of the production recession and lack of internal working capital, 10 of the 11 formerly existing state owned harvesting companies (*lespromkhozy*) became bankrupt either before or right after privatization. Besides the problems directly connected to their production, such as old machinery, technology and lack of demand, it was to a large extent caused by the obligation to keep social responsibilities. Many of the *lespromkhozy* were so-called town-forming companies — often the only company in a settlement that provided jobs, kept housing, health services and childcare. This is why it is not surprising that when the old structure disintegrated, the necessity to operate under the new conditions and keep supporting social responsibilities led to bankruptcy. Closure of enterprises negatively affected employment and the general socioeconomic conditions in the settlements.

Our analysis of the interviews that we conducted with 18 companies in the Murmansk Oblast has shown that all the forest industry enterprises in the region can be divided into two groups, those that were established in the period 1932–1949 and those established in 1992–1997.

The explanation here is very simple — the old enterprises emerged when the industry was developed in the region and then they operated with no change until the transition to a market economy began. In the second period, new private companies were established or old ones were reorganized or taken over by new owners.

Privatized enterprises were mostly becoming open joint stock companies while newly established private companies could have a different legal status. The owners of a newly established company could choose the legal status themselves.

The companies that we interviewed are distributed according to the following legal status:

1. Open joint stock companies (OAO). These companies are open with respect to shareholders. Anyone can buy shares in the company at a price that reflects the value of the company. There are four in our sample — three former State-owned companies privatized within the State Privatization Program and one foreign company.
2. Closed joint stock companies (ZAO). The shares of these companies can not be sold to outsiders without the consent of the majority of the shareholders. There is one foreign company, one new private company, one established on the basis of an old company and one joint venture in this group.
3. Individual private enterprise (IChP). There were three IChP's in our sample. This form is popular for small companies because of the simplified taxation system. The restriction here is that the owner can not hire more than 15 workers. The owner is responsible for the firm's liabilities and it usually bears the name of the owner.
4. Company with limited liability (OOO). The members of the "partnership" are responsible for its liabilities only within the limits of their respective unpaid portion of authorized capital. As soon as their payments are fulfilled, they are no longer personally responsible. Shares can have different values, depending upon the contribution to the authorized capital, and the profit of the company is divided among the shareholders in accordance with their payment. There are five companies of this form. They are private companies either totally new or established based on the production facilities of old bankrupt companies.
5. Municipal unitary companies (MULP). This is an old *lespromkhoz* bought by the local authorities after going bankrupt soon after privatization. This is an example of failed privatization where the market conditions for the survival of the company were absent. This company is the only MULP in the region. It implies that the process of establishing municipal unitary companies is not progressing although it was considered as one of the major ways for restructuring of the industry.
6. The Murmansk Oblast has only one remaining state owned company, it is an old *lespromkhoz*, which is bankrupt, still operating, but it has neither been privatized nor taken over by another company.

The six *leskhoz*y in the sample should not be seen as companies since they are part of the federal administrative body that provides the wood processing companies with raw materials. They are state owned. They are included in the survey to give a complete picture of forestry in the region, but will not be described in this chapter.

Table 5:1. Legal status of forest companies included in the sample from Murmansk Oblast.

Legal status	Russian abbreviation	Number
Open joint stock company	ОАО	4
Closed joint stock company	ЗАО	4
Individual private enterprises	ИЧП	3
Private company with limited liability	ООО	5
Municipal	МУЛП	1
State	ГП	1
Federal Forest Service (<i>leskhoz</i>)		6
Total		24

The situation in the industry does not make it possible to identify which of the different kinds of legal status is the most advantageous. On the one hand, privatization has made it possible for companies to make decisions themselves. This, in turn, depends upon the managers' capability to run the company under the new conditions. The effectiveness of the enterprise functioning very much depends upon the personality of its leader, his experience, understanding of the situation, and ability to adapt to new conditions (Dolgopiatova, 1996).

On the other hand, the breakdown of centrally controlled state-owned enterprises created new business relationships between suppliers and consumers. Under the old regime, informal mechanisms emerged in order to help enterprises to obtain the supplies that they were supposed to get according to the state plan. However, after 1990, the responsibilities connected to the operation of companies suddenly became a responsibility of company leaders. They were forced to solve problems connected to their production, such as finding suppliers and consumers themselves, which was not the case under the planned economy. However, for many the transition to new conditions was not successful. One of the main reasons was the lack of skills and knowledge about how to operate under market conditions (Joskow and Schmalensee, 1997).

In Murmansk, there are both positive and negative examples illustrating this process of adaptation. Moreover, companies of various ownership forms have many problems in common, like tax and customs legislation, lack of skilled personnel, out-of-date machinery, etc. There is a discussion taking place about the establishment of an organization that would coordinate the industry's activities at the regional level. In contrast to other regions having organizations like holding companies or so-called "Unions of Forest Industrialists", the Murmansk forest industry lacks this kind of structure. However, not all of the companies express a wish to join such an association

if it were established. Leaders of some of the companies are skeptical about it, thinking that it would be just one more bureaucratic body consuming their money.

In 1998, the regional administration elaborated recommendations for maintaining the industry, which however have not been followed because implementation would have required considerable investments. As previously stated, the regional authorities do not pay enough attention to the industry, as it is not a sector of priority, only accounting for 0.4 percent of the regional economy. Contacts between the companies and the Regional Administration are individual, occurring primarily when a company submits a proposal for consideration or negotiates about a delay in tax payments. There is not a single person responsible for the industry development as a whole, although in previous times there was a special department inside the Regional Administration. In this situation each company has to find its own way to function.

How to Manage on Their Own²²

"Les" Ltd. is a harvesting and processing company. It has two subdivisions based on production facilities of the former Oktyabrskiy *lespromkhoz* and Kandalakshskiy *lesokombinat* (a sawmill). The company Murmantopprom, which then founded OOO «Les», has purchased the production facilities.

Under the planned economy, the industry regularly received subsidies from Moscow. Companies did not have to look for financial sources for investments. The situation changed, however, production started to decline. Many companies went bankrupt and their assets were sold to obtain money to pay debts. The best machinery was sold outside the region. At present, however, new machinery is needed for improved production but "Les" Ltd. has no financial means for investments. The director negotiated with the regional administration about the possibility to obtain loans. This is a problem because the company's accounts in the bank are "blocked" by a resolution of the tax authorities.

The director is certain that in order to work effectively the industry needs a coordinating structure at the regional level. At present, however, the company can not rely upon any assistance from the regional (oblast) administration and is seeking possibilities for development from outside. There are plans for cooperation with a Swedish company, which is supposed to organize harvesting with its own machinery and workforce. It will provide the raw materials to be processed by OOO "Les". The Swedish company is also supposed to invest in new processing machinery at OOO "Les". So far, this cooperation appears to be the only possibility to develop production.

Obviously, it can be concluded that privatization of the forest industry in the Murmansk Oblast did not improve the situation in the industry as a whole. However, in spite of the general decline and great need for investments, there are private companies running their business quite successfully. But, as we have found, all of them have one thing in common, namely some kind of partnership with foreign business. Actually they are either entirely foreign owned companies, joint ventures, or companies exporting their production. Thus, taking the current situation into account, the creation of favorable conditions to attract foreign investment for maintaining the industry in the region seems

²² From the interview with the general director of "Les" Ltd.

to be an important issue to be considered. Support from the Regional Administration in this respect is so far absent.

Changing Terms of Timber Acquisition

In the Soviet period, the state owned forest industrial companies (*lespromkhozy*) dominated in harvesting and trading timber. The Forest Fund was officially owned by *Gosleskhoz*, which was later renamed the Federal Forest Service or *Rosleskhoz*. The central level constructed the whole production chain. It was not based on market relations. Each link was assigned a certain supplier and consumer of its production (Carlsson *et al.*, 1999b).

The Code and the complementary regulations determine the order of forest use. Plots of the Forest Fund can either be for short-term use as a result of auction or for long-term use (lease).

Auction²³

According to auction regulations plots of the Forest Fund are given for short-term use (no longer than one year). In Murmansk Oblast auctions started in 1997. Earlier the *lespromkhozy* only paid a stumpage fee, which did not exceed 2–3 percent of the selling price for round timber in the region. The center fixed the selling prices and price lists were sent to provinces.

At auctions the initial price for a standing forest is determined on the basis of real rates of payments for standing forest and the current demand for forest resources. Auctions are arranged by *leskhozy* at the local level. The only exception was in 1998 when an auction was arranged at the regional level, organized by the Murmansk Forest Management. However, conducting auctions at the regional level proved to be less effective, as it was necessary even for those buying small plots of the forest fund to attend the auction conducted at the regional center. The *leskhozy* are also better aware of those interested to buy in their own districts and can organize an auction when it is needed. This is the reason why auctions moved back to the local level in 1999. On the other hand, delegating all the authorities to the *leskhozy* might give them an incentive to manipulate the resources for their own benefit.

In order to ensure unbiased auctions, special commissions are established, the composition of which is approved by the local administration. The deputy head of the district administration chairs the commission and the commission members are representatives of the administration's financial department and the *leskhoz* administration. As the organizer of an auction, the *leskhoz* produces a list of forest plots to be sold. The necessary condition is an announcement in a newspaper about the forthcoming auction no later than 30 days before the event. It contains all the necessary information about the auction as well as the deadline for submitting applications from potential buyers.

²³ Jacobsen (1999) has made a study of timber auctions in Murmansk Oblast.

The initial price is fixed by the *leskhoz*. As a rule the price for a standing forest must not be lower than the assessment made on the basis of a minimal payments rate with expected expenditures taken into consideration. Normally auction participants have to pay a deposit, which is not less than 10 percent of the cost of the auctioned forest plot. Afterwards the deposit is included into the price of a purchased plot or returned to those who made no purchase.

The person (company) who won an auction and the auction organizer sign a protocol the same day, which is valid as an agreement. After signing the protocol the buyer has to pay for the plot within 20 days and then he receives a harvesting license (*lesorubochnyi bilet*). Every year the *leskhozy* in the region organize 3–5 auctions. In total there are eight such organizers since the Murmansk and Lovozero *leskhozy* only have forests of Group I on their territory and these forests could not be sold on auctions (Mal'kova, 1999).

In reality, however, at the local level auctions are in fact more like direct negotiations with buyers. This is explained by the lack of competition. The demand for forest resources is higher in the southern part of the region. The reasons for this are the closeness to the Finnish border (most of the sawn wood is exported), the higher forest density and the relatively short distance for transportation (40–50 km compared to almost 200 in the north) and better climatic conditions.

Leasing

According to the Forest Code, plots are leased through resolutions of the Regional Administration based on a submission from the regional Forest Management or according to the results of forest tender. The leasing agreement is concluded in written form and must be registered with the Regional Administration. The Leasing agreement includes the following terms:

- borders of the forest plot,
- types of forest use,
- volumes (sizes) of forest use,
- leasing terms,
- size of payment and order of instalments,
- responsibilities of the parties concerning the protection and reproduction of the forest fund, and
- other terms brought about by the forest legislation and determined at the parties' discretion.

Plots are given on short-term leases for a period of one to five years. Forest users operating for a long time in a given area, and possessing adequate production capacities, have certain privileges when it comes to leasing terms. The Forest Fund owner (*leskhoz*) issues a timber license. Leasing terms can be extended to 49 years and may be renewed (Kopylova, 1999).

In Murmansk Oblast harvesting areas are mostly leased for 4 years and 11 months with an annual harvest no higher than 10,000 m³. The reasoning behind this is that leases for longer than 5 years make leaseholders' work much more complicated with respect to

planning harvesting and a forest fund inventory are required. There is, however, a harvesting company “Priroda” which has leased some of the plots for 49 years. The company has its activity in areas bordering Finland and Norway. The favorable location of the plots facilitates cooperation with foreign partners. It is a regional peculiarity that plots located close to the border are more valuable, which eases their selling for the forest owner and makes it possible for the companies leasing them to make long-term plans.

Payment for leasing is agreed upon between the *leskhoz* and the tenant taking into account the plot size, annual cut or other kind of forest use as well as the current rate of payments for forest use. Payment is determined on the basis of the minimum stumpage fee fixed by the Federal government and can not be lower than this minimal rate.

Forest Fund plots are leased to users against payment in order to realize one or several types of forest use. Plots can be leased for the following purposes:

- timber harvesting,
- gum harvesting,
- collection of secondary forest products (stump, bark and pine and fir branches),
- harvesting of minor forest products, such as hay, pasture, agriculture, and the collection of mushrooms, berries, lichens and medical plants,
- hunting,
- science and research, and
- recreation and tourism (Kopylova, 1999).

At present there are 26 Forest Fund plots leased on the region's territory. Only 7 are used for harvesting timber, while the others are used for pasture as well as for recreation and tourism.

In our sample we learned that the companies' preferences are divided between auction and leases. The choice depends on the plans of the company and characteristics of the acquired plot.

How to Choose Terms of Timber Acquisition²⁴

The "Les" Ltd. company has chosen auction as a way for forest acquisition. The director considers that leasing is not appropriate. Forests on the territory of Kirovskiy *leskhoz* have low density. To be able to harvest the needed annual amount within 5 years one has to take a vast territory on lease. This means much higher rates of payment for timber as well as the other costs. This is due to the fact that payments are done for the whole leased area irrespective of amount harvested. Leasing seems more relevant for richer forest areas where smaller plots must be leased to provide the needed amount of timber harvested.

The terms of payment for forests acquired at auctions, however, constitute a problem for the company. Under the previous system, the stumpage fees were paid by instalments within a year. Nowadays, the obligation to pay within 20 days is heavy, requiring some initial capital because revenues from harvesting can not be expected to be received for some time. It would be easier for the company to pay by instalments.

²⁴ From an interview with the general director of "Les" Ltd.

The Forest and Wood Processing Industry in Murmansk Oblast

Decentralization of the decision-making system and disintegration of economic links have negatively affected the forest complex in the region. We will show by diagrams how the production output has changed.

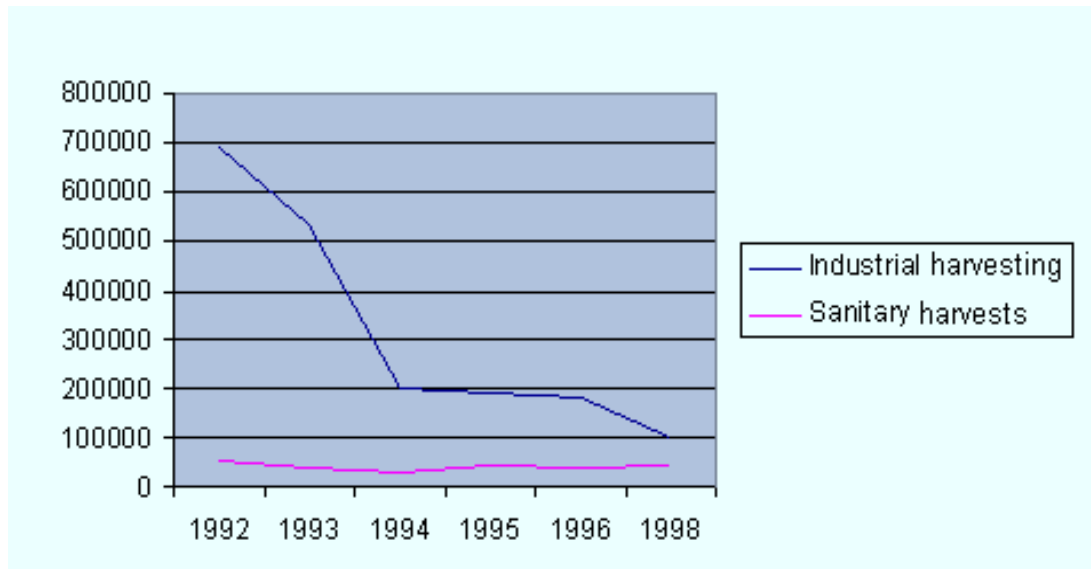


Diagram 5:1. Harvesting in Murmansk Oblast in 1992–1998.

Diagram 5:1 is evidence of the difficult situation in the industry. In 1998, the harvesting output decreased by about 88 percent compared to figures in 1992. The industry's share in total production volume of the region decreased and in 1997 it only accounted for 0.4 percent.

The production recession has been mainly caused by the use of obsolete machinery and technologies at the enterprises of the forest industry in the region and, as a consequence, high cost price increases and lack of demand for the products. The dramatic reduction of construction activity led to decreased harvesting and heavily affected sawmills and wood-processing enterprises. At present, harvesting companies have no means for modernizing their machinery.

After the Regulations on Forest Leases were adopted and payments for forest use increased, stumpage fees and timber costs also grew. Market prices for timber are, however, stable or even decreasing for some products. Such a situation made it difficult for the enterprises to sell their products and increased the losses of harvesting companies (Murmansk Regional Administration, 1998). It must be noted, however, that the share of the stumpage fees in the price for roundwood does not exceed 10 percent.

On 1 April 1999, the Federal government approved a wage increase for people working in the so-called budget sphere, which means the organizations were financed by sources of various administrations. As a consequence, all kinds of payments also increased. This has affected the wage level in *leskhozy* and has, in turn, had an effect on the price for saw logs, which the *leskhozy* sell to processing companies. This has negatively influenced the enterprises' economic performance and brought some of them to the edge of survival.

Table 5:2. Number of companies and employment in the forest and wood-processing industry in Murmansk Oblast in 1992–1997.

	1992	1993	1994	1995	1996	1997
Number of companies	106	96	95	116	82	52
Employment	5931	4553	3661	3141	1969	1568

Source: Murmansk Regional Administration (1998).

Table 5:2 shows that the total number of companies in the forest and wood-processing industry decreased by 50 percent in the period from 1992 to 1997. However, there was an increase in the number of companies in 1995. This was the period of privatization and many people tried to start their own businesses. However, many of them were not prepared for this new activity or were not oriented to a long-term activity. The majority of these new companies were trading companies that had nothing to do with production. The continuously decreasing total number of staff confirms this. Although there are no exact figures for 1998, it can be assumed that both the number of companies and the total number of staff continued to decrease in 1998.

The changes have affected the variety of products processed in the region. The enterprises used to produce sawn-wood, chips, boxes and furniture. In the last few years, however, the output of some products has ceased. The main problem of the industry is the lack of demand. Processing companies simply have no financial means to purchase enough raw materials. Table 5:3 shows how production has changed. It is obviously dependent on the conditions in industries consuming certain kinds of products. The crisis in the fish processing industry, for instance, resulted in the reduction or total cessation of tar production. The same has happened with chips for the pulp and paper industry.

Table 5:3. Manufacturing of various products in the wood-processing industry in Murmansk Oblast in 1992–1997.

	1975	1985	1990	1992	1993	1994	1995	1996	1997
Sawn-wood, (million m ³)	6.46	4.52	3.54	2.31	1.36	0.50	0.47	0.28	0.29
Chips, (million m ³)	0.68	0.81	0.79	0.43	0.12	0.02	-	-	-
Cardboard boxes, (million m ²)	n.a.	n.a.	n.a.	19.4	17.2	10.7	11.7	10.6	9.1
Barrels, (100 kilo)	n.a.	n.a.	n.a.	143.2	18.6	1.6	1.0	-	-
Construction parts, (million m ²)	n.a.	3.02	3.10	2.47	1.98	0.94	0.54	0.26	0.28

Source: Goksomstat Murmansk (1998a); Malkova and Peshev (1997).

According to recently published statistics, timber removal decreased by 23 percent in January–February 1999 compared to the respective period for the previous year and the production of sawn-wood increased by 40 percent (*Murmanskii Vestnik*, 1999). The increase in sawn-wood production can be explained by the growing demand for these products. In spite of the harvesting decline, it was possible to increase production due to timber availability in storage.

Before transition, timber was exported both to other regions and abroad according to decisions made in Moscow. When this system discontinued there was a decrease in exports from 1992 to 1994, which then changed into a rapid increase. The reason behind this is the newly emerged private companies oriented towards export.

Table 5:4. Timber exports from Murmansk Oblast in 1992–1996.

	1992	1993	1994	1995	1996
Timber exports, (million m ³)	0.51	0.45	0.17	0.72	0.97

Source: Murmansk Regional Administration (1998).

Summary

The conditions of the Murmansk forest industry can be summarized as follows:

- The deep economic crisis in the forest industry has been mainly caused by a lack of demand for the products.
- Privatization did not improve the situation for the old state enterprises, but made it possible for new companies to enter the market.
- There is some competition among companies for acquiring plots located in the south-western part of the region, which are more attractive for potential buyers. The price is agreed upon between the *leskhoz* and the forest users.
- Both forms of plot acquisition — leasing and auctions — are used in the region. In most cases the lease term does not exceed 4 years 11 months due to bureaucratic reasons.
- The forest industry decreased dramatically between 1992 and 1998 and experienced a great need for investment.
- Cooperation with foreign businesses has proven to be a realistic way for maintaining the industry in the region.

6. Business Behavior

This chapter is based on an analysis of the information collected from 24 enterprises in the Murmansk Oblast in March–May 1999. As shown in chapter 5, the number of forest companies in the region is limited and has decreased considerably during the last 10 years. This selection of companies actually includes between 80 and 90 percent of all forest enterprises in the region today thereby enabling us to draw conclusions about the sector as a whole. Six of the ten existing *leskhozy* are in our sample, two pure harvesting companies (former *lespromkhozy*), as well as nine combined sawmill/processing and seven combined harvest/sawmill companies.

Information from the companies will be compared with similar data collected from enterprises in the Arkhangelsk Oblast and the Karelian Republic, the neighboring regions of Murmansk in the north of Russia. In spite of the geographical closeness, these regions are different in terms of the importance of the forest sector for the regional

economy. Karelia and Arkhangelsk are some of the most important regions for timber harvesting, processing and pulp and paper production in Russia. Murmansk Oblast has never been and will never be a forestry region of that size. Nevertheless, we will try to find out if the institutional setting for business behavior in the forest sector is similar in the Russian regions or if large differences between various regions exist.

Altogether, the database contains 245 interviews with forest companies all over Russia and Northern Sweden. In some cases the regions in the Russian North will be compared with the rest of Russia, which represent companies in Siberia (Tomsk, Krasnoyarsk Irkutsk, Khabarovsk,) and central Russia (Moscow Oblast).

This chapter will select different “themes” or “indicators” to allow a discussion of the companies’ degree of adaptation to a market system and how successful they have been. We will try to evaluate some of the results both for the companies and the forestry societies in Murmansk Oblast.

Production

The forest industry in Murmansk Oblast has traditionally been highly subsidized by the central level. The production was mainly consumed in the local and regional markets by providing the wood processing industries with products demanded. Companies were relatively small and the local market limited. One could believe that a transformation to the market economy would be particularly difficult in this region and affect the amount of production. This was certainly the case. According to official statistics, timber harvests have dropped from 690,000 m³ in 1992 to 97,000 m³ in 1998. But has this actually resulted in changes in the main production of the companies? We asked the enterprises in our sample about the production today, one year ago, five years ago and ten years ago.

Table 6:1. Changes in main production in 24 selected enterprises in Murmansk Oblast. Percentage of the total number of companies in the sample.

	1989	1994	1998	1999
Roundwood	8.3	12.5	25.0	25.0
Sawn wood	8.3	8.3	29.2	33.3
Processing	4.2	8.3	12.5	12.5
Roundwood/sawn wood	4.2	4.2	4.2	4.2
Forest management	25.0	25.0	25.0	25.0
Did not exist	50.0	41.7	4.1	

Those companies, which have prevailed over time, do not seem to have changed their main production much. They are still inside the main categories. However, it is obvious from the interviews that many companies used to have a larger variety of products, but have had to reduce the selection as the total output dropped. We also know that earlier there were companies making furniture, packaging and cardboard boxes. This production has now completely disappeared. It is difficult to say whether this is a

development for the better or worse. On the one hand, we can say that the demand for the product has dropped or completely disappeared and the production decrease/stop is just a normal market reaction. On the other hand, there can still be a demand for the type of products, but as long as the producer has not been able to change the production according to new requirements, the customer must look for new producers in other places in Russia or abroad.

One example from the interviews is a processing company that buys logs from the Leningrad and Arkhangelsk regions because there is not a company in Murmansk Oblast that can deliver the right dimension and quality of logs. The sawmills in Murmansk Oblast still operate with the old standard dimensions, while the market demands different dimensions.

Nevertheless, we also find examples of firms in our sample that have adapted to the new market. Furniture, kitchen complexes, windows and doors are manufactured on demand. This is not any mass production but individual fabrication for the newly rich Russians.

Workforce

The smallest enterprise in our sample has 5 employees and the largest 319. The average number of workers is 38, with 9 white collars or administrative personnel. This number is very low compared to Northwestern and other Russian regions. 85 percent of the companies in Murmansk Oblast is in the category “small” (with up to 100 employees) while the remaining 15 percent are medium sized (101–500). Both Arkhangelsk Oblast and the Karelian Republic have several companies with more than 500 employees and their size also outnumbers the companies from other Russian regions in the total sample.

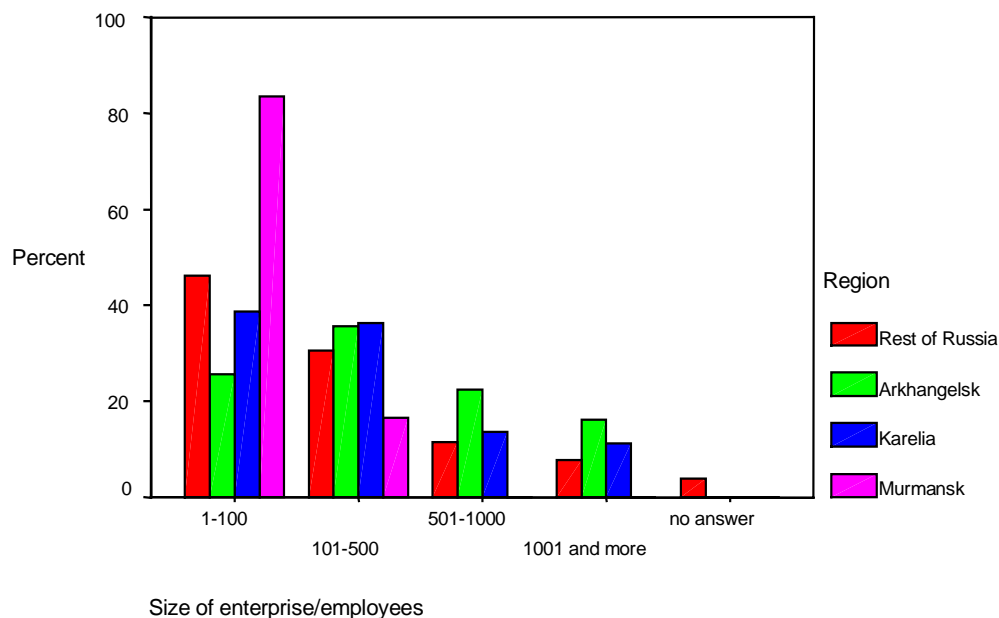


Diagram 6:1. Size of enterprise/number of employees in forest companies in selected regions.

Diagram 6:1 gives us an idea of the minor role this branch plays in Murmansk Oblast and how small each unit is. The size logically has consequences for the possibility for these companies to survive in an economically difficult period.²⁵

Social Responsibilities

In previous chapters, we have described how the system of integrated town building companies gave the forest enterprises a big responsibility for the whole community with providing social services like housing, food supply, kindergartens, schools, etc. It will not be possible to keep all these obligations when the companies transform to a market system. The social tasks should be transferred to the municipalities,²⁶ and the companies should concentrate on their business activity and make production profitable. One way of looking at the companies' ability to adapt to the market system is to ask if they have been freed of these tasks. More than 40 percent of the Murmansk companies still contribute with some social services, but very few of them do this on a regular basis. Examples of contributions are the distribution of food in connection to holidays and sponsoring sports and cultural activities. 17 percent of the companies still have housing responsibilities for their employees. In any case, Murmansk is the region in our study that has the lowest amount of social responsibilities. In Karelian firms, 55 percent have such obligations and in the rest of the Russian regions in the study the corresponding share is 50 percent.

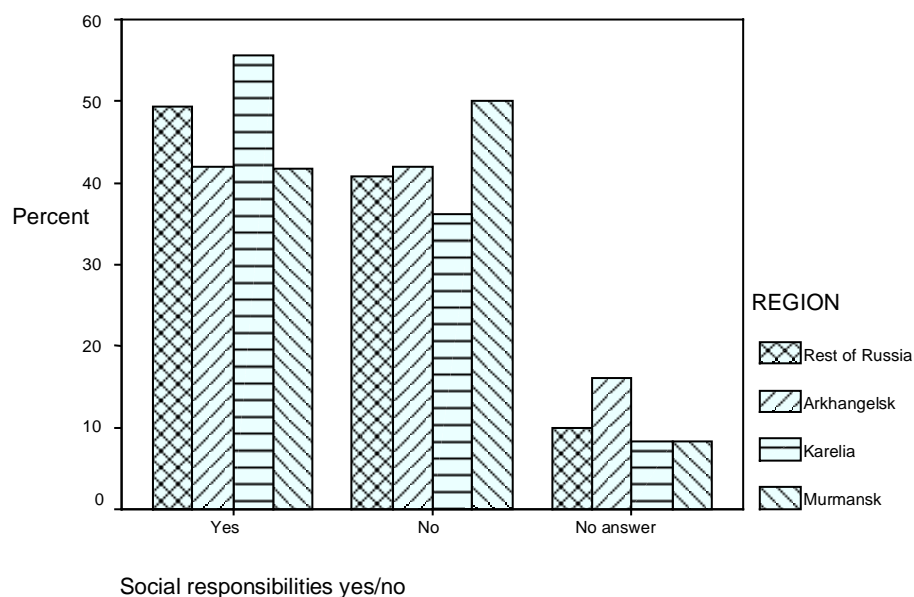


Diagram 6.2. Social responsibilities among companies in selected regions.

²⁵ We would have preferred to have done some calculations that illustrate the changes in workforce in relation to changes in production. This would also have been interesting in light of productivity development. However, due to the fact that there were many new companies in our selection we unfortunately lack data that can be used to illustrate changes over time. The numbers of valid cases are too small for any statistical analyses.

²⁶ Unfortunately, the municipal administration in many Russian regions is short of funds and has problems in providing citizens with basic social services.

If we try to look for reasons for the lower degree of social responsibilities among the companies in Murmansk Oblast, one possible explanation will be their small size. Although many villages have been developed around the enterprises, they have not been as important for thousands of people as the vast integrated companies in Karelia and Arkhangelsk. The consequences of not providing services for a society with a big company with many employees are naturally bigger than in a small village. Another reason is undoubtedly the fact that we have so many new companies in our sample. The older, but now privatized companies are more reluctant to carry with them the responsibility they used to have during Soviet times.

Verkhnetulomskii — A Forest Village of Hope?²⁷

The village of Verkhnetulomskii is situated 60 kilometers west of the regional center Murmansk. The area is sparsely populated and far from other settlements along the river Tuloma. The only means of transport is by a rather bad road going to Murmansk in one direction and to the Finnish border in the other direction. The village has about 3,000 inhabitants, of which 1,100 constitute the working force. Harvesting and wood processing is the main and almost only activity going on in the village except for a *kolkhoz* with some farming activities. The village also has some reindeer breeders belonging to the Saami indigenous population.

Verkhnetulomskii lespromkhoz was established in 1932 and has been the “village developer” for almost 60 years. The *lespromkhoz* was the most successful in the whole region with the highest production of timber and logs. In 1988, they produced 267,000 m³ timber and had more than 600 employees. The *lespromkhoz* had the responsibility for the well-being of the inhabitants, providing them with jobs, housing, heating, electricity, etc. The problems started in the early 1990s when the old ties of integrated companies were brought to an end and they had to adapt to a new market system. Old customers disappeared and they could not profitably sell their products. The adverse economic conditions largely depending on debt for providing the employees and the village with social services made it unattractive for private investors, and it was not privatized when most of the other *lespromkhoz*y started this process in 1995. The *lespromkhoz* was allowed to continue as a state company but soon became insolvent and was set under “external administration”. The main task for the new director was to get rid of all the social responsibilities. The municipal administration in Kola was not so enthusiastic to take over the expenses, but it finally agreed to do so in late 1996. Although many hoped for a new start, the debt only increased and the company was officially declared bankrupt in 1997. The *lespromkhoz* was forced to sell machinery at any price to satisfy the creditors and was left with only one production line. One would expect the story of the *lespromkhoz* to end here, but surprisingly, it is still functioning, producing a small amount of timber and logs. The number of employees (today 100) is far higher than required but are kept in the company so as not to cause unemployment. Salaries are paid irregularly and mostly given in the form of food products. How could this continue when the company was definitely bankrupt? It was actually a decision made by the regional administration in 1998 that two of the *lespromkhoz*y in the region (Verkhnetulomskii and Kovdorskii) should be kept as state companies because they were too important for the survival of the villages.

Another harvesting enterprise was established in the 1960s under the name *Verkhnetulomskii Wood Processing Factory*, a subdivision of the state energy agency *Murmantopprom*. Its main task was to provide the population and organizations with firewood. In 1992, the enterprise was transformed into a closed joint stock company called *Priroda*. The employees took over the company, with 5–6 persons as the main shareholders. The company is involved in both

²⁷ The information in this box is based on: a) Zychovskaia (1997), b) Norwegian Energy Efficiency Group (1998), and c) Interviews with companies Verkhnetulomskii *lespromkhoz*, *Priroda*, and NORU *Priroda*.

harvesting and processing and is actually the company in Murmansk Oblast with the biggest production, and one of the few that has *increased* production during the 1990s. It gives work to 115 employees and has gradually been equipped with new western technology. Investments have recently been made (from profits) in new equipment.

In 1995, the main shareholders and Director Dvoriankin in *Priroda* started together with Norwegian interests (the company Norsk Hydro) the joint venture *NORU Priroda*. The plant was built from scratch with western modern technology and gives work to approximately 50 people. It has a Norwegian director and produces logs for export. The aim of this establishment was to secure the harvesting company *Priroda* with a stable purchaser for their timber. At the same time, the processing company *NORU Priroda* was granted the stable delivery of raw materials for its production. These two “integrated” companies form a perfect constellation that reduces the risks of external uncertainty in the market for both of them. Some 70 percent of the production of *Priroda* goes to *NORU Priroda*, the rest is exported to Finland. *NORU Priroda* exports 99 percent of its sawn wood production through its Norwegian partner *Norsk Hydro*. The sawn wood is transported by road to Norway and sold to the western market. Both companies provide their workers with a good and stable salary and can, from time to time, provide money for sponsoring local sports teams and pensioners of the village. Nevertheless, they are both dependent on the demand for logs from the western market and the fact that the Norwegian partner can find customers. The story of the successful adaptation to the new market conditions and the willingness to invest money in the companies is unfortunately more an exception than a rule in the forest sector of Murmansk Oblast. In this case, much has happened because of the ability of Director Dvoriankin to think in an innovative way and find the right contacts. The *lespromkhoz* never managed to get onto the right track and was stuck in the old system and thinking.

An expenditure that has heavily burdened the municipal budget is the *mazut* fuel oil used for producing electricity and heating for the village. The *mazut* is expensive in itself and transportation costs are huge, as it must be transported from the south to Murmansk on rail and to Verkhnetulomskii by truck. *NORU Priroda* produces sawdust, bark and wood chips, but made no use of it and deposited the waste in a landfill. The idea of utilizing waste from the sawmill has developed through the Norwegian partner and their contacts in Norway. It became evident that the sawmill produces enough waste to substitute almost all of the fuel oil used in the district heating plant. Wood waste will substitute 3,200 tons a year of fuel oil and save considerable amounts of money in the municipal budget. In addition, there will be a substantial environmental effect. The contract was signed in the autumn of 1998 and construction has started partly financed by Norwegian Governmental funds. The district heating company *TEKOS* will run the plant.

The number of employees in the forest sector in the village has not reached the peak level of the *lespromkhoz*. Nevertheless, the prosperity of the *Priroda*-duo has created new optimism in the village and hopes for a future solution of the destiny of the *lespromkhoz*.

Investments in the Company

An important indication of a sound economy and possibilities to expand in the market can be perceived in an enterprise’s willingness and ability to invest in the company. Most companies in the Murmansk forest sector are left with old machinery and many had to sell their best equipment when they went bankrupt after the privatization process. Only 42 percent of the companies in our sample from Murmansk Oblast make their own investments. Those who invest, do so in equipment and machinery. Only one company has invested in buildings. This is not a very optimistic picture but the situation is not more positive in other northern Russian regions either (Diagram 6:3).

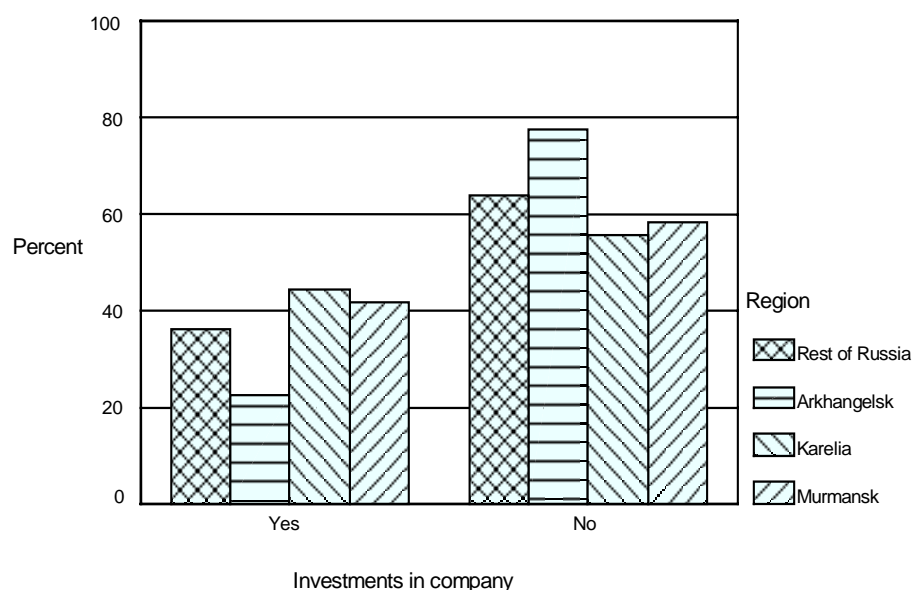


Diagram 6:3. Investments in forest companies in selected regions.

Lack of capital for investments appear to be a general problem in all regions but are particularly evident in Arkhangelsk Oblast, where only 23 percent of the companies put money into the company. Investments are needed to restructure the companies, but the reason for not doing so can be found in the macroeconomic system as pointed out by Ickes *et al.* (1997:106).

Economic recovery requires that enterprises invest in such growth-oriented opportunities as restructuring and entry into new activities. The problem is that uncertainty over the durability of financial stabilization and other macroeconomic conditions in Russia might cause investors to postpone such activity until some of this uncertainty is resolved.

One can elaborate on different reasons for not making investments. First, we can take a look at the owners. What kind of incentives do they have to make investments? Are they really interested in developing the company, or are they only oriented to a survival strategy? The forest branch is certainly a sector where it takes time to see the results of investments. It is definitely not a place where the investor can take out the profit in a short time. Harvesting companies are probably the ones who can rapidly sell the timber and make money. The margins are small, however, and there is a need for up-to-date harvesting machines to do the job quickly and efficiently. Customers are also now more demanding, as quality is essential. With a good sales agreement, preferably for export, it is however possible to make some profits. Sawmills and processing companies need to invest in equipment, producing facilities and competence to be able to compete on the market.

Bank Relations in Connection to Investments

Ten enterprises in our sample have made investments in their own company. Only one company financed the investments from bank loans, one with loans from other sources and one with a combination of bank loans and company money. Six companies had used their own money (either from the owner or their own profit) to invest in the venture. This picture demonstrates that bank relations are poor and there is virtually no chance for a company to obtain the needed credit through a normal bank loan. Credits are too expensive and the companies can not afford the normal bank loan terms. One might say that trust is absent in both banks and forest companies. This is not solely a problem for forest enterprises. Commander and Mumssen (1998:7) state that bank loans to the private sector in general only accounted for 10 percent of the GDP in the first half of 1998. For the time being banks are more interested in financing the government.

Six of our companies emphasize the high interest rate as the reason for not financing investments by bank loans. Two companies do not require loans, while five emphasize the lack of security to obtain loans. They simply do not have the needed working capital or assets that can be used as security. Six companies (25%) had the needed money (3 harvesting, 2 processing, 1 *leskhoz*) and were willing to use this for investments. This is, nevertheless, a positive feature that demonstrates that at least some companies believe in the future and can find the necessary money to improve their future situation. In western companies it is common that internal funds are used for investments. Among the Swedish companies in our sample, more than 70 percent had their own funds. The Russian average is about 25 percent, so enterprises in Murmansk Oblast are more typical in this sense. In neighboring Arkhangelsk Oblast (6.5%) and Republic of Karelia (13.9%) we find a more constrained willingness to use their own funds. One reason for this difference could be the smaller size of the companies in Murmansk. Firms in Murmansk Oblast do not require such large sums for investments in order to make significant changes, as do the larger companies in the neighboring regions.

Timber Supply

In earlier times, before the abortion of the integrated company- and planning system, all harvesting companies (*lespromkhozy*) had their own resource base, a defined amount of land they could subtract from the state forest fund. Today, about 75 percent of the companies get their timber directly from the state forests managed by the *leskhozy*.²⁸ Those who are supplied from other public or private companies are naturally the sawmill/processing companies which buy an already processed product (logged or sawn timber). Most of the companies get a high share of their supply from one single supplier. It is actually only one company that has less than 50 percent from one supplier (this is a processing company with its suppliers outside the region because of its need for high quality and differentiated input).

²⁸ See chapter 5 for different terms of acquisition.

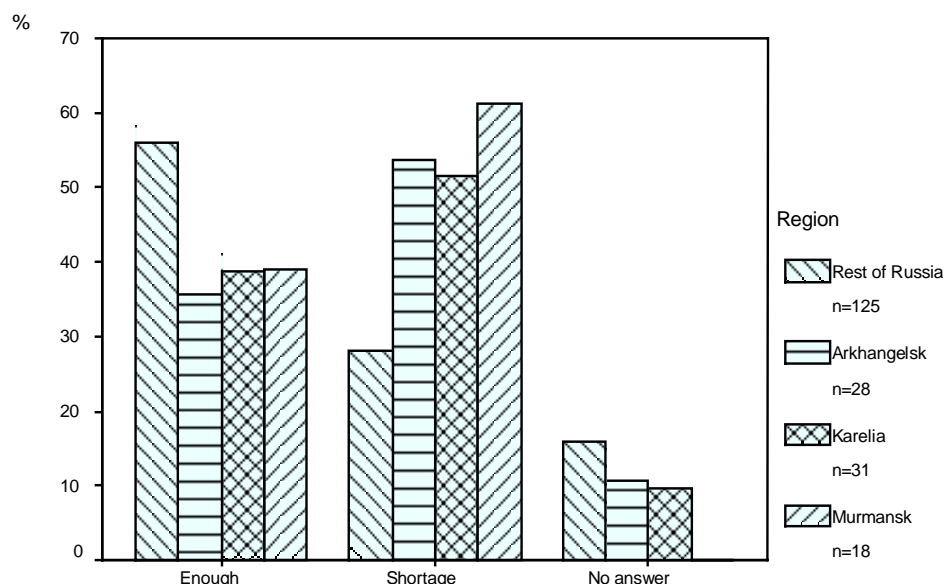
Table 6.2. Share of timber from the largest supplier (last year).

Share (percent of total demand)	Frequency
Less than 50	1
50 to 79	4
80–95	6
96–100	4
Total*	15

*Leskhoz have been omitted, 3 missing cases.

Nearly one third of the companies in the selection buy from 96 to 100 percent of their timber from one supplier. This is a very high number illustrating that most companies are “faithful” to their supplier, often the nearby *leskhoz* in their own area. It does not appear that many search for different suppliers in order to get a lower price. As the number of suppliers is limited, they do not have a large selection anyway. It seems that market mechanisms are not well developed here, competition for forest plots is not strong. Another reason could be that the transaction costs of choosing a more distant supplier are too high.

This picture is somewhat different in the neighboring region Karelia where the firms to a larger extent must rely on several providers to get enough timber. As felling and production are much larger than in Murmansk, the market mechanism might be more developed. The units are also much larger, making stable deliverance of bigger amounts more important.



Leskhoz have been omitted.

Diagram 6.4. Timber supply in selected regions.

Sixty-five percent of the companies in Murmansk Oblast experience a shortage in timber supply. This is actually a problem for most companies in all the northern regions. The picture is quite different in the rest of Russia where less than 30 percent of the companies in our sample state that they have a shortage of timber. One reason could be that the resources are scarcer in the north, while central and eastern Russian companies actually have more providers or more easily accessible resources. Another explanation could be that the northern regions have a high amount of export as they are nearer to foreign markets. As some companies find timber exports more profitable than selling on the domestic market, the remaining companies easily feel that their resources are being taken away from them.

It is anyway strange that 65 percent of the Murmansk companies can not get enough timber as only 26 percent of the annual allowable cut in the region are harvested (1996). If there is a shortage on the market, why do the harvesting companies not log more? The apparent lack of timber seems to be artificial, since the shortage does not appear as a demand to the main suppliers.

We asked the enterprise representatives to explain the reason for the shortage of timber. They mentioned financial reasons combined with technology and competition as the most important explanation. One could expect transport to be a reason in such a remote region but this was only mentioned by one enterprise.

It seems that many companies have problems in affording to buy the timber that is provided on the market. Lack of financial resources prevents them from operating important links in their production process — the raw material supply. One can also question if the provider expects too high a price for the timber, possibly combined with low quality. It is obvious that the market mechanisms do not work and prices are artificially calculated. Eight companies would not have problems to find alternative suppliers, while 11 had no alternative supplier. They have no possibility of finding other providers due to the lack of money or competence.

Terms of Acquisition, Payment and Contracts

Today, harvesting companies²⁹ in Murmansk Oblast have two ways of acquiring timber: through auction and leasing (see chapter 5 for an explanation of the terms). Among the harvesting companies in our sample, leasing is mostly used. Seven companies lease plots, while five use auctions. Auction contracts are for one year, while the leasing contract can be short-term (from 1 to 5 years) or long-term (from 1 to 49 years). There is only one forest company in the region that has signed a long-term leasing contract for 49 years.

The following terms of payment are connected to the two forms of timber acquisition: through auctions where the whole sum is paid within 20 days after signing the contract, and through leasing where the customer pays quarterly during the whole leasing period.

Most processing companies acquire an already ready-made product from harvesting companies or sawmills. Inputs into the processing company can be acquired on different

²⁹ The *leskhozy* are not taken into account.

terms depending on the contract. Most processing companies used to make the contracts directly with the director of the supplier company. Few mention the length of the contract as this probably changes from provider to provider. Three companies report that they must pay on delivery, two in advance. Two companies make part of their payments by barter or offset contracts as they lack working capital (see the following box).

All companies except one use written contracts. This is perhaps not so surprising, as the terms of timber acquisition require written contracts for both leases and auctions. The only company using oral agreements is a processing company.

The companies were asked how they arrange their buying payments. All companies except three make their main payments through the bank. There are two companies that mainly pay cash directly to their suppliers; they are both processing companies. One company has an offset arrangement. Barter or other non-monetary forms of payment are not common for buying arrangements in the Murmansk region. There seems to be a fairly transparent and open system of payment.

Non-Monetary Arrangements

Although the use of non-monetary payments is minimal for buying agreements among the forest companies in Murmansk Oblast, some general explanations of the different forms are needed. This will be exemplified by illustrating one case in the region. We will observe later in this chapter that non-monetary payments are more common in selling arrangements.

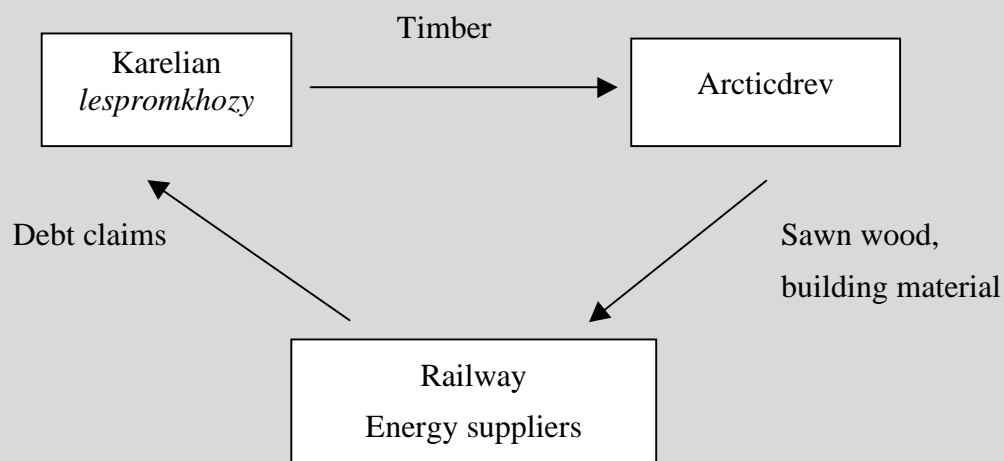
The period of transition and the lack of money have increased the use of non-monetary payments for goods, services, taxes and other things. All this is often simply called barter, but it actually contains other forms of non-monetary or quasi-monetary arrangements. According to Aukutsionek (1998) the use of barter in Russian industry rose from a 6 percent share of all sales in 1992 to 41 percent in the first half of 1997 and is continuing to increase. According to Commander and Mumssen (1998) the non-monetary transactions can be divided into four groups:

- barter where the transaction involves goods for goods,
- money surrogates primarily with commodity or financial *veksels* which are promissory notes issued by enterprises, banks or governments with specified maturity and discount rates,
- offsets or *zachety* where the dominant transaction involves debt for goods, and
- debt swaps, sales and roll-overs.

How to Buy Timber Without Money

“Arcticdrev” is a wood processing company situated in Zelenoborsk in the south of Murmansk Oblast near the Karelian border. It used to be an integrated part of the Ministry of Construction (*derevoobrabatyvaushchii zavod*), but was privatized in 1994. The company produces sawn wood and different kinds of building materials mainly for the “Severonikel Combine” in Monchegorsk.

“Arcticdrev” has kept its old suppliers of wood that are mainly situated in Northern Karelia. For the time being, “Arcticdrev” has no working capital (due to the lack of cash payment from the main customer “Severonikel”) and can not pay the Karelian suppliers for the timber. The Karelian *lespromkhozy* are interested in keeping the business going and are themselves in debt to the railways and energy suppliers. “Arcticdrev” has settled a *zachet* or offset agreement where the Karelian companies’ debts are exchanged for goods to the creditors, the railways and energy companies. This creates a triangle of transactions between the actors involved.³⁰ The Karelian *lespromkhozy* deliver timber to “Arcticdrev” that does not have money to pay. Instead, it delivers part of its production (sawn wood and building materials) to the railway company and energy supplier to which the Karelian *lespromkhozy* are already in debt. By doing this, the *lespromkhozy* rid themselves of their debts to the railway company and energy supplier.



This arrangement solves the acute lack of money problem for “Arcticdrev”. Bank loans are not available or too expensive. Other solutions must be found, otherwise, the company must close down production and 160 people become unemployed. The *zachet* agreement seems to be a good temporary option, but is not something that can be said to enforce market reforms. Transaction costs are usually higher than in an ordinary money transaction agreement and the procedure also limits the company’s freedom to invest, for instance, in new machinery or equipment or restructuring its production process. Simultaneously, the arrangement also has some “positive” effects for the companies involved, as the lack of cash transferred through bank accounts can “save” the company from taxation. The tax authorities and ultimately the Russian budget and citizens are the losers of the game.

Even so, the company is not pleased with the current situation. In the next box we will illustrate the origin of the state of affairs: the customers inability to pay for the products from “Arcticdrev”.

Violation of Buying Agreements

Company representatives were asked what would happen if one of the parties breaks the buying agreement. The general answer is that little happens. If the violation is small, they usually talk it over and reach some agreement. This discussion could be about the quality of the timber, volume or price. If the violation is substantial, they can take the company to the arbitration court (none has done it so far) or change to another supplier. Some also complain about the regularity of supplies, as deliveries are often late. This forces the companies to store timber for longer periods in order to avoid supply problems.

Ten of the companies in our sample have experienced problems³¹ with its buying agreements. Of course they first mention the problems with the supplier, but some also admit that they as buyers are the ones who break the agreement by not paying on time. Seven companies have not experienced or do not consider violations of buying agreements as a problem. If we compare the figures from Murmansk Oblast with Arkhangelsk Oblast and the Republic of Karelia, it seems that the problem of broken buying arrangements is bigger in Murmansk. However, it is a much bigger problem for companies in our sample from the rest of Russia, where nearly 60 percent have big problems.

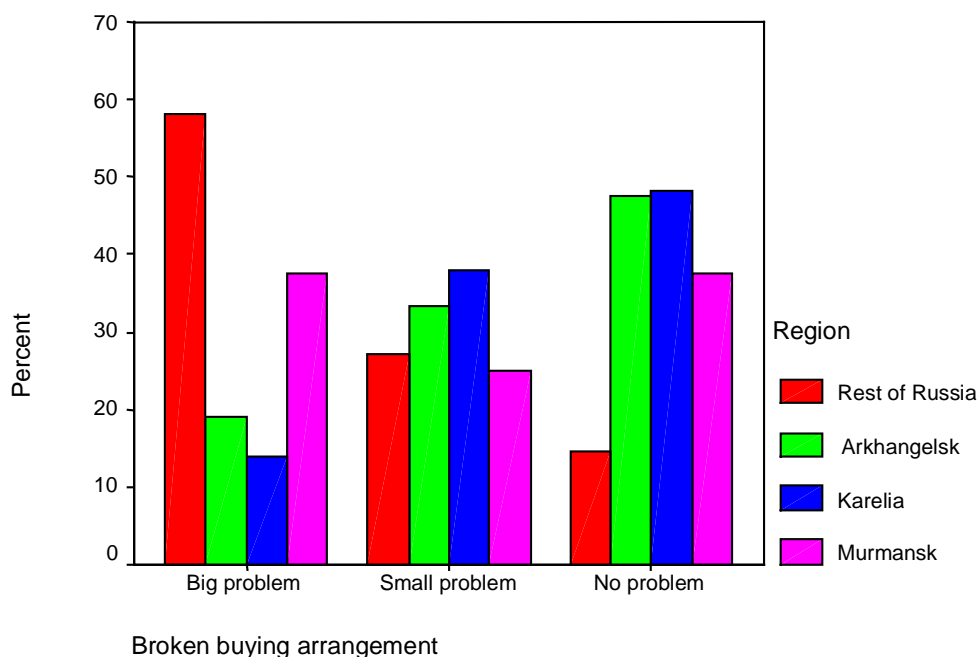


Diagram 6.5. Problem of broken buying agreements in some regions.³²

³⁰ Unfortunately, we do not have any information on how the railways and energy companies use the goods that they acquire from “Arcticdrev”. Some might be used in their own production, while others could be part of a resale or serve as input in a new barter arrangement.

³¹ Six regard the violation as a big problem, four as a small problem. *Leskhoz*y are not taken into account.

³² Companies with no answer are excluded from the calculation.

Customers/Markets

Half of the enterprises in Murmansk sell their entire production to other companies. One third sell to both companies and private persons, while only two sell solely to private persons. Sales to authorities is only mentioned by 2 companies and then in combination with other customers.

Table 6:3. Main customers for forest products in Murmansk Oblast.

Customer	Frequency	Percentage
Private persons	2	8.3
Companies	12	50.0
Private/companies	8	33.3
Private/authorities	1	4.2
Companies/authorities	1	4.2
Total	24	100

Where are the main home markets for the forest companies in Murmansk? Not surprisingly, 87 percent of the companies sell their entire output on the regional market. As production has decreased and transport tariffs have increased much of the cross-regional sales have stopped. There are only two companies that still sell to Karelian processing companies and one window producing company that has its main markets in Moscow and St. Petersburg. There is little reason to believe that companies in Murmansk could compete with centrally situated companies on prices and quality. However, there is expectation for development in the export market. Here, Murmansk Oblast has an important advantage: its nearness to the Scandinavian markets with a common border to Finland and Norway.

Exports

Fifty percent of the Murmansk companies in our sample have some kind of exports.³³ This figure is slightly higher than in Arkhangelsk while the Karelian companies in the selection have the highest amount of exports with nearly 60 percent of the companies. The number of exporting companies from other parts of Russia is lower (less than 40%) than in the North. The regional differences are quite large with the Far Eastern Khabarovsk region as the one with the most exports and the Siberian Krasnoyarsk as the one with least.

The numbers in Diagram 6:6 might not impress given the fact that Murmansk Oblast is close to foreign borders, but if we look closer at the companies we find that some of them have rather high export volumes. It should not be forgotten that those who export are among the companies with the highest output. For 3 enterprises, the export share of production is from 20 to 40 percent and for the remaining 4 from 80 to 100 percent.

³³ This figure must not be confused with the actual number of exported volumes. It only concerns the number of companies in our selection with export without taking export volumes into account.

There are still two more companies that export but they have not stated their export shares.

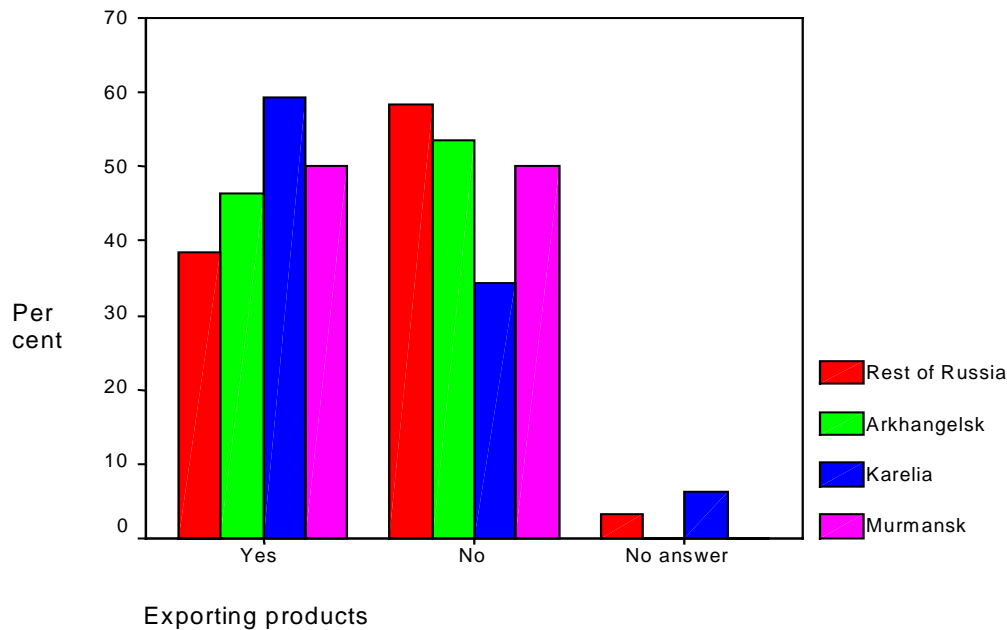


Diagram 6:6. *Export of products in some regions.*³⁴

If we go into the interviews and check what the Murmansk companies really export, we discover some interesting facts. We hardly find any exports of roundwood, but mostly sawn wood and processed products as windows and pallets. This is somewhat surprising, as exports of raw materials are common for an economy in transition. If we compare this with the export in Karelia, the situation is quite different.³⁵ Most of the export consists of roundwood and this causes a big problem for the domestic sawmill and processing companies in Karelia as timber is scarce and they lack raw materials for production. This has led to criticism of the western companies that “steal” their resources in an old colonist way. The companies in Murmansk have somehow managed to keep more of the processing in their own region. This is positive for the forest industry as it gives work to more people and creates more value in the region.

In chapter 5, we saw from official statistics that export volumes in the Murmansk forest sector have grown rapidly since 1994. As general production is decreasing, export constitutes a larger share of the total output. We can conclude that export is already important for many companies and can, if it develops in the right direction with the export of mainly processed products, add important values to the development of the industry in Murmansk.

³⁴ *Leskhoz*y have been excluded from the calculations.

³⁵ See Pipponen (1999).

Arrangement of Selling Agreement, Contract and Payment

Among our Murmansk forest companies, written selling contracts dominate. Only one enterprise reports the use of oral agreements. As companies have different customers, their form of payment varies from agreement to agreement. Half of the companies only have one type of payment arrangement. Seven have cash on delivery and five have cash before delivery. Cash on delivery is most common for those who sell to private persons, for instance *leskhozy* selling firewood to the local population or processing firms selling building materials and furniture. Cash before delivery is used when the company does not trust the customer to be worthy of credit. In comparison, our survey illustrates that most Swedish companies accept payment after delivery. This is common in most western countries, but is seldom used in Russia. Only one company in our Murmansk sample must accept payment after delivery from a western customer.

Table 6:4. Arrangement of selling payments

Payment	Frequency	Percent
Cash on delivery	7	29.2
Cash before delivery	5	20.8
Cash before delivery and on delivery	5	20.8
Cash on delivery, before and non-monetary payment	3	12.5
Cash on delivery and non-monetary payment	3	12.5
No sales	1	4.2
Total	24	100

Three companies accept both cash before and on delivery, while three more in addition allow non-monetary payment. No company has non-monetary payment as the only form of arrangement. Such an arrangement is used only in combination with cash on and before delivery. Six companies (25%) have partly non-monetary payments. Two companies use veksel (promissory notes of later payments) and four use barter (goods for goods).³⁶

Fifty-five percent is perhaps not so much and other studies indicate that the barter economy is much higher in other branches in the region, particularly in the mining and non-ferrous industry. One reason for the relatively low degree of non-monetary payments in the forest sector in our sample could be that half of the companies are new (founded during the last 5 years) without old customer ties. They are usually more dependent on cash and will not accept anything else. Older companies that keep their old relations from the Soviet period are more inclined to accept whatever payment they can get. Many do not have the resources and technology to search for new customers. Most of the barter and veksel agreements in our sample are connected to one of the big

³⁶ These figures must be handled with some caution, as we have not explicitly asked if the companies use non-monetary arrangements. The information appeared in connection with cash payments and non-monetary arrangements could be more common than the numbers indicate.

industrial combines in the region that already has most of its trade in the barter economy.

The frequency of non-monetary payments varies in the northern regions. As much as two-thirds of the Karelian firms in the study have, to some extent, used non-monetary arrangements for selling their products. In Arkhangelsk this share is 13 percent. How can we explain these differences? First of all, why is the difference between Arkhangelsk and Karelia that big? These regions have a very similar company structure with large units, particularly in the pulp and paper industry and they both have an important export. One would think that a high amount of export would promote a cash economy as foreign companies pay in cash, but we have seen that Karelia has the highest share of exporting companies (60% have some export) but the region is still leading in non-monetary payments. One possible explanation could be that barter agreements also exist in the export trade. According to the interviews made in Karelia, some of the companies receive machinery and equipment as payment for exported timber.³⁷

The rest of the Russian companies in the study (from Central Russia, West Siberia and the Far East) have a rather high share of non-monetary selling arrangements (47 percent of the companies in the sample have some kind of non-monetary selling arrangements). This figure corresponds with other studies made of the barter economy in Russia as a whole. According to Aukutsionek (1998), 46 percent of all the timber, wood processing, pulp and paper companies in Russia were engaged in the barter economy in the first half of 1997. The number has increased since 1995 and this sector employs a middle position among other industries. We should be aware that we have only asked about the use of non-monetary payments in relation to buying and selling products. There are other payments in the companies that can be non-monetary without involving any physical goods. One example could be agreements between the local administration and the company for tax exemptions if companies keep some of their social responsibilities (exchange of debt for service).

The formalities around selling contracts are almost the same as with buying contracts. Every company (except one using oral agreements) has written selling contracts. Two companies did not answer. The transparency should therefore be rather high and violations easily detected.

Payments for sold products are mainly made through bank transfers to the company's account. Nearly 60 percent of the Murmansk companies in our survey receive all their payments via a bank. Several receive cash from some customers and bank payments from others. Only one company receives all payments directly from the customer in cash. Three companies mentioned that they receive bank payment in addition to barter. The two companies that have veksel agreements answered that they receive bank payments and direct payments from their customers probably because this is the arrangement that is used when the veksel is realized.

Commander and Mumssen (1998) give two main reasons for firms to avoid the banking system. First, banks are notoriously ineffective and costly for its users. Transfers can take months and delays are not compensated. Second, banks act as intermediaries for

³⁷ See Pipponen (1999).

tax collection. By avoiding bank transfers the firm reduces both the visibility of transactions and physical access to the companies' assets.

Our figures for the Murmansk Oblast show that companies mainly use bank transfers despite all the costs and disadvantages of keeping their money in a bank account. The figure is quite different for the Republic of Karelia where only 17 percent solely use bank transfers for payments. The reason here must be the high degree of barter that will not be visible in the accounts.

How to sell without getting paid and still survive

The wood processing company "Arcticdrev" has been forced to make an offset or *zachety* agreement with the timber supplier because it has no working capital to pay for supplies. The reasons for the lack of working capital can be found at the output side. The main customer of "Arcticdrev" is the non-ferrous combine "Severonikel" in Monchegorsk, which acquires 80 percent of "Arcticdrev's" production. As part of the mining complex "Norilsk Nickel", "Severonikel" is used to settle trade agreements by non-monetary arrangements. After privatization, the majority of the stocks belong to the Moscow bank "Oneximbank".

"Severonikel" is in a difficult financial situation and does not pay "Arcticdrev" in cash. They have made a *veksel* agreement for the transaction of forest products. A *veksel* is a Bill of Exchange issued by banks and enterprises. *Veksels* are used as a means of payment. The *veksel* can be used in exchange for other goods, or it can be sold for cash. We have reasons to believe that the *veksel* is issued as a result of the "Oneximbank's" ownership in "Severonikel". For "Arcticdrev" the *veksel* agreement means extra transaction costs and time consuming arrangements for realizing the *veksel*. In any case, "Severonikel" is the most important customer and getting some value back for the production is better than no money at all.

Violation of Selling Agreement

The peculiarities of payment and lack of working capital among the customers cause a lot of problems for the selling part. Fifty percent of the Murmansk companies in our sample have big problems to collect payments and 25 percent consider violations as a small problem. As the problems are reported by *leskhozy* and the harvesting and processing companies, we can not find any corresponding pattern between the activity of the enterprise and selling agreement violation. A more reasonable explanation can be found if we take a look at the customer. Some customers are generally not very active in the cash economy and the seller must accept their working conditions. Few selling firms are in a position where they can choose among several customers and are stuck in an unstable monetary business relationship. The figures are almost the same in Karelia, while only 37.5 percent of the companies in the Arkhangelsk region have any problems. Broken selling agreements anyway seem to be more frequent in the other Russian regions in our sample, where 68.6 percent consider the violations to be a big problem.

In spite of these problems, companies seem to be patient with their "business partners". They accept some delays or negotiate to solve the problems. Almost everybody has payment problems and the customer does not necessarily have to be an insolvent company. They can have problems with delayed payment from their own customers. This evil circle affects the whole economy and paralyzes monetary transactions.

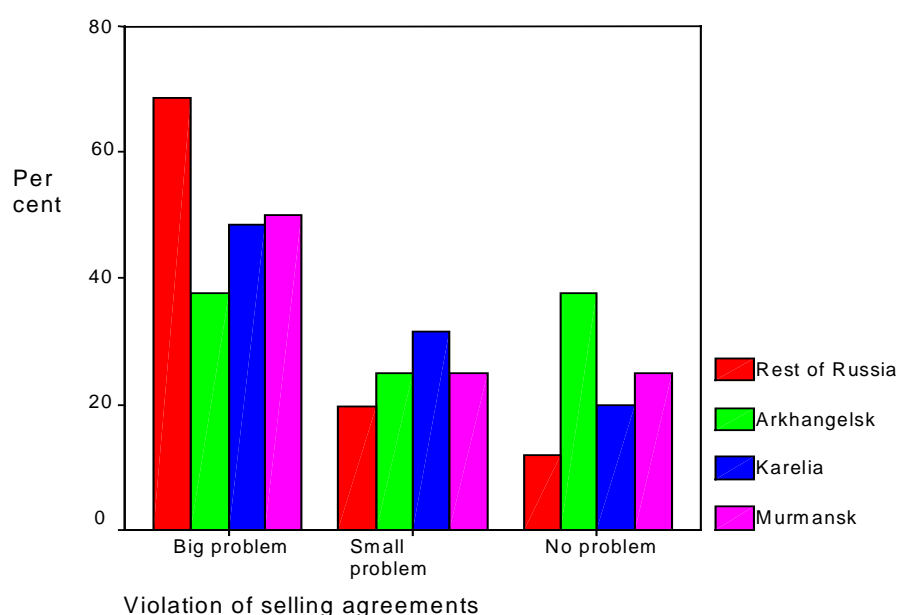


Diagram 6:7. Violation of selling agreements in selected regions.³⁸

So what happens when selling agreements are broken? One third of the companies do not have problems or do not consider the problems to be vital. Most of those who have problems try to negotiate directly with the buyer. Late payments sometimes lead to penalties like extra percentage added for the delayed payment. Some of the *leskhoz*y mention that companies that break contracts will be blacklisted from future leasing or auction contracts. They can always threaten with using arbitration courts, but this has only been accomplished a few times in Murmansk, as the system of enforcing legal acts is poor and the costs of pursuing a trial can be substantial. Small companies can not afford to go to court. Two firms have reported using other types of sanctions. Four companies seem to have resigned when it comes to violation of contracts problems. They say that nothing will happen and they do not have any means to force the customer.

Table 6:5. Enforcement of selling agreements.

Enforcement	Frequency	Percent
Negotiation	1	4.2
Sanctions, financial or other	2	8.3
Negotiation/arbitrage	5	20.8
Nothing happens	4	16.7
No problem	8	33.3
No answer/no sale	4	16.7
Total	24	100

³⁸ Companies with no answers have been excluded in the calculations.

Enterprises' Perceptions of Laws and Rules

We have asked the companies in our sample about the most important obstacles for their business activities. The first question concerns “external” obstacles related to legislation, enforcement of legislation and finding markets. Taxes are mentioned by more than half of the companies as the most important obstacle. Everybody seems to complain about taxes in Russia and taxes are just as difficult to handle for forest companies as for others. The difficulty of collecting money forces the central authorities to increase tax rates. Few are able to fulfil their tax duties in cash and find other non-monetary arrangements.³⁹ Surprisingly, half of the *leskhozy* in our sample also complain about taxes, although they are exempted from paying tax on their sanitary cutting and intermediary felling. The reason here must be that they must pay value added tax on processed products (like other firms) and these activities are considerable for some of the *leskhozy*. It is hardly surprising that the other half of the *leskhozy* find forest legislation to be the most important obstacle since their possibility to earn money was reduced by taking away their possibility of industrial cutting and, at the same time, reduced the federal funding. Only a few companies mention business legislation, the enforcement of business legislation and problems with finding markets and competition as the most important obstacles for their activities.

Table 6.6. Most important external obstacles for activities of the enterprises.

External obstacles	Frequency
Taxes	13
Forest legislation	3
Business legislation	1
Enforcement of business legislation	1
Find market/competition	2
Other	2
No answer	2

An important question is if the perceived obstacles for business are unique for the region or common for companies in all parts of Russia. Almost all the rules and laws that the companies have complained about are federal and should be equal for all. They can anyway affect the companies differently or to different degrees. The comparison between the regions in our study shows that most companies in all regions perceive taxes as the main problem, but Murmansk is the region where most companies are complaining about taxes. The other groups of obstacles do not indicate big differences between regions and appear as general problems.

³⁹ According to Gaddy and Ickes (1998) about 40 percent of federal taxes were collected in cash in 1997, 29 percent were paid in non-monetary form and 31 percent were never paid.

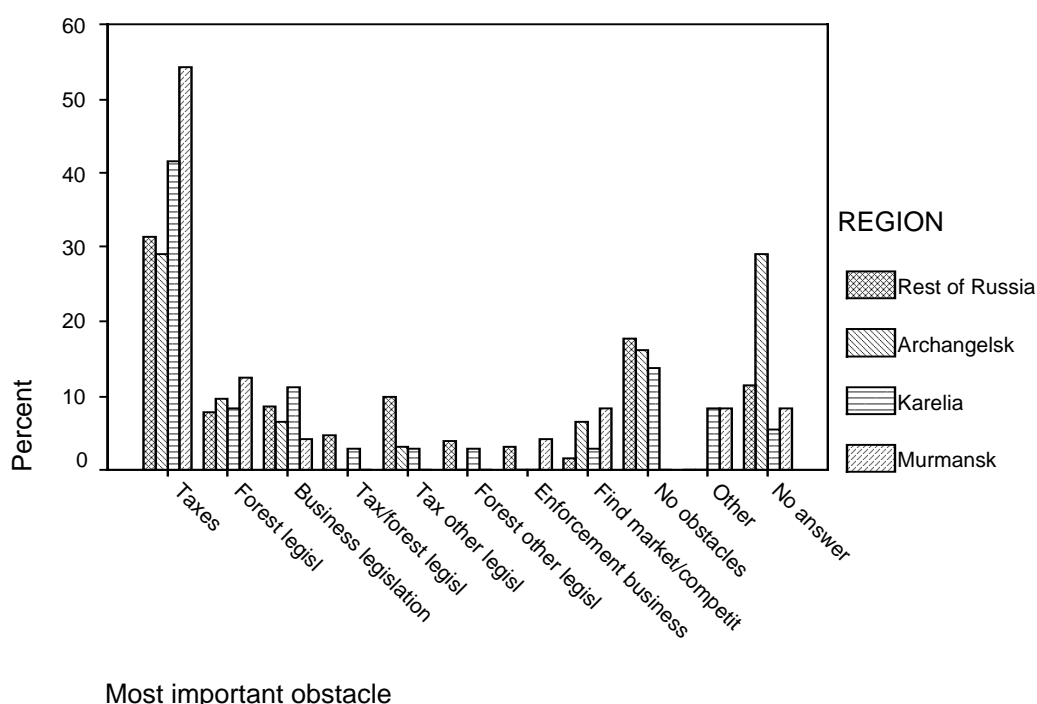


Diagram 6:8. Most important obstacles for business in the Russian North.

The second question related to obstacles focuses on internal problems for developing the business activity. All the categories of obstacles seem to be important for most of the firms and they have marked more alternatives. Old machinery and technology is most important, mentioned by 20 of the companies. Almost all are suffering from outdated or incomplete machinery. Seventeen companies mention the lack of equipment, problems of obtaining spare parts and maintenance of facilities. Skills among the employees are also an obstacle, but not a serious obstacle in the 9 companies that answered affirmatively on this question. The respondents mention problems in finding specialists and this is not surprising as many specialists were forced to leave when the staff was reduced. Many have also left by their own will as they can get better paid in other branches. It is hard to recruit new staff, as there are no educational institutions in the region for educating forest specialists (see chapter 3). Specialists are no longer “transferred” from educational institutions to the regions and salaries are not sufficiently high to attract experts to the cold north.

Table 6:7. Most important internal obstacles for business activities.

Obstacle	Frequency
Machinery/technology	20
Equipment/maintenance	17
Skills/competence	9

Most Binding Restriction for the Operation of the Region's Forest Companies

Another related issue in our questionnaire is where companies are asked to mention the most binding restriction for their activity. Again, it is very clear that the financial problems and lack of working capital are the most important restriction mentioned by 37.5 percent of the companies. Second, they refer to technology (16.7%) and problems in finding markets (12.5%).

Table 6:8. Most important binding restriction for operation of firms.

Binding restriction	Frequency	Percentage
Economy/transition	3	12.5
Tax legislation/burden	1	4.2
Transport cost	2	8,3
Technology	4	16.7
Financial/no capital	9	37.5
Find market	3	12.5
No privilege/state support	1	4.2
Other	1	4.2
Total	24	100

Changes of Rules and Laws

The companies were asked if they found the formal legislation adequate for their business; 62 percent of the Murmansk forest companies negatively answered this question. The design of laws seems to be the biggest problem: laws are contradictory. They do not cover everything and legislation is rapidly changing. Laws and rules appear not to be transparent enough for stable business conditions. Second in importance is the problem of enforcing the laws. The authorities do not always follow up legal acts and exceptions to rules can be allowed by unofficial means.

What then must be changed in the Russian forest sector? This was an open question to the companies. Some answers are general as changes in the tax system, lower taxes, fewer taxes and tax exemption (5 respondents). Changes in forest legislation were mentioned by seven companies and in general without any specification. The rest of the answers fall into one of two categories: those who want to revert to the old system of central control and those who want more market economy. In the first category, we found 6 companies that want the central authorities to coordinate and control the forest sector. According to the respondents, this would create more stable conditions for the enterprises as their role would be better defined and they would know who should sell to whom. Three companies share the opinion that forest enterprises need some economic privileges. Two aspire for some regional economic benefits, as their conditions in the north are more difficult and costly. One wants some economic support for the producing sector. The old tradition of economic subsidies to the sector does not

favor the development of market conditions. Reintroducing these features must be seen as a step backwards. The other category is more in favor of changing development towards a functioning market system. Five companies argue for privatization of the State Forest Fund. The market would then regulate the price and accessibility and they would not be dependent on the *leskhozy* for harvesting timber. There are also two companies that explicitly mention the need for developing a market economy for the sector. The central regulations prevent the natural market mechanisms to develop. The central programs are doomed to fail as the state has lost control. Some single companies mentioned a few more changes that would support the development of a market economy.

*Table 6:9. Important changes required in the Russian forest sector according to the survey enterprises in Murmansk Oblast (N=21).**

	Changes	Frequency
General changes	Forest legislation	7
	Taxes	5
Back to old system	Central control and coordination	6
	Regional/branch privileges	3
Towards a market system	Private property of forest fund	5
	Independence from the center	1
	Help from west	1
	Change harvesting methods	1
	More market economy	2
SUM		31

* There are more answers than companies since some enterprises mentioned several necessary changes.

Summary

- Most companies have not changed their main production line during the transition period but the number of products has decreased and some have completely disappeared. A few companies have adapted to the new market conditions for individual designed products for the new rich Russians.
- The Murmansk forest companies are small in size with a limited number of employees.
- More than 40 percent of the companies still contribute something to the social provisions in their communities, but the contributions are rather small and irregular. Seventeen percent provide employees with housing.
- Forty-five percent of the companies make investments in the company, mainly funded with their own money, as bank loans are not accessible.

- Sixty-five percent of the companies report a shortage in timber supply, though many get their main supply from one provider. Lack of money to buy the needed timber is the main reason for the shortage.
- Leasing contracts predominate over auction contracts for timber acquisition among the companies. Almost all use written contracts and receive their payments through the bank.
- Violation of buying agreements is a big problem for 38 percent of the companies. This figure is higher than in the other northern regions but much lower than for the rest of Russia.
- For 87 percent of the companies the main market is still in Murmansk Oblast. However, 50 percent have some kind of export activity and processed products dominate the output.
- Payment for sold products is usually arranged with cash on or before delivery. Twenty-five percent of the companies use non-monetary payments, as veksels and barter.
- Fifty-five percent of the companies have big problems with the violation of selling agreements but they are usually patient with the customer and work out a solution. Some have brought the partner before the arbitration court but small firms can not afford this and it might not solve their problems anyway.
- Current rules and laws represent “external obstacles” for the activities of the forest companies. Taxes dominate on the list of obstacles. “Internal” obstacles for the activity are old machinery and equipment.
- The most binding restriction is lack of capital.
- Over 60 percent of the companies are not satisfied with current legislation. Forest regulations and the tax system should be changed.
- The companies can be divided into two groups: those who want more central control and coordination and those who want more market economy in the sector with private property of the forest fund.

7. Evaluation Criteria and Conclusions

In this last chapter we try to sum up the findings from our study of the forest sector in Murmansk Oblast by using some evaluation criteria presented in Chapter 1. The findings will be related to the IAD-framework and the possible future of the industry will be elaborated.

Evaluation Criteria

We will go through the evaluation criteria that were listed in the introductory chapter. The same criteria is used in all of the regional reports undertaken in IIASA’s Institutional Framework study in order to be able to identify regional differences. They will allow us to make some conclusions about the extent to which the forest companies are restructuring towards a market economy and the extent to which the institutional

framework in which they are embedded really has changed and become more open and democratic. The problems with answering these questions are manifold: first, it is by necessity highly speculative to say something general about a diversified society and companies that are developing in different directions. Second, we are not sure about the goal of the restructuring process, neither at the company level nor at the macro level. The political instability and continuous changes of leadership make the future uncertain and often prevent companies to take the necessary steps.

Are Constitutional rules acknowledged and transparent?

The legal framework in Russia has gone through tremendous changes during the last few years. Everything needed to be changed fast and the adoption of the most important laws was blocked in the Duma because of an unfavorable composition of the parliament with no political force in majority. The final version of the law text was therefore often not perfect, but the best one could expect after numerous revisions and making compromises with different political blocks.

The main problem is inconsistency and lack of coordination between the laws. What might be legal according to one law might be criminal according to another. For instance, the Forest Code is in contradiction with the Constitution when it comes to property rights and in contradiction with the Environmental Protection Law when it comes to protection of species.

Continuity is another problem. An adopted law can easily be amended or abolished by Presidential decrees and this can rapidly change the daily life of companies. In particular small companies have problems in keeping abreast of the continuous changes in legislation and need expertise in laws and bookkeeping in order to be able to meet requirements. The tax law causes huge problems both because the tax rate is too high and because the loopholes in the texts are numerous and “must” be utilized.

When it comes to transparency, there are unfortunately some decrees and agreements (usually between the President and different regions) that are secret and not known to the public. Some of these agreements deal with natural resources, like oil and gas, but we have no information of any secret agreements concerning forestry.

Is the structure of property rights settled and well defined, i.e., can private actors acquire property or get the right to utilize property for their own benefit?

The Forest Code has not made the property rights to forest resources completely clear. All the forests still belong to the federal state and the role of the region is ambiguous. This has become a problem for those regions that have developed their own Forest Codes. Murmansk Oblast never had its own code and never developed a regional interest in the forest property debate, so this has not been an issue. The rules for acquiring timber should be clear for the companies, though formal leasing and auction agreements are sometimes avoided by direct negotiations with the *leskhoz*. This can generally be seen as a negative feature that reduces transparency of agreements and hinders competition. But, in the case of Murmansk there is no real competition and direct negotiations are used to simplify the procedures.

When it comes to the property rights of forest company estates, it can be questioned whether the privatization process actually gave private actors a possibility to acquire property. Our investigation shows that about half of the privatized forest enterprises were formed as closed joint stock companies. This means that only the employees could access the shares and become owners. In practice, the leadership obtained the majority of the stocks and the workers had little influence. The open joint stock companies were exposed to bids from outside investors, though there were few outsiders who had enough money and interest in making investments. It is not sure that a more open company form would have attracted more outside shareholders. Since most of the companies in the Murmansk sample are genuinely new (i.e., not old, privatized state companies) the ownership has developed according to the founders' contribution of capital.

Are rules and regulations from official authorities regarded as legitimate and do they apply equally to similar actors?

One can hardly say that rules are legitimate since most companies complain about and try to avoid them. The business sphere is definitely over-regulated with laws, rules and resolutions. The tax rules are an example, where cheating and utilizing the loopholes are necessary for survival. It is hard to trust the authorities when they accept illegal solutions themselves. Rules are often not equal to identical actors. Again, taxes are an example of negotiations between companies and the authorities. Non-monetary payments are often accepted and exemptions can be discussed. Good contacts and personal relations with the authorities can be a more important part of business life than running a profitable company.

Does the market decide the prices of property and goods?

The market price for a standing forest is often claimed to be too high by the harvesting companies but, in fact, prices are rather low compared to western markets. The stumpage fee, below which prices are not allowed to decrease, is not reflecting the market price and is often used in Murmansk Oblast where there is little competition. Only in the southern part of the region are prices sometimes slightly above stumpage.

The privatization of the state owned forest companies were not carried out in a way that can be said to reflect the market value of the enterprises. Most were given to the employees for a symbolic price, as a result of bargaining between the authorities and the company leadership. It is difficult to know if there would have been many others interested in buying the facility, as it was in most cases old and of limited value. However, it enabled the old leadership to start anew and get rid of debts. In general, there were few that had enough money to invest in an enterprise as the privatization process went hastily and at a time when savings were minimal.

Prices of forest products are now to some extent set by the market. This is especially true for the export price. The low demand on the domestic market forces companies to sell at prices that can be less than the production costs. The problems of getting cash payments and the extra transaction costs involved with the barter economy also contradict the market forces in price setting. Goods are assigned an artificially high price and can be paid for with other goods that are difficult to sell.

Is decision-making regarding collective choice and operational rules decentralized?

The management of forests has been decentralized to the Murmansk Forest Management and decisions can now be made closer to the users of the forests. However, as federal financial support has decreased substantially, this is a decentralization that has transferred much of the economic responsibility to a lower administrative level.

On the company level, privatization has definitely lead to a decentralization of decision making. Since there is no regional union or holding company in Murmansk (as in most other regions), companies have been left alone without too much interference. The absence of a forest lobby has also left all decisions with the individual firm. A few state owned companies owned by the State Property Fund or municipal authorities are an exception.

Can private investors realize the returns on their investments?

The possibility of a shareholder to realize the return on his investment is dependent upon the legal status of the company and connected to his initial instalment. The workers seldom own many shares. The majority of the shares usually belong to the managers or outside investors. We have reasons to believe that few shareholders can take out any profits at this stage, as most of the enterprises are unprofitable and have huge debts. It will definitely be a better strategy to invest the profit in the company. Asset stripping is however, a well-known method of extracting the valuables when companies are declared bankrupt. This also happened in Murmansk after privatization of the forest enterprises but that is, of course, not an appropriate way of realizing returns.

Are rules enacted aimed at preventing the devastation of natural resources?

Some of the critics of the Forest Code indicate that it contradicts other laws, such as the Law on Nature Protection. The major focus on harvesting can affect biodiversity and protection of rare species.

The economic difficulties of the *leskhozy* are also something that will have a long-term effect on the sustainability of the forests. *Leskhozy* do not have enough money to do the necessary replantation after clear cutting, fighting diseases, and performing the required fire prevention.

Do legitimate authorities take measures against violation of rules?

Violation of rules are frequent when there is no respect for the rules, no trust in the authorities that are supposed to maintain them and no enforcement that can prevent repeated disobedience. Russian forestry lacks these driving forces in the same way as the management lacks economic resources. Violation of rules is often profitable as the possibility of being caught is low, punishment is no deterrent, and one can usually bribe one's way out of a situation.

Violation of business agreements is also common and can only be brought to the arbitration court if the company can afford lawyers' expenses. Small companies usually

can not afford this and the enterprises must take the burden themselves. A legal court decision is by no means a sufficient prerequisite for payment, as the business partner often is insolvent and is declared bankrupt. Informal sanction methods (like using the “mafia”) can often be more effective. Many conflicts also arise between companies and authorities as in the case of tax disputes. The arbitration court has developed in a positive way facilitating business, but again there is still a long way to go to accomplish trust in legal authorities.

Conclusion

This section tries to sum up the findings of the report according to the institutional analysis and development framework (IAD) outlined in the introductory chapter and some important concepts of sector studies in a transition economy.

Our study of the forest sector in Murmansk Oblast focuses on a region that differs from other Russian forest regions as it has only limited forest resources. The climatic conditions and low productivity in the north has limited the extent of forestry and industrial activities leading to a sector with few and small units. However, the “rules in use” in Murmansk are not so different from other Russian regions studied in IIASA’s institutional analysis study. Federal laws and the Forest Code set the standard for all forest activity, but through priorities expressed in programs, funds and regional laws the regions themselves can influence the working condition for forestry and forest industry. Murmansk Oblast is a region without a clear priority for its forest sector activities as there is no forest lobby in the regional administration and no programs to attract domestic or foreign investments.

One peculiarity of the forest sector in Murmansk Oblast is that wood harvesting and a limited industry based on processed products were developed and run with heavy state subsidies. No doubt this dependency has affected the ability of the privatized companies to manage on their own. A pulp and paper industry was never developed in the region. The settlements of the Kola Peninsula were built on the development of natural resources like minerals and fish, but the forest sector was never of any importance for employment or industrial output produced in the region. The socioeconomic condition of the region is not particularly positive as people are moving to the south and the forest sector is losing specialists for better paid jobs in other sectors or regions.

As in other regions, all forest management units (*leskhozy*) have experienced a lack of state funding and are not allowed to make money from their own industrial harvesting. This has hit forestry in the region particularly hard since several *leskhozy* have no (or only a very small) demand for forest plots or forest products. The numbers of plots sold through auctions and leasing are limited and there is no real market with competition on prices of forests.

With this rather depressive history, the Murmansk forest industry was hit by a more or less forced privatization during the transition period at the beginning of the 1990s. Most companies in the Murmansk Oblast were not prepared for restructuring as they lacked money for investments, equipment and machinery and management skills. The action arena changed completely as old customers disappeared and new relations had to be developed. New forms of timber acquisition were launched and market prices were

introduced not only on the wood and forest products, but also on transport, electricity, fuel and other important expenditures for the sector.

The outcome of the transition was an extensive drop in wood harvesting from one million m³ at the beginning of the 1990s to less than 100,000 m³ in 1998. This drop is relatively larger than in the other Russian regions in the IIASA study. But when we take into account the minor size and importance of the sector prior to transition, we must say that the effect of the drop was much smaller here than in the intensive Russian forest regions. A limited number of people and families in the villages were affected but the consequences for them were, of course, serious.

An interesting question is whether any other outcome of the transition process of the forest sector in Murmansk Oblast could realistically be expected. We believe that the forest sector in Murmansk Oblast lacks important preconditions for a successful change.

- **Privatization without restructuring**

First of all, the privatization of forest companies was carried out in a way that often *prevented* real restructuring. Most managers in the state companies continued in the privatized enterprise without adapting to the new market. They made no restructuring of the production process, economic dispositions and management. A privatization process without real restructuring can not succeed and our interviews with company representatives have confirmed their unwillingness to restructure. Nearly half of the companies wish to revert to some kind of centrally planned and subsidized forest sector. With this attitude one can hardly expect vital changes.

- **Privatization without investments**

Privatization also requires investments. But since most companies were given to the employees more or less for free, little fresh money was brought into the ventures. Few outside investors were interested in the sector and the bank crisis made funds inaccessible for the owners. The fact that many companies had to sell their equipment when they became bankrupt does not help to make a new start as a privatized company.

- **Market economy without demand**

In a market economy, prices for the forest products must be set according to the production costs but at the same time reflect what the market is willing to pay. In Murmansk, there were few who wanted or could pay. The construction firms, mining and fishing industries no longer demanded any forest products, as their own production had been drastically reduced. Some forest companies continued to produce for storage, hoping for better times, while others limited production to a minimum.

- **Market economy without payments**

Forest companies are kept in an evil circle where both sellers and buyers have huge debts. This seldom brings real money into business operations and makes the transaction costs high. Barter and non-monetary arrangements are a way of solving short-

term payment problems and keep the company operating, but it is not a constructive solution for developing a market economy.

- **Development of a forest sector without priority**

The forest sector of Murmansk Oblast has suffered from a lack of priority in the regions' budgets and political programs. This is a problem for both private companies and the management units, the *leskhozy*. The forest management is dependent upon funding and the income to the regional (oblast) administration from the stumpage fee shall, according to the law, be transferred back to regenerating the forest. Our material demonstrates that such a transfer does not exist.

Does Murmansk Oblast Need a Forest Industry in the Future?

An unpleasant, but appropriate, question that should be asked is whether the Murmansk region really needs a forest industry. With a minimal demand of forest products, harsh climate and growing conditions, small and unprofitable production units, and lack of skilled workers, perhaps it would be better to buy the needed products from neighboring regions or from abroad. It might even be cheaper.

The main question here is if there really will be a demand for the forest sector output produced in the region in the future. Can the companies count on a regional/domestic market for their products? It is obvious that the economic crisis has affected the demand for all kinds of products and we can only speculate about the future situation. There are definitely private persons and companies who need and want to buy forest products, but lack of financial resources hinder them in realizing the demand. To change this deadlock requires tremendous amendments of the whole Russian economy and policies. Changes that will make it easier for the companies to operate in a normal market with free prices, supply and demand.

First, let us take a look at the expected demand for firewood. This product is mostly required by the local population and is used for heating private houses. Houses with a stove for firewood are mainly located in countryside villages that are dependent upon wood as an energy source to keep warm during the arctic winters. The village population is limited (7.7%) and urban residents do not use firewood as they are connected to central heating. The exception can be those who have a country house, a *datcha*. Russians have a tradition of cutting timber in the forest themselves and not buy it from the *leskhozy* or sawmills that are the legal sellers. This tradition will barely change as the economic problems have hit the villagers intensely and money must be saved for other expenditures. There will hardly be an increasing demand for firewood in the region as long as the moral is low and the chances of being caught are small (due to the limited resources of the *leskhozy*).

The sawmills will demand timber as long as they can get customers for their production of sawn wood. The main customers for forest products have traditionally been building and construction firms and the mining and metallurgy industry. The construction activity has drastically declined during the transition period and the branch hardly has any large orders. We can also see that the regional administration and banks are using foreign companies to build schools, hospitals, and administrative buildings. These

companies probably bring most of the materials from abroad. Building private houses seldom occurs in the region but this can, of course, change if the middle class develops and more people reach a higher living standard. There is a demand for lumber for rebuilding apartments and cottages but this can hardly become a big market.

The mining and metallurgy industry has also reduced the demand for timber and lumber as their production and profitability has decreased. The mining companies mainly use timber and lumber to secure the mine corridors, for related buildings and so forth. The metallurgy industry uses wood in the technological process and needs pallets for transportation of the final product. When, and if, these industries' production reaches their former level, the demand for wood products will rise again.

The demand for processed products has also declined. Windows and doors are to a limited extent required by construction firms. Private companies and individuals no longer want to buy mass-produced, bad quality products, and demand individually adapted products. The old companies that used to produce windows, doors and furniture have died and new ones have emerged. Some of them have adapted to the new market and have good possibilities to expand when purchasing power increases. Customers are mainly private persons and private companies. There is definitely an accumulated need for the modernization of flats, offices, and public institutions, and the demand might perhaps be larger than one can expect today.

The fish processing industry in the region has used different kinds of packages for their products, like cardboard boxes and pallets for transportation. As far as we know, there are no producers of cardboard left in the region. The fish processing industry in the region has almost been closed down as most of the fish is delivered to Norwegian and other foreign ports. The regional administration has taken some steps, however, to maintain some deliveries to Murmansk. But the branch will not demand a large amount of processed wooden products as long as there is limited industrial activity.

The above analysis suggests that the revitalization of the regional industry should be seen as the main factor for expanding the domestic demand for forest products. Some companies do not believe that this will happen and have therefore tried another survival strategy.

Can the Forest Industry Survive?

The question for most of the companies is how to survive until the domestic market recovers. We have found two main strategies: a *survival strategy* that is a "wait and see" attitude. The companies in this group have not made any changes in their production or management, they produce more or less for storage, accumulate debts and are not taking any initiative of finding new markets or customers. The future for these companies is very uncertain, and they can not, we believe, survive. Nobody will come and rescue them, subsidize their production or find new customers for them.

The second strategy is to *restructure and develop* the industry for the export market. New management, development of new market strategies and contacts, adapting the production to new standards of quality and efficiency, follow this strategy. There are 4–5 companies in our sample that can be placed in this group, and they have already taken

the necessary steps. They have used the income from exports to invest in new machinery and technology, which has made them more competitive on the market. This will enable them to meet the domestic market with many advantages if and when it recovers. We should not forget that there is a new domestic market that is emerging based on the private demand by the new developing Russian middle-class. Only restructured companies can meet this demand as the new middle-class claims quality at the same level as the foreign market.

References

- Aukutsionek, Sergei (1998). Industrial Barter in Russia. *Communist Economies and Economic Transformation*, Vol. 10, No. 2.
- Bac, Mehmet (1998). Property Rights Regimes and the Management of Resources. *Natural Resource Forum*, Vol. 22, No. 4, pp. 263–269.
- Blam, Yuri, Lars Carlsson and Mats-Olov Olsson (2000). *Institutions and the Emergence of Markets — Transition in the Irkutsk Forest Sector*. IIASA Interim Report. Laxenburg, Austria: International Institute for Applied Systems Analysis, forthcoming, January.
- Blandon, Peter (1983). *Soviet Forest Industries*. Boulder, Colorado: Westview Press.
- Burdin, Nikolai, Anna-Liisa Myllynen and Valentin Strakhov (1998). *Russian Forest Industry Production — Trends and Prospects*. Joensuu: North Karelia Polytechnic Publications, C: Reports, 5.
- Carlsson, Lars and Mats-Olov Olsson (1998). *Institutions and the Emergence of Markets, Transition in the Tomsk Forest Sector*. IIASA Interim Report IR-98-084. Laxenburg, Austria: International Institute for Applied Systems Analysis, October.
- Carlsson, Lars, Nils-Gustav Lundgren and Mats-Olov Olsson (1999a). *Forest Enterprises in Transition — Business Behavior in the Tomsk Forest Sector*. IIASA Interim Report IR-99-010. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Carlsson, Lars, Nils-Gustav Lundgren, Mats-Olov Olsson and Mikhail Yu. Varakin (1999b). *Institutions and the Emergence of Markets, Transition in the Arkhangelsk Forest Sector*. IIASA Interim Report IR-99-021. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Commander, Simon and Christian Mumssen (1998). *Understanding Barter in Russia*. EBRD Working Paper No.37, December.
- Dolgopyatova, Tatyana (1996). *The Transitional Model of the Behavior of Russian Industrial Enterprises (on the basis of regular surveys during 1991–1995)*. IIASA Working Paper WP-96-057. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Dvoriankin, Aleksander (1997). Ne rubite sgoryacha (Don't Cut Rashly), *Poliarnaia Pravda*, 23.05.97, Murmansk.
- Efremov, Dmitry F., Lars Carlsson, Mats-Olov Olsson and Alexander S. Sheingauz (1999). *Institutional Change and Transformation in the Forest Sector of Khabarovsk Krai*. IIASA Interim Report IR-99-068. Laxenburg, Austria: International Institute for Applied Systems Analysis, November.
- Eikeland, Sveinung, Lyudmila Ivanova, Birgit Jacobsen, Tamara Malkova, Larissa Riabova and Arild Røkenes (1999). *Murmansk Forest Sector — Situation Report and Research Problems*. NIBR-Working Paper 1999:120. Alta: The Norwegian Institute of Urban and Regional Research.

- Gaddy, Clifford and Barry W. Ickes (1998). *To Restructure or not to Restructure: Informal Activities and Enterprise Behavior in Transition*. WDI Working Paper, No. 134, February.
- Gerchina, Olga (1999). Priroda — khram bozhy (The nature is Goods temple), *Kirovskii rabochy*, 12.04.99 (newspaper article), Kirovsk.
- Goskomstat Murmansk (1996). Murmanskaya oblast' v tsiffrakh (Murmansk Region in Figures). Murmansk: Murmansk Regional Committee of State Statistics.
- Goskomstat Murmansk (1997). Statisticheskii sbornik "Okhrana okruzhaiushchei sredy" (Statistical Collection "Nature Protection"). Murmansk: Murmansk Regional Committee of State Statistics.
- Goskomstat Murmansk (1998a). Ezegodnyi statisticheskii sbornik: promyshlennost', trud, finansy, 1997 (Annual Statistical Yearbook; Industry, Labor, Finances, 1997). Murmansk: Murmansk Regional Committee of State Statistics.
- Goskomstat Murmansk (1998b). *Murmanskoi oblasti 60 let* (Murmansk region 60 years). Murmansk: Murmansk Regional Committee of State Statistics.
- Granåsen, Jan, Sten Nilsson and Uno Zackariasson (1999). *Russian Forest Sector — Human Resources*. IIASA Interim Report IR-97-008/March. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Heleniak, Timothy (1999). Out-Migration and Depopulation in the Russian North during the 1990s. *Post-Soviet Geography and Economics*, Vol. 40, No. 3, pp.155–205.
- Ickes, Barry, Peter Murrell and Randi Ryterman (1997). End of the Tunnel? The Effects of Financial Stabilization in Russia. *Post-Soviet Affairs*, Vol. 13, No. 2.
- Jacobsen, Birgit (1999). *Auctions Without Competition — The Case of Timber Sales in the Murmansk Region*. IIASA Interim Report IR-99-072. Laxenburg, Austria: International Institute for Applied Systems Analysis, forthcoming, December.
- Joskow, Paul L. and Richard Schmalensee (1997). Privatization in Russia: What Should be a Firm? In: Claude Menard (ed.) *Transaction Cost Economics*. Vermont, UK: Edward Elgar Publishing Company.
- Kleinhof, Andris, Lars Carlsson and Mats-Olov Olsson (1999). *The Forest Sector in Moscow Oblast*. IIASA Interim Report IR-99-069. Laxenburg, Austria: International Institute for Applied Systems Analysis, November.
- Kopylova, Elena (1999). Transition from Planning to Market Economy in Russia. In: Matti Palo and Jussi Uusivuori (eds.), *World Forests, Society and Management*. Dordrecht, Netherlands: Kluwer Academic Publisher.
- Luzin, Genady (1999). *Ekonomika Murmanskoy Oblasti* (The Economy in Murmansk Oblast). Apatity: Institute of Economic Problems, Kola Science Center.
- Mal'kova, Tamara (1999). Lesnye auktsiony i provedenie ikh na territory Murmanskoi oblasti (Forest auctions in Murmansk Oblast). Working Paper, Apatity: Institute of Economic Problems, Kola Science Center.

- Mal'kova, Tamara and Nikolay Peshev (1997). *Lesnye resursy Kol'skogo severa; Ekologo-ekonomicheskie aspekty lesopol'zovania* (Forest Resources of the Kola Peninsula: Ecological and Economic Aspects of Forest Utilization). Apatity: Kola Science Center.
- Malmö, Tomas (1997). The Institutional Framework of the Russian Forest Sector. A Historical Background. In: Lars Carlson and Mats-Olov Olsson (eds.) *Initial Analyses of the Institutional Framework of the Russian Forest Sector*. IIASA Interim Report IR-98-027. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Murmansk Forest Management (1998). O regional'noi tselevoi programme "Les Murmanskoi oblasti" na 1997–2000 (Regional Program "Forest of Murmansk Oblast" 1997–2000) Approved by the Governor, Resolution No. 197 of 27.05.98, Murmansk.
- Murmansk Forest Management (1999). *Godovoi otchet* (Annual Report). Murmansk.
- Murmansk Regional Administration (1998). *Analiz deiatel'nosti lesopromyshlennogo kompleksa Murmanskoi oblasti* (Analysis of Forest Complex Activity in Murmansk Oblast in 1992–1997). Murmansk.
- Murmanskii Vestnik (1999). *Murmansk Oblast Economy in January–February 1999*. Newspaper article, 1 April.
- Nilsson, Sten and Anatoly Shvidenko (1997). *The Russian Forest Sector; A Position Paper for the World Commission on Forests and Sustainable Development*. Paper presented at the WCFSD Meeting in St. Petersburg, Russia, 23–24 September 1997. URL: <http://iisd1.iisd.ca/wcfSD/russia.htm> (13 December 1999).
- North, Douglass C. (1997). *The Contribution of the New Institutional Economics to an Understanding of the Transition Problem*. 1997 WIDER Annual Lecture. Helsinki: World Institute for Development and Economics Research (WIDER), United Nations University. URL: <http://www.wider.unu.edu/northpl.htm> (13 December 1999).
- Norwegian Energy Efficiency Group (1998). *Energy Efficiency in Russia*, No. 3, October, Oslo.
- Ostrom, Elinor, Roy Gardner and James Walker (1994). *Games and Rules and Common Pool Resources*. Ann Arbor: University of Michigan Press.
- Pappila, Minna (1999). *The Russian Forest Sector and Legislation in Transition*. IIASA Interim Report IR-99-058. Laxenburg, Austria: International Institute of Applied System Analysis.
- Piipponen, Minna (1999). *Transition in the Forest Sector of the Republic of Karelia*. IIASA Interim Report IR-99-070. Laxenburg, Austria: International Institute for Applied Systems Analysis, forthcoming, December.
- Reznik, Bruce A. (1996). *Property Rights in a Market Economy*. Washington, D.C.: Center for International Private Enterprise (CIPE). URL: <http://www.cipe.org/ert/e19/reznik.html> (13 December 1999).
- Sheingauz, Alexander, Sten Nilsson and Anatoly Shvidenko (1995). *Russian Forest Legislation*. IIASA Working Paper WP-95-45. Laxenburg, Austria: International Institute for Applied Systems Analysis.

- Sokolova, Nastassia (2000). *Institutions and the Emergence of Markets — Transition in the Krasnoyarsk Forest Sector*. IIASA Interim Report. Laxenburg, Austria: International Institute for Applied Systems Analysis, forthcoming, February.
- Strakhov, Valentin V., Victor K. Teplyakov, Vladimir A. Borisof, Natalia I. Goltsova, Jussi Saramäki, Pekka Niemelä and Anna-Liisa Myllynen (1996). On the Ecological and Economic Impacts of Wood Harvesting and Trade in Northwest Russia. Joensuu: OY FEG – Forest and Environment Group Ltd., All-Russian Research and Information Center for Forest Resources, ARICFR, University of Joensuu, Faculty of Forestry, St. Petersburg State University, Institute of Biology, Russian Academy of Sciences, St. Petersburg Research Center for Ecological Safety.
- Sutela, Pekka (1998). *The Road to the Russian Market Economy; Selected Essays, 1993–1998*. Helsinki: Kikimora Publications, Aleksanteri Institute, University of Helsinki.
- Zelenyi Mir* (1997). (Russian Ecological Newspaper), No. 26, Moscow.
- Zychovskaia, Rozaliia (1997). Gory lesa,illiardy dolgov — ili chto zhdet Verkhnetulomskii lespromkhoz (Mountains of timber, billions of debts — or what awaits Verkhnetulomskii lespromkhoz). *Poliarnaia Pravda*, 29.05.97 and 30.06.97 (newspaper articles), Murmansk.