

Northwest Russian Forest Sector in a Nutshell

Sari Karvinen, Elina Välkky, Yuri Gerasimov and Alexander Dobrovolsky

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Abbreviations

AAC	Annual Allowable Cut
ECF	Elementally Chlorine Free
FAO	Food and Agriculture Organisation
FAOSTAT	FAO Statistical Database
FLEGT	Forest Law Enforcement, Governance and Trade
FSC	Forest Stewardship Council
MDF	Medium Density Fibreboard
n/a	Information not available
NFI	National Forest Inventory
OSB	Oriented Strand Board
PEFC	Programme for the Endorsement of Forest Certification Schemes
UNESCO	United Nations Educational, Scientific and Cultural Organization
WTO	World Trade Organisation

Definitions

Concept	Definition	In Russian
Central Russia	Central Federal District	
Federal district	Administration level between the federal government and the federal subjects. Federal district includes several federal subjects. Primarily responsible for overseeing the compliance of the federal subjects with federal laws.	Federalny okrug
Forest district	An elementary organisational unit of forest administration at the local level	Lesnichestvo (former leskhoz)
Forest park	An elementary organisational unit of forest administration at the local level	Lesopark
Forest range	Sub-unit of a forest district	Uchastkovoye lesnichestvo
National System of Voluntary Forest Certification in Russia (RSFC)	Russian voluntary forest certification scheme suggested by the National Council of Voluntary Forest Certification	Natsionalnaya sistema dobrovolnoy sertfikatsii lesopolzovaniya v Rossii (RSSL)
Northwest Russia	Northwest Federal District of the Russian Federation, including the Arkhangelsk, Kaliningrad, Leningrad, Murmansk, Novgorod, Pskov and Vologda regions, Republics of Karelia and Komi, city of St Petersburg and Nenets Autonomous District	
Regional forest authority	State authority of a subject of the Russian Federation executing power on forest use, protection and regeneration	Organ gosudastvennoy vlasti subyekta Rossiyskoy Federatsii v oblasti lesnykh otnosheniy
Russian National Forest Certification System (FCR)	Russian voluntary forest certification scheme suggested by the Russian National Council of Forestry Certification (RNSLS)	Natsionalnaya sistema dobrovolnoy lesnoy sertifikatsii
Subject of the Russian Federation	Constituent unit of the Federation: republic, region (oblast, kray), federal city, autonomous region (oblast), autonomous district (okrug)	Subyekt Rossiyskoy Federatsii

Russian organisations

English name	Acronym	Russian name
Avialesookhrana – state organisation on forest fire monitoring	Avialesookhrana	FBU Avialesookhrana
Federal Forestry Agency	Rosleskhoz	Federalnoye agenstvo lesnogo khozyaistva
Federal Service for Inspecting the Utilisation of Natural Resources	Rosprirodnadzor	Federalnaya sluzhba po nadzoru v sfere prirodopolzovaniya
Federal State Statistics Service	Rosstat	Federalnaya sluzhba gosudarstvennoy statistiki
National Council of Voluntary Forest Certification in Russia		Uchastkovoye lesnichestvo
Research and Project Design Institute for Mechanization and Power Supplies of Forest Industry	TsNIIME	Tsentralny nauchno-issledovatelskiy i proyektno-konstruktorskiy institut mekhanizatsii i energetiki lesnoy promyshlennosti
Research institutes subordinate to the Federal Forestry Agency Rosleskhoz		
Far East Forestry Research Institute	DalNIILH	Dalnevostochny nauchno-issledovatelskiy institut lesnogo khozyaystva
Northern Research Institute for Forestry	SevNIILH	Severny nauchno-issledovatelskiy institut lesnogo khozyaystva
Research Institute of Forest Genetics and Breeding	NIILGiS	Nauchno-issledovatelskiy institute lesnoy genetiki i selektsii
Research Institute of Silviculture and Forestry Mechanisation	VNIILM	Vserossiyskiy nauchno-issledovatelskiy institut lesovodstva i mekhanizatsii lesnogo khozyaystva
St Petersburg Forest Research Institute	SPbNIILH	Sankt-Peterburgskiy nauchno-issledovatelskiy institut lesnogo khozyaystva
Roslesinforg – state enterprise on forest inventory and forest management planning	Rolesinforg	FGUP Roslesinforg
Far East Forestry Research Institute	DalNIILH	Dalnevostochny nauchno-issledovatelskiy institut lesnogo khozyaystva
Russian Forest Protection Centre	Roslesozashchita	FBU Rossiyskiy tsentr zashchity lesa
Russian National Council of Forestry Certification	RNSLS	Rossiyskiy natsionalny sovet po lesnoy sertifikatsii
Service for Veterinary and Phytosanitary Surveillance	Rosselkhoznadzor	Federalnaya sluzhba po veterinarnomu i fitosanitarnomu nadzoru

Contents

Preface 1

1 Introduction 3

2 Forest Policy and Administration 5
- 2.1 Forest Legislation 5
- 2.2 Development Programmes and Strategies 6
- 2.3 Ownership and Administration of Forest Resources 7
- 2.4 Institutional Framework 9
- 2.5 Regional Forest Plan 13
- 2.6 Silvicultural Regulations 13

3 Forest Resources 17
- 3.1 Forest Area and Growing Stock 17
- 3.2 Designated Functions of Forest 19
- 3.3 Age-Class Distribution and Development Classes 20
- 3.4 Tree Species 21

4 Forest Certification 25
- 4.1 Forest Certification Schemes 25
- 4.2 Verification of Wood Origin 26

5 Education and Research 29
- 5.1 Education in the Field of Forestry 29
- 5.2 Research on the Field of Forestry 30

6 Silviculture 33
- 6.1 Forest Regeneration 33
- 6.2 Production of Tree Seeds and Seedlings 37
- 6.3 Seedling Stand Management 38
- 6.4 Intermediate Fellings 39
- 6.5 Forest Health and Protection 42

7 Nature Conservation 49
- 7.1 Organising Nature Conservation 49
- 7.2 Nature Conservation Areas 50

8 Forest Planning and Inventory 55
8.1 Assessment of Forest Resources 55
8.2 National Forest Inventory 57
8.3 Forest Planning from the Viewpoint of a Leaseholder 58
8.4 Assessment of the Inventory and Planning System 60

9 Forest Utilisation 63
9.1 Forest Use Rights 63
9.2 Payment for Forest Use 63
9.3 Planning, Reporting and Monitoring of Forest Use 64
9.4 Allowable Cut and Fellings 66
9.5 Wood Harvesting and Transportation 71
9.6. Multiple-use of Forests 79
9.7 Forest Energy 82

10 Forest Industry 87
10.1 Russian Forest Industry in General 87
10.2 Competitiveness of the Forest Industry 92
10.3 Investments in the Forest Industry 96
10.4 Sawmill Industry 101
10.5 Wood-based Panel Industry 103
10.6 Pulp and Paper Industry 108
10.7 Wood Pellet Industry 113
10.8 Foreign Trade of Forest Industry 116

Statistical Appendix 129

Appendix 1 133

Preface

Russia is an important collaborator for people operating in the Finnish forest sector. Regardless of changes in the wood trade and investment plans, Russia will still remain as an important partner for Finland and, thus, a need for up-to-date information is evident. However, obtaining information on Russia can be difficult and time-consuming. Despite the uncertainty caused by numerous changes in the Russian forest sector, this publication aims at providing a reliable and quick source for anyone interested in Russian forests and the Russian forest sector. The publication is targeted for specialists and decision-makers in companies, forest administration and management, and it can also be used for research and training purposes.

The publication studies Russian forestry on two different levels. The first level covers the general questions of forestry and forest policy in the Russian Federation, that are the same in all regions of Russia. The second level illustrates the forest management practices in the Northwestern Federal District *(okrug)*. All the statistics are presented at the Russian level in general, and in more detail for the different regions of the Northwestern Federal District.

Further information on topical forestry issues may be obtained, in Finnish, on the Internet Service on Russian Forestry at **www.idanmetsatieto.info**.

We would like to express our gratitude to the Director of the Russian Institute of Continuous Education in Forestry, Professor Anatoly Petrov, the Counsellor on Forestry Affairs at the Embassy of Finland in Moscow, Mr. Timo Leinonen as well as to Professor Timo Karjalainen from the International Forestry Group of the Finnish Forest Research Institute, for providing expert assistance and suggestions for improving the contents of the book.

Joensuu and St Petersburg, December 2011

Authors



1 Introduction

Russia has been an important trade partner for the Finnish forest industry for two centuries. Owing to changes in the political and economic environment, the volume of Finnish-Russian trade has varied over the years, but currently Russia is the fourth most important target country for Finnish forestry industry exports, and the most important single country for forestry industry imports. As the standard of living and the purchasing power of Russian customers are increasing, Russia is also becoming a more interesting market for other European countries. At present, Russia is actively developing its own forest industry, which also makes it a competitor in the markets for Finnish and other European forest products' manufacturers.

Changes that have taken place over the past few years in the Russian forest sector have had a major effect also on Finnish-Russian forestry relations. Russia's significance will hardly diminish over the coming years, even though its role has changed. Russia has reduced the export of roundwood to the European market substantially, and aims to continue this trend in the future. Regardless of political efforts to attract international investments to Russia, foreign companies have still been hesitant to make big investments particularly in the Russian pulp and paper industry. The investment climate is still too volatile and it has been seen that easier operational environments can be found elsewhere, for example, in Latin America. Despite the current uncertainties in Finnish-Russian forestry relations, Russia is, and will be a significant partner, which makes the need for information on the Russian forest sector evident. This publication aims to provide a comprehensive, but compact, picture of the current state of the forest sector in Northwest Russia. Although the emphasis of the contents is on Northwest Russia, most of the issues and principles are relevant to the whole Russian Federation.

Obtaining general statistical information on Russia has become very easy as a result of the openness of the Federal State Statistics Service *'Rosstat'*. All of its publications are available on the Internet and, in addition, Rosstat maintains a wide online database with open access. Statistics concerning forest resources and their use are, on the contrary, very hard to access. Complete data at the Russian Federation level is no longer available, and regional forest authorities are publishing information with varying accuracy. A challenge for interpreting this information is that data from different sources may be contradictory. Most of the data in this publication is based on information verified by Rosstat, with the most recent figures being from 2009. Preliminary information on 2010's statistics has also been presented, but this information may be altered greatly as

the confirmed statistics are published later on. At the regional level, corrections may be done to already confirmed information, and thus even official information may be sometimes unreliable. Most of the data concerning forest utilisation has been collected from presentations, reports and books published by the Federal Forestry Agency of the Russian Federation, *'Rosleskhoz'*, and from the regional forest plans of the Russian regions.



2 Forest Policy and Administration

2.1 Forest Legislation

The Forest Code of the Russian Federation (*lesnoy kodeks*) is the main document governing the protection, management and utilisation of forests. The first forest law of post-Soviet Russia, 'Principles of the forestry legislation of the Russian Federation', was confirmed in 1993, but was reviewed only four years later in 1997. In the past, all the regions, i.e. subject to the Russian Federation (republics, *oblasts, krays*, etc.), had a right to compile their own regional stipulations as long as they were in line with the federal forest law. In 2005, a general centralisation of legislation and administration took place in Russia, which meant that only the Forest Code was valid, and federal authorities were solely responsible for the management of forest resources. So-called agricultural forests were the only exception, as these forests were managed by the regional authorities. The latest change in forestry legislation took place on 4 December, 2006, when the President of the Russian Federation signed a new Forest Code for the Russian Federation, which came into effect on 1 January, 2007 (Federal Law of 4 December, 2006, № 200-FZ).

This Forest Code (2006) introduced several significant changes compared with the old legislation. The decision-making power was delegated from the federal level to the regional. The new legislation broadened the rights and obligations of the forest leaseholders and, at the same time, abolished the right of local authorities to harvest wood commercially. The old system, where the same organisation was able to both conduct forestry operations and control them, was demolished, and forest use management and control duties were divided between different authorities. Concerning the use of forests, the most significant change in the new legislation was the aim to make long-term leases the main form of forest use instead of short-term harvesting licences.

The implementation of the new Forest Code has not been easy and the Code has been under constant modification: since 2007 a dozen amendments to the Code and the implemented provisions of the Code were made. To implement the provisions of the Forest Code in practice, it was necessary to update over 60 normative documents. From the forest user point of view the main documents to be updated are the logging rules *(Pravila zagotovki* 2007), the rules for forest tending *(Pravila ukhoda* 2007) and the rules for forest regeneration *(Pravila lesovosstanovleniya* 2007). New versions of these are currently prepared

and waiting for confirmation. All stipulations concerning forest management and silviculture are set by the federal authorities alone.

In addition to the Forest Code and related rules and guidelines, the basic means for regulating Russian forest policy have been different development programmes and strategies, as well as legislation, which regulates the forest sector indirectly; for example, through customs duties. At a regional level, the tools for the Federation subjects to regulate forestry in their particular areas are regional forest plans and other forest planning documents, which determine the goals and operations in the region in question. One of the means of promoting the goals of the Russian forest policy is the Act on Priority Investment Projects, which aims at boosting forest industry by providing privileges in raw material acquisition and mandatory payments for those companies investing in Russia (see Section 10.3).

In addition to the Forest Code, also Civil Code, Land Code, Water Code and Federal Law on Environmental Protection regulate operations in the forests. In all, the collection of stipulations concerning the Russian forests comprises several hundred documents.

2.2 Development Programmes and Strategies

One of the problems of Russian forest policy has been the lack of coordination between the development of the forest and forestry industry policies. The development of forest policy has been the responsibility of the Rosleskhoz, whereas the Ministry of Industry and Trade has been in charge of the development of the forest industry. Both sectors have had their own long-term strategy plans: the Development Concept of Forestry for 2003–2010, and the Main Directions of Forest Industry Development for 2002–2015. The first attempt to combine these two development plans was made only in 2008, when the Ministry of Agriculture and the Ministry of Industry and Trade ratified a joint Forest Sector Development Strategy up to 2020 (see Section 10.2). Regarding forestry, the strategy lists an extensive number of sub-objectives, but does not specify how the objectives should be reached.

Rosleskhoz is updating the strategy plan of forestry, and a draft of the state programme, 'Development of Forestry', for the years 2012–2020 was presented in 2011. The objective of the programme is to increase the efficiency of use, protection and regeneration of forests, and to satisfy the demand for resources and services from forests sustainably, taking into account the available resources and their ecological potential, as well as the global functions of forests. The main tasks are presented as follows:

- Improving the efficiency of prevention, detection and extinction of forest fires, and minimising socio-economic losses caused by them.
- Increasing the effectiveness of forest protection against insects and diseases, as well as other harmful factors.
- Improving the productivity and quality of forests by better regeneration and tending, primarily in regions losing ecological, recreational and silvicultural potential.
- Ensuring intensive forest use while maintaining its ecological functions and biodiversity; improvement of control over use, protection and regeneration of forests.
- Improving the socio-economic conditions of forestry; improving the quality of forest research and education.

The tasks are designated to solve some systemic problems in Russian forestry, caused by inadequacies of complex decision-making and a lack of coordination between the authorities regulating forest relations. Examples of these are: the decreasing area and deteriorating quality of coniferous forests as a result of extensive use; the growing amount of damaged forests (fire, insects, diseases), related to insufficient organisation and financing of forest protection and monitoring; large extent of illegal logging; problems in forest regeneration and tending of young stands; lack of accurate information on forest resources and their potential; weak state of control on use, protection and regeneration of forests; problems in recruiting highly skilled labour; and low productivity of work.

2.3 Ownership and Administration of Forest Resources

In Russia, the forest resources are owned by the Russian Federation. Forest administration is shared between the Federation and the regions, while forest management as a whole is the responsibility of the regions. Regional authorities are responsible for forest management, protection and rational utilisation, whereas the authority of the federal bodies focus mainly on public policymaking, governance of forest relations by laws and regulations, and on some specific issues, such as carrying out a state forest inventory, etc.

Administratively, forest resources are divided into two groups: forest fund (*lesnoy fond*), and forests that do not belong to the forest fund (Figure 2.1). The forest fund is for the land area that could, potentially, be covered by forests, excluding protected areas and forests that belong to the armed forces or municipalities. However, all forests, regardless of their administrative body, are bound by stipulations of the Forest Code, by which their utilisation is regu-

lated. Forests outside the forest fund can be privately owned; for example, if forest is situated on a privately owned territory.

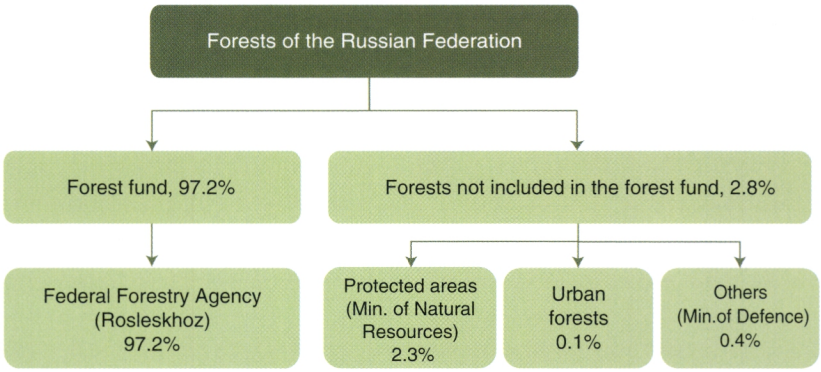

Figure 2.1. Administrative division of Russian forest resources in 2010.

Nowadays, the previously named 'agricultural forests' are included in the forest fund and are administrated by the regions. The protected areas are governed by the Ministry of Natural Resources and Ecology and urban forests by local administrations (cities, municipalities). Regional authorities govern about 96% of the forested land in Northwest Russia (Figure 2.2).

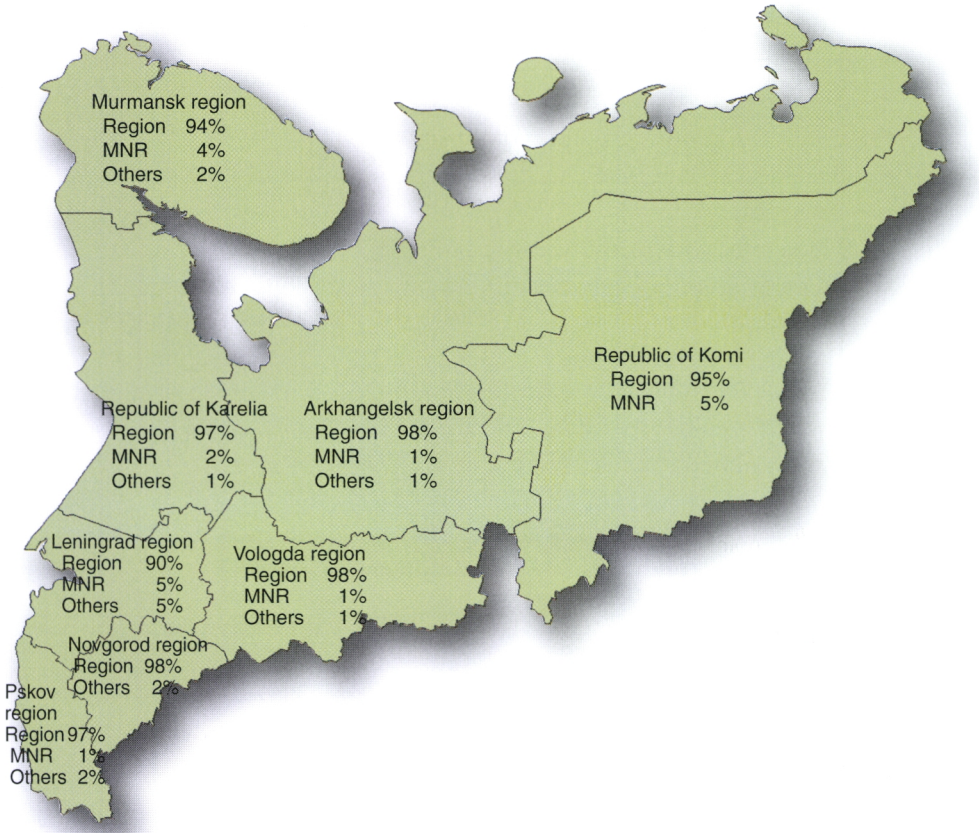

Figure 2.2. The share of forest land governed by the regional authorities, the Ministry of Natural Resources and Ecology (MNR) (state protected areas) and other authorities in Northwest Russia in 2010 (excl. Kaliningrad region).

2.4 Institutional Framework

The main authorities in Russian forestry are the Government of the Russian Federation, the Federal Forestry Agency '*Rosleskhoz*' *[Federalnoye agenstvo lesnogo khozyaistva]* and the regional executive authorities.

Rosleskhoz was an independent organisation until 2000, when it was subordinated to the Ministry of Natural Resources. In 2008, it was moved to the Ministry of Agriculture and, since 2010, it has been directly subordinate to the Government of the Russian Federation. Rosleskhoz, as a Federal executive body, is responsible for public policymaking, legal regulation and control in the field of forest relations (with the exception of forests located in protected areas), as well as for managing public assets in forestry. Its main power is related to:

- Forest policy implementation.
- Supervision of the powers delegated to the regional authorities.

- Allocation of state subventions.
- National forest inventory.
- Forest health monitoring and forest seed breeding.
- Forest fire protection and monitoring.
- Approval of minimum unit rates for forest use in areas under federal ownership.
- Management of forest research.
- Preparation of guidelines and rules for forestry operations.

Rosleskhoz has a territorial body in each Federal District and a separate forestry department for the Moscow region (Figure 2.3). The central administration of Rosleskhoz employs 420 state officials; the maximum number of employees in the territorial bodies of Rosleskhoz is 1,131.

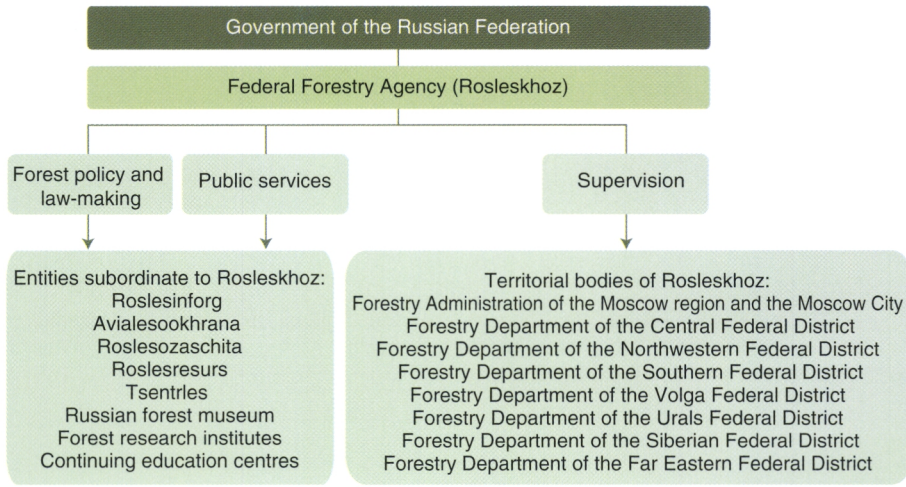

Figure 2.3. Institutional framework of forestry at the Russian Federation level (as of 1 January, 2011). (Source: modified from Petrov 2011)

State forest inspection and oversight is the responsibility of the regional forest authorities and the Federal Service for Inspecting the Utilisation of Natural Resources '*Rosprirodnadzor' [Federalnaya sluzhba po nadzoru v sfere prirodopolzovaniya]*, which is subordinate to the Ministry of Natural Resources. The Federal Service for Veterinary and Phytosanitary Surveillance '*Rosselkhoznadzor', [Federalnaya sluzhba po veterinarnomu i fitosanitarnomu nadzoru]* also carries out surveillance on its competency. In 2009, there were about 10,000 forest inspectors in Russian regions.

At the regional level, forest administration can have three or four levels (Figure 2.4). Beneath the Government or Federation Subject administration there can be ministries, departments, committees and other types of administrative units acting as the highest regional forest authority in the field of forest use, conservation, protection and regeneration. The powers of regional authorities are:

- Implementation of the regional forest policy, based on regional forest plans and silvicultural regulations.
- Allocation of forest use rights.
- Organisation of forest use, protection and regeneration.
- State inspection for forest management plans.
- Maintaining the public Forest Resource Register in the region.
- Organisation of forest inspection and oversight.

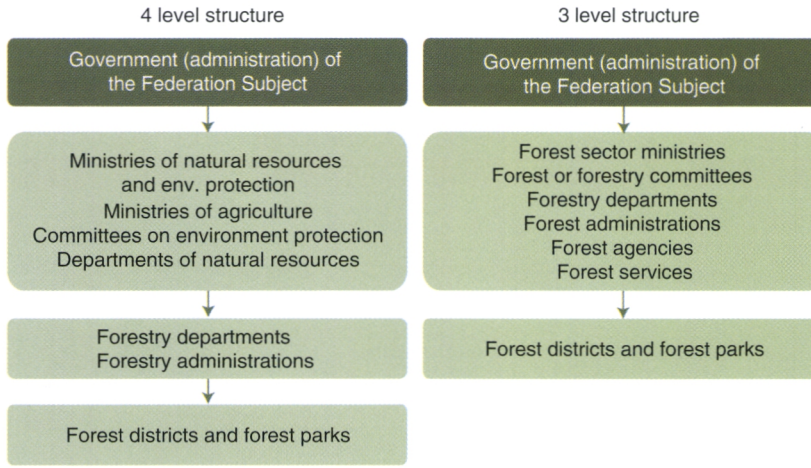

Figure 2.4. Institutional framework of forest administration at the regional level in Russia. (Source: Maslyakov 2011)

The elementary organisational units of Russian forest administration at the local level are forest districts (*lesnichestvo*) and forest parks (*lesopark*), which also include forests outside the forest fund. The number of forest districts and forest parks, as well as their boundaries, are established by the federal executive body (Rosleskhoz). Currently, there are 1,479 forest districts and forest parks in Russia, the areas of which vary from a couple of thousand hectares to a couple of million hectares. Figure 2.5 presents, as an example, the forest districts of the Republic of Karelia. The average area of a forest district is approximately 800,000 hectares and, on average, it has 15 employees. In Russia, the forest districts employ 38,700 persons in total.

Forest districts branch off further into smaller administrative units, forest ranges (*uchastkovoye lesnichestvo*), that are run by one to three forestry professionals. Typically, one forest district comprises of 3–7 ranges. The total number of forest ranges in Russia is 7,587 with the average area of 156,000 hectares.



Figure 2.5. Forest districts in the Republic of Karelia.

2.5 Regional Forest Plan

A regional forest plan (*lesnoy plan subyekta*) is compiled for each region of the Russian Federation, and is the core document describing the objectives for forestry of a particular region. The plan describes the forest resources, their utilisation and their needs for protection and regeneration, as well as analysing the economic effects of the proposed operations. The plan is made for 10 years, and is based on existing forest management planning and inventory data. Socio-economic development plans for the region are also taken into account (Figure 2.6). The compiler of the plan is chosen through a competitive bidding process organised by the highest forest authority in each region, and the plan is undersigned by the head of the Federation subject.

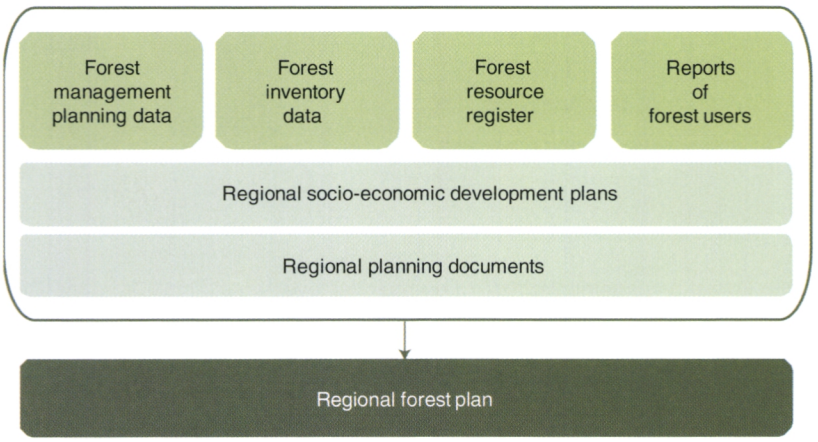

Figure 2.6. Compilation of the regional forest plan.

2.6 Silvicultural Regulations

Silvicultural regulations (*lesohozjaistvenny reglament*) are compiled for each forest district and forest park. They are also made for protected areas and forests in lands of the armed forces. The document is valid for up to 10 years depending on the intensity of forestry and trends in regional economic development. The silvicultural regulation determines conditions for the use, protection and regeneration of the particular forest district (park). It includes detailed regulations: for example, types and periods of allowed forest use, harvesting age, annual allowable cut, etc. In addition, restrictions for forest use and requirements for forest protection and regeneration are defined. Similar to the regional forest plan, the silvicultural regulation is composed by a company winning a tendering process.

Both the regional forest plan of the Federation subject and the silvicultural regulation of the forest district are taken into account when the forest user compiles a forest management plan for his leased forest area (Figure 2.7.).

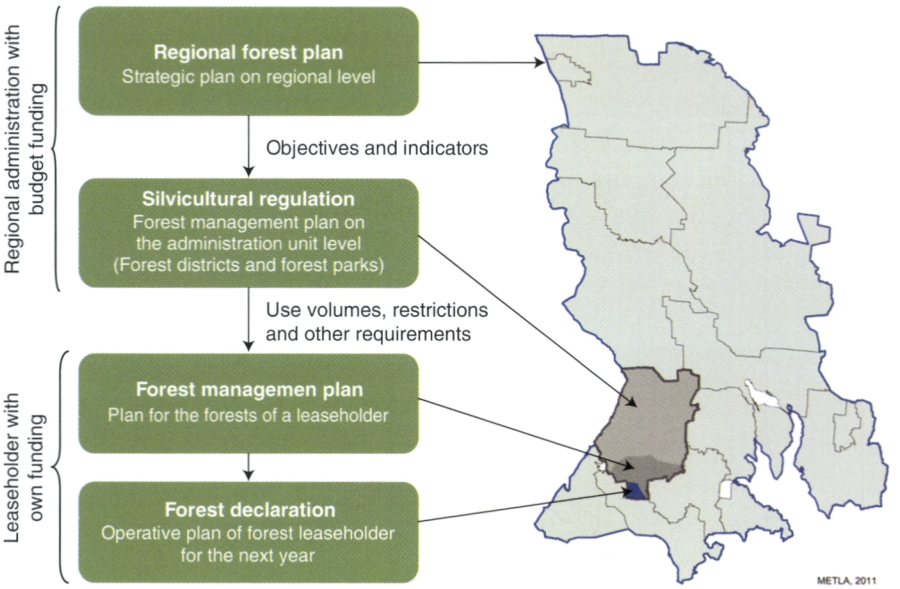

Figure 2.7. Forest management planning on regional level: an example from the Republic of Karelia.

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3 Forest Resources

3.1 Forest Area and Growing Stock

Russia possesses about 20% of the world's forestry resources. The total area of Russian forests is 1.18 billion hectares, of which actual forest land comprises 892 million hectares (Table 3.1). The volume of growing stock is 83 billion m^3 and the average annual increment is slightly less than one billion m^3. In Russia, the mean annual increment (*sredny prirost*) is calculated by dividing the volume of stock by its age. In Northwest Russia, the total area of forests is 117 million hectares, of which forest land comprises 76%. The total volume of growing stock is 10 billion m^3, and its gross annual increment 130 million m^3. More than half of Northwest Russian forest resources are located in the Republic of Komi and the Arkhangelsk region (Figure 3.1).

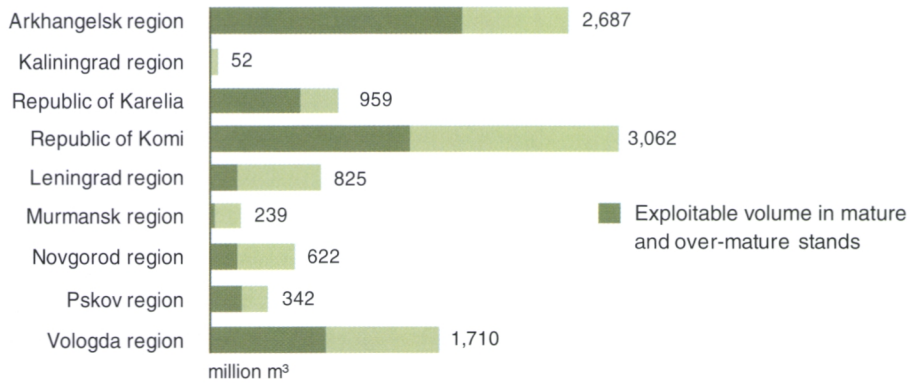

Figure 3.1. Total and exploitable volume of forests in the regions of Northwest Russia. (Sources: see Table 3.1)

The Russian forest fund is divided into two categories according to land use; forest land (*lesnye zemli)* and non-forest land (*nelesnye zemli)*. Forest land comprises all the land area allocated for growing forests, i.e. land area that is covered by forests, treeless forest land such as clear-felling sites, forests destroyed by storms or forest fires, sapling stands and nurseries. Non-forest land includes the land area that is not used for growing stock, but is otherwise used by forestry, such as land area occupied by peatland, roads, power lines, water bodies or pasture.

Table 3.1. Forest resources of the Russian Federation and Northwest Russia.

Region		Area 3a,b) 1,000 ha	Forestland 4) 1,000 ha	Volume, million m³	Mature and over mature forests, % of the total volume	Mean annual increment 5) million m³
Russian Federation	Total	1,183,682	891,955	83,454	55	947
	Forest fund [1]	1,143,564	862,575	79,977		
	Other forests [2]	40,118	29,380	3,477		
Northwest Russia	Total	117,485	88,873	10,488	48	134
	Forest fund	112,578	85,754	10,096		
	Other forests	4,907	3,119	392		
Arkhangelsk region	Total	29,238	22,733	2,687	70	31
	Forest fund	28,479	22,220	2,608		
	Other forests	759	513	79		
Kaliningrad region	Total	308	277	52	20	1
	Forest fund	273	244	48		
	Other forests	35	33	5		
Republic of Karelia	Total	14,898	9,504	959	50	14
	Forest fund	14,531	9,265	933		
	Other forests	367	239	25		
Republic of Komi	Total	38,880	30,233	3,062	74	29
	Forest fund	36,256	28,625	2,857		
	Other forests	2,624	1,608	204		
Leningrad region	Total	5,898	4,827	825	42	14
	Forest fund	5,595	4,593	790		
	Other forests	303	234	35		
Murmansk region	Total	10,023	5,475	239	59	3
	Forest fund	9,456	5,186	226		
	Other forests	567	289	12		
Novgorod region	Total	4,118	3,553	622	32 *	10
	Forest fund	3,912	3,408	593		
	Other forests	206	145	29		
Pskov region	Total	2,467	2,151	342	27	7
	Forest fund	2,409	2,102	334		
	Other forests	58	49	8		
Vologda region	Total	11,661	10,090	1,711	46	25
	Forest fund	11,477	9,945	1,688		
	Other forests	184	145	22		

* of the area

(Sources: Forests in Russia 2010; Forest plans; Gosudarstvenny uchet...2008; Leningrad and Pskov regions: Lesnoy fond...2003)

1) Lesnoy fond

2) Lesa, ne vkhodjaschiye v lesnoy fond

3a) Zemli lesnogo fonda

3b) Zemli, ne vkhodjaschiye v lesnoy fond

4) Lesnye zeml

5) The mean annual increment (obschiy sredny prirost) is alculated by adding the average annual growth (sredny prirost) according to age-classes.
Sredny prirost = volume of the stand / age of the stand

3.2 Designated Functions of Forest

Russian forests are classified into three groups according to their designated function. Each of the groups is set with limitations in forest use. Nearly half of the forests, 55%, is for commercial purposes and thus belongs to the production forests. Remote areas, not planned for use in the near future are classified as reserve forests. In addition to nature reserves, protection forests also include various types of shelterbelts and valuable forest areas. Shares of production and protection forests differ greatly between the regions in Northwest Russia (Figure 3.2).

Protection forests
- Specially protected nature areas
- Water-conservation zones
- Forests with protective function (shelterbelts, park forests, etc.)
- Forests with other valuable functions (anti-erosion, deserts, mountains, etc.)
- Clear fellings are partly forbidden

Production forests
- The main source of raw material for forest industry
- Clear felling areas may not exceed 50 hectares

Reserve forests
- Not intended for wood harvesting in the next 20 years
- May be used after transferring to other categories

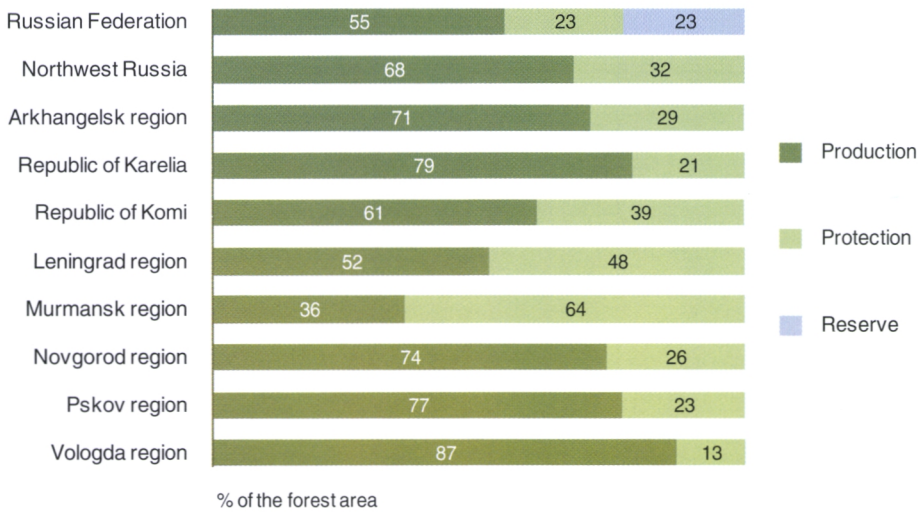

Figure 3.2. Designated functions of the Russian forests. (Sources: Forest plans, Forests in Russia 2010)

3.3 Age-Class Distribution and Development Classes

The Russian forests are categorised into ten age-classes marked by Roman numerals I–X. Each age-class covers 20 years for coniferous species (and some deciduous species, such as oak), and 10 years for most of the deciduous species. Development classes are divided into five classes: young, middle-age, maturing, mature and over-mature stands (Table 3.2).

Table 3.2. Average age of a stand with regard the development classes

Development class	Average age of a stand, years	
	Coniferous	Deciduous
Young	0–40	0–20
Middle-age	41–80	21–40
Maturing	81–100	41–50
Mature	101–160	51–80
Over-mature	> 161	> 81

The rotation periods in Russian forestry are long. On the same latitudes where the rotation period for coniferous forests in Finland is 80–100 years, the Russian period is commonly 120–140 years. In Russia, the rotation period is determined according to biological facts, not according to economic aspects.

Almost half of the Russian forest area belongs to the mature or over-mature development classes (Figure 3.3). The share in the exploitable forests of Northwestern regions is similar, although regional differences in development class distribution do occur (Figure 3.4).

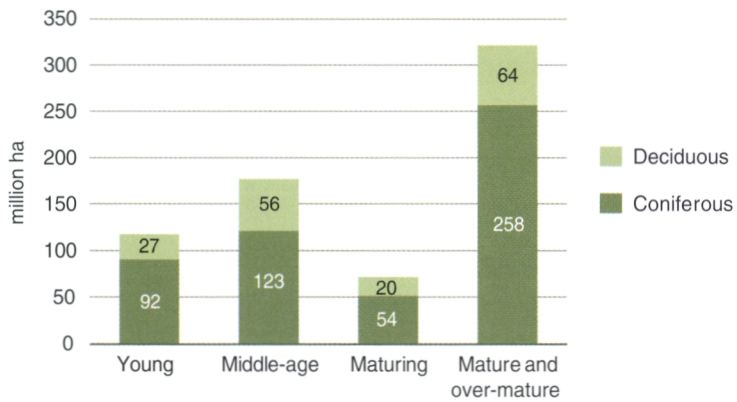

Figure 3.3. Development class distribution in forests of the Russian Federation.
(Source: Forests in Russia 2010)

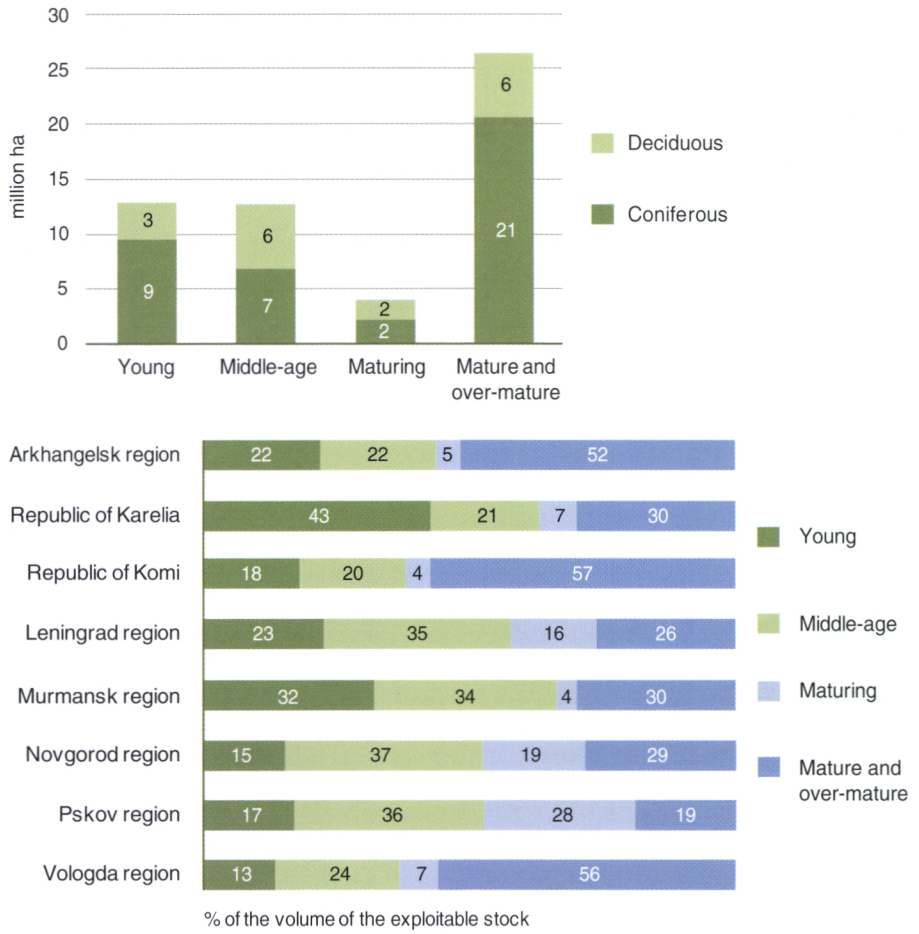

Figure 3.4. Development class distribution of exploitable forests in Northwest Russia.
(Sources: Forest plans, for the Leningrad and Novgorod regions 'Gosudarstvenny uchet...2008')

3.4 Tree Species

According to the established practice in Russia, tree species are divided into three categories: coniferous *(khvoinye)*; soft deciduous (*myakhkolistvennye*); and hard deciduous (*tvyordolistvennye*). The dominance of coniferous species is characteristic of the Northwestern Russian forests (Figure 3.5). The Vologda, Novgorod and Pskov regions stand out from the other regions of Northwest Russia owing to the large share of deciduous species in their forests (Figures 3.6 and 3.7).

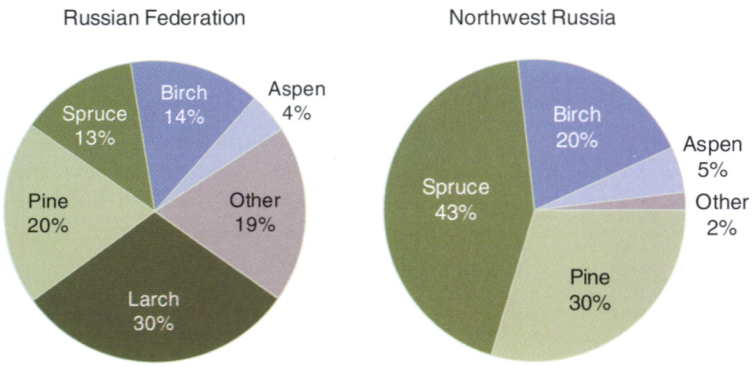

Figure 3.5. Main tree species by volume in Russia and Northwest Russia.
(Source: Gosudarstvenny uchet...2008)

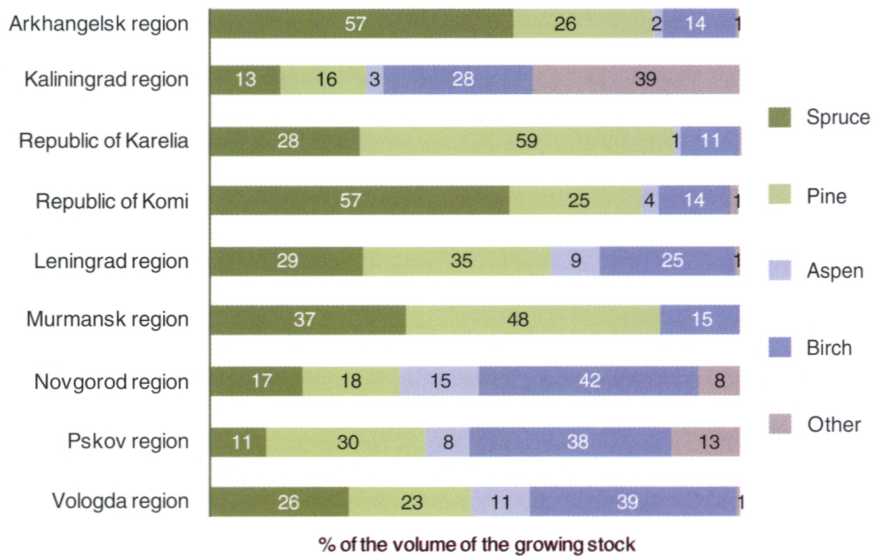

Figure 3.6. Tree species composition of forests in the regions of Northwest Russia.
(Source: Gosudarstvenny uchet...2008)

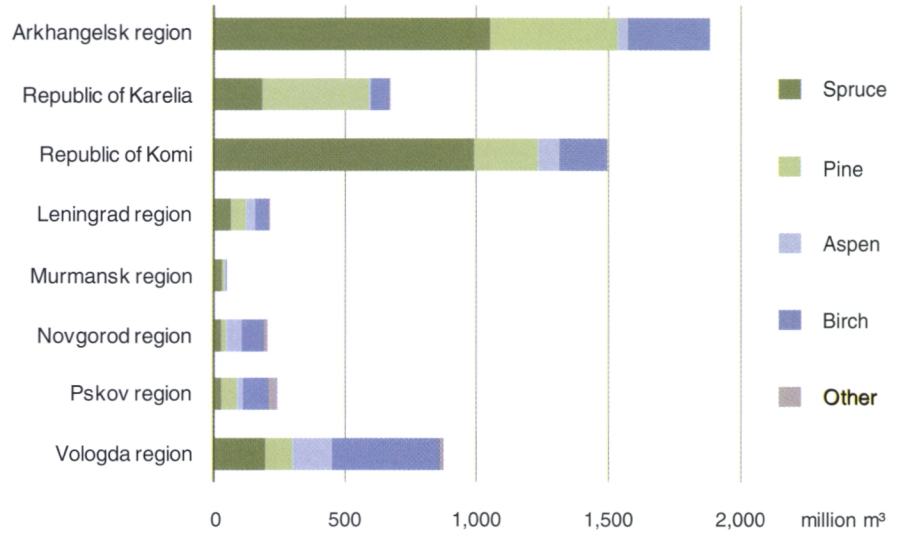

Figure 3.7. Tree species composition of the exploitable volume in mature and over-mature development classes in Northwest Russia. (Sources: Forest plans)

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4 Forest Certification

4.1 Forest Certification Schemes

In Russia, two national forest certification systems, based on voluntary membership, are being developed in parallel. In the past, forest authorities pursued a system where all forests had to be certified, but the programme was abandoned owing to its failure to meet international requirements, as well as a lack of resources.

In 2001, the National System of Voluntary Forest Certification in Russia was initiated by the Union of Timber Merchants and Timber Exporters of Russia, with the support of the Ministry of Industry. The Research and Project Design Institute for Mechanization and Power Supplies of Forest Industry (TsNIIME) was involved in the practical aspect of the scheme.

Work on the Russian National Forest Certification System (FCR) started in 2003, carried out by an initiative group under the Federal Forestry Agency of Russia, the Moscow State Forest University and some research organisations. The Russian National Council of Forestry Certification is lead by the Director of the International Forest Institute, which is subordinate to the Russian Academy of Science.

Both national certification schemes have applied for accreditation to the Programme for the Endorsement of Forest Certification schemes (PEFC). Since only one organisation can represent Russia in the PEFC Council, a joint coordination centre of the two schemes was established in 2006. PEFC International approved the FCR in 2009, and three PEFC-FCR certificates were awarded. The Finnish company Metsäliitto got the first Russian PEFC-certificate for its logging company. At the beginning of 2011, membership of Russia in the PEFC was terminated owing to unpaid fees. As a consequence, a new national member was selected in autumn 2011 and the Russian National Council of Forestry Certification replaced the coordination centre.

The slow progress in the creation of the national certification system has partly been due to the uncertainty regarding the generally approved requirements and standards for voluntary systems, and whether Russian exporters of wood and wooden products will benefit more from certification standards based on the Forest Stewardship Council (FSC), or from the PEFC system. The FSC certification scheme system is supported by World Wildlife Fund (WWF)

International and Greenpeace, in cooperation with local non-governmental organisations (NGO) from several regions. After more than seven years of work the Russian National FSC Standard was approved in 2008. Regional standards are being prepared in six regions of Russia. Altogether, 117 forest management certificates, covering 30 million hectares, have been awarded in Russia (situation as of 31 October, 2011). Russian companies have received 168 FSC chain of custody certificates.

4.2 Verification of Wood Origin

The objective of the verification of wood origin is to track the origin of wood reliably throughout the different stages of wood harvesting, transportation and processing. The biggest Russian companies have internal systems for the verification of wood origin, which prevent the use of illegal wood at the company level. In some regions, the Federal Forestry Agency 'Rosleskhoz' is monitoring illegal logging, and a monitoring system for the whole of Russia is under construction by the authorities. However, an extensive system for the verification of wood origin is still lacking in Russia.

Russia has been in close collaboration with both the EU and the World Bank to fight against illegal logging and its associated trade. Cooperation with the EU is mostly linked with the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan that contains a proposal for a voluntary licensing scheme for imported wood, by which the chain of custody can be verified by the EU. In addition to international cooperation schemes, some national initiatives are also being realised in Russia. The changes in Russian forest legislation and administration have weakened law enforcement and forest inspection, what makes the work challenging. The issue has become even more topical owing to the tightened regulations of the EU and USA for the wood trade.

Rosleskhoz has fought actively against illegal logging since 2004, when a remote monitoring system for forest use, based on aerial and satellite images, was launched. The system covers 120 million hectares of forest, i.e. one fifth of the area of Russia's production forests. The area covers 30 subjects of the Russian Federation, where forest use is intensive and wood is exported abroad. The system can detect logging without the required documentation and procedures. In 2010, Rosleskhoz detected 27,000 cases of illegal logging, where the harvested amount of wood was 1.3 million m^3. For wider monitoring the state is developing a tracking system, where wood is measured and monitored through the entire chain, from forest to end-user. Detailed information about harvested and transported wood, as well as documentation proving a right to carry out

harvesting is entered into the system for monitoring purposes. In addition, measured wood is marked and its origin controlled by uniform transportation documents til the final inspection by the end-user of the wood. The system was tested in three regions during 2010 and, in 2011, piloting should expand to 15 regions. The system should work at the Russian Federation level in 2012.

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5 Education and Research

5.1 Education in the Field of Forestry

Vocational education is provided by forest technical schools (*lesotekhnicheskaya shkola*) at secondary level and other similar institutions. This education prepares students for tasks typical of specific occupational titles, and pupils graduate as forest workers or logging machine operators, for example. Currently, two forest-technical schools are in operation in Northwest Russia: one in Chalna in the Republic of Karelia; and the other in Obozersk in Arkhangelsk region (Table 5.1).

Table 5.1. Educational establishments in Northwest Russia.

Vocational schools	Obozersk Forest Technical School, Arkhangelsk region Shuisko-Vidanskaya Forest Technical School, Republic of Karelia
Intermediate vocational schools	Arkhangelsk Forest Technical College, Arkhangelsk region Cherepovets Forest Mechanical College, Vologda region Lisino Forest College, Leningrad region Petrozavodsk Forest Technical College, Republic of Karelia Ukhta Forest College of Industry and Economics, Republic of Komi Velikie Luki College of Forestry, Pskov region Vytegorsky Forest Technical College, Vologda region
Higher education establishments	Northern (Arctic) Federal University, Arkhangelsk region Novgorod State University, Novgorod region Petrozavodsk State University, Republic of Karelia St. Petersburg Forest Technical University (FTU), St. Petersburg Syktyvkar Forest Institute, Republic of Komi (branch of FTU in St. Petersburg) Ukhta State Technical University, Republic of Komi Vologda State Dairy Academy, Vologda region

Intermediate occupational institutions (*college* or *tekhnikum*) educate technicians that major in wood harvesting and wood processing technologies, as well as in other areas of forestry and the management of park woodlands. Additionally, intermediate education is provided by polytechnic institutions. One may apply to an intermediate occupational institution after completing elementary school, vocational school or upper secondary school. Those that pass either the vocational or the upper secondary school may complete their intermediate studies in less time than the ones who have only completed elementary school. Intermediate education prepares the students for the occupational tasks of a

forestry expert, and in Northwest Russia seven institutions provide forestry related intermediate education under the Ministry of Education and regional authorities. Institutions that were earlier under the Federal Forestry Agency are transferred to the ownership of regions in the beginning of 2012.

The highest level of education is provided by universities and academies, which educate experts for the needs of both the public and the private sectors. Currently, a typical title for a university graduate is 'engineer'. However, Russian occupational titles are slowly being changed to correspond with European titles, and the St Petersburg State Forest Technical University was the first forestry field university in Russia to implement Bachelor's and Master's degree titles. The largest institution in forest education in Russia is the Moscow State Forest University.

Further education is offered by vocational schools, continuing education centres and institutes that have obtained the necessary licence. Usually it is provided for the forestry professionals by the employer.

5.2 Research on the Field of Forestry

Organisations engaged in forest research may be divided into three categories:

- Research institutes subordinate to the Federal Forestry Agency, *Rosleskhoz*
- Research institutes of the Russian Academy of Sciences
- Universities

In Northwest Russia research institutes subordinate to *Rosleskhoz* are the Northern Research Institute for Forestry (SevNIILH) in Arkhangelsk and the St Petersburg Forest Research Institute (SPbNIILH). Research in these institutes is often concentrated on solving certain tangible forest sector-related problems, according to profiles assigned by the *Rosleskhoz*. The Northern Research Institute for Forestry is the leading applied research institution in the European north of Russia, and its objective is to enhance the production and utilisation of northern forests by, for example, investigating forest regeneration and intensified forest utilisation. The St Petersburg Forest Research Institute, on the other hand, specialises in southern taiga forests, and its main fields of research include forest fire suppression, forest land draining and landscape management. In addition, *Rosleskhoz* has the Research Institute of Silviculture and Forestry Mechanisation (VNIILM) in the Moscow region, the Research Institute of Forest Genetics and Breeding (NIILGiS) in the Voronezh region, and the Far East Forestry Research Institute (DalNIILKh) in the Khabarovsk region.

The Russian Academy of Sciences has, traditionally, been the leading institution for conducting basic research in the natural sciences. Although only one institute in Northwest Russia, the Forest Research Institute of Karelian Research Centre, concentrates purely on forests, forestry related research is also carried out in other institutions, such as the Institute of Biology in the Komi Research Centre, the Northern Institute of Ecological Problems in Industry (IPES) in Apatity, and the Komarov Botanical Institute in St Petersburg. The Forest Research Institute of Karelian Research Centre specialises in studying the structure and dynamics of forest ecosystems, tree physiology and forest soil sciences. For example, economic research related to forestry is practised in the Institute of Economics in the Karelian Research Centre.

In recent years, universities' contribution to research has generally been minor with the exception of producing theses. Traditionally, and more than their counterparts in Western Europe, Russian universities have emphasised tuition rather than of research, and recent economic hardship has strengthened this trend. Remuneration received from tuition is significantly greater compared to that from research, which makes research work financially unattractive for teachers.

Ever since the collapse of the Soviet Union, Russian forest research has struggled as a result of severe financial restrictions, which has led to a decay in the physical infrastructure, a decrease in the number of scientists, and a decline in quantity and quality of research. During the last ten years, number of researchers in forestry has decreased fivefold. In 2010, the total number of staff in the research institutes subordinate to *Rosleskhoz* was 674.

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6 Silviculture

The objectives of the silvicultural actions (*ukhod za lesom*) are to improve forest productivity, manipulate tree species composition and to prevent diseases from spreading. In Russia, silviculture includes intermediate fellings, tending of saplings, forest fertilisation, draining and pre-emptive actions taken towards forest fire prevention. Terminologically, forest regeneration (*lesovosstanovleniye*) is classified as a separate function, but hereafter, silviculture also refers to forest regeneration.

Responsibility for silviculture has been delegated to the Russian regions. In 2010, financing for silviculture was 21 billion roubles in total, of which 72% came from the Federal budget. In forest areas leased for wood harvesting, the leaseholder is responsible for all silvicultural activities. For forest areas outside the leased area, the executor of work is selected by the regional authority through open competition. Traditionally, the greatest obstacle for conducting silvicultural operations, especially forest regeneration, is insufficient funding.

Silvicultural work is separated from the supervising functions in the regional structures of forest administration in accordance with the Forest Code, but it has not turned into a commercially profitable activity as was anticipated by the law-makers. The newly formed state forestry companies have outdated technology that makes work inefficient. The earning capacity of forest leaseholders is low, and the short-term nature of contracts on silvicultural activities prevents development of the branch. Recruiting skilful employees is also problematic owing to low prestige and salaries.

6.1 Forest Regeneration

Of the annually regenerated forest land 70–80% is done by employing methods to assist **natural regeneration**. Natural regeneration may be achieved by retaining undergrowth or the second tree storey, leaving seed-trees on the harvesting site, or by using strip, increment or selection felling. In case no viable undergrowth occupies the harvesting site, natural regeneration is preceded by soil preparation.

Five years after felling or soil preparation, the site is checked by the forest district for successful regeneration. Both possible undergrowth and all viable saplings that are 2 years of age or older, and that have been generated naturally,

are taken into consideration in an inventory. Areas are considered regenerated if they hold a sufficient amount of viable saplings that fulfil the quality requirements. If the restocking is found to be inadequate, then the area is downgraded to the category 'area to be regenerated'.

In the areas where generating an economically valuable, naturally born seedling stand is not possible, **artificial regeneration** is performed, either by planting or sowing. The amount of planted and sowed sites varies significantly from region to region, but in most of them it does not exceed 30% of the total harvested area, not even during the most intense years of artificial regeneration. Although the results of artificial regeneration are greatly dependent on the natural conditions of the area, as well as the methods chosen, a strong correlation between successful regeneration and the economic state of the region has also been found.

Artificially regenerated sites are inspected by the forest districts in field inventories, where the land area of the viable seedling stand in comparison to regenerated land area, as well as the percentage of living saplings of all planted saplings are defined. Additionally, well-stocked areas are categorised as regenerated, and the reasons for possible failure in regeneration are defined. Two-year-old stands are inspected for their condition and the possible need of supplementary planting. The initial planting density is high, according to the rules for forest regeneration (2007): for non-pricked-out seedlings at least 4,000 seedlings/ha; on dry sites; 6,000 seedlings/ha; and for pricked-out seedlings and container seedlings at least 2,500 seedlings/ha.

In 2010, the naturally and artificially regenerated area in Russia was 810,000 hectares, slightly less than in previous years (Figure 6.1). The share of planting and sowing was 177,000 hectares. In Northwest Russia, one quarter of annual forest regeneration is done artificially. Regional variation, however, is significant and in the Leningrad and Pskov regions, for example, the share of artificial regeneration is greater than that of natural regeneration (Figure 6.2, Table 6.1).

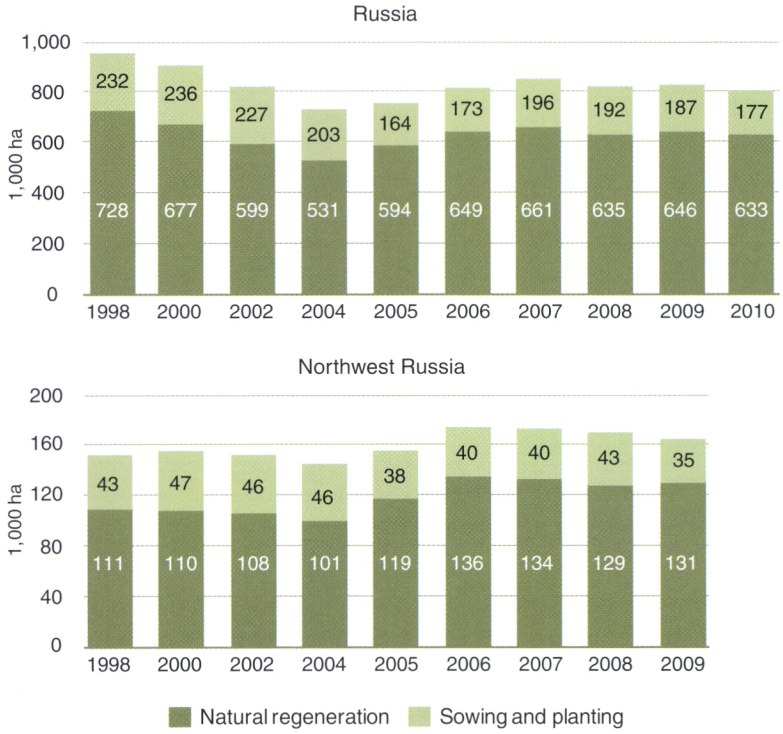


Figure 6.1. Forest regeneration in Russia and Northwest Russia (in forests belonging to the forest fund). (Sources: Forests in Russia 2010, Maslyakov 2011, Okhrana okruzhayushchey...2010, Osnovnye pokazately...2005)

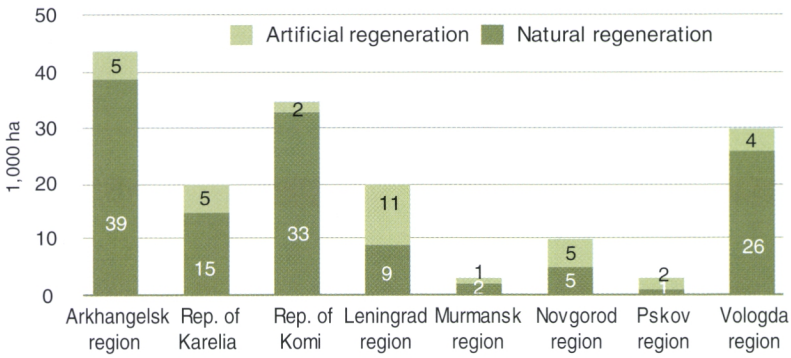


Figure 6.2. Forest regeneration in the regions of Northwest Russian in 2009 (in forests belonging to the forest fund). (Source: Okhrana okruzhayushchey...2010)

Table 6.1. Forest regeneration in 2009.

Region	Forest regeneration in total	Natural regeneration	Artificial regeneration
		1,000 ha	
Russia	834	646	187
Northwest Russia	165	130	35
Arkhangelsk region	44	39	5
Republic of Karelia	21	15	5
Republic of Komi	35	33	2
Leningrad region	20	9	11
Murmansk region	3	2	1
Novgorod region	10	5	5
Pskov region	2	1	2
Vologda region	30	26	4

(Source: Okhrana okruzhayushchey...2010)

Although, since the 1970s, the area of forest regeneration has regularly exceeded the area of annual clear fellings, forest regeneration in Russia is problematic. There are almost 30 million hectares of treeless area waiting to be regenerated, the majority of which is burnt by forest fires.

Over 60% of the forest regeneration in Russia takes place in leased areas at the cost of leaseholders (Figure 6.3). Companies leasing forest can buy services for forest regeneration from subcontractors, or carry out the work themselves. The forest owner, i.e. the Russian Federation, does not offer any incentives for good quality regeneration, and companies' interest towards forest regeneration, under relatively short forest lease periods, is not very high. Problems occur, especially in smaller companies with weaker economic state. In forest areas where regeneration is carried out by the regional authorities, financing also seems to be insufficient despite state subventions. Also, methods of regeneration require updating and new approaches to be productive.

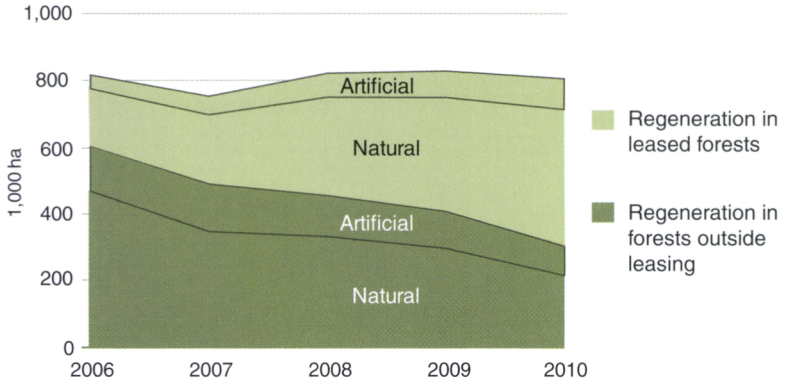


Figure 6.3. Forest regeneration in leased forest areas and forests outside leasing.
(Source: Maslyakov 2011)

6.2 Production of Tree Seeds and Seedlings

In Russia, about 400 tonnes of seeds are collected annually from over 100 tree and shrub species (Figure 6.4). At present, less than 5% of the amount of used tree seeds is improved genetically, but the aim is to increase the share to 30% within the next 10–15 years.

Before the 2006 Forest Code, seed collection was the responsibility of the forest districts. During the reorganisation of the forest administration, material, equipment and premises related to seed production were privatized, although most of it was outdated and worn-out. The Forest Code does not include unambiguous determination for responsibilities and the financing of seed collection activities between the Federation and regions. This has led to degradation of the seed collection. To improve and centralize production, and enhance seed quality, the Federal Forestry Agency *Rosleskhoz* has promised to create a network of tree seed breeding centres. 33 centres are planned to be built in total. In 2011, six centres should be established of which two are in Northwest Russia: one in theArkhangelsk, and one in the Leningrad region.

At the Federal level, seed collection is coordinated by the Russian Forest Protection Centre, *'Roslesozashchita'*, a state-owned company that organises the collection, handling and storage of the Federal seed reserve, and is also responsible for its necessary supervision. *Roslesozashchita* has 39 regional departments throughout Russian Federation.

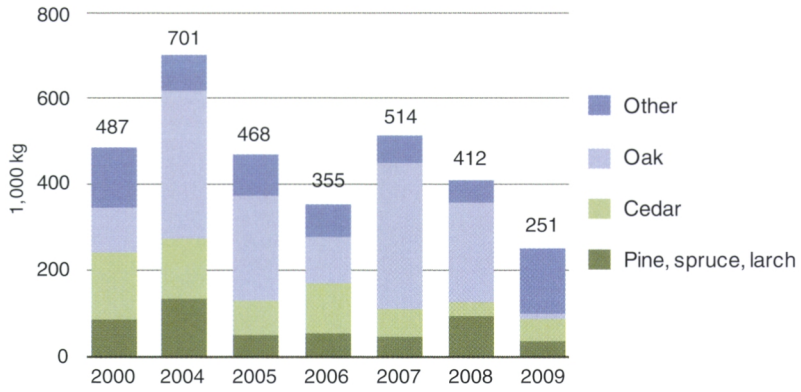


Figure 6.4. Seed collection by tree species in Russia. (Source: Okhrana okruzhayushchey...2010)

Annually in Russia, about 900 million tree or shrub seedlings are produced to meet the demand of forest regeneration. The former state nurseries were transformed to state enterprises working on a commercial basis. In addition, seedlings are produced in private enterprises and some big corporations have their own seedling production facilities. The 33 planned tree seed breeding centres, to be established by *Rosleskhoz*, will also produce seedlings. According to *Rosleskhoz*, despite the decreasing trend in seedling production, the volume has been sufficient for annual plantings (Figure 6.5).

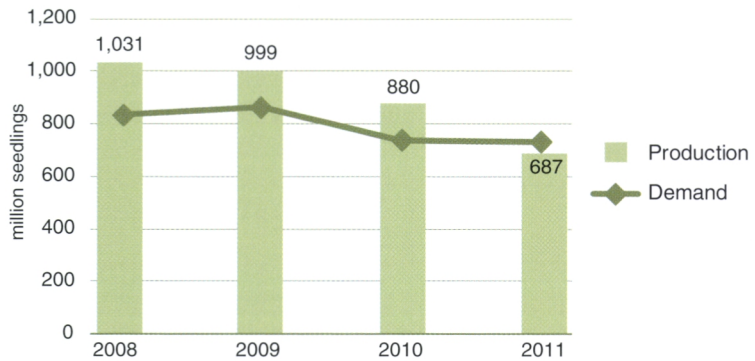


Figure 6.5. Supply and demand of tree seedlings in Russia. (Source: Maslyakov 2011)

6.3 Seedling Stand Management

In 2009, the tending of seedling stands (*ukhod za molodnyakami*) covered about 350,000 hectares of Russian forest land (Figure 6.6). In Russia, manual clearing with brush knives and axes is still the most common practice to tend seedling stands.

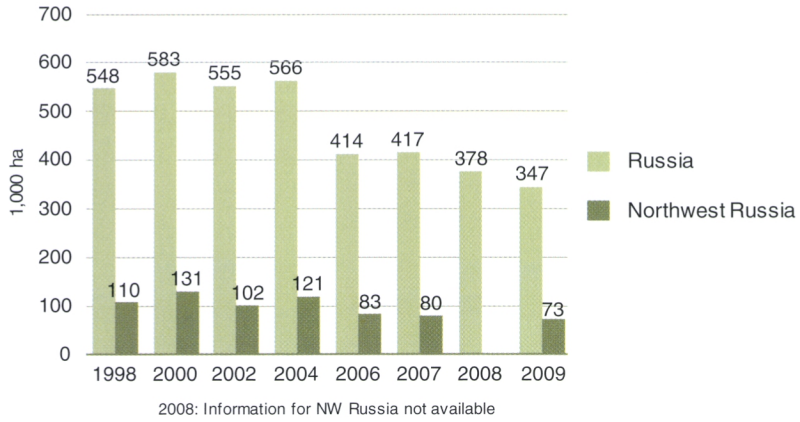


Figure 6.6. Tending of seedling stands in Russia and Northwest Russia (in forests belonging to the forest fund). (Sources: Forests in Russia 2010; Okhrana okruzhayushchey...2010; Osnovnye pokazateli...2005; Svedeniya gosudarstvennogo...2005, 2007, 2008)

Seedling stand management is divided into two parts: cleaning (*osvetleniye*), and the thinning of the sapling stand (*prochistka*). Cleaning aims at manipulating the tree species composition, as well as improving the growing conditions and quality of the main tree species. Cleaning is conducted, depending on the tree species, site factors and natural conditions, before the stand is 5, 10, or 20 years of age. Thinning of the sapling stand is performed after the cleaning, but before the stand is 10, 20 or 40 years of age. The recommended removal in seedling stand management depends on the tree species composition and site factors, varying between 15 and 70% of the original volume of the stand. The objectives are to improve the stem form of individual trees by regulating the growing conditions and the stand density, as well as to manipulate the tree species composition.

6.4 Intermediate Fellings

In Russian forestry intermediate fellings (*rubki ukhoda za lesami*) are categorised as follows:

Seedling stand management (*ukhoda za molodnyakami*): See Section 6.3.

Thinning of young stands (*prorezhivaniye*): The objective is to create optimal conditions for the growth of the best trees in a stand. Underdeveloped trees and deciduous species that interfere with the development of valuable coniferous individuals are removed. Thinning of young stands is carried out in coniferous and mixed forests in the European part of Russia, when the stand is 21–40 years of age.

Thinning of maturing stands (*prokhodnaya rubka*): The objective is to choose the individual trees that are to be grown until the final felling, and by doing this create the best possible conditions for their development. In coniferous and deciduous forests thinnings may be performed as late as 20 years, or 10 years prior to final felling, respectively.

Renewal thinning (*rubka obnovleniya*): Renewal thinnings are performed in middle-aged, mature and over-mature forests where final fellings are not allowed. The main emphasis is to create favourable growing conditions for young trees in the stand.

Reformation felling (*rubka pereformirovaniya*): The objective is to radically alter the composition of tree species in the stand. Reformation felling is used when transforming deciduous forests with coniferous undergrowth, or other tree storey to coniferous forests.

Landscape felling (*landshaftnaya rubka*): Aim is to form landscapes in forest parks and improve their aesthetic value and stability.

In addition, selective **sanitary fellings** (*sanitarnaya rubka*) are carried out in dead or damaged forest stands, and in shelterbelts.

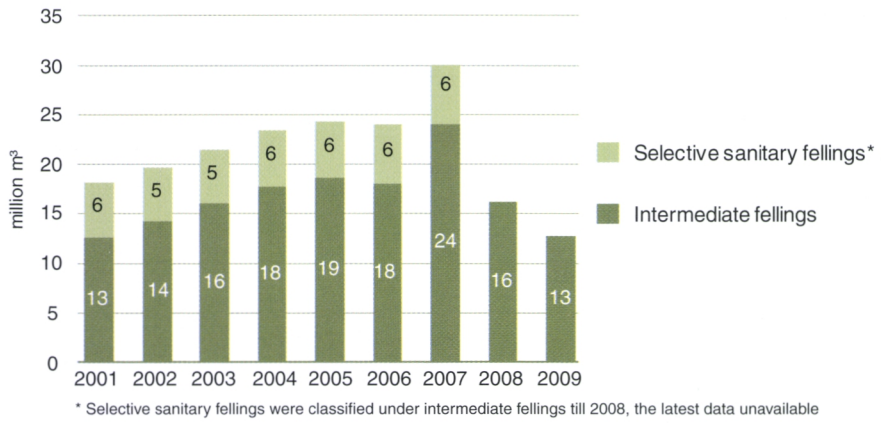
The intensity of the thinning depends on the designated function of the forest, tree species composition, stand characteristics, site factors and type of thinning. The following classification of thinnings is used for removal of the stand volume: very light <10%; light 11–20%; medium 21–30%; relatively heavy 31–41%; heavy 41–50%.

In 2009, intermediate fellings were performed on an area equal to 665,000 hectares, of which half was tending seedling stands (Table 6.2). Selective sanitary fellings were carried out in an area of 327,000 hectares. During the past ten years, the annual average removals in Russia from intermediate fellings have remained at 15–20 million m^3 (Figure 6.7). The thinning of young and maturing stands comprise about 70% of the total intermediate fellings (Figure 6.8).

Table 6.2. Area of intermediate fellings in Russia and Northwest Russian regions in 2009.

Region	Intermediate fellings in total	Seedling stand management	Thinning of young and maturing stands	Other intermediate fellings
	1,000 ha			
Russia	665	347	295	23
Northwest Russia	112	73	30	9
Arkhangelsk region	19	11	8	1
Kaliningrad region	3	2	1	0
Republic of Karelia	12	10	2	0
Republic of Komi	17	12	2	3
Leningrad region	23	9	8	6
Murmansk region	1	1	0	0
Novgorod region	12	10	2	0
Pskov region	3	3	0	0
Vologda region	23	16	7	0

(Source: Okhrana okruzhayushchey...2010)



* Selective sanitary fellings were classified under intermediate fellings till 2008, the latest data unavailable

Figure 6.7. Trends in removals from intermediate fellings in Russia in 2001–2009, forests under Rosleskhoz. (Sources: Forests in Russia 2009, 2010; O sostoyanii...2006, 2007; Svedeniya gosudarstvennogo... 2006, 2007)

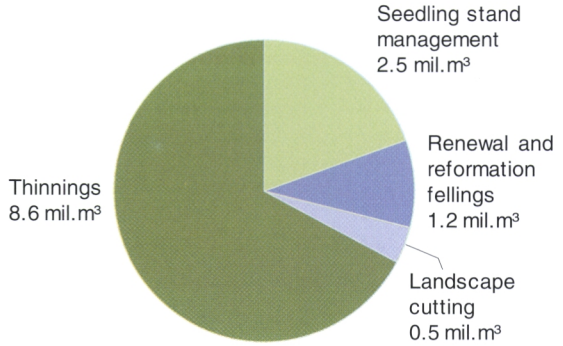


Figure 6.8. Intermediate fellings in Russia in 2009. (Source: Forests in Russia 2010)

Traditionally, intermediate fellings were performed by the forest districts, which used the income from thinnings to cover the financing of their activities. At present, forest administration units are not allowed to perform any fellings. During recent years, the interest in thinnings has increased among the logging companies. As Nordic technology is becoming ever more common, the logging machinery better suited for thinnings also gradually improves the efficiency of the thinning process. However, not only technical aspects but also the lack of an adequate domestic market for small-sized wood, as well as high harvesting costs in comparison with final fellings, have hindered performing commercial thinnings.

6.5 Forest Health and Protection

Russian forests are exposed to numerous biotic and abiotic disturbances, such as fire, insect invasions, diseases, wind, etc. leading to the weakened state of trees or totally perished stands. In 2009, the area of disturbed forests was almost six million hectares, i.e. 0.6% of the total forest land area of Russia. The area of perished forests varies greatly between years; during the last ten years it has been 0.3–1.0 million hectares annually (Figure 6.9). In Northwest Russia the area usually varies between 20,000 and 50,000 hectares; the peak years of 2000 is explained by massive forest fires in the Republic of Komi, and 2005 by the dying of spruce stands caused by drought, and other growing conditions in the Arkhangelsk region. The most common reason for the destruction of forests is fire. Other main factors are unfavourable climate conditions, insects and forest diseases (Figure 6.10).

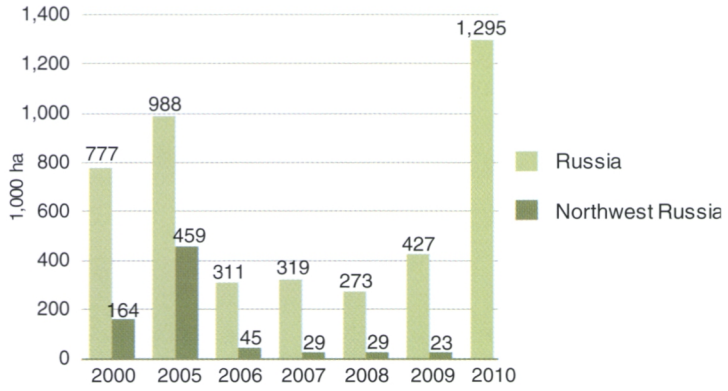


Figure 6.9. Area of perished forest stands. (Source: Okhrana okruzhayushchey...2010, Pokazateli lesnogo...2011)

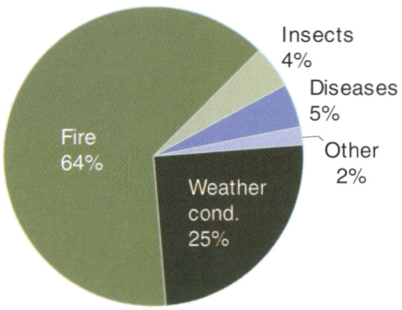


Figure 6.10. Reasons for destruction of forest stands in Russia, in average during 2005-2009. (Source: Okhrana okruzhayushchey...2010)

Forest fires have been an increasing problem in Russia for over a decade, but they became the centre of public attention in the summer of 2010, when fires destroyed large areas and numerous settlements, causing great economic and social losses, as well as health problems in major cities. The extent of forest fires was exceptionally large in the European part of Russia, namely in the Central, Volga and Southern Federal Districts.

Recent problems in forest fire management can be seen in the magnitude of fires. The specialized state structure for forest protection (*lesnaya okhrana*), as well as the Forest Fire Protection Agency '*Avialesookhrana*', were abolished by the 2006 Forest Code, and responsibility for fire monitoring and extinguishing was transferred to the regions, with unsuccessful results. The reorganisation of forest administration has decreased the amount of employees in forestry by half, which has naturally also influenced the ability to manage fires. In 2006, forest administration units, '*leskhoz*', employed 91,000 persons, whereas in 2010, the number of workers in the newly formed forest administration units,

'*lesnichestvo*', was 38,000. On a wider scale, the decentralization of the aerial protection system complicated the work, which requires fast decision-making for moving people and equipment over the administrative borders. Forest fire prevention in leased areas was devolved to the leaseholders. They fulfil their obligations differently depending mainly on the size and solvency of the company.

The state has initiated several measures to correct the problems in forest fire management. The Federal Forestry Agency was rearranged in 2010, into an independent organisation working directly under the Russian Government, and additional powers were delegated to it. Subventions for fire management from the Federal budget were increased in 2011, and additional funds for the purchase of fire prevention and extinguishing equipment were allocated. The deficiencies in forest fire regulations in the Forest Code have been corrected. The regional authorities are improving their preparedness by organizing forest fire centres, responsible for monitoring and fire-extinguishing. The centralized control centre in the *'Avialesookhrana'* has been revived.

According to the official statistics, the area of fires in forest land has been the same; two million hectares during the last three years (Figure 6.11). The average size of a forest fire is around 10 hectares in the European part of Russia, whereas in the Far East hundreds of hectares are usually burnt (Figure 6.12). The accuracy of the official statistics has been criticized. In 2010, two independent research organisations from the Russian Academy of Sciences, the V.N. Sukachev Institute of Forest and the Space Research Institute, estimated the extent of forest fires to be almost 6 million hectares. The stand volume burnt in forest fires usually varies between 12 and 30 million m^3. In 2010, 93 million m^3 were burnt, which corresponds to half of the total wood harvesting in the country.

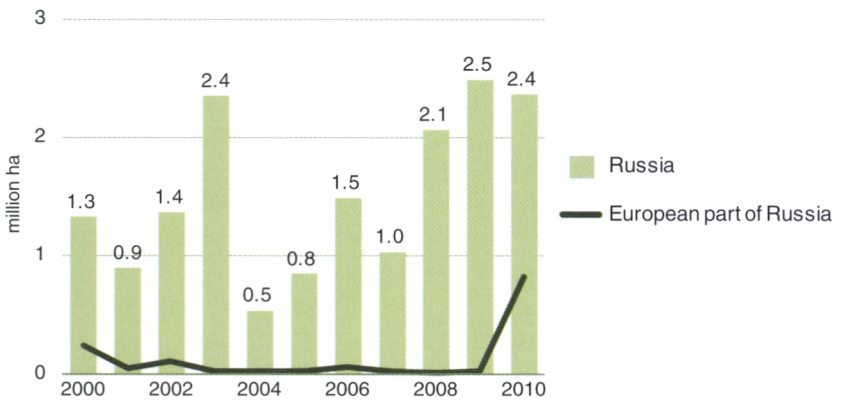


Figure 6.11. Area of burnt forest land in 2000–2010 in Russia. (Source: Pokazateli lesnogo...2011, Tsentralnaya baza...2011)



Figure 6.12. Average size of burnt forest area during 2000–2010 in the Federal Districts of Russia. (Source: Calculated from data of Tsentralnaya baza...2011)

Over 60% of the forest fires are caused by the careless use of fire by individuals. Another common reason for fires is the burning of grass in agricultural land. Less than 10% of forest fires are caused by nature. Regulations on fire safety in forests were tightened in 2010.

Outbreaks of insects and diseases occur annually in an area of four million hectares (Figure 6.13). Bark beetles, longhorn beetles and moths usually cause the most serious insect damage, and root-rot is one of the most widely spread forest diseases. On average, protective measures are carried out annually, in 400,000 hectares. All responsibility for forest protection has been delegated to the Russian regions. Only the monitoring of forest pathology is the responsibility of the federal authorities.

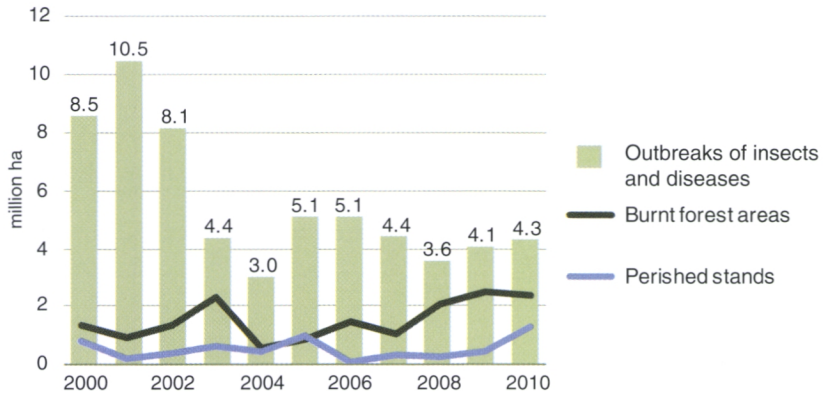


Figure 6.13. Outbreaks of insects and diseases in Russia. (Source: Tsentralnaya baza...2011)

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7 Nature Conservation

7.1 Organising Nature Conservation

Nature conservation in Russia is based on a network of conservation areas, as well as on protective measures outside actual conservation areas, such as shelterbelts along water bodies, green belts around population centres, or shelter forests against erosion. In total, the area of forests under some form of protection in Russia is about 275 million ha (24% of the forest fund). Shelterbelt forests occupy significant areas with different use restrictions (for example, clear cutting restrictions), but the use of these forests is not totally prohibited. This section will concentrate on nature conservation areas (*osobo okhranyayemye prirodnye territorii*) that are defined in the Act on Environmental Protection.

According to the Russian definition, protected areas are in a natural state and have special features from the standpoint of nature conservation. These features can be, for example, environmental, cultural, aesthetic, recreational or health-improving values, resulting in partial or complete exclusion of the area from economic use.

Nature conservation areas may be categorised according to their administrative bodies as federal, regional or local level protection areas. Nature reserves and national parks are always federal, nature parks belong to Federation subjects and are therefore regional. Wildlife reserves and natural monuments can be either federal or regional, whereas the status of other types of protected areas can represent all administrative levels (Table 7.1).

Table 7.1. The administrative status of nature conservation areas in Russia.

Category	Status		
	Federal	Regional	Local
Nature reserves	+		
National parks	+		
Nature parks		+	
Wildlife reserves	+	+	
Natural monuments	+	+	
Arboretums and botanical gardens	+	+	+
Land areas with remedying and health promoting qualities	+	+	+

(Source: Krever et. al. 2009)

In accordance with the structure of the Russian Federation, the Federation and regions are jointly responsible for taking care of environmental issues and nature conservation. At a federal level, the Ministry of Natural Resources and Ecology is responsible for conservation areas. Under the Ministry, the Federal Service for Inspecting the Utilisation of Natural Resources, '*Rosprirodnadzor*', answers for the supervision of the sustainable use of natural resources, and it also controls activities affecting nature conservation areas.

In Russia, information on threatened fauna and flora is collected in so-called Red Books (*krasnaya kniga*). The books list the threatened species and describe their habitats, prevalence and protection level, based on scientific findings. Red Books are usually published jointly by research institutes and the regional administration. The Red Book becomes a legal document in the Federal administration after it has been approved by the regional administration in question. After the Red Book has been approved, the recommendations mentioned in the Red Book for protecting threatened species and their habitats, must be taken into consideration by the authorities that plan land use. Red Books have been published ever since Soviet times in the 1970s.

7.2 Nature Conservation Areas

The development of a nature conservation system in Russia was started in the early 1900s. The most significant of the Russian nature conservation areas are nature reserves and national parks. Nature reserves have a long tradition in Russia and they are the most strictly protected nature conservation areas. The nature reserve network has been developed for over 90 years, the first nature reserve being established in 1916. National parks, however, are a relatively new phenomenon in Russia, and the oldest of them on the current territory of the Russian Federation was only established in 1983. In the beginning of 2011, Russia had 102 Federal nature reserves and 42 national parks. The Federal protection areas of Northwest Russia are presented in Table 7.2.

By the end of 2009, the federal level protected land area belonging to national parks, nature reserves, federal level wildlife reserves and natural monuments was 45.4 million ha in total (with sea areas 55.6 million ha), which corresponds to 2.7% of the total area of the country. When all the other federal, regional and local level conservation areas are taken into account, the number of protected areas is over 13,600, and their share of the total area of the country is 12%.

Table 7.2. Conservation areas with federal status in Northwest Russia.

Conservation area	Location	Year of founding	Area 1,000 ha
	NATURE RESERVES (zapovednik)		
Darvinsky	Vologda region, Jaroslavsk region	1945	113
Kandalakshsky	Murmansk region, Republic of Karelia	1932	71
Kivach	Republic of Karelia	1931	11
Kostomukshsky	Republic of Karelia	1983	48
Laplandsky	Murmansk region	1930	278
Nenetsky	Nenets Autonomous Area	1997	313
Nizhne-Svirsky	Leningrad region	1980	42
Pasvik	Murmansk region	1992	15
Pechoro-Ilychsky	Republic of Komi	1930	721
Pinezhsky	Arkhangelsk region	1974	52
Polistovsky	Pskov region	1994	38
Rdeysky	Novgorod region	1994	37
	NATIONAL PARKS		
Kalevala	Republic of Karelia	1997	74
Kenozersky	Arkhangelsk region	1991	140
Kurshskaya Kosa	Kaliningrad region	1987	7
Paanajarvi	Republic of Karelia	1992	104
Russky Sever	Vologda region	1992	166
Sebezhsky	Pskov region	1996	50
Valdaisky	Novgorod region	1990	159
Vodlozersky	Arkhangelsk region, Republic of Karelia	1991	468
Yugyd Va	Republic of Komi	1994	1,892
	STATE WILDLIFE RESERVES (zakaznik)		
Franz Joseph Land	Arkhangelsk region	1994	4,200
Kanozersky	Murmansk region	1989	66
Kizhsky	Republic of Karelia	1989	50
Swamp "Mshinskoe boloto"	Leningrad region	1982	60
Murmansky Tundrovy	Murmansk region	1988	295
Nenetsky	Nenets Autonomous Area	1985	309
Olonetsky	Republic of Karelia	1986	27
Remdovsky	Pskov region	1985	65
Siysky	Arkhangelsk region	1988	43
Tulomsky	Murmansk region	1987	34

(Source: Ministerstvo prirodnykh...2011)

Russia is a member of the UNESCO World Network of Biosphere Reserves. There are 41 biosphere reserves in Russia.

The level and purpose of protection depend on the conservation area category, which are defined as follows:

Nature reserves (*gosudarstvennye prirodnye zapovedniki*): Nature reserves are completely outside commercial utilisation. The objectives are to protect original ecosystems and the genetic diversity of flora and fauna that is typical to the area, or is otherwise rare.

National parks (*natsionalnye parki*): National parks are territories with ecological, historical or aesthetic values. They are established to serve the purposes of nature protection, education, research, culture and regulated tourism. With regard to utilising natural resources, national parks are restricted by various limitations.

Nature parks (*prirodnye parki*): Nature parks are regional equivalents of national parks. They are territories that are intended for educational or recreational purposes, or for preserving nature values, and that embody ecological or aesthetic features, or precious landscape.

Wildlife reserves (*gosudarstvennye prirodnye zakazniki*): Federal wildlife reserves are valuable land or water areas where human interference has been restricted, in order to protect an ecosystem, a natural habitat or a specific plant or animal species. Wildlife reserves are divided into categories such as game protection areas, geological areas and plant protection areas.

Natural monuments (*pamyatniki prirody*): Natural monuments are unique and irreplaceable objects of either biotic or abiotic nature (e.g. a landscape), that deserve to be protected owing to their scientific, cultural or historical importance.

Arboretums and botanical gardens (*dendrologicheskiye parki i botanicheskiye sady*): Areas where special collection of plants is maintained to conserve biodiversity or carry out scientific or educational activities.

Land areas with remedying and health promoting qualities (*lechebno-ozdorovitelnye mestnosti i kurorty*): Soil resources or mineral water springs that are believed to have health-promoting features are included in this category.

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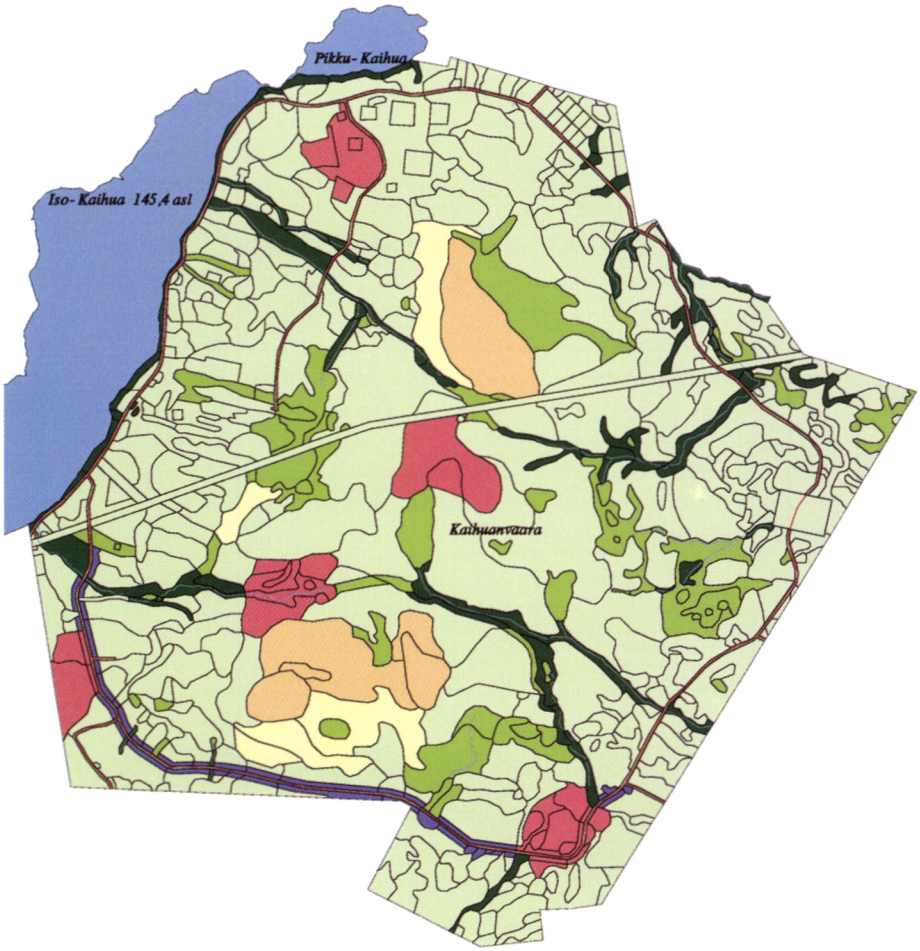
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8 Forest Planning and Inventory

8.1 Assessment of Forest Resources

The Russian assessment system of forest resources (Figure 8.1) is based on the National Forest Inventory (*gosudarstvennaya inventarizatsiya lesov*), as well as on the production of forest management plans for forest areas under commercial, ecological or other use. The National Forest Inventory (NFI) aims to provide objective information on forest resources at national and regional levels, and also serves as a means to follow the effectiveness and legality of forestry operations. A forest management plan at compartment level provides more detailed information on forest resources of a particular forest area, and in optimal cases, also includes updated forest mensuration data on compartment level.

Data on forest resources should be gathered to the Forest Resource Register (*gosudarstvenny lesnoy reyestr*), which contains the official statistics on Russian forests. The system is maintained by the state company, '*Roslesinforg*', which is subordinate to the Federal Forestry Agency. The Forest Resource Register contains information on forest resources, their use, ecological state and protection. In order to keep the register updated, local forest districts gather the information on changes in their territory (harvested area, regeneration, established young stands etc.) and provide this information annually to the regional authorities, from where it is sent to the *Roslesinforg*. The register is also updated with the information received from other authorities doing local level monitoring, on: forest pathology, forest fires, areas contaminated by industry, radioactive material, etc. In addition, the register contains forest management planning data gathered from the forest users. In principle, excluding certain exceptions, the Forest Resource Register data is public, but chargeable information. Prices for retrieving information from the register are determined by the Government of the Russian Federation.

The assessment system of forest resources changed fundamentally after the adoption of the current Forest Code in 2006. Prior to this, detailed forest plans were made for the whole Russian territory as a governmental, budget-funded service. The basic planning unit at the time was forest district. A new forest management plan was prepared for each territory every 10–15 years, by the governmental forest inventory and planning enterprises (current branches of the *Roslesinforg*). Currently, the role of the state in forest management plan-

ning has changed significantly: the former state monopoly has been opened up to competition and, nowadays, private companies may also offer planning services.

At present, detailed forest plans are prepared only by order of the forest user/owner and the higher-level decision-making for forestry is supposed to be based on the data of the NFI. The transition period to the new system is not, however, without problems. Up-to-date information about forest resources is the basis for all forestry planning, and before the completion of the first NFI there is no comprehensive up-to-date data available on forests.

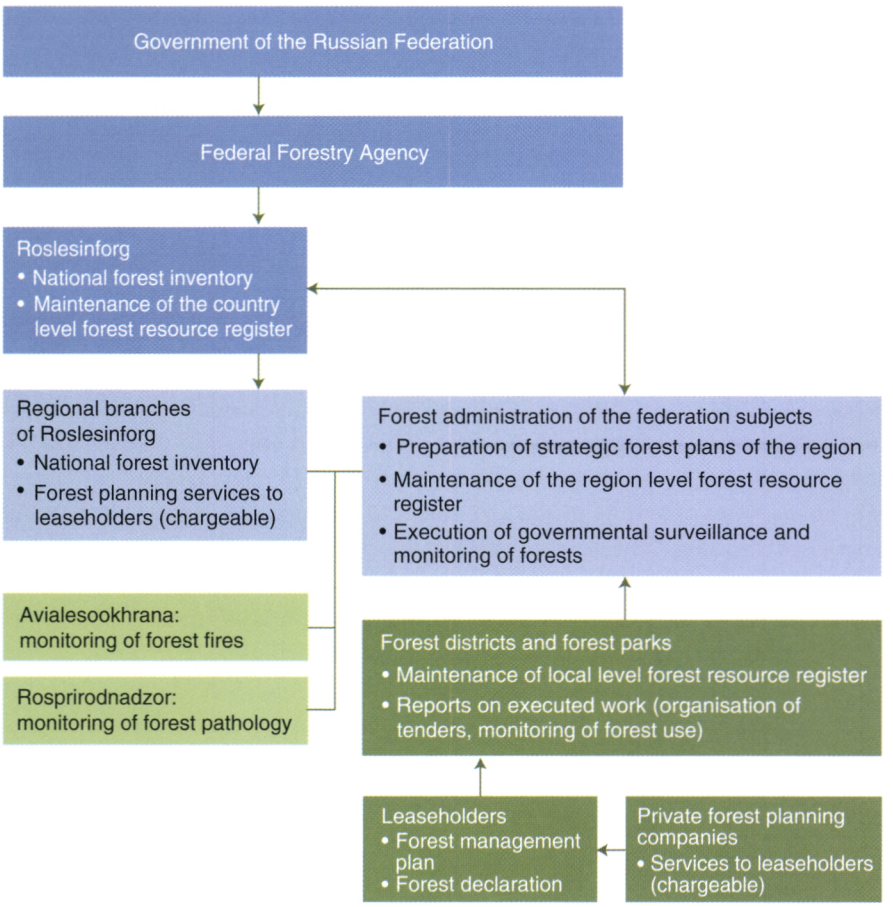

Figure 8.1. Russian assessment system of forest resources and maintenance of Forest Resource Register.

8.2 National Forest Inventory

The aim of the National Forest Inventory (NFI) is to provide information on the state and dynamics of forests at national and regional level. The system monitors forest use and the efficiency of forest operations (forest use, protection and regeneration), and produces information about the qualitative and quantitative characteristics of forests. The NFI system is new in Russia and the country is only gaining its first experiences of its implementation. Execution of the new system started along with the 2006 Forest Code. Prior to this, the forest resource data at country level was compiled from inventory and forest planning data, produced at forest district level. The results of the first NFI are expected to be finalised by 2020.

NFI utilises satellite and remote sensing data, as well as field inventory data, from established sample plots, information from produced forest plans, and data gathered through forest monitoring. It covers not only the forests included into the so-called forest fund, but also all forests of the Russian Federation, including, for example, military forests. The total area to be covered by the NFI is approximately 1.2 billion ha. The aim is to establish 86,200 sample plots in total across the country, which has been criticized as too few. According to information available in 2011, approximately 17% of the sample plots have been established already, and the work requires about 1.5 billion roubles (€35 mil.) annually. For example, in the Republic of Karelia, the number of established 500 m^2 sample plots has been around 75 plots annually.

The execution of the NFI is the responsibility of the *Roslesinforg*. Currently, there are over 3,000 employees working in the 12 regional units of this state company. When it comes to the collection of forest pathological data and data regarding forest fires, *Roslesinforg* is assisted by the Russian Forest Protection Centre, '*Roslesozashita*', and the government company '*Avialesookhrana*', that is responsible for forest fire monitoring.

Branches of Roslesinforg in Northwest Russia and the regions they are responsible for:

Karellesproyekt, office in Petrozavodsk: Republic of Karelia

Sevzaplesproyekt, office in St Petersburg: Kaliningrad, Leningrad, Murmansk, Novgorod and Pskov regions

Sevlesproyekt, offices in Vologda and Arkhangelsk: Arkhangelsk and Vologda regions, Republic of Komi, Nenets Autonomous region

The aim of the NFI is not only to produce information on forest resources, but also to improve government surveillance on forest use. Remote sensing of forest use enables more efficient monitoring of different violations in forestry operations and, therefore, the system is used in the battle against illegal logging. NFI data is used to ensure that forest users are fulfilling their obligations, and that their reported figures correspond to the data from aerial photographs and remote sensing. In 2009, the remote sensing system covered 24 Federation subjects out of 83, and the total area of monitored harvesting sites was 546,000 ha. Different violations were observed in about 10% of the examined harvesting sites, and the detected volume of illegally harvested wood was around one million m^3.

8.3 Forest Planning from the Viewpoint of a Leaseholder

Introduction

At compartment level, forest planning consists of forest management planning (*lesoustroystvo*) and preparation of a forest management plan (*proyekt osvoeniya lesov*). Forest management planning includes forest mensuration, calculation of forest resource data, and compilation of a treatment plan. The forest management plan, on the other hand, is a 10-year strategic plan for the leased area, required by the forestry officials. Updating the forest resource data by an on-site inventory is not an obligatory requirement when preparing a forest management plan, but in many cases it is the only way to produce a good quality plan, as the existing mensuration data is often outdated.

According to the Forest Code, compartment level forest planning is the responsibility of the forest user. This applies to all users: to those leasing forest areas for harvesting, recreation, hunting etc. The Forest Code imposes no restrictions on who can do forest planning in Russia; the forest user can prepare the forest management plan themselves, or the plan can be ordered from a company offering planning services. In addition to regional branches of the *Roslesinforg*, several private companies currently offer forest planning services.

After signing a lease contract the leaseholder will start preparing the forest management plan. This work includes acquiring the necessary existing cartographic and other material from the forest administration, analysis of the existing forest management planning data, cartographic work to feed all the data into geographical information system, possibly on-site forest inventory and agreement with the regional authorities about silvicultural operations. More information about forest management plans can be found in Section 9.3.

On-site Inventory

The range of available forest inventory methods in Russia does not differ from the methods used in other countries: remote sensing and aerial photographs, field measurements and ocular estimation are all commonly used. However, often the lack of money determines what inventory method will be chosen; cheaper, simpler — and often more inaccurate — methods are often favoured. Since the forest planning is currently paid for by the forest leaseholder, the selected inventory method is very much dependent on the needs and economic status of the forest user. If the forest user has limited resources, they can simply order so-called data updating (*aktualizatsiya*), which is based merely on image interpretation done at the office using remote sensing data. If there is a need for more detailed information, they can order a full forest inventory using both remote sensing techniques and field inventory, either for certain parts or for the whole area of leased forest.

Most often, the inventory is started by marking out the stands with the help of aerial photographs. After this, the acquired information is supplemented by on-site ocular estimation. The smallest forest management unit in Russia is a tree stand (*vydel*), which is comprised of homogenous forest with regard to stand structure, age, density and other essential indicators. Stands form planning compartments (*kvartal*[1]), which are rectangular, with the length of the longer side varying from 0.5–4.0 kilometres. Borders of the planning compartments do not usually follow the borders of the stands, and therefore a stand can belong to two or more planning compartments. The compartments are segregated from one another by lines running usually from north to south, and from east to west. In remote areas, lines are marked by a marking hammer and no boundary lines are cut open. In order to be able to ascertain each *kvartal,* a pole with a number is erected at the crossing points of *kvartal* lines. The boundary lines of the compartments serve as transportation routes and make mapping easier. The compartments are parts of forest districts.

The most important indicators that are determined in the forest inventory are stand volume, age, site factors, basal area, mean stem diameter, mean height, number of stems per hectare, as well as absolute and relative density of the stand. Except for the relative density (*otnositelnaya polnota*), which is the basal area of the stand in proportion to the basal area of an ideal stand (density 1.0), the Russian indicators correlate well with the system used in Finland. When calculating the stand density, all living stems over 6.1 centimetres in diameter at chest height are included.

[1] A '*kvartal*' is the basic spatial unit in forest management planning in the Russian Federation. *Kvartals* form a grid of rectangle shaped management compartments in the forest and their typical size ranges between 200 and 400 ha.

According to earlier studies, the inventory methods used currently in Russia have underestimated the volume of growing stock in mature and over-mature forests by 5–15%. On the other hand, the methods that were used in the past in the northern regions have overestimated the volume of stock by 30–50%. In recent years, the standard error on the aforementioned areas has decreased owing to method development, being currently about 3%.

In addition to the forest leaseholder, forest inventory data is kept by the forest districts and by the regional forest authorities. The forest districts are able to update the inventory data, which is stored in databases, digital maps and on paper (Figure 8.2). In principal, all the inventory data produced after 1998 may be found in digital format.

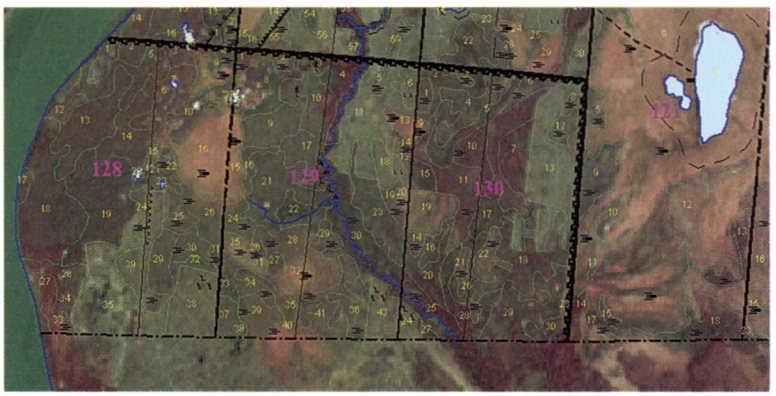

Figure 8.2. Digital forest inventory map placed on a satellite image. (Source: Arkhangelsk Branch of the Northern State Forest Inventory and Planning Enterprise)

8.4 Assessment of the Inventory and Planning System

Forest inventory and forest management planning experienced profound changes when the 2006 Forest Code came into force. Many of the changes have aroused a lot of criticism and changes in the legislation have been demanded. In particular, the transfer of the responsibility of forest management planning to forest users has been viewed as problematic. Also, the adoption of the NFI system has been heavily criticized by Russian forest planning professionals. It is believed that the transfer to the new system was too hasty and no time was given for preparation, development of methodology or economic assessment.

One of the main results of transferring the responsibility for forest management planning to forest users has been the drastic decrease in the forest area that is annually being inventoried for the purposes of forest management plan-

ning. During 1996–2006, the annual inventory rate of forests belonging to the Russian forest fund was over 31 million hectares per year; in 2007–2008 the same figure was around 5 million hectares. This drop in planning area is causing problems in getting a full, up-to-date picture of the forest resources of the country or a particular region. Before the results of the first national forest inventory are published, in 2020 at the earliest, the only means to get up-to-date information about forest resources are the forest inventories done by the forest users. However, only 15% of Russian forests are currently under lease and not all the leaseholders are updating the forest mensuration data through field inventory. Forest users tend to consider the forest inventory as an excess expenditure and try to manage without it if possible. Therefore, the forest resource data is becoming more and more outdated, which is making strategic level planning increasingly difficult. Outdated forest mensuration data causes problems also for forestry officials when determining cutting volumes for forest areas to be leased. This is a problem particularly in territories where the earlier forest management plan was done more than 10 years ago.

Forest planning professionals have also been concerned about the quality of current inventories and forest management planning. The quality of services provided by private forest planning companies does not always meet the required standards. However, there is no state body to audit the work of these companies. Therefore, it has been suggested that the forest mensuration of leased forest areas should be taken under state control, as forest is state property.



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9 Forest Utilisation

9.1 Forest Use Rights

The right to use forest may be given to companies or private persons by the organisation responsible for administrating forest resources, i.e. the regional forest authority. Forests can be leased for 10–49 years for wood harvesting, recreation, collection of non-wood forest resources, etc. Furthermore, in some exceptional cases, rights for short-term use can be obtained for less than one year basing on a sale/purchase contract of forest stand; for example, to fulfil the needs of local municipalities or private citizens. Conditions for short-term forest use under a sale/purchase contract were tightened in 2009, which caused problems for small-sized logging companies in particular. The rights to use forest are only allocated by auction. Exceptions to this are priority investment projects, where forest resources needed to supply raw material for new or upgraded production can be obtained directly without auction (see Section 10.3). A forest leaseholder, fulfilling obligations of the lease contract well, will be given preference when concluding a new lease contract after the expiration of the first one.

9.2 Payment for Forest Use

Forest use is subject to charge in Russia. Forest users pay a lease charge (*arendnaya plata*), or make a payment under a sale/purchase contract to the state. If a forest stand is leased or sold with a sale/purchase contract for wood harvesting, the payment is based on the annual allowable cut of the stand. For forests leased for other purposes, payment is defined according to leased surface area. The minimum payment is defined by the Russian Government, whereas regional authorities set additional coefficients to increase the charge. The final payment is defined in the auction. The minimum charge is paid to the Federal budget, and the additional part to the regional budget. In addition to the actual payment for forest use, the leaseholder finances the forest regeneration, forest planning and forest fire prevention in the leased areas.

In determining the minimum charge for forest use, an effort has been made to take into account the regional conditions of forest management, the demand and supply for forest products, as well as the profitability of forestry. In addition to these factors, the tree species composition, wood quality and transportation distance affect the formulation of the payment. For intermediate fellings, the minimum charge is discounted by half.

The following is an example of a minimum charge in 2010: a price for a cubic metre of spruce logs (top diameter > 25 cm) when transportation distance was 60–80 kilometres was 92 roubles (2.3€) in the Republic of Karelia, 67 roubles (1.7€) in the Vologda region and 125 roubles (3.1€) in the Leningrad region. At the Russian level, average charges for wood harvesting are presented in Table 9.1.

Table 9.1. Average charge for harvested wood in Russia, RUB/ m^3 (EUR/m^3).

	2008	2009	2010
Minimal charge on average	36 (1.0)	36 (0.8)	35 (0.8)
Average charge	61 (1.7)	53 (1.2)	50 (1.2)
Average under lease agreement	52 (1.4)	52 (1.2)	n/a
Average under sale-purchase contract	87 (2.4)	61 (1.4)	n/a

(Sources: Baza dannykh...; Buldakov 2011; Forests in Russia 2009, 2010; Pokazately lesnogo...2011)

9.3 Planning, Reporting and Monitoring of Forest Use

Forest management plan

After a forest area is received for use through auction, and the forest lease contract is concluded, the forest user is obliged to present a forest management plan (*proyekt osvoyeniya lesov*) to the regional forest authorities. The forest management plan is the basic operational plan determining the practical use of forests. It is made by the forest user, or can be provided by a forest planning company. The plan is subject to governmental examination organised by the highest forest authority in each Federation subject. An approved forest management plan is a prerequisite for all forestry operations in the area in question. The plan is based on existing forest management planning and inventory data, or newly performed forest mensuration if the forest user is willing to organise it. The plan is valid for up to 10 years.

The forest management plan must include information about planned annual harvestings for the duration of the plan, and their location on a thematic map (*tematicheskaya lesnaya karta*). The map also has to present a forest road plan. In addition, the forest management plan also consists of a plan for forest protection and regeneration, as well as water body, flora and fauna protection. The forest management plan should be in line with the regional strategic forest

planning documents; that is, the regional forest plan and silvicultural regulation of the forest district, described in Sections 2.5 and 2.6. Naturally, the provisions of the lease contract must be respected.
Forest management plan includes the following information:

- Description of the forest area and current growing stock.
- Plan for forest use (harvesting, collection of non-wood forest products, hunting, recreation activities etc.).
- Plans for establishing infrastructure for forestry, harvesting or wood-processing (forest fire guard towers, roads, small stationary sawmill etc.).
- Plan for forest protection and regeneration.
- Plan for use and protection of water bodies and game.

Forest Declaration

The forest declaration (*lesnaya deklaratsiya*) is a document by which the forest user informs the authorities about the execution of planned forestry operations in the leased forest area. The declaration should be handed to officials before the beginning of operations, and should comply with the forest management plan for the area. The declaration lists operations at the kvartal, stand and compartment levels according to tree species, area and harvesting volume. The declaration is made for the coming year and is approved by the local forest district.

Monitoring Forest Use

Russian regional authorities, having been delegated the power to manage state forests, are also responsible for controlling and monitoring forest use. In practice, this work is done by the forest inspectors and foresters of the forest districts. The conditions of the forest lease contract, the Forest Code and different Federal statutes concerning forest use, protection and regeneration should be followed by the forest users. Forest use is monitored by the forest district in several phases during the forest leasing. If frequent malpractices occur, the lease can be revoked.

The forest user has to deliver a forest use report (*otchyet ob ispolzovaniya lesov*) to the authorities where detailed information about the realised fellings during the reporting period is presented. Forest regeneration report (*otchyet o vosproizvodstva lesov*) includes information about realized forest regeneration amounts, thinnings and other silvicultural measures. Both reports have to be delivered four times a year.

Forest use scheme	
Forest auction	Organised by a forest district; initiative made by a forest user.
Forest lease contract	Between forest district and leaseholder; max 49 years.
Forest management plan	Compiled by the leaseholder, examined and approved by the regional forest authority; valid for max 10 years.
Forest declaration	Declaration of forest use for the next year; delivered to the forest district by leaseholder.
Forest use report	Report on actual forest use; delivered quarterly to the forest district by leaseholder.
Forest regeneration report	Report on realised forest regeneration activities; delivered quarterly to the forest district by leaseholder.
Control	Control of forest use by the forest district; leaseholder informs forest range (sub-unit of forest district) monthly about realised measures. Forest districts are controlled by the regional forest authority.

9.4 Allowable Cut and Fellings

Of all industrial roundwood, over 50% is logged in the forests situated in the European parts of Russia as a result of their easier accessibility. Of all the Russian administrative districts, logging operations are concentrated particularly in Northwest Russia, where over half of the forest resources of the European part Russia and two-thirds of boreal forests are located. Northwest Russia produces more than one-third of all the industrial roundwood in Russia (Figure 9.1). Thus far, the Arkhangelsk and Vologda regions have been the most active loggers in Northwest Russia and, in 2010, they produced about 20% of all Russian industrial roundwood.

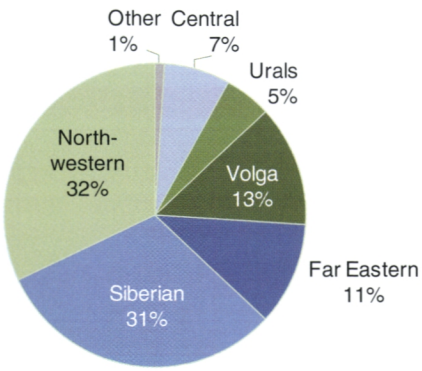

Figure 9.1. Production of industrial roundwood in 2010 by Russian Federal Districts. (Source: Calculated from the data of Tsentralnaya baza...2011)

In recent years, the sustainable annual allowable cut (*raschyetnaya lesoseka*) in Russia as a whole has been about 600 million m^3. The annual allowable cut

(AAC) is defined in the silvicultural regulations for each forest district and forest park, separately for production and protection forests and tree species. The AAC is determined according to principles of sustainable and economical forest utilisation, and the volumes presented in it are not to be exceeded. The AAC is calculated separately for clear cutting, selective cutting and thinnings, for the period of validity of the silvicultural regulations. The removals from annually executed fellings of all types in Russia are about 170 million m^3, which is only 28% of the AAC (Figure 9.2). In Northwest Russia, 40% of the volume of AAC is harvested, and the most intensive regions are the Republic of Karelia, and the Arkhangelsk and Leningrad regions where the rate is 50% or more (Figure 9.3). The share of thinnings from the total fellings is very low (Figure 9.4).

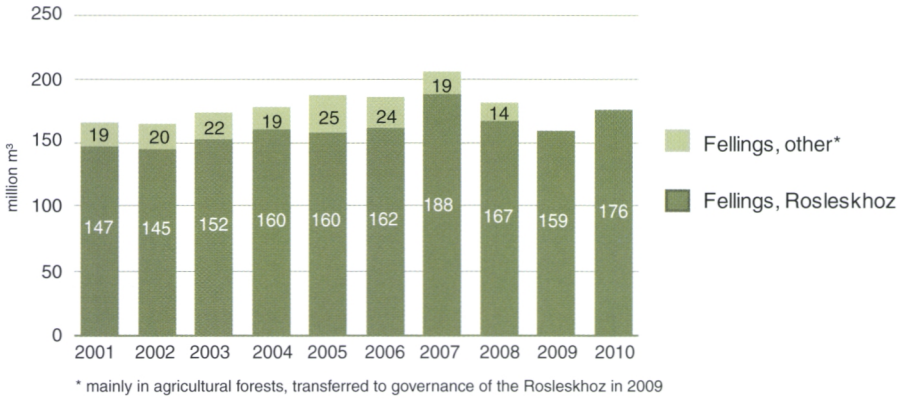

Figure 9.2. The trend in realised total fellings in Russia in 2001–2010 (forests under governance of Rosleskhoz). (Sources: Maslyakov 2011; Osnovnye pokazateli...2005, 2006, 2010; Lesnoy fond...2007)

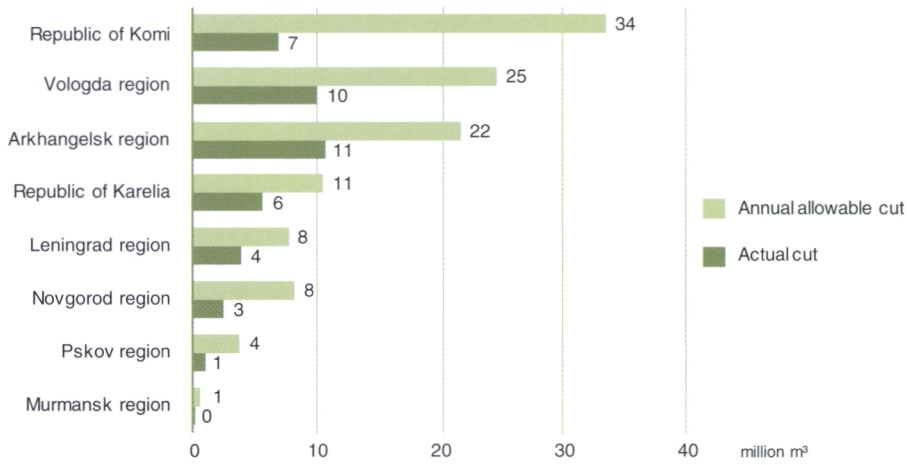

Figure 9.3. Annual allowable cut and actual cut in Northwest Russia in 2009. (Source: Lesopromyshlenny kompleks...2010)

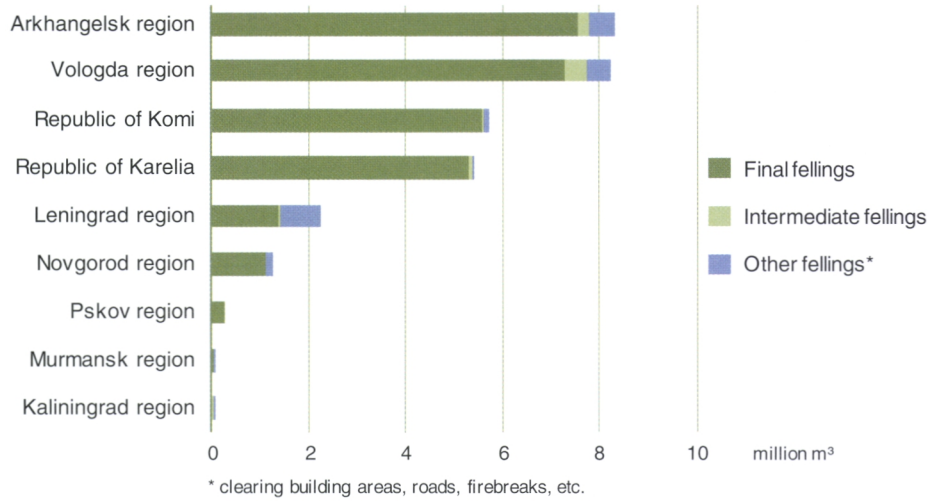

Figure 9.4. Fellings in Northwest Russia in 2009 (amounts are smaller compared to Figure 9.3 due to the different primary source of information). (Source: Lesopromyshlenny kompleks...2010)

The information concerning volumes of wood harvesting in Russia is quite fragmented. Until 2007, the Federal Forestry Agency published comprehensive statistics on final and intermediate fellings at federal and regional levels, but during recent years detailed data has not been available to the public. Until 2009, the Federal State Statistic Service, 'Rosstat', published data on wood transported from the forest (*vyvozka drevesiny*), and the production of industrial roundwood (*delovaya drevesina*) production. In 2010, the classification of Rosstat was changed, and now statistics about the production of unprocessed wood (*neobrabotannaya drevesina*) are published. The amount of unprocessed wood production corresponds quite well with the amount of wood transported from the forest, although not exactly. Regional statistics services provide more detailed information on wood harvesting, but only at the level of the region in question.

The data from Rosleskhoz and Rosstat is not comparable owing to different statistical methods. If international statistics are taken into consideration, the picture is even more diverse. As can be seen from Figure 9.5, the FAO Statistical Database (FAOSTAT) data on roundwood removals corresponds quite well with the Russian felling statistics of Rosleskhoz, whereas data on industrial roundwood production diverges noticeably from the Rosstat information. Altogether, it is not possible to present exact information, and the figures about wood harvesting and industrial roundwood production can be quite approximate.

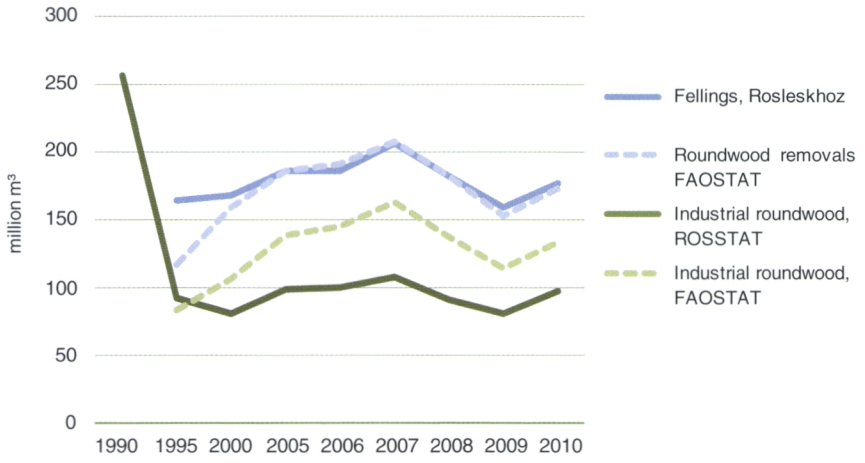

Figure 9.5. Development of fellings and industrial roundwood production in Russia. (Sources: FAOSTAT 2011, Regiony Rossii. Sotsialno...2010, Sotsialno-ekonomicheskoye...2011)

Table 9.2 displays the amount of fellings in 2009. Roundwood production has been at a quite stable level in Northwest Russia since the sharp drop at the beginning of the 1990s (Figure 9.6). Table 9.3 gives information about the production of unprocessed wood according to Rosstat's new classification.

Table 9.2. Fellings in Russia in 2009.

Region	Fellings total		Final fellings	Intermediate fellings	Other fellings	Share of industrial roundwood **
	Annual allowable cut	Actual cut				
	million m³					%
Russia	626	159	n/a	12.8	n/a	
Northwest Russia	111.6	31.5	28.5	0.9	2.1	
Arkhangelsk region	21.8	8.3	7.5	0.2	0.5	84*
Kaliningrad region	0.5	0.1		0.1		44
Republic of Karelia	10.6	5.4	5.3	0.1		81*
Republic of Komi	33.5	5.7	5.5		0.1	84*
Leningrad region	7.9	2.2	1.4		0.8	87*
Murmansk region	0.6	0.04	0.03	0.01		89
Novgorod region	8.2	1.3	1.1		0.1	90*
Pskov region	3.8	0.3	0.3			83*
Vologda region	24.7	8.2	7.3	0.5	0.5	81*

(Sources: Lesopromyshlenny kompleks...2010, Maslyakov 2011, Forests in Russia 2010)

* average during 2005–2009

** share of industrial roundwood from wood transported away from forest (*vyvozka drevesiny)*

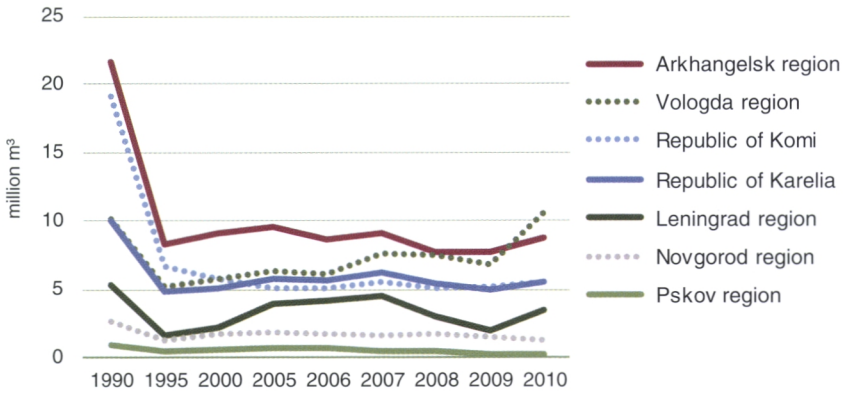

Figure 9.6. Development of industrial roundwood production in the Northwest Russian regions. (Source: Lesopromyshlenny kompleks...2010)

Table 9.3. Production of unprocessed wood in Russia and Northwest Russia in 2009–2010.

		Coniferous wood	Non-coniferous wood	Fuelwood	Other	Unprocessed wood, total
		million m³				
Russia	2010	67.4	20.3	15.8	8.6	112.2
	2009	61.5	14.1	16.1	8.9	100.7
Northwest Russia	2010	20.7	9.4	4.3	1.7	36.1
	2009	18.8	6.8	3.6	1.2	30.5
Arkhangelsk region	2010	5.5	1.8	0.8	0.4	8.5
	2009	5.3	1.5	0.7	0.3	7.8
Republic of Karelia	2010	3.2	1.0	0.7	0.6	5.5
	2009	3.2	0.8	0.8	0.5	5.3
Republic of Komi	2010	3.3	1.8	0.6	0.1	5.8
	2009	3.4	1.5	0.6	0.1	5.7
Leningrad region	2010	2.3	0.9	0.4	0.1	3.7
	2009	1.6	0.4	0.2	0.1	2.2
Novgorod region	2010	0.7	0.5	0.3	0.1	1.6
	2009	0.6	0.3	0.1	0.0	1.1
Pskov region	2010	0.2	0.0	0.1	0.0	0.3
	2009	0.2	0.0	0.1	0.0	0.3
Vologda region	2010	5.5	3.4	1.4	0.4	10.7
	2009	4.6	2.1	1.0	0.2	8.0

(Source: Tsentralnaya baza...2011)

The volume of illegal logging, which has drawn the attention of the public, as well as the authorities both in Russia and abroad, is not usually included in the statistics. According to expert estimates, illegal logging comprises 10–35% of all fellings in Russia. The estimate made by Rosleskhoz is about 1% or 1 million m^3. The lack of exact information concerning illegal logging has made discus-

sion on the subject difficult. Also the definition itself is unambiguous; where to draw the line between illegal logging and minor violations of legislation, in cases such as performing logging in protected areas, exceeding the AAC, neglecting the logging rules, using an obsolete forest management plan, etc. Illegal logging has been mentioned to be a problem especially in the Russian Far East. Actions against illegal logging are shortly described in Section 4.2.

9.5 Wood Harvesting and Transportation

In Russia, there are over 15,000 enterprises that have registered logging as their main business activity; in Northwest Russia the number is 5,000. Although some of the logging companies operate independently, low profitability has forced an ever increasing number of them to merge with large forest industry corporations. In Northwest Russia, the largest of these (wood harvestings 0.5–1 million m^3 per annum) are the Ilim Group, Investlesprom and Titan (Table 9.4). Independent logging companies are quite small in Northwest Russia and they harvest usually less than 100,000 m^3 annually.

Table 9.4. The biggest wood harvesting companies in Northwest Russia in 2010 (> 400,000 m^3).

Company	Region	Actual harvesting 1,000 m^3
Mondi Syktyvkar	Republic of Komi	4,000 (capacity)
Investlesprom	Republic of Karelia, Arkhangelsk and Vologda region	2,079
Ilim Group West	Arkhangelsk region	1,900
Titan Group	Arkhangelsk and Vologda region	1,533
Gruppa Kompaniy ULK	Arkhangelsk	840
Vologodskiye lesopromyshlenniki	Vologda region	814
Solombalales	Arkhangelsk region	758
Rusforest	Arkhangelsk, Irkutsk and Krasnoyarks region	635
Luzales	Republic of Komi	600
Cherepovetsles	Vologda region	582
Zapkarelles	Republic of Karelia	400

(Source: Company homepages, Itogi raboty...2011)

Planning Wood Procurement

The level of wood procurement planning depends greatly on the productivity and size of the company. In large corporations, wood procurement is arranged by a separate department or specifically assigned people, whereas in small companies wood procurement is the responsibility of people who also have other tasks to perform. The process of wood procurement may be described generally as follows:

- The assessment of the volume and setting up of a schedule for needed wood
- Storage planning
- Planning the delivery from own forestry companies (leased forests)
- Assessing the need for purchasing wood from external suppliers. The raw material is purchased contractually from external suppliers, who are chosen according to their ability to deliver wood on time in required quantity and quality, traceability of wood origin and previous experiences in cooperation. The volume of external purchases may be updated in 3–6 month periods to correspond with the market situation.

Planning of business operations in a logging company is determined primarily by its level of independence. If the logging company is a part of a corporation, planning is done according to needs of the wood-processing companies in the group. Here, the logging company is merely a procurement unit, instead of being an independent company.

Independent logging companies compile an annual plan, which determines the logging potential for each tree species in its leased forest areas. If the company has wood-processing capacity, the requirements of roundwood for its own purposes are also assessed in the annual plan. In small companies the process of planning recurs on a yearly basis almost unaltered, and is done according to previous experience. Wood exchange is still rare, and is done mostly within corporate groups, although change between different enterprises is becoming more common.

The forest management plan plays a major part in planning the logging operations (Section 9.3). Choosing the stands to be felled is greatly affected by the season, terrain conditions and the condition of the forest road network. As the Russian road network is underdeveloped, the stands marked for cutting that are located close to the roads are harvested during the summer, and during the winters the stands that are remote and difficult to access are felled. The fact that most of the wood is harvested during the winter makes the raw material flow uneven, and planning for storage is essential, both to the logging companies and to the wood-processing enterprises.

Logging Methods

The basic spatial unit of felling is the harvesting site (*lesoseka*) and its size varies according to the region and stand characteristics. Large harvesting sites are divided further into sections marked for cutting (*delyanki*), which are defined according to the growing stock or logging conditions, and then again into felling strips (*paseki*). Traditionally, the felling strips have been occupied by one

logging team at a time. In the European parts of Russia, the width of a harvesting site may be 100, 250 or 500 metres, whereas its length depends on the size of the planning compartment (kvartal). The open area of a clear-felling site may not exceed 50 hectares.

A remarkable proportion, about 70%, of the wood harvesting in Russia is still carried out using the traditional full-tree and tree-length systems, that refer to a method where trees are felled, bunched and skidded to the roadside for transportation to the central processing yard (*nizhny sklad*). Debranching is done manually at the harvesting site, or with a delimbing machine on the roadside; stems are cross-cut into timber assortments at the central processing yard. The yards owned by logging companies are located along transportation routes, through which the assorted timber may be delivered to the users. Additionally, central processing yards may belong to wood-processing plants, in which case they are situated adjacent to them. Equipment and machinery in the central processing yards are mostly outdated and hardly any investment has been made to this traditional system.

The cut-to-length method is becoming increasingly more common in Russia, and in Northwest Russia it is already predominant. In many regions of the northwest its share is over 70%; the Republic of Karelia having the highest share exceeding 90%. Over the whole of Russia the share is about 30%. In Russia, the cut-to-length method also refers to a system where stems are skidded according to full-tree or tree-length method but cross-cut on the roadside. Most of the bigger logging companies are using modern cut-to-length technology, harvester and forwarder.

Russian Logging Technology

The majority of the machines that are used in the full-tree and tree-length methods are of domestic origin. With regard to the cut-to-length method, the quality of Russian machinery has been inferior to Western technology. As a result, especially large logging companies and corporations are purchasing Western technology suitable for full-tree, tree-length and cut-to-length harvesting. Only in recent years have some Western machine manufacturers started assembly of modern forwarders and harvesters in Russia.

From now on in this chapter, the main emphasis is on describing traditional Russian technology that is still widely used in Russia, especially outside the Northwest region. Unfortunately, as keeping records of the machinery in use has not been obligatory for the logging companies since the collapse of the Soviet Union, no data on the current number of forest machines in operation is available.

Typically, the machines that are used in traditional full-tree and tree-length harvesting systems are built on either the chassis' of the TDT-55 or TT-4, that are products of the Onego and Altaisky tractor plants, respectively. TDT-55 has also been used as a basis for developing machines for silvicultural operations. Although a Russian feller-buncher (*valochno-paketiruyuschaya mashina*) may be seen on large cutting areas, the most common way to fell trees is to use a chainsaw. Today, harvesters are constructed in Russia by mounting a felling head of Western origin onto a Russian feller-buncher.

Skidding is a labour intensive stage in full tree and tree-length method and usually done with crawler skidders (*trelevochny traktor*). Various methods have been developed for bunching and attaching stems onto a skidder, but the most commonly used method in Russia is to use ground skidding, where the stems are partly supported by the tractor. In cable skidders, which were developed as early as the 1940s, a choker man attaches cables onto stems that are then winched onto a plate of the skidder. In the 1970s and 1980s, more sophisticated clambunk and grapple skidders were developed. Additionally, when performing thinnings, agricultural tractor-based forwarders on wheels are used. Various models of skidders have been produced, but the most common are TDT-55 (Figure 9.7) and TT-4 skidders. In 1990, the total number of skidders in Northwest Russia was 9,200, of which 8,400 were either TDT-55s or TT-4s. In 2003, the production of TDT-55 ended and production of a new model TLT-100 began. At present, the production of skidders has decreased substantially.



Figure 9.7. Cable skidder. (Vasiliy Katarov)

In the past, feller-skidders (*valochno-trelevochnaya mashina*) were produced, but owing to their low productivity, especially on harvesting sites with long skidding distances, they are no longer commonly in use. The feller-skidders are able to fell the trees, place them on a clam and haul them to the roadside. Feller-skidders were clambunk skidders with a felling head attached to them.

Debranching is either conducted on the harvesting site with chainsaws, or at the roadside with delimbing machines (*suchkoreznaya mashina*) (Figure 9.8). Delimbing machines are tractors on crawler-tracks with a knife-like debranching device on top. Some of the machines are also equipped with a cross-cutting device. Delimbing machines are clumsy in operation and thus cannot manoeuvre on the harvesting site. They are located at the roadside as part of one of the following systems:

- Chainsaw, cable or clambunk skidder, delimbing machine
- Feller-skidder, delimbing machine
- Feller-buncher, grapple skidder, delimbing machine



Figure 9.8. Delimbing machine. (Vasiliy Katarov)

Loading the stems for transportation is arranged by using cranes attached to trucks or crawler-track loaders (*lesopogruzchik*) that lift the load 180° over the machine cab onto trucks (Figure 9.9). Most commonly, tree-length stems are transported from the roadside by Russian timber trucks, whose carrying capacity is 10–25 tonnes. Additionally, in the areas with a poor road network, wood may be transported to the central processing yard on specially built narrow-gauge railways. In Northwest Russia, the narrow-gauge railway network covers several thousand kilometres. The maximum carrying capacity of a rail wagon is 28 tonnes.



Figure 9.9. Loader at the road side landing. (Alexander Seliverstov)

Roundwood Transportation

Wood is transported via rail, on the roads or along the inland waterways. In rail transportation, the most common rail car types are high-sided roofless wagons (VOK) and open-sided timber cargo wagons. The maximum load for a VOK-wagon is 45–65 m^3 (45 tonnes), and for an open-sided timber wagon 80–85 m^3. Currently, railway transportation is the most important way to deliver wood, and the annual volumes carried by rail are on the increase. Furthermore, the average transportation distance is increasing; currently it is 1,420 kilometres, whereas in 1995 it was 1,070 kilometres. The volume of transported wood has increased by 16% in the same time period.

Owing to the fact that state-owned wagons are obsolete and timber cargo wagons are few in number, companies are suffering, especially during the winter, from a lack of railway wagons. As a result, the largest forest industry corporations have purchased private cargo wagons or established transport companies. For example, FinTrans, an affiliated company of the Ilim Group, has about 2,000 timber cargo wagons of its own. Furthermore, corporations and enterprises use the services of private transport operators.

In Russia, timber trucks are used for transporting small amounts of wood over short and medium distances (<140 kilometres). In comparison to other means of transportation, trucks are relatively expensive, about 1.5 roubles per cubic metre per kilometre, which is owing to the low carrying capacity of the trucks and the poor condition of the road network. The utilisation of long-distance truck transportation is decreasing, and is carried out only if no other means of transportation is available. Both Russian and foreign vehicles are used. Some of the trucks are equipped with a hydraulic crane and a grapple; in other cases, loaders are used.

Along the inland waterways, wood is transported by boat or by floating the wood in bundles. The maximum carrying capacity for the various vessels used in wood shipping is 5,000 tonnes, and wood may be loaded onto them either loose or in bundles. The volume of waterway transportation is decreasing, which is mainly a result of a reduction in the use of floating. The annual volume of wood transported along the inland waterways has dropped from ten million tonnes in 1995 to six million tonnes in 2010.

Challenges for Wood Harvesting

In Russia, logging companies are facing numerous problems. The low quality of forest stands, inadequate infrastructure, increasing production costs, low demand for small diameter wood (in particular deciduous) and low productivity, among other things, have led to an unprofitable wood harvesting business. The situation became even worse when the global economic crisis in 2009 led to a decrease in demand for roundwood. In addition, in recent years exceptionally warm winters have caused serious problems for wood harvesting. In export-oriented regions, raised customs duties on wood exports have further weakened the economic situation of logging companies. Logging companies are forced to cut costs and reduce staff, and the most unprofitable companies have closed or gone bankrupt. The number of small logging companies is decreasing, and the major share of wood harvesting is carried out by big corporations. Only 5% of the roundwood is harvested by small companies.

The share of unprofitable logging companies is over 60% in Russia, and in Northwest Russia it is more than 70% (Figure 9.10). However, one must bear in mind that the enterprises tend to underreport their profits in order to reduce taxes.

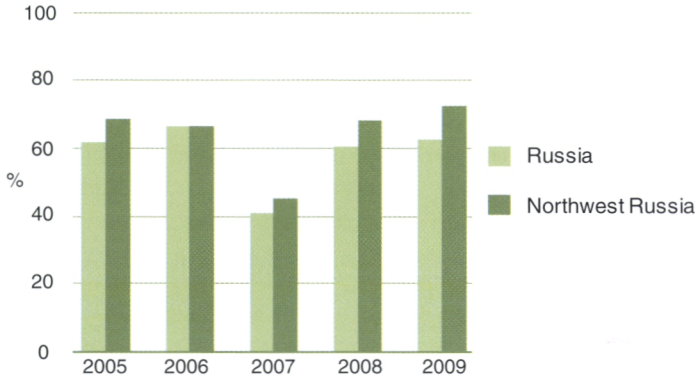

Figure 9.10. Share of unprofitable companies in wood harvesting, excluding small companies with less than 15 employees. (Source: Tsentralnaya baza...2011)

One of the main, and permanent, problems for wood harvesting is the poor condition of the road network system, in particular, the lack of all-season roads. This problem has been acknowledged by the authorities, and the Government is supporting road construction by subventions. Nevertheless, since the ability to build new forest roads, or to maintain old ones, is dependent on the economic state of the enterprise, as well as on the volumes of annual logging, only the largest forest industry corporations have the possibility to carry it out. The defects in federal legislation hinder the development of the forest road network, because forest roads are considered as equity, which increases the amount of taxes the enterprises are obliged to pay. Furthermore, the logging companies must pay taxes to the Federation for using the forest roads they have built themselves. The forest roads, however, belong to the state because they have been built on state property, i.e. on forest land owned by the Russian Federation. Thus, after the forest lease has expired, the logging company must assign all the forest roads it has built to the federal administration. In many regions, an obstacle to road building can be the lack of appropriate building material; mineral soil is deep underground, which means that sand and gravel need to be transported from far away, with associated transport costs. Additionally, water infiltration qualities of the soil are poor.

In Russia, the average forest road density is only about 1.5 metres per hectare, ten times less than in the neighbouring European countries. According to the official evaluations, 7,000 km of new forest roads should be constructed to improve the use, protection and regeneration of forest resources. In the Northwest Russian regions, forest road density varies greatly (Figure 9.11).

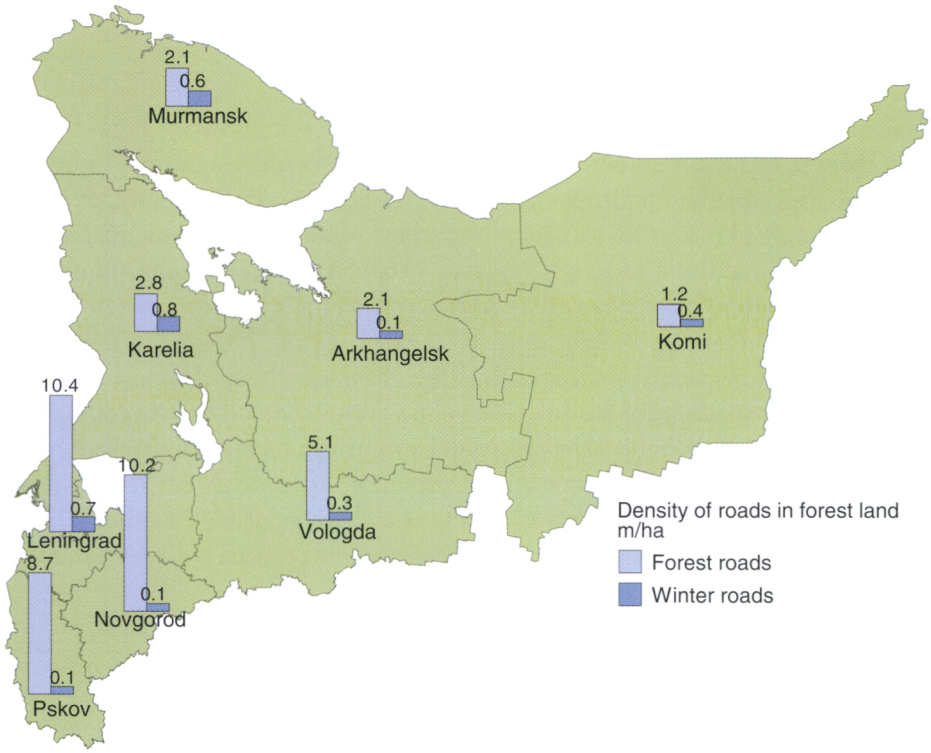

Figure 9.11. Forest road density in Northwest Russia. (Source: Gerasimov et al. 2009)

One of the reasons for the low annual removals in wood harvesting is the out-dated technology and low productivity of the labour. Machinery is often worn-out and obsolete, and as modern, and especially Western, technology is expensive, only the logging companies that belong to forest industry corporations can afford to purchase new technology. Furthermore, because physically demanding work does not attract young people to the logging industry, it has been difficult to recruit educated and motivated labour. The availability of relatively cheap labour, however, has hindered the processes of modernising machinery and intensifying business activities. The logging companies are also reluctant to educate temporary workers.

9.6. Multiple-use of Forests

Non-wood Forest Products

In Russia, researching, utilising and industrial processing of plants with health benefits is more popular than in Western countries. In Russia, citizens are allowed to collect wild fruit, berries, nuts, mushrooms, herbal remedies and resin

(excluding threatened species) for personal consumption. Forest areas can also be leased for the collection of non-wood forest products for industrial or commercial purposes.

For many Russians, wild berries and mushrooms provide a significant supplement to their diet and an important source of vitamins. Furthermore, offering berries and mushrooms for sale is an important source of additional income in rural areas. In addition to unofficial trade between private citizens, numerous small and medium sized enterprises come up with trading points, where products from gatherers are bought during the peak season. However, there is no centralised purchasing system and thus the gatherers themselves take care of bringing their products to market. The volume of non-wood forest products in the market is dependent on the crop yield, and thus varies annually; naturally, the gatherers first satisfy their own consumption needs. Russian statistics on collected and marketed non-wood products are not available. The book "The State of Europe's Forests 2011" gives the following estimates for marketed non-wood forest products in Russia in 2005:

- Mushrooms and truffles: 9,332 tonnes with value of €21 million.
- Fruits, berries and edible nuts: 49,053 tonnes with value of €106 million.
- Resins, pharmaceutical raw material etc.: 5,059 tonnes with value of €8 million.

Actual amounts are most likely bigger than these estimates.

In addition to enterprises that collect berries and mushrooms, there are also enterprises that process and preserve the pickings. Such enterprises have a developed infrastructure and regular suppliers. Their high quality products are either sold domestically or exported. However, the majority of these enterprises operates without an established network, and focus on trading without processing the products; or processing is done on a small scale. Semi-finished products are produced in only a few enterprises. Instead, collected products are mostly sold directly to the food, alcohol and medicine producers that process the products further. A number of foreign enterprises operate in Russia, buying products for export.

Although collecting berries and mushrooms for personal consumption and for sale is common, most of the annual crop is left in the forests. The total weight of the crop of the most commonly collected berries (cranberry, lingonberry and blueberry) in Russia is estimated to be over 7 million tonnes, and 4 million tonnes of mushrooms. According to Russian experts, the exploitable yield of berries and mushrooms is about 50% of the total crop, of which, according to estimations, only 10–40%, depending on the area, is collected.

Collecting birch sap is also common in Russia. In addition to private consumption, sap is sold in industrially packed containers and used as a raw material for producing various drinks. Furthermore, sap is used as a raw material by the cosmetic industry.

Medicinal Herbs and Raw-material for the Chemical Industry

In Russia, over 600 plant species with medicinal significance are known. In conventional medicine, 190 medicinal plants are used and registered in the governmental registration system. The most important are currants (*Ribes spp*), raspberry (*Rubus idaeus*), buckthorn (*Hippophae rhamnoides*) and rosehip (*Rosa spp*). The utilisation of medicinal plants is common in Russia (in comparison to Finland, for example), and the public health service recommends medicine made from them to supplement synthetically produced drugs. About 40% of the medications used in Russian medicine include plants, mainly wild ones. To protect plant populations several conservation areas with Federal status (*zakazniki*) have been established. In addition, regional registers on endangered species have been compiled.

The raw material collected in Russian forests for utilisation by the chemical industry is mostly tanning agents and dying pigments. In addition, pine forests are a source of resin, which is used to produce rosin and turpentine. In the past, resin collection was done on an industrial scale and thus forest areas were assigned for this purpose. However, today the significance of resin collection has diminished. Resin is drawn from the stems of trees 5–15 years before felling.

Recreational Use of Forests

The recreational use of forests is mentioned in the Forest Code as one form of forest utilisation, and a forest area can be leased for recreation. Traditionally, the recreational use of nature has been through workers' holiday camps, as well as children's and teenagers' resorts. Nowadays, nature tourism is arranged by commercial agencies, and is closely related to services provided by nature conservation areas. The Republic of Karelia is one of the first regions in Russia where developing nature tourism is becoming a part of the regional economy. Successful examples are the national parks of Paanajarvi and Vodlozerskiy, as well as the Kostomukshsky nature reserve, where trekking trips and canoeing expeditions are arranged. An interest in so-called ecological nature camps is also increasing. However, the amount of visitors in parks and reserves is restricted.

Regarding demand, the options for mass tourism in nature resorts are limited. The demand for nature tourism in northwest and northern Russia has increased, but the services and infrastructure have not kept pace with this de-

mand. Furthermore, the prices of the services are high compared to citizens' income level. In addition to traditional nature tourism, numerous Russian and foreign enterprises arrange fishing and hunting trips for wealthy customers.

9.7 Forest Energy

Russia has a good potential for energy wood production since a large share of the wood resources – especially deciduous tree species – are currently not utilised by local industry. The Russian domestic forest industry is based largely on the utilisation of coniferous tree species, thus domestic demand for deciduous tree species is low.

Thinnings, which represent nearly 60% of the harvested wood in Nordic countries, are applied far less in Northwest Russia, where they are reported to represent only 12% of the total felled volume. Thus, in Northwest Russia, from a forest resource point of view, it would at least be possible to expand the use of deciduous tree species and wood from thinnings for modern energy production. There are, however, regional differences in the intensity of utilisation and availability of forest resources.

Another source for biomass from forests for energy production is logging residues. In Russia, the current forest management norms require the collection of logging residues from a site after logging. These residues are mostly unused, and even the small portions that are used have, traditionally, not been used for energy production purposes. How residues are collected varies depending on the different logging methods used. If the traditional full-tree method is applied, no additional work in the forest is required to collect residues, since they are removed and accumulate at the roadside in the forest, and even at a central processing yard in an inhabited locality. If the cut-to-length logging method is applied, although logging residues are collected at the harvest site, any further loading, forwarding and unloading of woody biomass from the harvest site to the roadside would require additional work and costs.

Northwest Russia has large energy wood resources in the form of non-industrial roundwood, unused branches, defective wood from logging, lifted spruce stumps, and by-products from mechanical wood-processing. Based on actual cut, and sawmill and plywood mill production in 2006, it is estimated that it would have been possible to collect 31 million m^3 (62 TWh) of energy wood (Table 9.5). The utilisation of this amount of wood in energy production would have increased the proportion of energy wood to 6% in the total energy consumption in Northwest Russia, from 1.8% in 2006.

Since the actual cut in Northwest Russia accounts for only about 40% of the allowable cut, it is possible to intensify the utilisation of the forest resources, which could include an increase in the use of wood for energy production. Full utilisation of the allowable cut and wood-processing capacity could provide 74 million m^3 of energy wood (147 TWh) as by-products, accounting for 15% of the total energy consumed in Northwest Russia in 2006. If, in addition to full utilisation of the allowable cut, thinnings were also used according to their full technical potential, then the by-products available for energy production could total 104 million m^3 (208 TWh), accounting for 21% of the total energy consumed in Northwest Russia in 2006.

Table 9.5. Energy wood potential in Northwest Russia in 2006.

Source	Scenario					
	Actual[1)]		Allowable[2)]		Potential[3)]	
	million m^3	TWh	million m^3	TWh	million m^3	TWh
Logging	22	44	55	111	81	161
Mechanical wood processing	9	18	18	36	23	47
Total	31	62	74	147	104	208

(Source: Gerasimov & Karjalainen 2009)

1) based on actual cut (40 mill. m^3 felling of mature stands, 5 mill. m^3 of thinnings, and 5 mill. m^3 of other fellings) and actual mechanical wood processing (7 mill. m^3 of sawn wood and plywood)

2) same as the "Actual" scenario, but with full utilisation of the annual allowable cut (106 mill. m^3 felling of mature stands) and increased capacity for mechanical wood processing (14 mill. m^3 of sawn wood and plywood)

3) same as the "Allowable" scenario, but with full utilisation of thinnings (53 mill. m^3 of thinnings) and increased capacity for mechanical wood processing (18 mill. m^3 of sawn wood and plywood)

There are large differences in the potential and sources to supply energy wood between and within the regions in Northwest Russia (Figure 9.12). This is owing to differences in the forest resources and their utilisation, as well as in the availability of infrastructure and limitations on logging, such as bans and other restrictions on cutting in old-growth forests. At the Northwest Russian level, in 2006, nearly half of the potential (40%) was non-industrial roundwood, about 30% residues from sawmills and plywood mills, and the rest 30% logging residues and stumps.

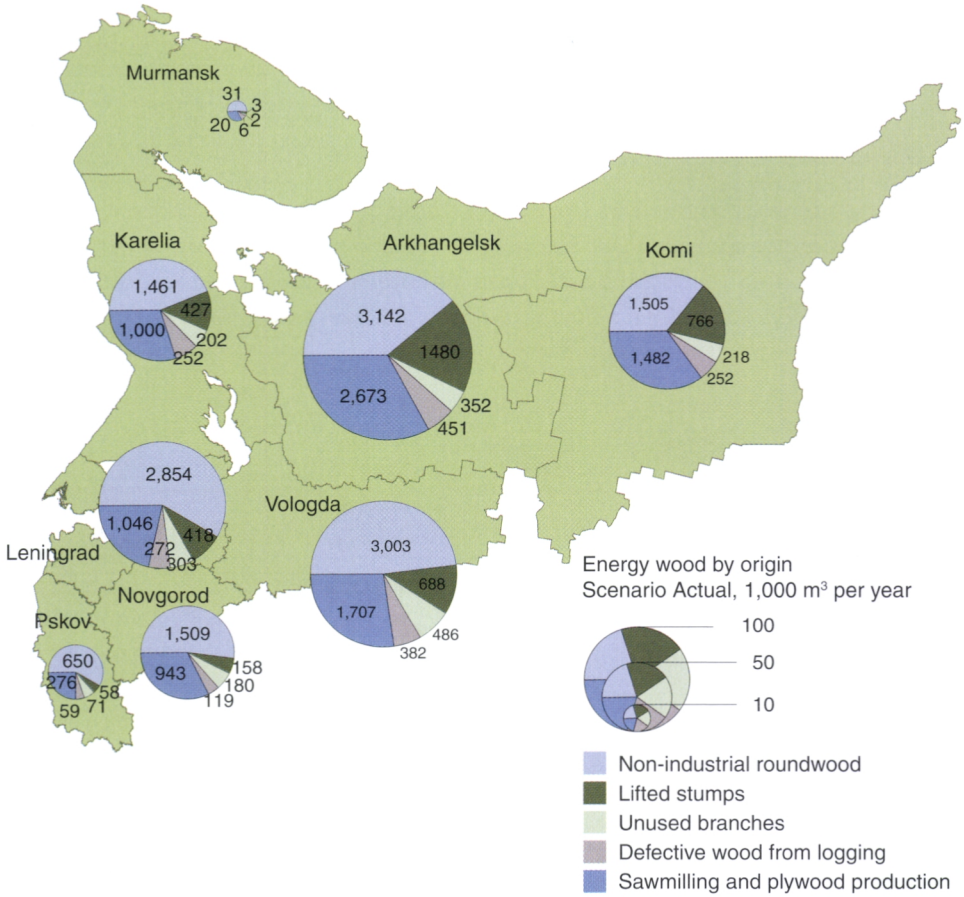

Figure 9.12. Sources of potential energy wood from harvesting, sawmilling and plywood production in the Northwest Russian regions, based on the actual production in 2006. (Source: Gerasimov & Karjalainen 2011)

Even though the forest energy sector is not yet well-developed in Russia, there are signs that development is about to begin in forest-rich Northwest Russian regions, such as the Republic of Karelia and Komi, and the Arkhangelsk, Vologda and Leningrad regions. One important prerequisite for development is the availability of woody biomass for energy production, another one is the existing infrastructure. During Soviet times, most of residential areas were connected to the central heating network. Currently, this network is in poor condition but provides a basis for large-scale energy delivery to most residential areas, if reconstruction and modernisation of the municipal heating systems can be done. The last but not least prerequisite lies in the political sphere. Today, the regional and federal authorities understand that the introduction of forest energy would provide many benefits, such as employment and income in the energy supply chain. There are already regional forest bioenergy prog-

rammes aiming to increase the utilization of local renewable energy sources. In most cases, this would be woody biomass.

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10 Forest Industry

10.1 Russian Forest Industry in General

In Russia, the forest industry as a concept includes the logging industry and the wood-processing industry including mechanical woodworking (sawmilling, wood-based panels) and chemical processing (pulp and paper). In this connection, the logging industry is excluded when referring to the forest industry in order to avoid different interpretations. Some Russian trade statistics concerning pulp and paper industry include also printing industry, what is separately mentioned in the text.

The forest industry has employed about 5% of all Russian industrial labour force over the last 10 years; at present, it employs about 400,000 persons. In addition, 140,000 persons work in the logging industry. The share of forest industry in the total industrial production has stayed at the level of 3–4%, and its proportion in exports has decreased by half to 2% (Figure 10.1).

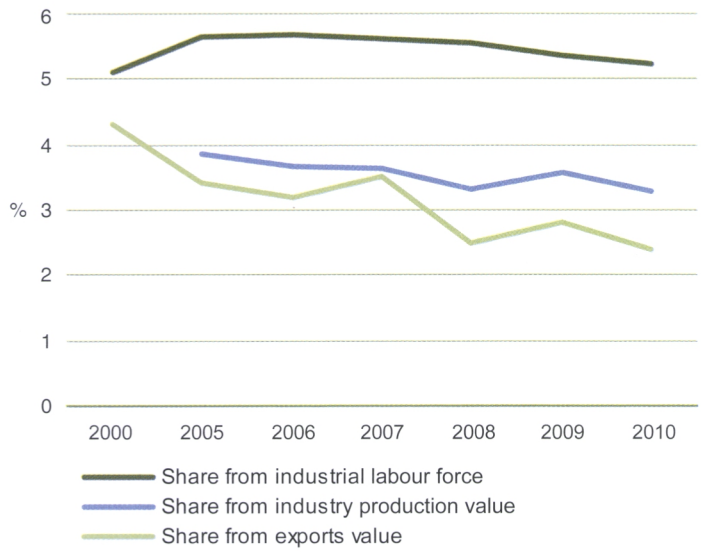


Figure 10.1. Share of forest industry from labour force, industry production and export in Russia. (Sources: Promyshlennost Rossii 2005, 2008, 2010; Rossiya v...2010, 2011; Tsentralnaya baza...2011)

After the collapse of the industrial production in the 1990s, the volumes of mechanical wood-processing have been at a stable level, whereas in the pulp and paper industry the production trend has been growing (Figure 10.2). The pulp and paper industry forms almost 60% of the total value of forest industry production (Figure 10.3). The key figures for forest industry in 2010 are presented in Table 10.1. Although the volumes of production, with regard to most branches of the forest industry, have been on the increase, profitability of production has stagnated, and over half of the wood-processing companies report unprofitable activity (Figure 10.4). In the pulp and paper industry the share of unprofitable companies is smaller.

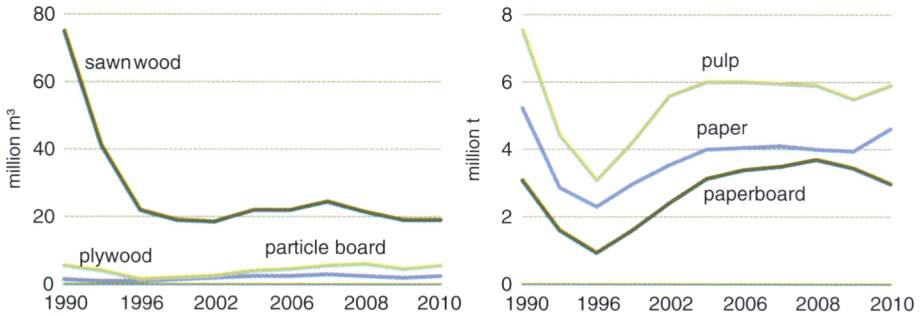


Figure 10.2. Development of production volumes in forest industry in Russia 1990–2010. (Sources: Promyshlennost Rossii 2010; Regiony Rossii. Sotsialno...2008, 2010; Rossiyskiy statisticheskiy ...2010; Sotsialno-ekonomicheskoye...2011)

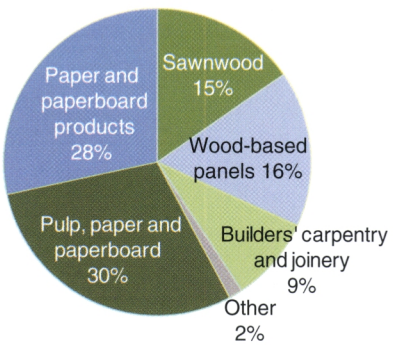


Figure 10.3. Structure of the value of forest industry production in Russia in 2010. (Source: Calculated from the information of Tsentralnaya baza...2011)

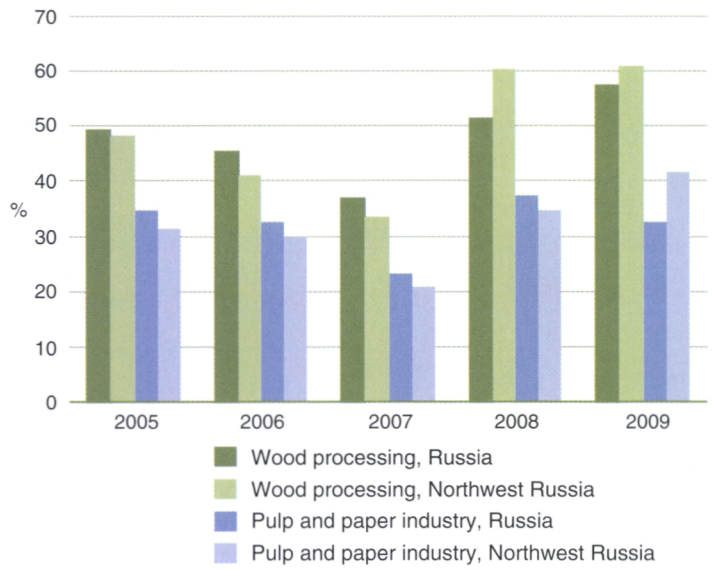


Figure 10.4. Share of unprofitable companies in forest industry in Russia and Northwest Russia (excluding small companies with less than 15 employees). (Source: Tsentralnaya baza...2011)

Table 10.1. Key figures of Russian forest industry.

Product	Unit	2010		Change % 2010 vs. 2009	
		Production in Russia	Share of Northwest Russia %	Russian Federation	Northwest Russia
Sawnwood	million m^3	19.2	31	+1	+6
Particle board	million m^3	5.5	27	+20	+16
Plywood	million m^3	2.7	36	+27	+31
Fibreboard	million m^2	395	13	+6	-4
Paper	million t	4.6	43	+17	-2
Paperboard	million t	3.0	58	-13	-12
Pulp	million t	5.9	65	+8	+12

(Sources: Sotsialno-ekonomicheskoe...2011, Regiony Rossii. Sotsialno... 2010, Tsentralnaya baza...2011)

Although the majority of Russian forest resources are located in Siberia and the Far East of Russia, the production of value-added forest products is concentrated in the European part of the country. The spatial distribution of production plants is affected by the proximity to European markets, as well as the necessary transportation network. With regard to Russia as a whole, the share of the forest industry of the total industrial output is 5%, whereas in many of the Northwest Russian regions it is the most important branch of industry (Figure 10.5). The forest industry constitutes less than 2% of Russia's gross national product.

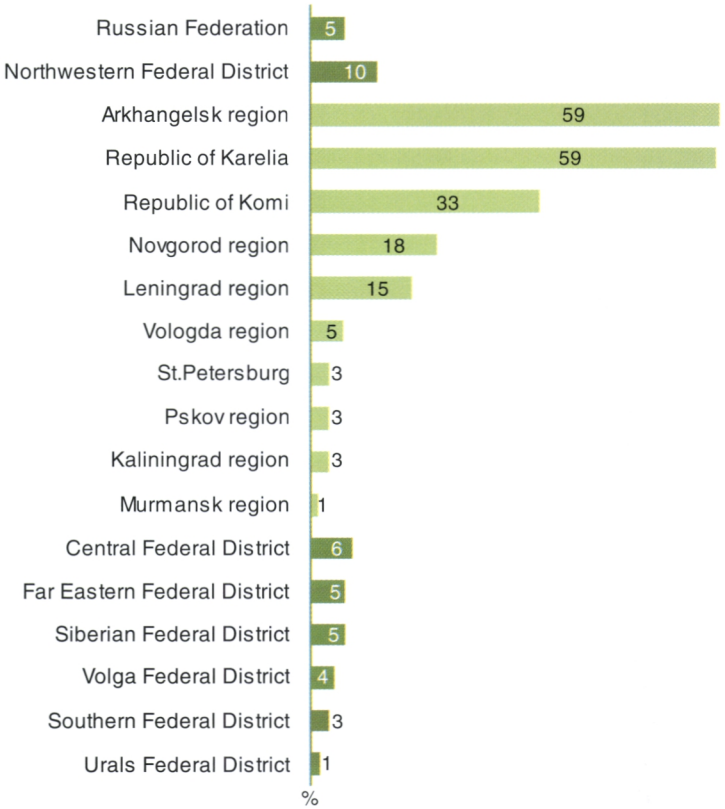


Figure 10.5. Share of forest industry in gross production in Russia and in the Federal Districts in 2009 (including printing industry). (Source: Regiony Rossii. Sotsialno... 2010)

The majority of enterprises in the forest industry are privately owned. Enterprises owned by the Federation or municipalities are few in number. In 2009, their share was 5% of all the forest industry enterprises. During recent years, the Russian forest sector has, owing to globalisation, concentrated on ever greater production units, and the forest industry corporations have become vertically integrated i.e. they cover the whole chain from the forest to the end-product (Table 10.2).

Table 10.2. The biggest forest industry corporations operating in the European part of Russia.

Corporation	Enterprises	Region
Continental Management (www.lpk-km.ru)	Omsk paperboard factory AVA+2	Omsk region
	Selenginsky pulp and paperboard factory	Republic of Buryatia
	Jenisey pulp and paper mill	Krasnoyarsk region
	Kondrova paper company	Kaluga region
	Troitskaya paper mill	Kaluga region
	Sawmill Lesozavod 2	Arkhangelsk region
	Several harvesting companies	
Ilim Group (www.ilimgroup.com)	Koryazhma branch, pulp and paper mill	Arkhangelsk region
	Bratsk branch, pulp and containerboard mill	Irkutsk region
	Ust-Ilimsk branch, pulp mill	Irkutsk region
	Several harvesting companies	
Ilim Timber (www.ilimtimber.com)	Ust-Ilimsk sawmill	Irkutsk region Head office in St.Petersburg
	Ilim Bratsk sawmill	
	Ilim Bratsk plywood mill	
Investlesprom (www.investlesprom.ru)	Onega sawmill	Arkhangelsk region
	Ilyinsky sawmill	Republic of Karelia
	Karelia DSP particle board mill	Republic of Karelia
	Medvezhyegorsky lespromkhoz	Republic of Karelia
	Segezha Packaging	Republic of Karelia
	Segezha pulp and paper mill	Republic of Karelia
	Wood processing mill Segezhky	Republic of Karelia
	Sokol pulp and paper mill	Vologda region
	Sokolsky woodworking mill	Vologda region
	Tomsk plywood mill	Tomsk region
	Vyatsk plywood mill	Kirov region
	Wood boards mill "Novaya Vyatka"	Kirov region
	Kama pulp and paper mill	Perm region
	10 harvesting companies in Northwest Russia	
Mondi Syktyvkar (www.mondibp.com)	Syktyvkar pulp and paper mill	Republic of Komi
	Several harvesting companies	
Rusforest (www.rusforest.com)	Nord Timber Group	Arkhangelsk region
	Sawmill LDK-3	Arkhangelsk region
	RusForest Ust Ilimsk	Irkutsk region
	Sawmill Magistralny	Irkutsk region
	Sawmill Boguchansky LPK	Krasnoyarsk region
	5 harvesting companies	Irkuts and Krasnoyarsk regions
Solombalales (www.solombala.com)	Solombala sawmill	Arkhangelsk region
	Solombala pulp and paper mill	
	Several harvesting companies	
Soyuz Industrial Group (www.pgsouz.ru)	Lesplitinvest, MDF factory	Leningrad region
	SoyuzBaltComplect, furniture factory	St.Petersburg
	Plitspichprom, wood-based panel and house factory	Kaluga region
Sveza Group (www.sveza.ru)	Novator, plywood mill in Velikiy Ustyug	Vologda region
	Ust-Izhora plywood mill	Leningrad region
	Fankom, plywood mill in Manturovo	Kostroma region
	Fanplit plywood mill	Kostroma region
	PFK, plywood mill in Perm	Perm region
Titan Group (www.titangroup.ru)	Sawmill Lesozavod 25	Arkhangelsk region
	8 harvesting companies	(Vologda region, harvesting)

10.2 Competitiveness of the Forest Industry

The foundations of the Russian forest industry are based, at least theoretically, on the vast but underutilised forest resources, cheap energy and well-educated labour. The ever increasing demand in the domestic market for forest industry products creates opportunities for the further development of this industry.

Of the total forest resources of Russia (83 billion m^3), 13% is located in Northwest Russia. The annual allowable cut in Northwest Russia is 112 million m^3, of which less than half is utilised. The main obstacle for the effective utilisation is the underdeveloped network of forest roads. Cutting possibilities in the proximity of forest roads have been utilized, and building new forest roads would require substantial funding. Furthermore, the tree species composition in easily accessible forests is skewed, owing to birch and aspen colonising land at the expense of coniferous species, when forest regeneration and tending activities are insufficient. In many regions in the European part of Russia forests suitable for harvesting have already been leased, and thus forest resources for building new production capacity can be limited.

In comparison with other regions of Russia, in Northwest Russia enterprises have an advantage of being geographically close to the main Russian and European markets. Although, in comparison with Western countries, the road network is sparse, and the utilisation of information technology is still limited, the infrastructure in Northwest Russia is relatively developed compared to the rest of Russia. With regard to railroad transportation, basic infrastructure and availability of energy, enterprises are dependent on state monopolies, whose tariffs are continually increasing.

Handling the Russian bureaucracy is time consuming, which has an effect on the efficiency and costs of the forest industry. Cooperation between government officials is merely non-existent and one-stop-shop principle is not applied, which adds to the paper work of the companies. Deficiencies in the legislation can sometimes lower the efficiency of forestry operations, for example, low thinning intensity or excessive planting requirements in forest regeneration add to the costs of forestry. Finnish Forest Industries Federation has estimated that investment costs in Russia are 1.2–1.3 times higher than in other potential investment countries.

Even though forestry related tuition is given in various educational institutions in Northwest Russia, forest sector companies are lacking educated labour. Interest in the forest sector is diminishing among young people, owing to the low prestige of the profession and hard working conditions. In addition, educated people tend to move to urban areas, which is a challenge for enterprises

located in peripheral areas. Furthermore, the lack of interaction between educational institutions and enterprises, as well as limited opportunities to learn from international experiences, have led to a situation where Russian education is partly deficient for the needs of global forest industry corporations.

The majority of production plants of the Russian forest industry are relatively old. The use of obsolete technology has led to low productivity, labour-intensive production processes, wasting raw material and energy, as well as polluting the environment. Thus, currently the Russian forest industry is competitive mainly in producing low value-added products. Some enterprises have managed to improve their position in the market by radically modernising or building completely new processing plants. For example, foreign owned pulp and paper mills in Svetogorsk (International Paper) and Syktyvkar (Mondi) have begun a new era in Russia, by starting the production of high quality office and offset papers, both for the domestic and export markets. The Ilim Group, owned partly by International Paper, has been the biggest investor in the Russian forest sector. Modernisation of sawmill equipment has strengthened Russia's position in the international market. However, in order to secure the raw material supply for the forest industry, substantial investments are needed to improve the existing logging technology and forest road network.

The position of the Russian forest industry on the international market is based on price competitiveness, which is a result of cheap domestic raw material and energy. This advantage, however, is not permanent and during recent years the prices of both the raw material and energy have gone up, in relation to the prices of the final products. Furthermore, the increase in costs has led to smaller profitability, which hinders investment in modernising the means of production. This tendency will strengthen when Russia joins the World Trade Organisation (WTO). One result of WTO membership is that competition in the Russian domestic market is bound to increase in the short run owing to the opening of the borders to imports. But it also brings Russia to develop domestic production.

The Russian Federation has taken measures towards securing the future development of the forest industry. With regard to high value-added products like pulp and paper, the customs duties on exports have been reduced or abolished completely, and the import duties on wood-processing equipment have been lowered. The Forest Sector Development Strategy, approved in 2008, sets targets for the forest industry until the year 2020. It analyses the long-term production scenarios of Russian forest sector products in both international and domestic markets, and gives a prognosis about the development of demand for domestic products from 2007 to 2020. The general objective of the strategy is to renew the structure of the forest industry by forming large forest indus-

try corporations that would have the capacity to produce higher value-added products, and the resources to take care of the development of silviculture. The clear aim is to protect existing domestic production with customs policy, and to facilitate the formation of large corporations by giving privileges to so-called priority investment projects that are considered strategically important (see Section 10.3).



Forest Sector Development Strategy 2020

The strategy introduces two forest sector development scenarios up until 2020:

1) The natural scenario anticipates no major changes in the current development of the forest sector. The current development pace would continue through the modernisation of existing production plants without major innovations or large greenfield investment. New production would be established mainly in the sawmill and board industry.

2) The innovation scenario assumes the active participation of the state in the development of the forest sector to accelerate real growth. New production capacity would be established, particularly in pulp and paper manufacture, existing production plants would be modernised, new innovations would emerge and domestic forest machine production would flourish. Wood construction is also mentioned as a focus area of the scenario.

Production goals	Unit	Actual in	Natural scenario	Innovation scenario
		2007	2020	
Industrial roundwood	million m^3	142	178	254
Sawnwood	million m^3	24	32	55
Wood based panels	million m^3	10	16	25
Pulp	million t	6	8	13
Paper and paperboard	million t	8	10	16
Furniture	billion RUB	75	145	300

Financing needs	Natural scenario	Innovation scenario
Investments during 2008–2020:	673 billion RUB	2,768 billion RUB
pulp and paper industry	40%	42%
production of wood-based panels	33%	18%
sawmilling and furniture industry	12%	10%
wood harvesting	12%	11%
forestry	3%	18%
research and development	0.3%	1.3%

Expected results of the innovation scenario	Unit	2007 (act.)	2020
Forest sector production	billion RUB	617	2,680
Taxes paid to budget	billion RUB	64	342
Productivity of one worker	1,000 RUB	761	3,739
Consumption:			
paper and paperboard	kg/person	46	100
wood-based panels	m^3/1,000 persons	62	151
furniture	RUB/person	1,303	5,112
Processing degree of harvested wood	%	49	79
Share of imported products in domestic market:			
paper and paperboard	%	23	11
wood-based panels	%	19	3
furniture	%	41	11
Clear felling area	1,000 ha	757	1,000
Forest regeneration	1,000 ha	872	1,040
Budget income from the forest use	billion RUB	15	31

A special emphasis in the strategy is given to forest roads. The annual construction of year-round forest roads should be 2,167 km, and the construction of temporary roads 9,288 km. Most roads are planned to be constructed in the Northwest and Siberian Federal districts, where the objective is to construct 3,000 km of new forest roads annually.

10.3 Investments in the Forest Industry

One of the high priorities of Russian forest policy is the attraction of new investment into the Russian forest sector, and its ambition is to become a manufacturer of high value-added products instead of producing cheap bulk products and importing upgraded ones from abroad. Outdated and low capacity production plants, as well as a lack of greenfield investment, have not contributed to a rise in the forest sector so far.

The attraction of new large investment, particularly in the pulp and paper industry, has become a necessity for the development of the Russian forest industry. This goal is supported by the Government Act No. 419 on priority investment projects, adopted on 30 June, 2007. The modernisation of the existing infrastructure, as well as the establishment of new capacity and structures in the forest industry, is promoted by granting large investment projects priority and certain privileges. A company with a priority investment status is granted forest lease areas without having to participate in the normal auction procedures, and projects will also get a 50% reduction in forest use payments. The required minimum value for a priority investment project is 300 million roubles (€7.5 million).

At the end of 2011, the number of valid projects was 99, with a total value of €10 billion, and estimated demand for roundwood of 65 million m^3. One-fifth of the approved projects have been realised thus far. The actual worth of investments during 2008–2011 was €3.7 billion, of which a little over half was used to increase the capacity of sawnwood and wood-based panel production. A list of priority investment projects, registered by December 2011, can be found in Appendix 1.

Even though the list of priority investment projects is impressive, and some investment has been realised already, the realisation percentage of the registered projects has been poorer than one might have hoped for. The majority of the projects are lagging behind schedule, and four projects had been removed from the priority investment list altogether, because of a slow execution rate. Among them was one of the largest registered projects, the Troitsko-Pechorskiy CBK project in the Republic of Komi, including both a sawmill and a pulp and paper mill. In some cases, it has turned out that the planned investment projects have been without a real basis for realisation, or the priority investment status has been used merely as an excuse to redistribute forest use rights under favourable conditions.

In general, about €2 billion have been invested into the Russian forest sector annually over the past years (Figure 10.6). Investments have been made to improve the existing production units and intensify wood procurement. Production processes have been modernised, for example, by introducing non-chlorine bleaching technology, updating the processing of raw material, and utilisation of by-products and waste material. The amount of foreign investments has decreased, mainly owing to the global economic crisis and decreased demand for products, but partly also because of uncertainties related to operating in Russia. Year 2008 was the most active year of investments; domestic and foreign financing counted for almost €3 billion. The main investment projects at the time were the construction of a pulp plant in Koryazhma, the Arkhangelsk region, by the Ilim Group, the modernisation of the Syktyvkar pulp and paper mill in the Republic of Komi by Mondi, and the upgrading of the Svetogorsk mill in the Leningrad region by International Paper. In the wood-processing industry, investments have been made, especially in sawmills. A remarkable proportion of the new production capacities have been built in the Northwest Russia (Figure 10.7).

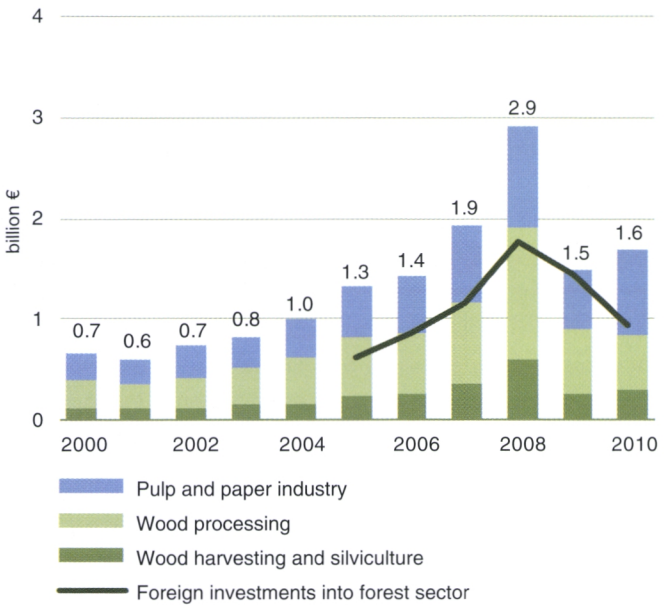


Figure 10.6. Investments to the Russian forest sector. (Sources: Baza dannykh...2011, Tsentralnaya baza...2011)



Figure 10.7. Introduction of new production capacities in 2004–2010. (Source: Tsentralnaya baza...2011)

Almost all significant global forest industry companies have explored the possibilities of investing in the Russian forest sector, and numerous Russian and international investment plans into pulp and paper manufacture have been presented. However, thus far, investments have been, scarce. Before 2010, there had been no greenfield investment in the Russian pulp and paper industry for 30 years. In 2010, Ilim Group announced a plan to build a new pulp line in Bratsk mill in the Irkutsk region. At the end of 2011, construction work is in the final stage.

Even though the investors are offered privileges, there are still factors hindering the willingness of particularly foreign investors to invest in the Russian forest industry. The deficiencies in legislation, insufficient protection of property rights and investment, over-excessive administration and a lack of transparency are some of the factors mentioned by investors as risks when investing in Russia. Constant changes in forest legislation, law enforcement and governance

are leading to insecure operational conditions in the forest sector, as well as the uncertainty of wood supply in the long run. Also, the administrative division of Russia into federation subjects imposes a potential problem to the investor. The regions are competing against each other for investments and this could cause problems in wood procurement across administrative borders. In addition, inadequate infrastructure, unclear financing and ownership relations in forestry are causing problems. As a result the foreign enterprises have invested mainly in the mechanical woodworking industry (Table 10.3).

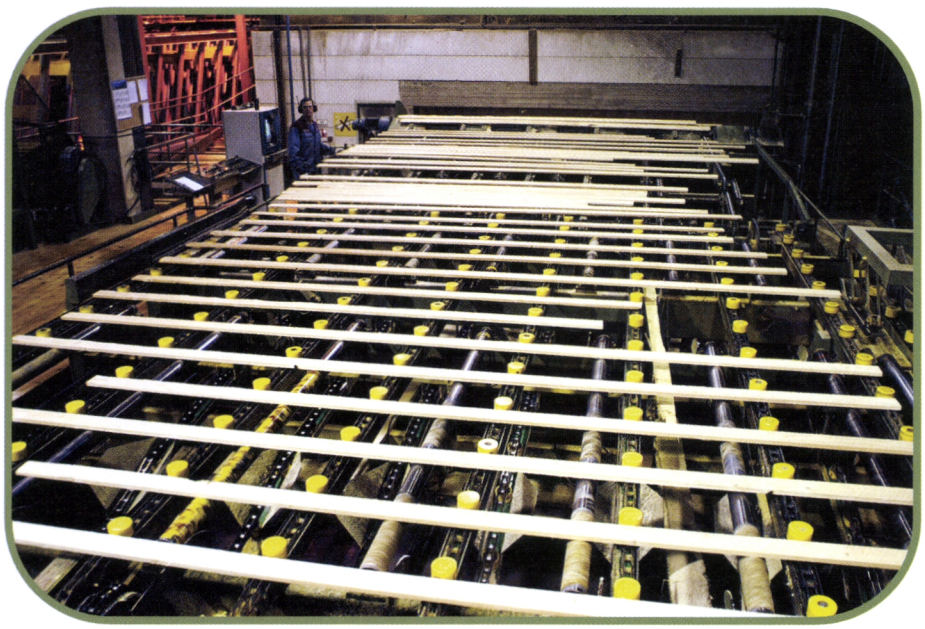


Table 10.3. Foreign owned production plants and recent investment plans in Russian forest sector.

Investor (country)	Production unit, year of inauguration	Region	Product (annual production capacity)
Centrozap (PL)	CentroWoodKom sawmill, not announced	Komi	Sawnwood (750,000 m³)
Deere & Company (US)	Production of forest machines, 2010 Expansion plan announced in 2011	Moscow	Forwarders
Egger (AT)	Particle board mill in Shuya, 2005 Purchase of the Gagarin plywood mill, 2011	Ivanov Smolensk	Particle board (250,000 m³), laminated (75,000 m³) Particle board (500,000 m³), upgraded (20 mil.m²)
Hasslacher Norica Timber (AT)	Purchase of the MADOK sawmill, 2009	Novgorod	Sawnwood (100,000 m³)
International Paper (US)	50% share of the Ilim Group, 2007 Modernisation of Koryazhma and Bratsk branches, 2012	Arkhangelsk Irkutsk	
International Paper (US)	Modernisation of Svetogorsk mill Construction of pulp mill (BCTMP), 2008	Leningrad	
Inwido Group (SW)	Puchase of the Eurotiivi-company, 2007	Murmansk	Windows, glued timber
Karelia-Upofloor (FI)	Flooring factory, 2008	Kaluga	Parquet (2.5 mil.m²)
Koskisen (FI)	Koskisilva sawmill, 2007 Plan for plywood production, postponed	Vologda	Sawnwood (20,000 m³)
Kronospan Holdings (AT)	Kronospan Egorievsk, 2004 OSB plant, under construction	Moscow	Fibreboard (MDF, HDF) (200,000 m³), particle board (750,000 m³), OSB (250,000 m³)
Mayr-Melnhof Holz (AT) and LSR Group (RU)	MM-Efimovsky, sawmill, 2009 Plan for production of glued laminated timber	Leningrad	Sawnwood (350,000 m³)
Metsä-Botnia (FI)	Svir Timber sawmill, 2006	Leningrad	Sawnwood (200,000 m³)
Metsä Tissue (FI)	Naro Fominsk converting mill, 2008	Moscow	
Mondi (ZA)	Syktyvkar pulp and paper mill, 2002 Upgrading of production, 2010	Komi	Pulp (900,000 t), paper & paperboard (770,000 t)
Norvik (IS)	Norwood sawmill	Komi	Sawnwood
Pfleiderer (AT)	Particle board mill, 2006 Fibreboard mill, under construction	Novgorod	Particle board (500,000 m³), fibreboard (MDF/HDF) (500,000 m³)
Rimbunan Hijau Group (MY)	Fibreboard mill, 2011	Khabarovsk	Fibreboard (MDF/THDF) (150,000 m³)
Safwood (IT)	Particle board mill under construction, halted	Komi	Particle board (150,000 m³)
SCA (SE)	Packaging factory Kuban, 1991 Packaging factory St Petersburg Tissue mill Svetogorsk, 1998 Tissue mill Sovetsk, 2008 Veniov factory, 2010	Krasnodar St Petersburg Leningrad Tula Tula	
Stora Enso (FI)	Impilahti sawmill, 2003 Nebolchi sawmill, 2004	Karelia Novgorod	Sawnwood (360,000 m³)
	Arzamaz packaging mill, 2004 Balabanovo packaging mill, 1998 Balabanovo offset mill, 2008 Corrugated packaging plant Lukhovitsy, 2008	Nizhny Novgorod Kaluga Kaluga Moscow	
Sumitomo Corporation (JP)	Share of OAO Terneyles stock (45%)	Primorsk	Roundwood (1 mil.m³), sawnwood (200,000 m³), veneer (200,000 m³)
Swedwood (SW)	Swedwood Tikhvin, 2002 Swedwood Karelia, 2003	Leningrad Karelia	Sawnwood and furniture components
	Swedwood Esipovo, 2004	Moscow	Furniture board
Swiss Krono Group (CH)	Kronostar, 2003	Kostroma	Particle board, MDF-board (430,000 m³), floor laminate (2.5 mil.m²/month), laminated MDF-board
Södra (SW)	Feasibility study with Angara Paper	Krasnoyarsk	Pulp (1.1 mil.t)
TangShan SanYou (CN)	Plan to establish joint venture with Continental Management	Krasnoyarsk	Viscose pulp (100,000 t)
Unilin Group (BE)	Flooring plant	Nizhny Novgorod	
UPM (FI)	Chudovo mills, plywood, 1990, veneer production line, 2003 Pestovo sawmill, 2004	Novgorod	Birch plywood (100,000 m³), veneer (6,000 m³) Sawnwood (260,000 m³)

Country codes: AT=Austria, BE=Belgium, CH=Switzerland, CN=China, FI=Finland, IS=Iceland, IT=Italy, JP=Japan, MY=Malaysia, PL=Poland, RU=Russia, SE=Sweden, US=United States, ZA=South Africa

(Sources: Company news letters, mass media)

(The list has been compiled from available sources and thus it is not complete)

10.4 Sawmill Industry

Russia is the fourth largest sawnwood producer in the world with a 7% share of the total world production. The Russian sawmill industry is export-orientated, and its main production is located in Northwest Russia and Siberia (Figure 10.8). In 2010, Russia produced 19 million m^3 of sawnwood, of which 6 million were produced in Northwest Russia, mostly in the Arkhangelsk and Vologda regions (Table 10.4). According to FAOSTAT, Russia produced 28 million m^3 of sawnwood in 2010. The information is reported as unofficial and details are not specified.

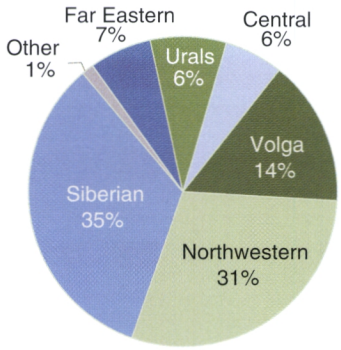


Figure 10.8. Production of sawnwood by Federal Districts in 2009. (Source: Calculated from data of Regiony Rossii. Sotsialno...2010)

Table 10.4. Production of sawnwood and utilisation of total capacity in Russia in 2010.

Region	1,000 m^3	Utilisation rate, %
Russian Federation	19,238	52
Northwest Russia	5,824	58
Arkhangelsk region	1,576	61
Vologda region	1,164	55
Leningrad region	900	72
Republic of Karelia	714	47
Novgorod region	709	41
Republic of Komi	670	80
Pskov region	91	22

(Sources: Sotsialno-ekonomicheskoe...2011, Tsentralnaya baza...2011)

Sawmilling has developed quickly in Russia over the last ten years, and investments have concentrated on this branch of forest industry. According to Rosstat, during that period, 7 million m^3 of new production capacity has been taken into use. The production quantity has been almost the same during the last ten years (Figure 10.9), and only half of the total capacity is in use. The new saw lines have partly been installed in existing sawmills, and the old production capacity is used less. As most of the produced sawnwood is exported, the global demand situation is influencing production amounts. Russian sawmills have faced difficulties in securing a constant flow of raw material, and in some regions a lack of saw logs has brought down production.

The largest Russian sawmills with annual production volume of 0.5 million m^3 of sawnwood are in Siberia. Examples of these are Lesosibirsky LDK № 1 and Novoyenisey Forest Chemical Complex in Krasnoyarsk region and Ilim Timber's Ust-Ilimsk Sawmill in Irkutsk region. The largest Northwest Russian sawmills are presented in Table 10.5.

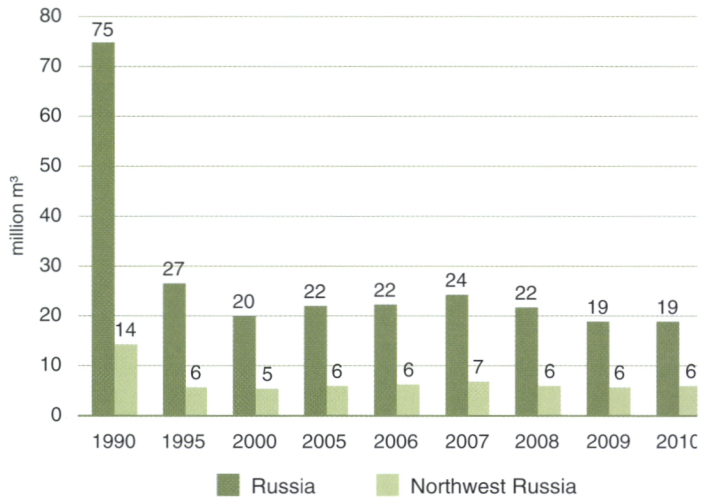


Figure 10.9. Trends in the production of sawnwood in 1990–2010. (Sources: Regiony Rossii. Sotsialno... 2008, 2010; Sotsialno-ekonomicheskoye...2011)

Table 10.5. The main producers of sawnwood in Northwest Russia.

Region	Production capacity, m³/a		
	> 50,000	> 100,000	> 200,000
Arkhangelsk region	Nordic Timber Group (RusForest)	Arkhangelsky LDK №3 (RusForest) HarvySeverLes* Kotlasskiy LDK Lesozavod №2 (Continental Management) Lesozavod №3 Ustyanskiy LPK (ULK Group)	Lesozavod 25 (Titan Group) Onezhsky LDK (Investlesprom) Solombalsky LDK
Republic of Karelia	Medvezhegorsky LPH (Investlesprom) Solomenskiy lesozavod Karlis Prom Zapkarelles	Swedwood Karelia Stora Enso Impilahti Sawmill	Segezhsky LDK (Investlesprom)
Republic of Komi	Nordwood (Norvik)	Leskom* Syktyvkarsky LDK*	SevLesPil
Leningrad region		Volosovskiy LPK	Mayr-Melnhof Holz Efimovskiy Svir Timber (Botnia) Swedwood Tikhvin
Novgorod region		MADOK NLK Sodruzhestvo	Stora Enso Nebolchi UPM Pestovo Sawmill
Vologda region	Bely Ruchey Cherepovetsles Kharovsklesprom LDK №2	Sokolsky DOK (Investlesprom)	

* not working in 2010

Sources: company web-pages, mass media, Itogi raboty ... 2011)

10.5 Wood-based Panel Industry

Plywood

In 2010, Russia produced almost 3 million m^3 of plywood, which is 3% of the total world production. Over half of the produced plywood is exported. The Northwest Russia's share of total Russian plywood production is 36%, where the Republic of Komi and the Vologda region are the greatest producers (Figure 10.10, Table 10.6). Other significant producers are the Kostroma and Kirov regions.

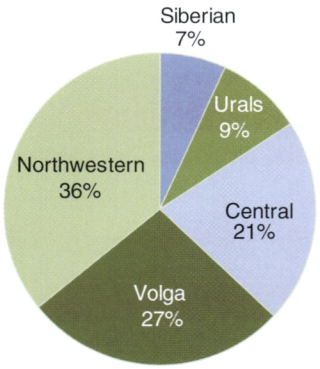


Figure 10.10. Russian plywood production by Federal Districts in 2010. (Source: Calculated from data of Tsentralnaya baza...2011)

Table 10.6. Plywood production and the utilisation rate of the total capacity in 2010.

Region	1,000 m³	Utilisation rate, %
Russian Federation	2,700	81
Northwest Russia	962	88
Republic of Komi	291	93
Vologda region	248	93
St. Petersburg	141	94
Novgorod region	131	71
Arkhangelsk region	94	95
Republic of Karelia	50	32
Leningrad region	7	62

(Sources: Itogi raboty...2011, Sotsialno-ekonomicheskoe...2011, Tsentralnaya baza...2011)

In Russia, most of the significant plywood plants have begun to produce large-size sheets of plywood, and the production of coated plywood and other special products is developing. The utilisation rate of production capacity is high, being over 80% in the whole of Russia and most of the regions in Northwest Russia. The production volumes in the plywood industry have increased. Production in 2010 was almost twice the volume in 2000 (Figure 10.11). Sveza Group is the most important plywood producer in Russia, it has five factories in the European part of Russia. In 2010, it produced almost one quarter of all the plywood. Other main plywood factories are located in Northwest Russia (Table 10.7).

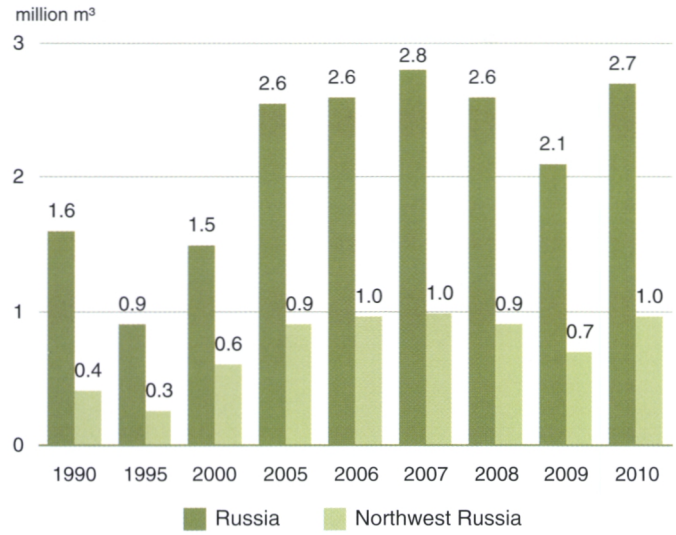


Figure 10.11. Trends in Russian plywood production in 1990–2010. (Sources: Regiony Rossii. Sotsialno...2008,2010; Sotsialno-ekonomicheskoye...2011)

Table 10.7. The main producers of plywood in Northwest Russia.

Region	Enterprise	Production 1,000 m³	
		2010	2008
Arkhangelsk region	Arkhangelsk plywood mill (www.arkpf.ru)	96	99
Novgorod region	Parfino plywood factory (www.parfinofk.ru)	36	82
	UPM, Chudovo mills (www.upm.com)	100 (capacity)	90
Republic of Karelia	Lahdenpohja plywood plant Bumex (www.bumex.ru)	n/a	n/a
Republic of Komi	Syktyvkar plywood mill (www.plypan.com)	186	175
	Zheshart plywood mill (www.upgweb.ru)	n/a	112
St. Petersburg	Lesprom SPb	n/a	32
	Sveza, Ust-Izhora plywood mill (www.sveza.ru)	102	100
Vologda region	Novator, Sveza, plywood mill in Velikiy Ustyug (www.sveza.ru)	94*	98
	Severtara (www.severtara.ru)	25	n/a
	Sotameko Plus (www.fancom.ru)	n/a	24
	Cherepovets plywood and furniture plant (www.cfmk.ru)	85	83

* in 2009

(Sources: company homepages; Itogi raboty...2010, 2011)

Particle Board

In 2010, Russia produced 5.5 million m³ of particle board, which is almost 6% of the world's total particle board production. During the same year, Northwest Russia produced 27% of Russian particle board, and the Vologda region was the greatest producer in the area (Table 10.8). In recent years, the production of particle boards has been on the increase (Figure 10.12). Domestic demand has

been rising owing to the expanding furniture manufacturing and house construction. The majority of the Russian particle boards are sold in domestic markets and, for example, in 2010, only 9% of the total production was exported.

Table 10.8. Particle board production and capacity utilisation rate in 2010.

Region	1,000 m³	Utilisation rate, %
Russian Federation	5,500	75
Northwest Russia	1,511	85
Vologda region	522	86
Novgorod region	473	75
Republic of Komi	307	97
Leningrad region	139	96
Republic of Karelia	70	88

(Sources: Itogi raboty...2011, Sotsialno-ekonomicheskoe...2011, Tsentralnaya baza...2011)

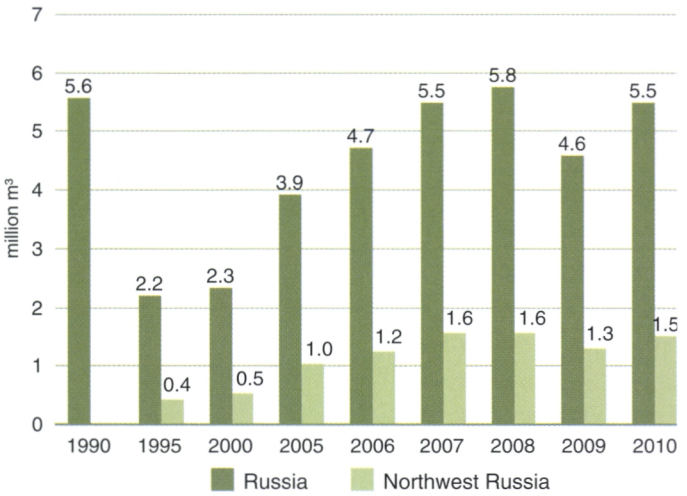


Figure 10.12. Trends in particle board production in Russia in 1990–2010. (Sources: Promyshlennost Rossii 2008, 2010; Rossiyskiy statisticheskiy...2010; Sotsialno-ekonomicheskoye...2011)

Several Russian and foreign enterprises have modernised existing particle board plants and constructed new ones. During the last ten years almost 4 million m³ of new production capacities has been introduced according to Rosstat. In Russia, among the largest producers of particle boards are Pfleiderer (Novgorod region), Kronospan (Moscow region), Kronostar (Kostroma region), Egger (Ivanov and Smolensk regions) and Syktyvkar Plywood Mill (Republic of Komi) (Table 10.9).

Oriented strand board (OSB) is not yet produced in Russia, but several plans to start production have been presented; for example, by international companies such as Egger, Kronospan and the Krono Group. In the Republic of Karelia, an OSB plant, DOK Kalevala, is under construction and production is planned to begin in 2012. Kronospan started construction of OSB production line in autumn 2011.

Table 10.9. The main producers of particle board in Northwest Russia.

Region	Enterprise	Production 1,000 m^3	
		2010	2008
Leningrad region	Zavod Nevsky Laminat (www.dspnd.ru)	n/a	144
Novgorod region	Pfleiderer (www.pfleiderer.ru)	400	510
Republic of Karelia	Investlesprom, Karelia DSP (www.investlesprom.ru)	67	126
Republic of Komi	Syktyvkar plywood mill (www.plypan.com)	270	312
	Zheshart plywood mill (www.upgweb.com)	n/a	n/a
Vologda region	Sheksninsky factory for wood-based panels (www.skdp.ru)	188	219
	Cherepovetsky plywood and furniture factory (www.cfmk.ru)	194	133

(Sources: company homepages; Itogi raboty...2010, 2011)

Fibreboard

In 2010, Russia produced 395 million m^2 of fibreboard, according to the Russian statistics, or 1.7 million cubic meters according to FAOSTAT. Northwest Russia is not specialised in producing fibreboard, and thus its share of the Russian production is only 13% (Table 10.10). The main part of fibreboard is hardboards and production of insulating boards is very modest. Production of medium density fibreboard (MDF) has developed rapidly during the last six years, mainly as a result of international investments. As the Russian statistics do not present enough detailed data, the production trends of different fibreboard types are presented according to the FAOSTAT data in Figure 10.13. Statistics are not comparable with each other, as production units differ and reporting of MDF is unclear in Russian statistics.

Table 10.10. Fibreboard production and utilisation rate of capacity in 2010.

Region	million m^2	utilisation rate, %
Russian Federation	395	80
Northwest Russia	53	64
Vologda region	20	51
Republic of Komi	17	62
Leningrad region	9	100
Arkhangelsk region	8	91

(Sources: Itogi raboty...2011, Sotsialno-ekonomicheskoe...2011, Tsentralnaya baza...2011)

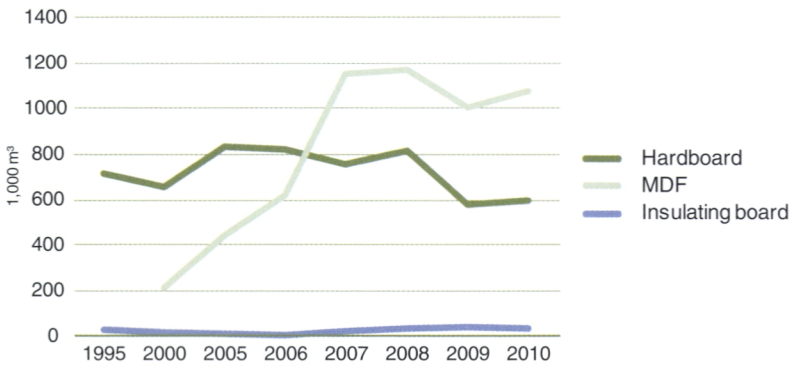


Figure 10.13. Trends in fibreboard production in Russia in 1990–2010. (Source: FAOSTAT 2011)

The majority of Russian fibreboard production is in Central Russia and in Siberia. Among the largest fibreboard plants in Russia are Kronospan in the Moscow region, Kronostar in the Kostroma region, Novoyenisey Forest Chemical Complex in the Krasnoyarsk region and Ilim Bratsk Plywood Mill in the Irkutsk region. The most important Northwest Russian fibreboard plants are presented in Table 10.11.

Table 10.11. The producers of fibreboard in Northwest Russia.

Region	Enterprise	Production, million m²	
		2010	2008
Arkhangelsk region	Arkhangelsk pulp and paper mill (www.appm.ru)	7.7	7.4
Leningrad region	Lesplitinvest (www.plit.ru)	7.9	8.6
Republic of Komi	Ilim Sever Drev	n/a	11.0
	Knyazhpogotsk fibreboard plant (www.wood-way.ru)	n/a	23.7
	Zheshart plywood mill (www.upgweb.com)	n/a	n/a
Vologda region	Sheksninsky factory for wood-based panels (www.skdp.ru)	0.8	7.2
	Sukhonsky pulp and paper mill (www.ukobf.ru)	17.0*	17.8

* in 2009

(Sources: company homepages; Itogi raboty...2010,2011)

10.6 Pulp and Paper Industry

Of all the branches of Russian forest industry, the pulp and paper industry is the most significant and the most stable. In 2010, its share of the monetary value of the gross output of the forest industry was 58%. Over the last ten years, Russia has produced about six million tons of pulp and seven million tons of paper and paperboard annually (Figure 10.14). Currently, the production capacity is mostly utilised, and investments have been made to upgrade production and to manufacture higher value-added goods. A remarkable share of the Russian large pulp and paper production plants are located in Northwest Russia (Table 10.12).

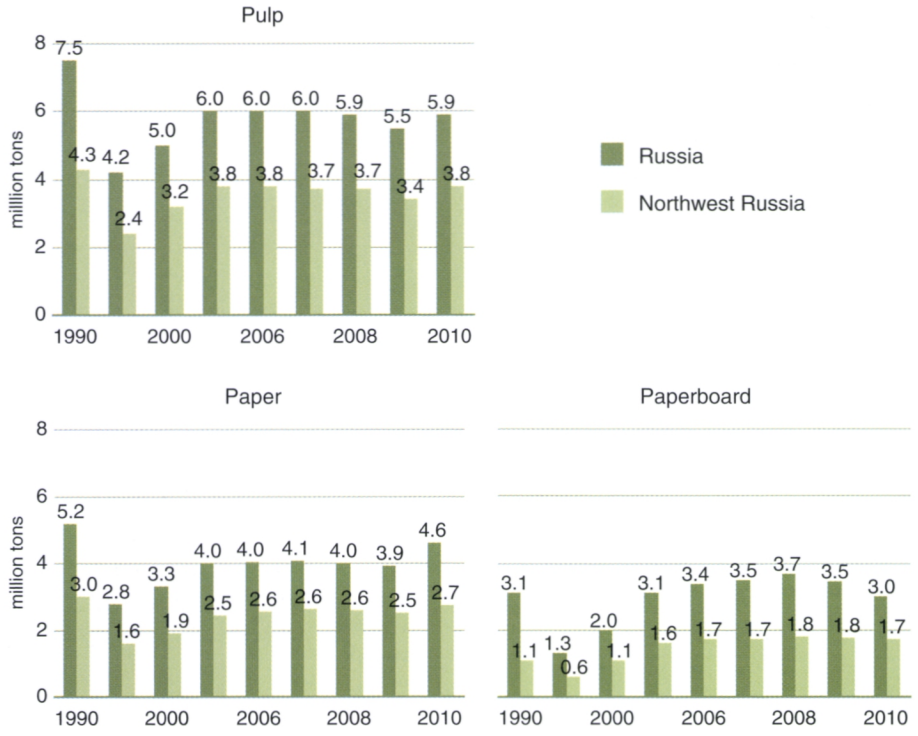


Figure 10.14. Trends in pulp, paper and paperboard production in Russia in 1990–2010.
(Sources: Regiony Rossii. Sotsialno… 2008, 2010; Sotsialno-ekonomicheskoye…2011)

Table 10.12. The producers of pulp, paper and paperboard in Northwest Russia.

Region	Enterprise	Products	Production 1,000 t	
			2010	2008
Arkhangelsk region	Arkhangelsk pulp and paper mill (www.appm.ru)	Pulp	247	755
		Office, offset and wrapping papers	84	71
		Containerboard	504	481
	Ilim Group, Koryazhma Branch (www.ilimgroup.com)	Pulp	1,048	1,067
		Offset paper	199	243
		Containerboard	478	543
		Products of chemical forest industry		
	Solombala pulp and paper mill (www.sppm.ru)	Pulp	368	198
		Packaging paper	4	n/a
		Products of chemical forest industry		
Kaliningrad region	Neman pulp and paper mill (www.ncbk.ru)	Office and offset paper	17	49
Republic of Karelia	Kondopoga pulp and paper mill (www.oaokondopoga.ru)	Pulp	751	110
		Newsprint	772	753
	Pitkaranta pulp mill (www.pitzavod.ru)	Pulp	87	102
	Investlesprom, Segezha pulp and paper mill (www.scbk.ru)	Pulp	264	266
		Kraft and sack paper	251	211
		Paperboard	–	41
		Paper sacks	388 mil. pcs	338
Republic of Komi	Mondi Syktyvkar (www.mondigroup.com)	Pulp	553	546
		Office, offset and newsprint paper	687	614
		Containerboard	172	208
	Syktyvkar Tissue Group (www.veiro.ru)	Tissue paper	38	22
Leningrad region	Goznak paper mill (www.goznak.spb.ru)	Office and offset paper	21	21
	Kommunar paper and paperboard mill (www.kommunar.ru)	Label paper, packaging paper, kraft and sack paper, paper for corrugated board	75	n/a
	SCA Packaging (www.sca.com)	Tissue paper	40	41
	Saint-Petersburg cartonboard and printing mill (www.knauf.ru)	Paperboard	250	251
	Syassky pulp and paper mill (www.syas.ru)	Pulp	58	69
		Tissue paper	28	45
	International Paper, Svetogorsk mill (www.internationalpaper.com)	Pulp	378	393
		Office and offset papers	364	352
		Packaging board	89	83
	Vyborg pulp mill (www.vybcell.ru)	Pulp	66	72
		Wallpaper base-board, packaging papers, containerboard	81	95
Novgorod region	Okulovskaya paper mill (www.fluting.ru)	Containerboard	57	n/a
	Velgiyskaya bumazhnaya fabrika (www.bvbf.natm.ru)			
Vologda region	Investlesprom, Sokol pulp and paper mill (www.sokolmill.ru)	Pulp	13	29
		Cooking paper	13	26
		Paperboard	1	n/a
	Sukhonsky pulp and paper mill (www.ukobf.ru)	Containerboard	24	60

(Sources: company homepages; Itogi raboty… 2010, 2011)

Russia is the eighth largest **pulp** producer in the world, with 3% of total world production. There are about 40 pulp mills in Russia, but 70% of the production is done by the 7 largest mills. In 2010, Russia produced 5.9 million tonnes of pulp, and the greatest pulp production regions were Arkhangelsk and Irkutsk. Over 60% of Russian pulp is produced in Northwest Russia, of which half is produced in the Arkhangelsk region (Figure 10.15 and Table 10.13). Outside Northwest Russia, pulp is mainly produced by the Ilim Group's two mills in the Irkutsk region.

The majority of the Russian pulp is produced using the sulphate method, yet the sulphite method is still used in some small- and medium-sized pulp mills. Investments have been made in non-chlorine (or ECF) bleaching in the largest mills. In comparison to Western countries, mechanical pulp is produced to a significantly smaller degree in Russia.

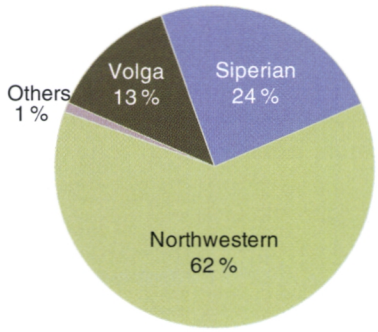


Figure 10.15. Share of Federal Districts with regard to pulp production in Russia in 2010. (Source: Calculated from data of Tsentralnaya baza...2011)

Table 10.13. Pulp production and the utilisation rate of capacity in 2010.

Region	1,000 tonnes	Utilisation rate, % (in 2009)
Russian Federation	5,900	
Northwest Russia	3,833	
Arkhangelsk region	1,663	92
Republic of Karelia	1,102	64
Republic of Komi	553	97
Leningrad region	501	80
Vologda region	14	28

(Sources: Itogi raboty...2011, Lesopromyshlenny kompleks... 2010, Sotsialno-ekonomicheskoe...2011)

In 2010, Russia produced 7.6 million tonnes of **paper and paperboard,** which is less than 2% of the world's total production. About 40% of the Russian paper production was newsprint. Northwest Russia is the greatest paper and paperboard producer of all the Russian Federal Districts, with 64% and 51% shares in total national paper and paperboard production, respectively (Figure 10.16). In Northwest Russia, among the largest paper producers are Kondopoga pulp and paper mill (PPM), Mondi Syktyvkar PPM and International Paper Svetogorsk PPM, whereas other major paper mills outside Northwest Russia are Volga PPM in the Nizhny Novgorod region, and Solikamskbumprom PPM in the Perm region. The largest paperboard producers are Arkhangelsk PPM, Ilim Group and St Petersburg cartonboard and printing mill.

The utilisation rate of production capacity of the existing plants is quite high, and increasing the production volume would require investments (Table 10.14). Owing to the economic situation and decreasing global demand for paper products, the focus at present is on optimizing and upgrading production, instead of investing in new capacities.

About half of the paper and paperboard produced in Northwest Russia is exported, whereas at the whole Russian level the share is smaller. In the international market, newsprint is one of the most competitive products of the Russian pulp and paper industry. Similarly to other branches of forest industry, the focus of paper and paperboard production is mainly on low value-added products. Nowadays, high-quality printing paper is produced by the biggest companies, but production of coated papers is in its infancy. Still, the majority of high quality paper and paperboard products that are used in Russia are of foreign origin.

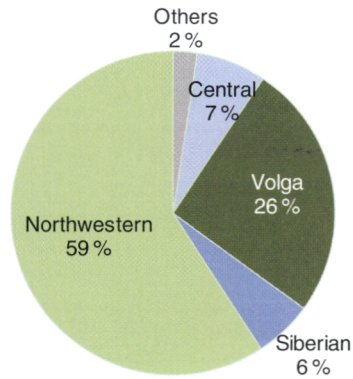


Figure 10.16. Proportion of Federal Districts in 2010 with regard to the total paper and paperboard production. (Source: Calculated from data of Tsentralnaya baza...2011)

Table 10.14. Paper and paperboard production and the utilisation rate of capacity in Russia in 2010.

Region	Paper 1,000 t	Utilisation rate %	Paperboard 1,000 t	Utilisation rate %
Russian Federation	4,600	83	3,000	77
Northwest Russia	2,729		1,738	
Republic of Karelia	1,023	85*	11	41*
Republic of Komi	725	95*	172	95*
Leningrad region	496	83*	512	94*
Arkhangelsk region	286	89*	982	98*
Vologda region	77	26*	n/a	
Kaliningrad region	42	34*	n/a	
Novgorod region	58		12	
St. Petersburg	22	89*	21	68*

* in 2009 (Sources: Itogi raboty...2011, Lesopromyshlenny kompleks... 2010, Rossija v...2011, Sotsialno-ekonomicheskoe...2011, Spravka o... 2011)

10.7 Wood Pellet Industry

Wood pellet production, as a branch of the forest cluster of Russia, emerged very late, and is still largely dominated by 'venture' investors; enthusiasts with limited investment resources, as well as scarce specific technological knowledge and experience.

In Russia, the development of wood pellet production was started in 2001. Small wood pellet companies were founded especially in the Leningrad region owing to the port in St Petersburg. Used pellet mills, hammer mills and dryers, manufactured during Soviet times, were mounted at the first factories. As a result of the second-hand equipment, the quality of pellets was poor. All produced pellets were exported to Europe by sea. For this purpose several small producers united to collect a large enough amount of pellets to be delivered by the same vessel. After some years these obsolete plants were closed down or modernized with brand-new western equipment. The number of pellet factories has increased dramatically since then (Figure 10.17), and there are about 200 pellet producers in Russia at the moment.

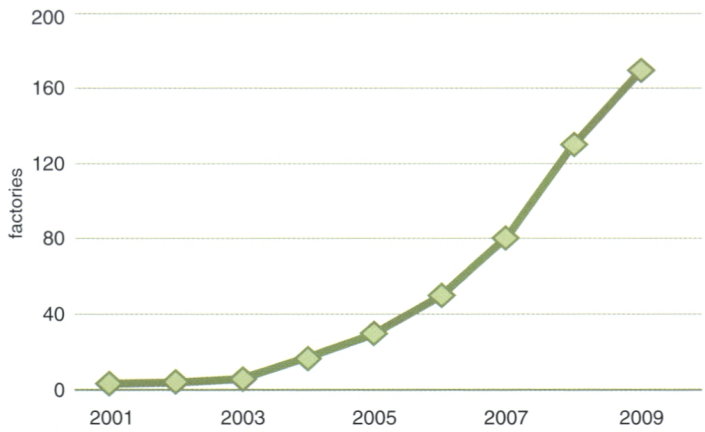


Figure 10.17. Number of pellet factories in Russia. (Source: Rakitova & Kholodkov 2009)

In 2009, about 800,000 tons of wood pellets were produced in Russia, with production capacity of about 1.7 million tons per year (Table 10.15). Russian wood pellet companies are concentrated mostly in Northwest Russia, which has a both relatively developed woodworking industry (source) and a few modern harbours (logistics). About 60% of Russia's wood pellets are produced in the Northwest regions, such as Vologda and Leningrad; about 30% in the Central Russia, and the remaining 10% in other Russian regions. The average nominal production capacity of wood pellet factories is below 18,000 tons per year. In Northwest Russia, there are several factories with capacities of 20,000–120,000 t/yr (Table 10.16).

Table 10.15. Production and production capacity of wood pellets in Russia.

	Unit	2007	2008	2009	2010
Production	million t	0.55	0.65	0.84	
Capacity	million t	1.2	n/a	1.7	3.0**

**Including "Vyborgskaya Cellulose" (Source: Rakitova & Kholodkov 2009)

Table 10.16. The biggest wood pellet factories in Northwest Russia.

Region	Enterprise	Annual production/capacity 1 000 t
Arkhangelsk region	Lesozavod 25	120
Leningrad region	Vyborgskaya Cellulose (prod. in the beginning)	1,000 (capacity)
	Swedwood Tikhvin	75
	Green-Power, Mir Granu	20–40
Republic of Karelia	Setles, Biogran	20–40
Vologda region	Meydzher	20–40
	Vologdabioexport	50

(Sources: company homepages, Rakitova & Kholodkov 2009)

The second largest wood pellet producer, Vologdabioexport (Vologda region), in Northwest Russia, stopped pellet production at the end of 2010, as did some other pellet companies in the last few years, for various reasons: wood pellet prices on the primary Western European market went down; high inflation in Russia; the drop in the exchange rate of Euro to the domestic currency; the increase of the price of raw materials; and the absence of demand on pellets in domestic market. The factories used by-products from wood-processing in pellet production, which were collected from different nearby sawmills. The price of by-products was very low at the beginning since wood-processing industry had problems in utilizing sawdust and other wooden wastes, but after the pellet production start-up, prices on by-products started to grow. As a result, the pellet production became unprofitable and company owners decided to shut down production for some time. As soon as the European market starts to grow, the companies will restore production. The domestic market could also consume some pellets in the future, since some regional authorities in Northwest Russia are planning to switch a number of municipal boilers to wood fuels.

However, in Northwest Russia, the greenfield projects for wood pellet production are developing. The new wood pellets factory, Vyborgskaya Cellulose, in the Leningrad region, with an annual capacity of 1 million tonnes of pellets, started production in March 2011. It will be the largest wood pellet producer in Russia and Europe if raw material supply can be organised in a proper way. The plant will produce industrial wood pellets and export them to European power stations. The factory will need about 2.5 million m^3 of energy roundwood. The Leningrad region has not enough energy wood supplies for the needed scale, and energy wood will be purchased from other regions of Russia and Belorussia, with higher transport expenses. Swedwood Tikhvin, with a capacity of 75,000 tons of pellets, are about to launch production in the Leningrad region in 2011. There are also other wood pellet projects in Northwest Russia. For example, the new company, Russian Wood Pellets (RWP), plans to construct several pellet mills, with a total annual capacity of 3 million tons of pellets.

There are no export duties on this product so far, and most pellet producers intend to export to Western Europe, mostly to Sweden and Denmark. In 2009, about 85% of produced pellets were exported to Europe from Russia. The domestic market in Russia is growing, but it receives hardly any support from the state, with some exceptions on a regional level. Few regional programmes, using local fuel, such as wood chips and pellets, have been developed for local fuel promotion in the Republic of Karelia and the Novgorod, Arkhangelsk and Vologda regions.

The infrastructure for the pellet market is almost non-existent, and has to be established every time by interested pellet producers or boiler suppliers, and

as a consequence, pellets can be purchased only from them in most cases. Retail chains sell a limited number of pellets, owing to a relatively low turnover for this product. However, some retail companies do sell them. Inside Russia, wood pellets are delivered by railway and road transport, in big bags or bulk containers.

The Russian wood pellets market is developing very rapidly and erratically. The total installed production volume of wood pellet mills in Russia is about 3 million tons, but the real production is about 0.8 million tons of wood pellets, of which about 0.7 million tons are exported to Europe. 'Pioneer' companies, which started the development of wood pellet production, using primitive Soviet technology, withdrew from the market several years ago. The second generation of pellet producers using western technology is also at the stage of business diversification owing to challenges with energy wood supply. The wood pellet factories integrated into large-scale sawmills belong to the third generation, and are operating quite stably and efficiently.

10.8 Foreign Trade of Forest Industry

In Russia, the foreign trade of forest industry products has been on the increase with regard both the quantity and monetary value of the products, and the global economic downturn in 2009 broke the tendency only temporarily (Figure 10.18). Both the export and import of forest industry products has doubled since 2000. It is noteworthy, that the increase in imports is explained partly by the changed classification of the Russian statistics. From the year 2006, the value of forest industry's foreign trade includes also printing industry. In exports value the change has less meaning, since Russia is not a major exporter of printed articles. The FAOSTAT data in Figure 10.18 presents only the trade of traditional forest industry products. It can be seen, even though the data sources are not directly comparable, that the products of printing industry form over half of the import value.

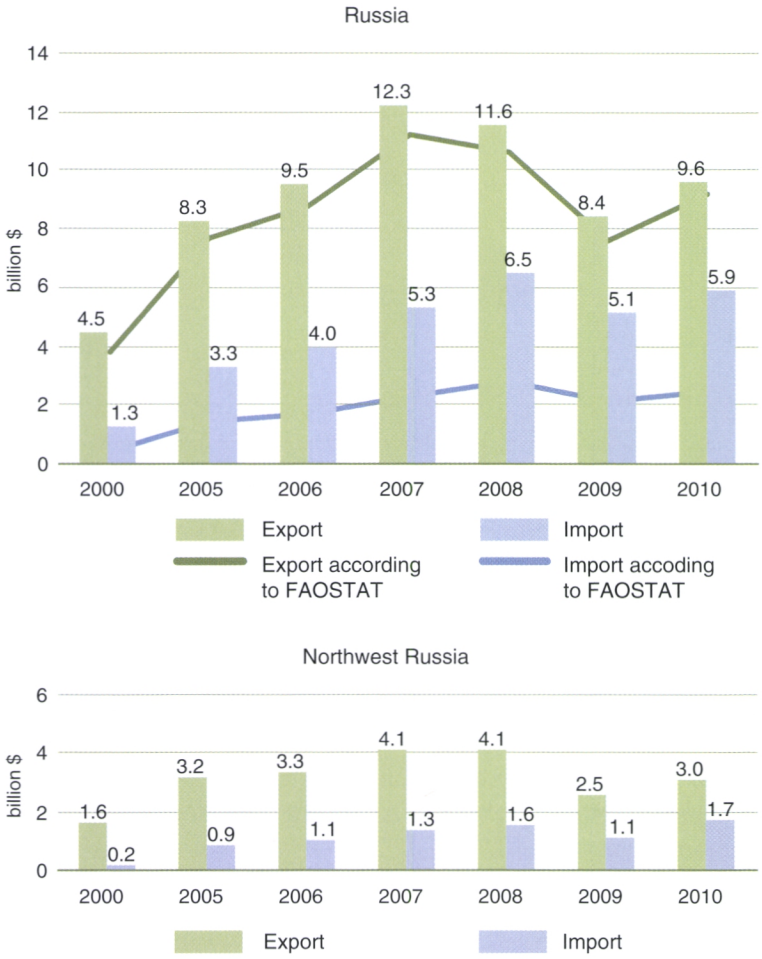


Figure 10.18. Trends in exports and imports of Russian forest industry products. (Sources: FAOSTAT 2011; Regiony Rossii 2001; Regiony Rossii. Sotsialno... 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010; Rossija v...2007, 2009, 2011; Tovarnaya struktura...2011)

In Northwest Russia the greatest exporters are the Republic of Karelia and the Arkhangelsk region, where numerous export-orientated sawmills and pulp and paper mills are situated. The city of St Petersburg, on the other hand, is the major importer of forest industry products due to the large population and big harbours (Table 10.17).

Table 10.17. Monetary value of forest industry products' foreign trade in 2010.

Region	Export	Import
	million USD	
Russian Federation	9,600	5,900
Northwest Russia	3,080	1,357
Arkhangelsk region	741	0.4
Kaliningrad region	41	200
Republic of Karelia	742	17
Republic of Komi	370	19
Leningrad region	453	174
Murmansk region	4	0.3
Novgorod region	199	75
St. Petersburg	315	816
Pskov region	12	46
Vologda region	205	9

(Sources: Rossiya v...2011, Tovarnaya struktura...2011, Vneshnyaya torgovlya...2011)

Exports

The forest industry is a significant exporter in Northwest Russia, comprising roughly 7% of total exports. For the whole of Russia, the share is remarkably smaller: in 2010 it was only 2%. The total monetary value of forest industry exports in 2010 was US$10 billion, of which one-third was from Northwest Russia. Sawnwood and pulp and paper products form over 60% of the total forest industry exports (Figure 10.19). Over half of the sawnwood and plywood production is exported abroad.

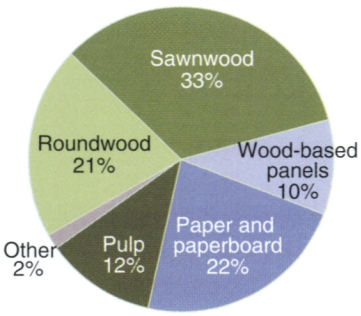


Figure 10.19. Structure of forest industry products' export value in 2010. (Source: FAOSTAT 2011)

For years, roundwood was the most important export product of the Russian forest sector, but owing to increased customs duties on exports it has decreased by more than half since 2007 (Figure 10.20). Still, in 2010, Russia was the world's largest roundwood exporter with 21 million m^3; a volume that equals one-fifth of the total roundwood exports in the world. The greatest roundwood exporters in Russia were the city of St Petersburg, the Republic of Karelia and the Leningrad region (Table 10.18). As a result of the logistics infrastructure,

roundwood from other regions of Russia is exported through St Petersburg and the Leningrad region. During the most intensive years, for some regions the share of export comprised 60–80% of the region's total production of merchantable wood. For example, in 2005, the Republic of Karelia exported almost 70% of the industrial roundwood produced, and, in 2009, the share was only 24%. In 2010, the major markets for Russian roundwood were China (71%) and Finland (20%).



Figure 10.20. Trends in roundwood export from Russia in 2000–2010 and Northwest (NW) Russia in 2004–2009. Sources: Itogi raboty...2007, 2010, 2011; Lesopromyshlenny kompleks...2010; Eksport Rossii...2011; Promyshlennost Rossii 2008; Regiony Rossii. Sotsialno... 2010; Rossiyskiy statisticheskiy...2009, 2010; Sotsialno-ekonomicheskoye... 2011)

Table 10.18. Export of roundwood in 2009 and 2010.

Region	2009	2010	Exports from the total production in 2009, %
	1,000 m³		
Russian Federation	21,657	21,243	27
Northwest Russia	3,386		
Republic of Karelia	1,200	1,364 *	24
St. Petersburg	799 *	1,446 *	n/a
Leningrad region	748 *	807 *	40
Vologda region	433	655 *	6
Novgorod region	152	207 *	10
Pskov region	23	57 *	11
Arkhangelsk region	19	n/a	0
Republic of Komi	9	22	0
Kaliningrad region	3	n/a	8
Murmansk region	1	n/a	3

*) Tonnes converted to cubic meter using FAO conversion factor for non-coniferous pulpwood 1,33

(Sources: Itogi raboty...2011, Joint Forest...2011, Lesopromyshlenny kompleks...2010, Regiony Rossii. Sotsialno... 2010, Respublika Komi...2011)

During the last ten years, the export of sawnwood has been increasing (Figure 10.21). The volume of exports in 2010 was twice that of 2000. Export statistics for sawnwood are only available in public Russian sources in tonnes, so a comparison of production and export amount is not exact. As can be seen from the Figure 10.21, the export amount given by Rosstat and FAOSTAT are consistent, while the sawnwood production amount differs remarkably between the sources after the year 2005. The FAOSTAT data since 2005 is reported as semi-official and mirror data, details of which are not specified. Nevertheless, Russia is exporting the majority of its production quantity abroad. The greatest exporter of sawnwood is the Irkutsk region, which exported about five million cubic meters of sawnwood in 2010. In Northwest Russia, the main exporter is the Arkhangelsk region (Table 10.19). In 2010, the major markets for Russian sawnwood were China (31%), Egypt (10%) and Uzbekistan (9%).

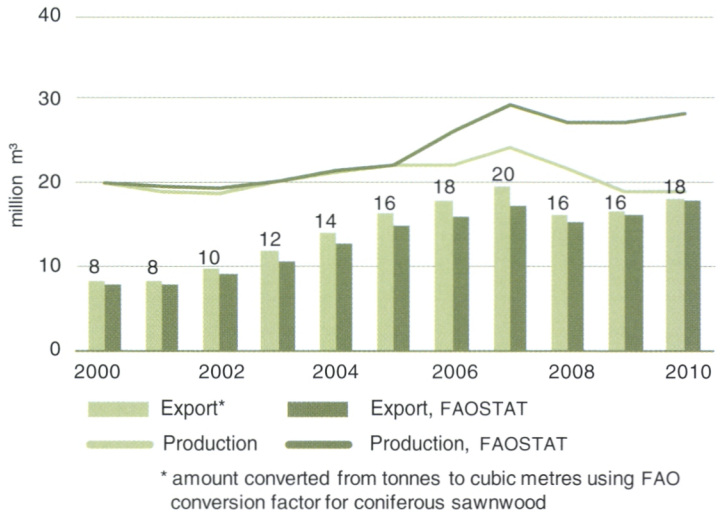


Figure 10.21. Trends in sawnwood export in Russia in 2000–2010. (Sources: Eksport Rossii...2011; FAOSTAT 2011; Joint Forest...2011; Promyshlennost Rossii 2008; Regiony Rossii. Osnovnye... 2010; Regiony Rossii. Sotsialno... 2008, 2010; Rossiyskiy statisticheskiy...2009, 2010; Sotsialno-ekonomicheskoye...2011)

Table 10.19. Export of sawnwood in 2010.

Region	1,000 m^3	Exports from the total production in 2010, %
Russian Federation	18,045 *	
Northwest Russia	3,442	58
Arkhangelsk region	1,149	73
Leningrad region	560 *	62
Republic of Karelia	545 *	76
Republic of Komi	532	79
Novgorod region	319 *	45
Vologda region	315 *	27
Pskov region	22 (in 2009)	47
St. Petersburg	n/a	

* converted from tonnes using FAO conversion factor for coniferous sawnwood (1,82)
(Sources: Itogi raboty...2011, Joint Forest...2011, Lesnoy kompleks...2011, Lesopromyshlenny kompleks... 2010, Respublika Komi...2011, Sotsialno-ekonomicheskoe...2011)

Of all the **plywood** produced in Russia, over half is exported. In 2010, the volume of exported plywood was 1.5 million m^3 (Figure 10.22). The largest market was the USA (14%), while other main importers of Russian plywood were Egypt (11%) and Germany (11%). The greatest exporter in Northwest Russia was the Republic of Komi, which exported almost 80% of produced plywood (Table 10.20).

Unlike plywood, **particle board** and **fibreboard** cannot be regarded as export products. In 2010, 9% of produced particle board (0.5 mil.m^3) and 23% of fibreboard (0.4 mil.m^3) was exported (Table 10.20). The domestic demand for wood-based panels is high, whereas their competitiveness on the international market is rather weak.



Figure 10.22. Trends in plywood export from Russia and Northwest (NW) Russia in 2000–2010. (Sources: Eksport Rossii...2011; Itogi raboty...2007, 2010, 2011; Lesopromyshlenny kompleks... 2010; Promyshlennost Rossii 2008; Regiony Rossii. Osnovnye...2010; Regiony Rossii. Sotsialno...2008, 2010; Rossiyskiy statisticheskiy...2009, 2010; Sotsialno-ekonomicheskoye...2011)

Table 10.20. Export of plywood in 2009.

Region	1,000 m³	Exports from the total production %
Russian Federation	1,334	63
Northwest Russia	529	72
Republic of Komi	177	77
Vologda region	123	58
St. Petersburg	108*	94
Arkhangelsk region	65	80
Novgorod region	52	76
Republic of Karelia	4	40

* Amount converted from tonnes to cubic meter using FAO conversion factor for plywood (1.54)
(Sources: Itogi raboty...2011, Joint Forest...2011, Lesopromyshlenny kompleks... 2010, Sotsialno-ekonomicheskoe...2011)

During the past ten years, the volume of exported **pulp** has been at a quite stable level (Figure 10.23). In 2010, the export of pulp was 1.7 million tonnes, i.e. 29% of the total production. The most important countries importing pulp from Russia in 2010 were China (48%) and Ukraine (18%). Other markets were, for example, Poland (7%) and Switzerland (6%).

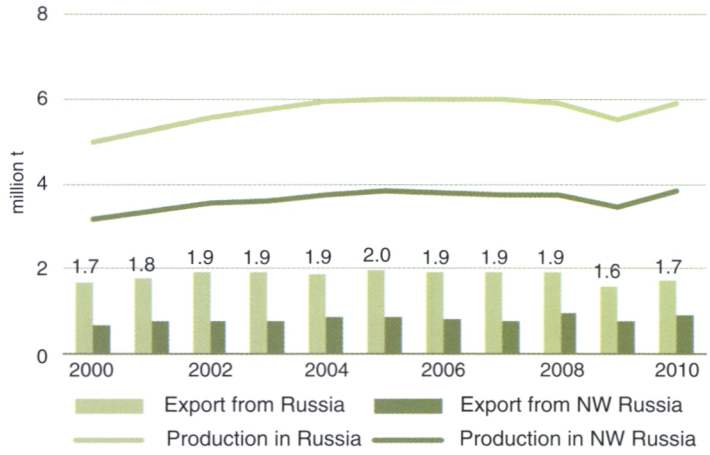


Figure 10.23. Trends in pulp export from Russia and Northwest (NW) Russia in 2000–2010. (Sources: Eksport Rossii...2011; Itogi raboty...2011; Lesopromyshlenny kompleks... 2010; Promyshlennost Rossii 2008; Regiony Rossii. Sotsialno... 2008, 2010; Rossiyskiy statisticheskiy...2009, 2010; Sotsialno-ekonomicheskoye...2011)

Table 10.21. Export of pulp in 2010.

Region	1,000 t	Exports from the total production, %
Russian Federation	1,705	29
Northwest Russia	890	23
Arkhangelsk region	544	33
Leningrad region	193	39
Republic of Karelia	80	7
Republic of Komi	54	10
St. Petersburg	15	n/a
Kaliningrad region	5	n/a

(Source: Eksport vazhneyshikh...2011, Itogi raboty...2011, Sotsialno-ekonomicheskoe...2011)

The volumes of exported **paper** and **paperboard** have been steady, regardless of the situation in the world economy and global demand for the products (Figure 10.24). Traditionally, on the international market, newsprint has been the most competitive product of the Russian paper industry. Over half of the exported paper and paperboard products is newsprint, whereas the majority of other paper products are sold domestically. The greatest paper and paperboard exporter in Northwest Russia is the Republic of Karelia (Table 10.22). The biggest markets for Russian paper and paperboard are India (12%), Ukraine (11%), Turkey (9%) and Germany (8%).



Figure 10.24. Trends in paper and paperboard exports from Russia and Northwest (NW) Russia in 2000–2010. Sources:Itogi raboty...2007, 2010, 2011; Karvinen 2005; Lesopromyshlenny kompleks...2010; Regiony Rossii. Osnovnye...2010; Regiony Rossii. Sotsialno...2008, 2010; Sotsialno-ekonomicheskoye...2011)

Table 10.22. Export of paper and paperboard in 2010.

Region	1,000 t	Exports from the total production, %
Russian Federation	2,476	33
Northwest Russia	1,555	35
Republic of Karelia	821	79
Arkhangelsk region	293	23
Republic of Komi	273	30
Leningrad region	148	15
Kaliningrad region	12	29
Vologda region	4	5
St.Petersburg	4	9

(Sources: Itogi raboty...2011, Sotsialno-ekonomicheskoe...2011)

In 2009, the monetary value of imported forest industry products was US$5 billion, whereas the largest importing countries were Germany, Finland and Ukraine. In 2010, the value of forest industry imports was almost $6 billion; that is, 2.6% of the total imports into Russia. Of the total monetary value of imported forest industry products, paper and paperboard comprise over 70% (Figure 10.25). Also wood-based panels, mainly OSB and MDF are imported into Russia. In addition, the import value of secondary processed wood and paper products, mainly further processed paper and paperboard products and wooden furniture, was US$2.9 billion in 2009.

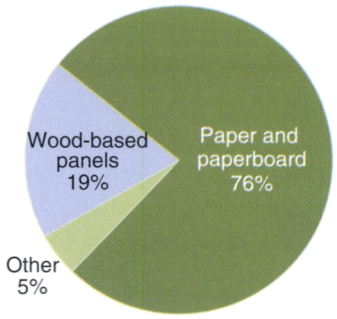
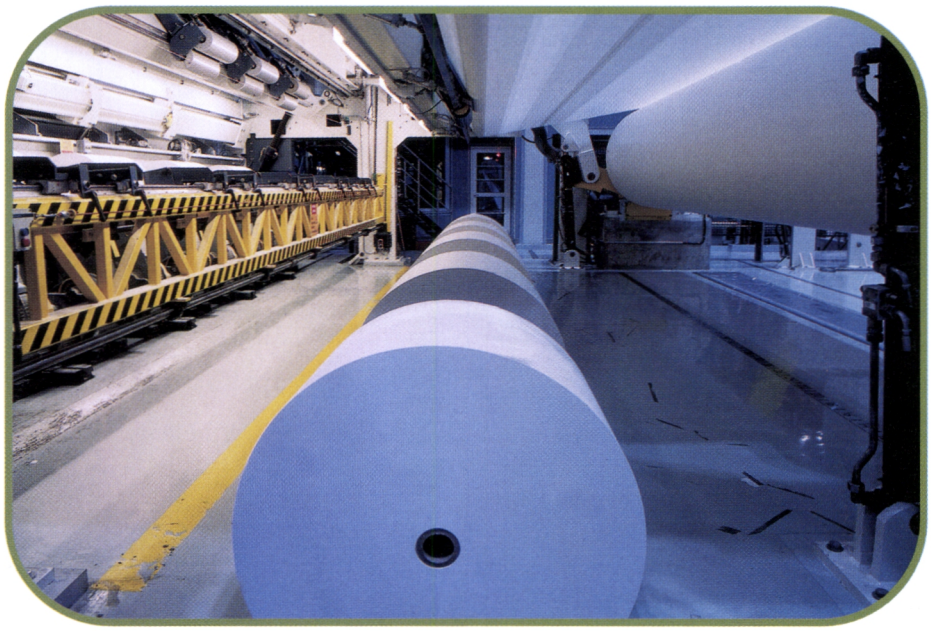


Figure 10.25. Structure of forest industry products' import value in 2010. (Source: FAOSTAT 2011)

The political target to reduce import of high value-added forest products and increase their domestic production has not yet been realized in Russia. The import of forest industry products has been growing far more rapidly than production volumes and export.



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Statistical Appendix

Statistics of previous years are published in the first version of the Nutshell (Karvinen et al. 2006).

PRODUCTION OF RUSSIAN FOREST INDUSTRY

Industrial roundwood 1,000 m³ (underbark)	2004	2005	2006	2007	2008	2009	2010
Russian Federation	92,200	98,200	99,300	106,600	90,900	80,300	96,350
Northwest Russia	33,860	33,546	32,266	35,400	31,197	28,331	31,770
Arkhangelsk region	9,620	9,581	8,622	9,150	7,739	7,699	7,677
Kaliningrad region	260	275	252	224	108	37	9
Republic of Karelia	6,220	5,776	5,664	6,208	5,433	4,953	4,769
Republic of Komi	5,350	5,116	5,010	5,500	5,105	5,154	5,211
Leningrad region	3,730	3,920	4,122	4,450	3,014	1,993	3,315
Murmansk region	110	102	93	82	52	33	34
Novgorod region	1,730	1,831	1,710	1,612	1,764	1,468	1,288
Pskov region	630	640	692	517	495	206	198
Vologda region	6,210	6,305	6,102	7,656	7,488	6,787	9,269

Sawnwood 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Russian Federation	21,200	22,000	22,200	24,300	21,600	19,000	19,238
Northwest Russia	5,764	6,083	6,231	6,943	6,043	5,557	5,911
Arkhangelsk region	2,233	2,118	2,050	2,133	1,800	1,487	1,576
Kaliningrad region	23	48	39	63	n/a	n/a	n/a
Republic of Karelia	778	793	788	866	677	647	714
Republic of Komi	676	743	761	931	783	755	670
Leningrad region	379	486	650	911	750	894	900
Novgorod region	471	584	551	517	548	540	709
Pskov region	148	221	226	202	177	110	91
St Petersburg	35	51	63	63	n/a	n/a	n/a
Vologda region	1,004	1,024	1,088	1,238	1,143	1,013	1,164

Plywood 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Russian Federation	2,248	2,556	2,615	2,777	2,592	2,128	2,700
Northwest Russia	853	941	963	990	932	731	962
Arkhangelsk region	85	84	89	96	99	81	94
Republic of Karelia	19	24	21	13	9	10	50
Republic of Komi	277	322	324	326	282	230	291
Leningrad region	14	13	10	9	9	9	7
Novgorod region	167	175	159	182	172	68	131
St Petersburg	126	134	138	133	135	123	141
Vologda region	166	190	222	230	226	211	248

Particle board 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Russian Federation	3,638	3,930	4,718	5,501	5,751	4,600	5,500
Northwest Russia	986	1,022	1,232	1,506	1,558	1,302	1,511
Republic of Karelia	128	126	134	135	126	78	70
Republic of Komi	306	273	379	411	390	279	307
Leningrad region	115	115	137	112	146	126	139
Novgorod region	0	0	80	360	515	390	473
Vologda region	438	508	502	487	381	429	522

Fibreboard million m²	2004	2005	2006	2007	2008	2009	2010
Russian Federation	348	389	439	481	479	373	395
Northwest Russia	71	77	78	84	87	55	53
Arkhangelsk region	19	19	19	20	19	11	8
Republic of Komi	26	28	29	28	30	16	17
Leningrad region	0	5	7	8	9	7	9
Vologda region	26	26	24	29	29	21	20

Pulp 1,000 t	2004	2005	2006	2007	2008	2009	2010
Russian Federation	5,922	6,001	6,008	5,973	5,913	5,487	5,900
Northwest Russia	3,727	3,845	3,788	3,728	3,737	3,438	3,833
Arkhangelsk region	1,974	2,059	2,053	2,043	2,095	1,891	1,663
Kaliningrad region	223	189	132	89	52	3	n/a
Republic of Karelia	414	485	497	508	479	452	1,102
Republic of Komi	546	545	552	550	546	564	553
Leningrad region	540	532	533	506	536	516	501
Vologda region	30	36	21	31	29	12	14

Paper 1,000 t	2004	2005	2006	2007	2008	2009	2010
Russian Federation	3,903	4,001	4,038	4,084	4,007	3,937	4,600
of which newsprint	1,978	1,984	1,993	1,979	1,987	2,006	1,963
Northwest Russia	2,377	2,452	2,553	2,633	2,587	2,530	2,729
Arkhangelsk region	337	341	348	345	327	287	286
Kaliningrad region	70	68	73	97	61	35	42
Republic of Karelia	862	936	961	964	965	990	1,023
Republic of Komi	579	601	611	639	636	673	725
Leningrad region	457	446	503	524	535	500	496
Novgorod region	12	12	13	13	13	11	58
St Petersburg	29	26	27	26	24	23	22
Vologda region	32	21	18	24	26	12	77

Paperboard 1,000 t	2004	2005	2006	2007	2008	2009	2010
Russian Federation	2,927	3,125	3,396	3,498	3,696	3,458	3,000
Northwest Russia	1,501	1,607	1,731	1,725	1,791	1,779	1,738
Arkhangelsk region	727	785	809	809	863	913	982
Kaliningrad region	26	25	28	21	22	12	n/a
Republic of Karelia	55	71	84	83	68	28	11
Republic of Komi	196	200	206	214	208	208	172
Leningrad region	425	431	502	475	491	491	512
Novgorod region	18	19	26	31	36	33	12
Pskov region	4	3	3	3	n/a	n/a	n/a
St Petersburg	14	19	23	27	29	21	21
Vologda region	37	53	50	62	71	71	n/a

EXPORT OF RUSSIAN FOREST INDUSTRY

Product	Unit	2004	2005	2006	2007	2008	2009	2010
Industrial roundwood	million m^3	41.6	48.0	51.2	49.4	36.8	21.7	21.2
Sawnwood	million t	7.7	9.0	9.7	10.7	8.8	9.1	9.9
	million m^3 *	14.0	16.4	17.7	19.6	16.1	16.5	18.0
Particle board	million m^3	0.2	0.2	0.3	0.5	0.4	0.6	0.5
Fibreboard	million m^2	83.4	96.3	177.4	116.5	83.9	84.6	n/a
Plywood	million m^3	1.4	1.5	1.6	1.5	1.3	1.3	1.5
Newsprint	million t	1.3	1.4	1.3	1.2	1.3	1.4	1.4
Pulp	million t	1.9	2.0	1.9	1.9	1.9	1.6	1.7
Paper and paperboard	million t	2.6	2.6	2.5	2.5	2.5	2.7	2.5

* converted from t to m^3 by FAO conversion factor for coniferous sawnwood 1.82

FOREST INDUSTRY EXPORT FROM REGIONS OF NORTHWEST RUSSIA

Roundwood 1,000 m^3	2004	2005	2006	2007	2008	2009	2010
Arkhangelsk region	266	349	279	247	222	19	n/a
Kaliningrad region	134	145	74	47	67	3	n/a
Republic of Karelia	3,549	3,885	3,757	2,829	2,182	1,200	1,364*
Republic of Komi	21	7	1	25	13	9	22
Leningrad region	3,450*	4,671*	4,402*	4,276*	3,241*	748*	807*
Murmansk region	75	54	52	52	6	1	n/a
Novgorod region	1,430	1,899	1,942	1,142	889	152	207*
Pskov region	700	821	803	595	261	23	57*
St Petersburg	4,687*	5,123*	4,295*	4,291*	3,374*	799*	1,446*
Vologda region	2,230	2,520	2,164	1,254	1,250	433	655*

* converted from t to m^3 by FAO conversion factor for non-coniferous pulpwood 1.33

Sawnwood 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Arkhangelsk region	1,736	1,785	1,733	1,553	1,418	1,134	1,149
Kaliningrad region	0	n/a	3	16	0	0	n/a
Republic of Karelia	602	688	656	545	443	445	545*
Republic of Komi	438	524	590	688	565	542	532
Leningrad region	197	257	442	462	306	381	560
Murmansk region	5	6	5	7	2	n/a	n/a
Novgorod region	248*	428*	464*	364*	266*	286*	319*
Pskov region	115	125	149	156	52	22	n/a
St Petersburg	8	15	n/a	n/a	n/a	n/a	n/a
Vologda region	392	481	534	473	301	314	315*

* converted from t to m³ by FAO conversion factor for coniferous sawnwood 1.82

Particle board 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Republic of Karelia	3	6	0	3	1	4	n/a
Republic of Komi	9	18	27	43	35	42	44
Novgorod region	0	0	1	42	36	61	n/a

Fibreboard 1,000 m²	2004	2005	2006	2007	2008	2009	2010
Arkhangelsk region	1,244	1,584	1,600	3,000	300	200	n/a
Kaliningrad region	0	0	0	0	1,200	3,100	n/a
Republic of Komi	5,800	9,200	11,300	5,900	5,200	4,400	1,500
Novgorod region	0	3	6	26	24	56	n/a
Pskov region	3	0	1	37	1	6	n/a
Vologda region	630	1,091	200	2,100	200	900	n/a

Plywood 1,000 m³	2004	2005	2006	2007	2008	2009	2010
Arkhangelsk region	69	67	70	71	91	65	132
Kaliningrad region	9	6	0	0	0	0	n/a
Republic of Karelia	15	16	14	6	4	4	n/a
Republic of Komi	212	241	236	223	185	177	200

Appendix 1

Priority investment projects in the Russian forest sector (as of 1.12.2011)

WOODWORKING INDUSTRY

Company (holding)	Year of approval	Production, annual capacity (if known)	Region	Situation (if known)
Investment < €50 million				
Amur Forest	2008	Sawnwood 150,000 m³	Khabarovsk	realised
AmurForest	2010	Sawnwood 105,000 m³; wood pellets; etc.	Amur	
ArgusSFK	2008	Plywood 36,000 m³	Sverdlovsk	
AVA company	2010	Sawnwood 61,000 m³; furniture plates; etc	Omsk	realised
Babushkinskiy soyuz predprinimateley	2010	Sawnwood 18,800 m³; furniture plates; wooden briquettes; etc.	Vologda	
Baikal-Nordik	2008	Sawnwood 220,000 m³	Buryatiya	problems
Baikalskaya lesnaya kompaniya	2008	Sawnwood 150,000 m³; wood pellets 6,000 t	Buryatiya	
BioLesProm	2009	Sawnwood 60,000 m³; wood pellets 29,200 t	Vologda	
Cherepovetsky FMK	2008	Modernisation of production; particle board 208,000 m³	Vologda	realised
DOTs plus	2008	Sawnwood 15,000 m³; wood pellets 9,000 t; windows	Bryansk	realised
Firma "Master"	2010	Sawnwood 45,000 m³	Krasnoyarsk	
Forestinvest	2011	Wood processing	Buryatiya	
Gazkom	2010	Wood processing	Perm	
GornozavodskLesProm	2009	Sawnwood 35,000 m³; glued beams 6,000 m³	Perm	
HarvySeverLes	2008	Glued beams 95,000 m³	Arkhangelsk	halted
Hasslacherles	2011	Modernisation of production	Novgorod	
Holbit	2009	Modernisation of woodworking plant; sawnwood 29,000 m³; etc.	Vologda	
Ivanovskaya lesopromyshlennaya kompaniya	2009	Sawnwood 34,000 m³; wood pellets 20,000 t; etc	Ivanov	
Ivanovsky les	2009	Sawnwood 15,000 m³; furniture; wood pellets; etc	Ivanov	
Kamenskiy LDK (Altayles)	2011	Sawnwood; 240,000 m³ of sawlogs	Altay	realised
Kapital-Z	2009	Futher processing of plywood	Perm	
KLM-Eko	2009	Glued beams 90,000 m³	Krasnoyarsk	
Kompaniya Ekoles	2009	Sawnwood 72,000 m³; wood briquettes 3,000 t; etc.	Jewish auton.	
Koskisilva	2009	Sawnwood; plywood 40,000 m³	Vologda	sawmill realised
Kostamukshskaya stroitelnaya kompaniya KSK	2009	Glued beams and components 17,000 m³; etc.	Karelia	
Krasny yakor	2009	Modernisation of plywood mill; 120,000 m³	Kirov	
LDK No 2 (Vologodskiye lesopromyshlenniki)	2008	Sawnwood 90,000 m³	Vologda	realised
Lesnaya birzha	2011	OSB production	Buryatiya	
Lesopromyshlennaya kompaniya	2008	Modernisation of sawmill	Ryazan	
Lesozavod No. 1	2009	Sawnwood 19,000 m³; wooden elements 31,000 m³	Komi	sawmill realised

(Sources: Company homepages; Ministry of Industry and Trade of the Russian Federation, available at: http://www.minpromtorg.gov.ru)

Company (holding)	Year of approval	Production, annual capacity (if known)	Region	Situation (if known)
LPH Siyaniye	2011	Sawnwood; 48,000 m³	Tver	
Luzales	2011	Modernisation of sawmill	Komi	
MD NP Krasnaya zvezda	2009	Furniture (small-scale)	Udmurtia	
Mostootryad-T	2008	Wooden houses; veneer 85,000 m³	Amur	
Nikolsky les	2009	Sawnwood (small-scale)	Vologda	
Novatorsky LPK	2009	Log houses	Vologda	
Novovyatsky lyzhny kombinat	2010	Modernisation of production; particle board 130,000 m³; parquet board 340,000 m2	Kirov	
Novoyeniseysky LHK	2010	Wood pellets; 80,000 t	Krasnoyarsk	realised
Oka-Holtz	2008	Modernisation of veneer and plywood production	Ryazan	
Osetrovski LDK	2009	Plywood 100,000 m³	Irkutsk	postponed
Patriot	2009	Glued beams; further processed sawnwood (small-scale)	Vologda	
PechoraEnergoResurs	2010	Glued beams 41,000 m³; furniture plates 12,000 m³; wood pellets 74,000 t; etc.	Komi	
Permsky domostroitelny kombinat	2009	Modernisation of wooden house production	Perm	
Permsky fanerny kombinat	2009	Modernisation of plywood production	Perm	
PKF Les	2009	Sawnwood 25,000 m³; glued beams; etc.	Kurgan	
Primorsklesprom	2008	Sawnwood 130,000 m³; glued beams 30,000 m³	Primorsk	partly realised
Reshma-Les	2009	Sawnwood 14,000 m³	Ivanovo	
Rosbioprom	2011	Sawnwood 150,000 m³	Pskov	
RusForest Magistralny	2011	Sawnwood 150,000 m³	Irkutsk	realised
Severo-Zapadnaya lesnaya kompaniya	2008	Plywood 110,000 m³	Kirov	partly realised
Shabalinsky DOZ	2009	Wood processing (small-scale)	Kirov	
Sibles	2008	Modernisation of wood processing plant	Krasnoyarsk	
Sodruzhestvo (Altailes)	2009	Log houses; wooden elements (small-scale)	Altai	realised
Sokolsky DOK	2010	Modernisation of wooden house production	Vologda	
Strojles	2008	Wood harvesting; log houses 20,000 m³; etc.	Kirov	
SyamzhaLesProm	2009	Sawnwood; glued beams (small-scale)	Vologda	
Syktyvkarsky promyshlenny kombinat	2009	Wooden houses; glued beams; etc.	Komi	realised
Tjumensky fanerny zavod	2010	Plywood 120,000 m³	Tyumen	
Trubchevsky DOZ	2009	Glued beams 12,000 m³; etc.	Bryansk	
Uralo-Sibirskie investitsii	2008	Sawnwood 250,000 m³; particle board 150,000 m³; wood pellets 27,000 t	Sverdlovsk	
Ustyansky LPK	2008	Sawnwood 240,000 m³	Arkhangelsk	realised
Vladimirski LPK	2009	Sawnwood 47,000 m³; etc.	Vladimir	
Vologdaselles	2009	Wood harvesting; sawnwood 70,000 m³; etc.	Vologda	
Vostochno-Sibirsky kombinat biotehnology	2009	Production of biofuel	Irkutsk	postponed
Vostochny (Turanles)	2009	Sawnwood 30,000 m³	Amur	

(Sources: Company homepages; Ministry of Industry and Trade of the Russian Federation, available at: http://www.minpromtorg.gov.ru)

Company (holding)	Year of approval	Production, annual capacity (if known)	Region	Situation (if known)
Vyshnevolotsky lespromhoz	2010	Glued timber elements 25,000 m³	Tver	realised
Vysky DOK	2008	Furniture plates 24,000 m³	Sverdlovsk	realised
Investment €50–100 million				
Anzhersky fanernyi kombinat AFK (Wiedemann Polska)	2010	Plywood 60,000 m³	Kemerovo	under construcion
Arkaim	2008	Sawnwood 350,000 m³; particle board 140,000 m³	Khabarovsk	partly realised
CentroWoodKom	2008	Sawnwood 178,000 m³; wood pellets 257,000 t; etc.	Komi	stagnated
DalEvroLes	2008	Sawnwood 200,000 m³	Khabarovsk	postponed
LDK Igirma (Russkaya lesnaya gruppa)	2008	Sawnwood 500,000 m³	Irkutsk	realised
Les Eksport	2008	Parquet	Primorsk	
Lesopromyshlennaya kompaniya Selena	2009	Glued beams and other construction materials 110,000 m³	Baskortostan	
MM-Efimovsky	2009	Sawnwood 350,000 m³	Leningrad	realised
Rimbunan hijau	2008	Fibreboard (MDF/THDF) 150,000 m³	Khabarovsk	realised
Terneyles	2008	Sawnwood 150,000 m³; veneer 267,000 m³	Primorsk	partly realised
Vyatsky fanerny kombinat (Investlesprom)	2009	Plywood 90,000 m³	Kirov	realised
Investment > €100 million				
Dallesprom (RFP Group)	2009	Veneer 300,000 m³; sawnwood 230,000 m³; MDF 300,000 m³	Amur	
DOK Kalevala	2011	OSB 300,000 m³	Karelia	under construction
Eniseysky fanerny kombinat (Midway United)	2008	Modernisation of plywood mill; 400,000 m³	Krasnoyarsk	realised
Gagarinsky fanerny zavod	2008	I stage: particle board 500,000 m³ II stage: plywood 150,000 m³	Smolensk	I stage realised
LPK Partner-Tomsk	2009	MDF 264,000 m³	Tomsk	realised
Mekran	2010	Construction of furniture factory	Krasnoyarsk	
PDK Apsheronsk	2009	MDF 223,000 m³	Krasnodarsk	
STOD	2009	I stage: laminated veneer lumber (LVL) 200,000 m³; pellets 60,000 t II stage: OSB; wooden houses	Tver	I stage realised
Trans-Sibirskaya lesnaya kompaniya	2009	Sawnwood 500,000 m³; wooden elements and houses 216,000 m³; glued beams 100,000 m³; OSB 300,000 m³; wood pellets 160,000 t	Irkutsk	construction at final stage

(Sources: Company homepages; Ministry of Industry and Trade of the Russian Federation, available at: http://www.minpromtorg.gov.ru)

PULP AND PAPER INDUSTRY

Company (holding)	Year of approval	Production, annual capacity (if known)	Region	Situation (if known)
Investment < €500 million				
Arkhangelsky CBK	2008	Modernisation of cardboard production	Arkhangelsk	partly realised
Ilim Group, Koryazhma	2008	Modernisation of pulp and paper production	Arkhangelsk	pulp mill realised
International paper	2010	Construction of pulp (BCTMP) mill; pulp 200,000 t	Leningrad	realised
Solikamskbumprom	2010	Modernisation of pulp and paper production; newsprint 410,000 t	Perm	
Solombalales	2008	Modernisation of production; pulp 280,000 t	Arkhangelsk	postponed
Uralbumaga (PCBK Group)	2010	Modernisation of paper and cardboard production	Perm	
Investment €500–1,000 million				
Angara paper	2008	Greenfield pulp mill; pulp 900,000 t	Krasnoyarsk	financing negotiations ongoing
Ilim Group, Bratsk	2008	Construction of pulp mill; pulp 720,000 t	Irkutsk	at final stage
Mondi Syktyvkar	2008	Modernisation of pulp and paper mill	Komi	realised
Segezhsky CBK (Investlesprom)	2009	Modernisation of pulp mill; pulp 845,000 t	Karelia	plan ready
Investment > €1,000 million				
Boguchansky LPK (Kraslesinvest)	2008	Greenfield mill; pulp 880,000 t; sawnwood 440,000 m^3	Krasnoyarsk	sawmill under construction
Manturovsky CBK (ASPEK)	2009	Greenfield mill; pulp 800,000 t; sawnwood 300,000 m^3	Kostroma	no news since 2009

(Sources: Company homepages; Ministry of Industry and Trade of the Russian Federation, available at: http://www.minpromtorg.gov.ru)

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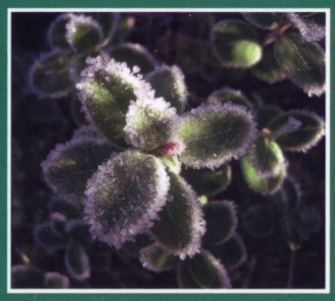
The publication aims to provide a comprhensive, but compact, picture of the current state of the forest sector in Northwest Russia. Although the emphasis of the contents is on Northwest Russia, most of the issues and principles are relevant to the whole Russian Federation. The publication is targeted for specialists and decision-makers in companies, forest administration and management, and it can also be used for research and training purposes.



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