

ASIA-PACIFIC FORESTRY SECTOR OUTLOOK STUDY II

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**RUSSIAN FEDERATION FORESTRY OUTLOOK
STUDY**

by

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Contents

1. INTRODUCTION	3
2. CHANGES IN FOREST LEGISLATION OF THE RUSSIAN FEDERATION	4
3. INITIAL DATA AND METHODOLOGICAL PRINCIPLES	6
4. CHARACTERISTICS OF THE FOREST FUND AND FOREST ECONOMY OF THE RUSSIAN APR	7
Forest resources characteristics	7
Fire protection	11
Protection of forests from pests and diseases	14
5. THE USE OF TIMBER IN THE RUSSIAN APR	15
6. THE USE OF NON-TIMBER FOREST PRODUCTS AND OTHER FOREST USES	23
The use of plant resources	23
The using of forest lands for hunting	25
The use of forest lands for deer farming	28
Recreation and ecotourism	29
7. ILLEGAL FOREST USE	30
8. THE DOMESTIC CONSUMPTION OF TIMBER IN THE RUSSIAN APR	33
9. FOREST EXPORTS	36
10. FORECAST FOR RUSSIAN APR FOREST SECTOR DEVELOPMENT TILL 2020	40
Investments in the Russian APR	40
Scenarios for forest sector development	43
Forecast for timber product consumption in the Russian APR	45
Forecast for export of timber products from the Russian APR	49
Forecast for timber production manufacture in the Russian APR	53
11. USE OF WOOD AS A SOURCE OF ENERGY PRODUCTION	58
12. FOREST CERTIFICATION	59
13. CONCLUSION	59
ANNEXES	61

INFORMATION NOTE ON THE ASIA-PACIFIC FORESTRY SECTOR OUTLOOK STUDY

The Asia-Pacific Forestry Sector Outlook Study (APFSOS) is a wide-ranging initiative to gather information on, and examine, the evolution of key forestry issues as well as to review important trends in forests and forestry. The main purpose of the study is to provide a better understanding of the changing relationships between society and forests and thus to facilitate timely policy reviews and reforms in national forest sectors. The specific objectives are to:

1. Identify emerging socio-economic changes impacting on forest and forestry
2. Analyze probable scenarios for forestry developments to 2020
3. Identify priorities and strategies to address emerging opportunities and challenges

The first APFSOS was completed in 1998, with an outlook horizon to 2010. During its twenty-first session, held in Dehradun, India, in April 2006, the Asia-Pacific Forestry Commission (APFC) resolved to update the outlook extending the horizon to 2020. The study commenced in October 2006 and is expected to be completed by September 2009.

The study has been coordinated by the Food and Agriculture Organization of the United Nations (FAO), through its regional office in Bangkok and its headquarters in Rome, and implemented in close partnership with APFC member countries with support from a number of international and regional agencies. The Asian Development Bank (ADB), the International Tropical Timber Organization (ITTO), and the United Kingdom's Department for International Development (DFID) provided substantial financial support to implement the study. Partnerships with the Asia-Pacific Association of Forest Research Institutes (APAFRI) and the Secretariat of the Pacific Community (SPC) supported the organizing and implementing of national focal points' workshops and other activities, which have been crucial to the success of this initiative. The contributions of many other individuals and institutions are gratefully acknowledged in the main APFSOS report.

Working papers have been contributed or commissioned on a wide range of topics. These fall under the following categories: country profiles, sub-regional studies and thematic studies. Working papers have been prepared by individual authors or groups of authors and represent their personal views and perspectives; therefore, opinions expressed do not necessarily reflect the views of their employers, the governments of the APFC member countries or of FAO. Material from these working papers has been extracted and combined with information from a wide range of additional sources to produce the main regional outlook report.

In general, working papers are moderately edited for style and clarity and are formatted to provide a measure of uniformity, but otherwise remain the work of the authors. However in this case the contents have been heavily edited; while all care has been taken, some errors may have been introduced as a result of editing and interpretation. Copies of these working papers, as well as more information on the Asia-Pacific Forestry Sector Study, can be obtained from:

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1. INTRODUCTION

International society considers Russia to be not just a European country, but also a part of Asia-Pacific region, where Russian influence grows every year. As a result, this study was included as part of the overall Asia-Pacific Forestry Sector Outlook. .

The study covers many issues, directly or indirectly connected with forest and forest lands of the country. Special attention is given to the condition of forest cover, timber harvesting and development of timber processing, as well as non-timber forest use and development of other types of use and the influence of all these activities on locals' life and well-being.

An earlier Russian Federation forest sector study (ECE/TIM/DP/27), issued in 2003 as part of the European Forestry Sector Outlook Study (EFSOS), did not reflect regional peculiarities of forest use (in Asiatic parts of Russia), giving average figures for the whole country. At the same time, the Asia-Pacific region differs considerably from the European-Ural region in its economic and territorial development and in its natural resources. This document has sections on hunting, deer farming, and non-timber forest use, which are important for Siberia and the Far East of Russia, and which were not presented in the Russian forest sector study of 2003.

The Asia-Pacific region (APR) of Russia includes the Russian Far East, Eastern Siberia and part of Western Siberia, which are divided into two Federal districts: the Far Eastern and Siberian (FEFD and SFD). Economically, the FEFD and SFD are mainly connected with the markets of the Asia-Pacific region and Middle Asia, because forest products transfer to Europe is difficult due to the high costs of transportation. APR forests by virtue of their size and geographic location are important economic factors for the nearest countries and play important roles in global carbon cycles and climate regulation.

There are 26 administrative units in the Russian APR. They occupy 66 percent of the Russian territory and 19 percent of the Russian population live there. Seventy percent of all forest covered areas and 70 percent of timber belong to this region. At the same time there is a disproportion in timber-processing outputs. Only 30 percent of timber processing factories are located in the APR. Mostly these can be found in the SFD, while the FEFD mainly oriented its activities on exporting.

According to the national statistics on forest resources, the total amount of timber in the SFD and FEFD is estimated to be 52.3 billion m³, annual growth is 571.5 million m³, and the size of annual planned wood-cutting area is 287.4 million m³, which is 70 percent of all forest resources of the Russian Federation. The use of planned wood-cutting area does not exceed 16-18 percent.

Covering a huge area the SFD and the FEFD differ in climate. The most northern parts are occupied by tundra, forest-tundra and elfin woods. The territory is mainly located in boreal and permafrost areas. In the south of the SEFD forest-steppe and steppe with the prevalence of salted and steppe meadows can be found, while in the south of the FEFD there are humid coniferous-deciduous forests, with high biodiversity and unique mixture of boreal and sub-tropical flora and fauna.

The SFD and FEFD are unique wilderness areas with very low human economic activity. Of particular note is Baikal Lake, which became a UNESCO world heritage site in 1996. Baikal has 22 percent of the world's freshwater stock. The UNESCO world heritage list also includes Kamchatka volcanoes, and the Altai and Sikhote-Alin mountain systems. There are 12 biosphere reserves located in the Russian APR. In the south of the FEFD the Amur tiger and Far Eastern leopard live in the wild, and ginseng and lotus grow.

The role of forests in the SFD and FEFD goes beyond supply of raw materials to the timber processing plants of Russia and neighboring countries. These forests influence climate formation and carbon absorption, but biodiversity conservation is not clearly entrenched yet. If economic pressure on these forests grows, this could lead to unpredictable consequences on a global scale.

2. CHANGES IN FOREST LEGISLATION OF THE RUSSIAN FEDERATION

Since the Russian Federation forest sector outlook study was issued in 2003, big changes have occurred in forest legislation and in the forest administration. Only proposals on forest sector management reforms and forest relations were included in the Russian EFSOS study of 2003. However, while the present study was being compiled, the Russian Forest Code has been adopted (2007), along with other major legislation, which separated administrative tasks in the forest sector, regulating timber provision, forest restoration and forest resources audit.

In the present Forest Code the basic principles of the previous forest legislation were retained, among them:

- federal ownership of forests;
- “user pays” forest use principles;
- competition for forest use permission principles;
- the rights of citizens to visit the forest without paying and using timber and non-timber resources for personal needs.

Otherwise, the main form of forest use is still lease of the forest fund lands. Also the principle of planning encompassing all activities in the forests was maintained.

At the same time new articles were introduced into the new Forest Code, responding to the development of the new market relations. Limitations on business activities and forest resources use by citizens for their own needs were introduced. The major new direction of the Forest Code is decentralization of forest management; major authority (including problems of distribution and control over forest fund use, forest protection and restoration) was transferred to regional administration. New legislation introduces considerable changes into the system of forest use itself. It changes from permissive (felling licenses) to declarative forms – based on the forest use declaration. The lessee is fully responsible for forest restoration and protection, as well as fire prevention and must follow land development rules.

The Forest Code regulates new types of forest use, which were not included into forest legislation before. Among them:

- management of hunting estates and hunting itself;
- farming;
- creation of forest plantations and their exploitation;
- cultivation of wild fruit, berries, ornamental plants as well as medical herbs;
- geological research, mining;
- construction and exploitation of freshwater reservoirs, hydraulic works, power lines, communication lines, roads, pipelines;
- processing of timber and other forest resources;
- conduct of religious activity.

To implement all these new additions to the Forest Code it was necessary to adopt many bylaws at the federal level.

To increase forest sector profitability, develop full timber processing techniques, and decrease unemployment the Russian government has adopted a new law, which makes provisions for step-by-step increase of customs duty for raw timber export. Before, the customs duty for round wood was 6.5% of customs trade value; since 1 July 2007 it was increased to 20%, since 1 April 2008 25%, since 1 January 2008 80% for deciduous species (oak, ash, beech), and since 1 January 2011 80% for round wood of coniferous trees.

Logging companies in the SFD and FEFD appear to be at a competitive disadvantage in comparison to the companies of the European-Ural part of Russia, where 70% of processing plants are concentrated. It is very difficult to meet the challenge of full timber processing by 1 January 2011 and this possibly will slow down the development of the Russian APR forest sector.

Reforms in forest legislation and management systems regarding forest economy initially led to the weakening of state control over the use of forest resources. In the near future it will be necessary to conduct the major task of strengthening regulation of the management systems and overcoming the negative consequences of the reform period.

3. INITIAL DATA AND METHODOLOGICAL PRINCIPLES

The basis of the present document is the Russian Federation forest sector outlook study, issued in 2003, edited by Prof. N. Burdin. Regional data were added and verified according to the data of the Federal State Statistics Service, National Forest Sector statistics and the Federal Customs Service. Also the data of the official web-pages of the SFD and FEFD and regions were used.

In the sections devoted to the forecast of forest sector development, production and consumption of forest products, the three scenarios for economic growth in the Russian Federation forest sector outlook study 2003 were used. The corrections are consistent with Russian government regulations on customs duty changes.

Additional data on Russian APR forest sector development were obtained after analysis of scientific publications, monographs, concepts of development of the forest sector of SEFD and FEFD regions and provinces, governmental reports, and documents of the Far Eastern associations of forest exporters. Especially important were:

- main trends in activity of the timber industry of Khabarovskiy province;
- concepts of development of the timber sector of Irkutsk region till 2015;
- concepts and main trends of the forest sector of Krasnoyarskiy province;
- strategies of socioeconomic development of Primorsky province;
- the industrial basis of Russian development (report)
- the forest sector of the Russian Far East (analytical review).

This study has been expanded, new sections on non-timber forest use, forest edible products, use of forest territories for hunting and deer farming, tourism, development of forest certification and the problem of illegal forest use have been added. The discussion of these topics is of key importance for the development of the SFD and FEFD, as they are socially important.

4. CHARACTERISTICS OF THE FOREST FUND AND FOREST ECONOMY OF THE RUSSIAN APR

Forest resources characteristics

All forests of the Russian Federation are governmental property. The main area of the forest lands of the Russian APR belongs to federal forest fund and comprises 99.6%. A small percentage of the area is under ministerial supervision and the supervision of governmental agencies.

The main forest land of the SFD and FEFD is covered by forest (63%); for some years now the forest area has been stable and has had a tendency to increase. The forest cover is greater in the south in comparison to northern territories. Non-forest covered areas (11%) are mainly represented by natural sparse tree growth and burned sites. Dying stands, logging sites and waste lands occupy an even smaller area. Non-forest lands (26%) are mainly occupied by pastures, water bodies and bogs (Tables 1 and 2, Figures 1-3).

Table 1. General indices of forest resources of the Russian APR (January 2008)

Index	SEFD	FEFD	Total for Russian APR	Share of Russian total volume, %
Forest land area, M ha	347,4	496,2	843,6	75,4
Stocked area, M ha	257,9	290,2	548,1	73,4
Growing stock, billion. m ³	31,3	20,3	51,6	67,5
Mature and overmature M ha	122,8	122,3	245,1	74,5
Mature and overmature, billion m ³	18,4	11,9	30,3	71,1
Including coniferous species;	14,8	11,1	25,9	78,8
deciduous species	3,6	1,4	5,0	53,4
Forest cover, %	53,2	45,5	49,0	
Total average annual increment, M m ³	338,1	234,4	572,5	60,4
Annual allowable cut, M m ³	196,5	90,9	287,4	52,2
The area of protected forest, M ha	91,0	78,9	169,9	68,1

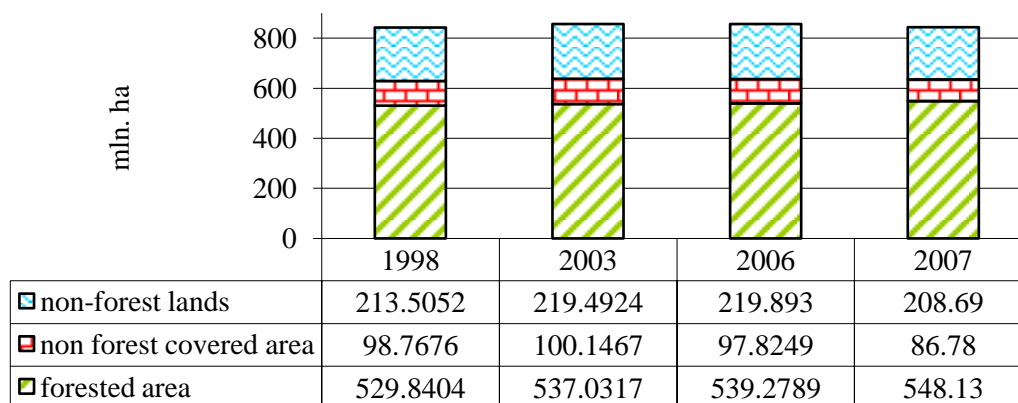


Figure 1. Dynamics of the forest lands of the Russian APR

Table 2. Dynamics of non-forest covered area requiring restoration

Years	Restoration fund, (000 ha)				
	Fire-sites	Dead forests	Clearings	Waste lands	Total
FEFD					
1998	17218,5	567,3	1696,1	2210,5	21692,4
2003	20746,5	568,8	1182,8	2171,7	24669,8
2006	20390,8	281,8	964,4	2105,5	23742,5
2007	17873,2	413,1	850,3	2004,9	21141,5
SFD					
1998	5602,2	825,9	1228,4	641,2	8297,7
2003	4298,3	876,9	873,7	536,7	6585,6
2006	3839,3	824,5	912,3	531,6	6107,7
2007	3418,1	814,9	1061,2	454,4	5748,6
Total for Russian APR					
1998	22820,7	1393,2	2924,5	2851,7	29990,1
2003	25044,8	1445,7	2056,5	2708,4	31255,4
2006	24230,1	1106,3	1876,7	2637,1	29850,2
2007	21291,3	1228,0	1911,5	2459,3	26890,1

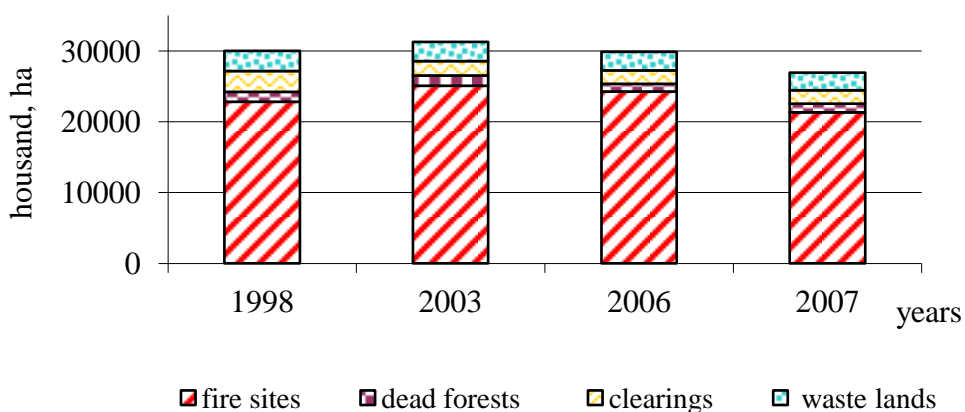


Figure 2. Dynamics of the non-forest covered areas of the Russian APR requiring restoration

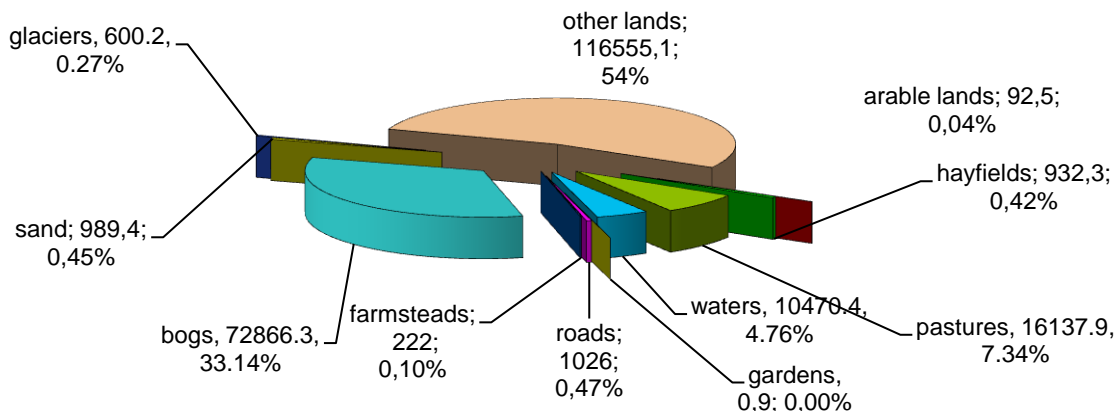


Figure 3. Categories of non-forest lands of the Russian APR ('000 ha)

Coniferous forests dominate in the Russian APR. The prevailing species is pine (42%), but the share of larch is also high (39%); spruce accounts for 6%. The most dominant coniferous species in the FEFD is a larch (81%); spruce and pine's respective shares are 9% and 7%. Deciduous species are mostly represented by white birch; in the SFD its share comprises 76% of all broadleaved forests; in the FEFD its share is 87% (Figure 4).

Restoration of the forest cover in the SFD and FEFD mostly occurs naturally: regeneration

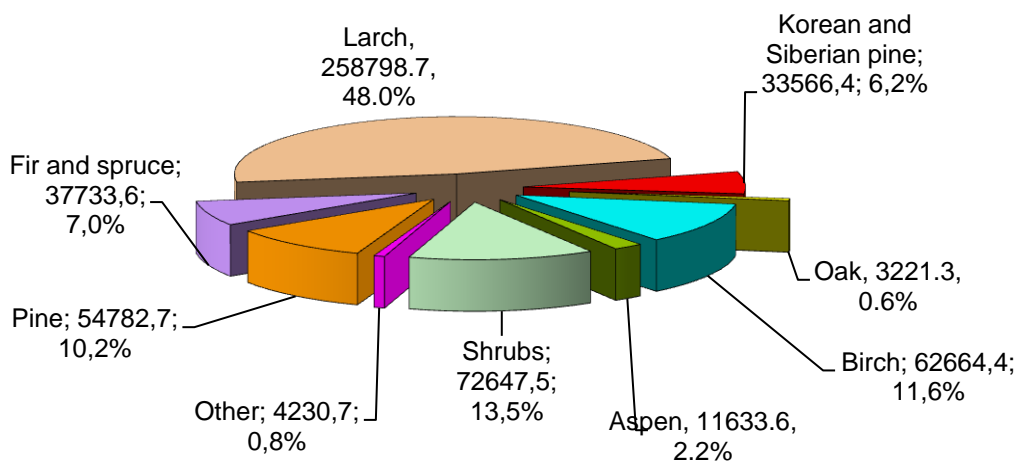


Figure 4. Species composition of Russian APR forests ('000 ha)

takes place in burned areas, logging spots and other areas without forest cover. During logging, technologies for saving the saplings of valuable forest species are applied. If there are no saplings after total timber harvesting, mature seed trees are left; the logging area is also restricted. One of the supporting measures for forest restoration is soil tillage. Tree planting is used when the forest cannot restore naturally or undesired change of species composition is possible. Forest plantations usually contribute to ecological needs and are planted in areas where they can contribute to soil and water protection. Timber restoration is not usually a primary consideration because more than 100 years is needed to obtain industrial timber. Forest restoration schemes declined after 1991 as well as the total area of tree harvesting (Figure 5).

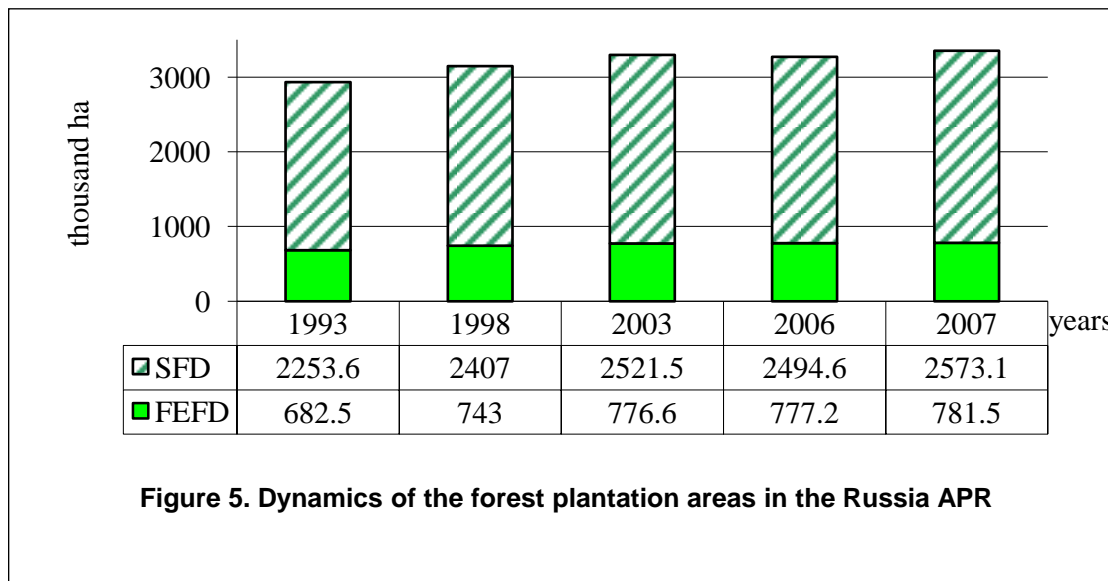


Figure 5. Dynamics of the forest plantation areas in the Russia APR

In general, forest dynamics in the Russian APR are positive. During the last 5 years, forest lands increased by 3.52 million ha. The forest covered area increased by 20.38 million ha, including areas of coniferous forests (increased by 13.59 million ha). The total growing stock increased by 878.8 million m³. The stock of mature and over mature forests increased by 337.2 million m³. The volume of mature and over mature coniferous forests increased by 306.3 million m³. The total average annual increment rose by 18.15 million m³. The expansion of forest territory is due to burgeoning larch and pine forests, while the area of spruce forests has tended to decline.

Fire protection

Fire fighting is the main forest management activity in the SFD and FEFD and fires occur frequently. The main characteristic of fires is the abrupt changes in affected area and numbers, depending on seasonal conditions. In years of extreme weather conditions (seasonal drought) – at least once in 10 years – forest fires are catastrophic. Figures 6 and 7 demonstrate the pattern of fire occurrence and the tendency of general increase in fire frequency. Currently, insufficient reliability of data on fires is connected to the absence of systematic fire monitoring in northern areas. During the last few years remote sensing technologies have been used and they have allowed experts to establish that the actual burned areas in the Taiga are 10 times greater than originally declared (Table 3).

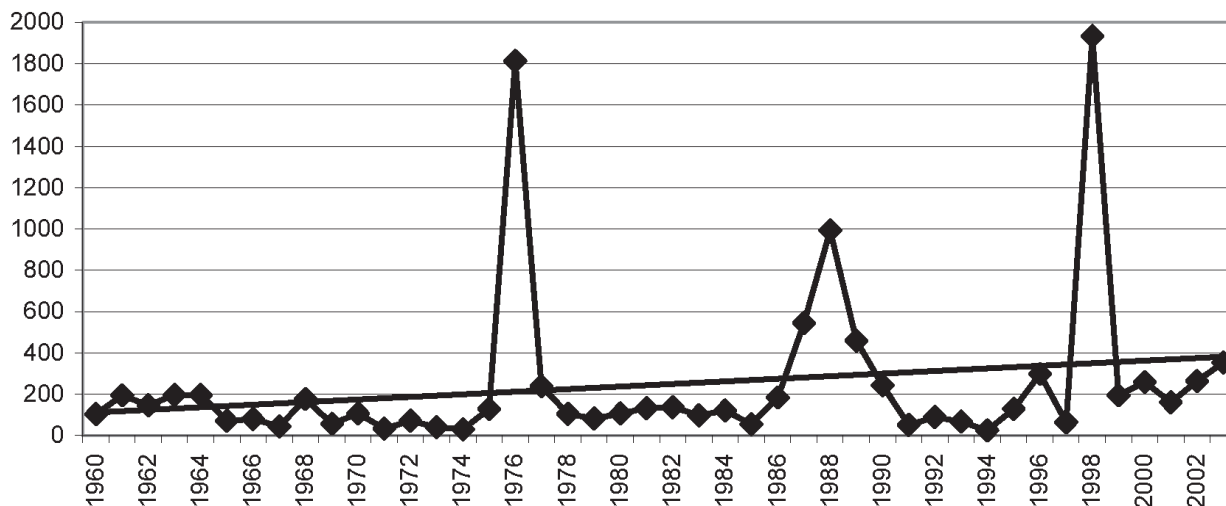


Figure 6. The dynamics of fire-affected areas in the southern parts of the FEFD (Khabarovskiy province, Evreiskaya Autonomous province) ('000 ha)

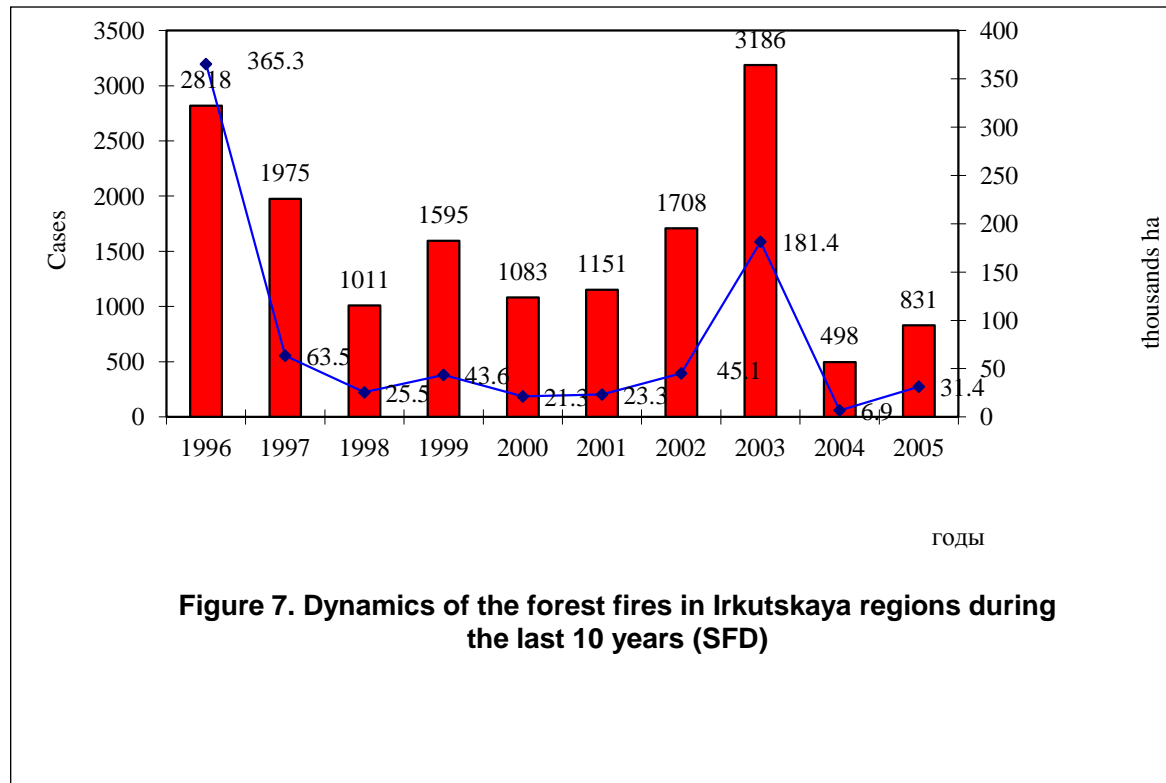


Table 3. Forest fires in the Russian APR

Regions	Years of monitoring	Number of forest fires	Burned forest territories, 000 ha	Burned and damaged timber, 000 m ³
Siberian	2003	16799	1647,1	49176,0
	2005	4699	110,1	2965,7
	2006	6163	778,2	25195,8
	2007	6842	580,6	8555,3
Far Eastern	2003	3819	649,2	17201,0
	2005	1531	765,4	5359,0
	2006	1456	1042,8	3968,2
	2007	1390	594,5	4715,1
Total for the Russian APR	2003	20618	2296,3	66377,0
	2005	6230	875,5	8324,7
	2006	7619	1821,0	29164,0
	2007	8232	1175,1	13270,4

Forest fire protection is divided into ground, mixed and ground with air patrolling (mixed). The ground protection usually covers 10-15% of the forest territory, mixed 20% of the forest, while air patrolling covers the other two-thirds of the forest fund territories.

Fire protection efficiency has decreased because budget cuts. Financing at the beginning of 2000 was 4-5 times lower than at the end of the 1980s.

In general, causes of fires in the Russian APR can be divided into the following categories: casual handling of fire – 77%, lightning – 19%. In 4% of cases the reason was not established. Lightning causes fires 14% more frequently here than in the European-Ural part of Russia. Forty-five percent of fires appear 5 km away from settlements, 23% 5-10 km away, 10% 11-20 km away. Big fires occur more often in the most remote areas. In the years of catastrophic fires this tendency changes – big and catastrophic fires can happen in any part of the forest territory.

The most common are ground fires; their share is 90% of all cases and area covered. Crown fires comprise 5-7% of all burned areas, peat fires 2-3%.

The total volume of catastrophic fires does not occupy more than 5-10% of the total area of the forest fund area, but they cause major socioeconomic and ecological damage to the inhabitants and forest resources of the region. The forest fire-fighting service is able to control moderate fires, but does not have enough power and financing to effectively fight big and catastrophic fires. These fires are only stopped by abundant precipitation.

Till 2005 organization and responsibility for fire-fighting in the Russian Federation belonged to the federal government. At present, it is the responsibility of provincial administrations.

Protection of forests from pests and diseases

Insects have a noticeable effect on the condition and appearance of the forests of the Russian APR. The consequences of massive invasions of insects can be compared with catastrophic forest fires and industrial logging. Even a single instance of insect attack can lead to the death of the forest stand. The most dangerous for coniferous trees is the Siberian silkworm (*Dendrolimus superans sibiricus* Tschtv.), which can be numerous. Another wide-spread species is the Siberian nun moth (*Ocneria monacha* L.), but its breeding ground occupies much smaller areas, than the Siberian silkworm. In Siberia the most common conifer parasites are the pine silkworm (*Dendrolimus pini* L.), pine looper moth (*Bupalus piniarius* L.) and pine cutworm (*Panolis flammea* Schiff.).

Leaf-damaging pests cause less loss in comparison to the conifer parasites, because broad-leaf species are more resistant to partial defoliation so massive death of deciduous trees as a result of pest invasion is rare. Nevertheless, pests affect the stability of afforestation and juvenile trees and reduce the recreation attractiveness of the forest. For the SFD and FEFD, the most common pest is the gipsy moth (*Lymantria dispar* L.). In the FEFD massive invasion of the pink gipsy moth (*Lymantria mathura* Moore.) can occur.

In the forests of the SFD breeding grounds of conifer pests prevail. These centres of invasion are affected regularly. Every 17-20 years invasion covers vast areas, e.g. in 1977-1978 and 1995. The average area damaged is 490 000 ha per annum.

Broadleaf pest invasions in the SFD happen much more rarely, the average area covered being 94 000 ha. Considerable increase of invaded territories was observed in 1985 and 1996. In all cases the pest was the gipsy moth.

In the FEFD the average area invaded by conifer pests is 374 000 ha. In 1977-1979, during massive reproduction of Siberian silkworm, its presence was registered over 972 700 ha. In 2000 the forests of Sakha Republic (Yakutiya) formed the most massive breeding grounds of Siberian silkworm – 5 928 500 ha, which was 40 times larger than usual. In 2001 the area of breeding grounds had reached 6 375 100 ha.

In the SFD and FEFD the area of forests where protection measures are undertaken is much smaller than the area of active breeding grounds (Table 4). The breeding grounds were usually found in eruption or crisis phases, when protection measures were already economically meaningless. The only exceptions were the years 1995-1996, when in the territory of Krasnoyarsk province, vast areas were invaded by the gipsy worm. The area of breeding ground was 946 000 and 623 200 ha respectively. Pest extermination in 1995 was done over 249 900 ha (26% of all the invaded area), in 1996 over 379 700 ha (61% of all the invaded area). In the Far East (Primorskiy province) in 1997 extermination (with the use of aircraft) was done on 76 600 ha in the breeding grounds of the Siberian silkworm. The share of the cleaned area was 70%. These measures saved the forests.

Table 4. Dynamics of areas protected from pests/diseases in Russian APR (ha)

Region	1997	1998	1999	2000	2001	2002	2003
Protection of forest from pests and diseases, using bio-techniques							
Siberian Federal district	38834	88094	72235	64510	39250	95489	155887
Far Eastern Federal district	56390	17070	5760	11164	85417	115382	89433
Total for APR, Russia	95224	105164	77995	75674	124667	210871	245320
Protection of forest from pests and disease using chemicals							
Siberian Federal district	32169	2360	39855	53183	270951	139223	253168
Far Eastern Federal district	24101	200	-	2	68	61	65
Total for APR, Russia	56270	2560	39855	53185	271019	139284	253233

5. THE USE OF TIMBER IN THE RUSSIAN APR

Timber exploitation for commercial use is the main and traditional purpose of forestry in Russia, and the SFD and FEFD are no exceptions. Special commercial forests are identified for logging and limits for annual allowable cut are determined. *Inter alia*, national parks, high value conservation forests, forests of scientific and historical importance, recreation forests, protection forests, forests with special values (in tundra, fish spawning and nut harvesting zones) forests dominated by Korean and Siberian pine, and forests on slopes steeper than 30° are excluded from commercial logging. The use of mature and overmature forests can be constrained by the absence of roads and social infrastructure.

The total area of potential commercial forests in the SEFD and FEFD is 200 423 600 hectares, which is 37.1% of the total forest area. This figure is considerably smaller than the average figure for Russia, explained by the fact that there are many protected, low-production, thinned woods in the Far East, as well as forests for other purposes (Korean and Siberian pines, deer farming and reserved forests).

Seventy-three percent of commercially viable forests are coniferous, 66% in the SFD, 80% in the FEFD. The dominant species of coniferous forests in the SFD is pine (42%), followed by larch (39%) and spruce (6%). In the FEFD – the conifer ranking is larch (81%), spruce (9%), and pine (7%). Deciduous species are mainly represented by white birch. In the SFD, white birch comprises 76%; in the FEFD 87%. The share of commercial oak forests of the FEFD is 64.3% of all Russian oak forests.

In the Asian part of Russia, the growth of commercial timber production has been continuing since 1975, while in the European-Ural part the volumes of commercial timber use started to decline in the 1960s. Structural changes in the governmental system of the country in 1991 resulted in a change of property structure. The economic crisis of 1998 also affected the forest sector of the SFD and FEFD. The harvesting volume declined between 1991 and 1998. The proportion of utilization of annual allowable cut in the SFD was 11.9% (23.16 million m³), in the FEFD 8.9% (8.3 million m³). Nevertheless, due to the increased market price of timber and stabilization of logging companies after 1998 the volume of commercially used timber had grown 1.5 times, but still cannot be compared to the figure of 1991. Figure 8 and Table 5 show that the volume of timber use is stable now and has a tendency to increase, which can be explained by the current unlimited sales market in China, growth of the sales market in Republic of Korea and increase of domestic consumption, to say nothing of price escalation.

Table 5. Dynamics of harvesting in the Russian APR

Years	Commercial harvesting in mature and over mature forest		Improvement felling (cleaning cutting)				Sanitary logging (forest health purposes)		Other logging		Total	
			Total		In young forest							
	Area 000 ha	Vol million m ³	Area 000 ha	Vol mln m ³	Area 00 ha	Vol mln m ³	Area 000 ha	Vol mln m ³	Area 00 ha	Vol ln. m ³	Area 00 ha	Vol mln m ³
SFD												
2004	153,0	30,92	129,8	3,83	52,4	0,06	65,5	6,50	77,9	2,58	426,2	43,83
2005	156,8	31,59	123,3	4,08	39,4	0,05	66,0	6,05	76,4	2,49	422,5	44,21
2006	171,2	32,38	128,5	4,14	42,3	0,07	68,5	6,53	102,6	3,44	470,8	46,49
2007	182,8	35,15	152,2	5,29	41,2	0,08	82,5	8,92	194,8	4,22	612,3	53,58
FEFD												
2004	151,0	14,07	77,8	1,59	34,7	0,15	28,3	1,26	17,3	0,75	274,4	17,67
2005	146,6	13,41	74,0	1,45	22,7	0,01	22,0	1,01	21,2	1,16	263,8	17,03

2006	171,6	15,36	70,1	1,38	22,0	0,01	20,7	1,06	22,6	1,10	285,0	18,90
2007	172,1	15,51	76,3	1,68	18,7	0,01	22,4	1,29	26,1	1,37	296,9	19,85
Total for Asia-Pacific Region of Russia												
2004	304,0	44,99	207,6	5,42	87,1	0,21	93,8	7,76	95,2	3,33	700,6	61,50
2005	303,4	45,00	197,3	5,53	62,1	0,06	88,0	7,06	97,6	3,65	686,3	61,24
2006	342,8	47,74	198,6	5,52	64,3	0,08	89,2	7,59	125,2	4,54	755,8	65,39
2007	354,9	50,66	228,5	6,97	59,9	0,09	104,9	10,21	220,9	5,59	909,2	73,43

The potential for increase in commercial logging in the SFD and FEFD is considerable due to underutilization of the annual allowable cut. Its use is almost equal in both districts at 17%. Even in provinces and regions which are located in the most economically favorable areas for export and raw material processing, such as Krasnoyarskiy, Khabarovskiy, Primorskiy provinces, Irkutsk, Amur and Eureiskaya Autonomous regions, the use of the logging area does not exceed 43% (Table 6).

In the FEFD the potential annual use of the coniferous forests (2770.7 thousand m³) is almost equal to the calculated available logging volume in the same type of forest in European-Ural part of Russia (2963.9 thousand m³), but actual FEFD logging exceeds the European zone (390.7 thousand m³) by 1.6 times (631.2 thousand m³). Additionally, such valuable non-coniferous species as oak, elm and yellow birch are being felled and exported.

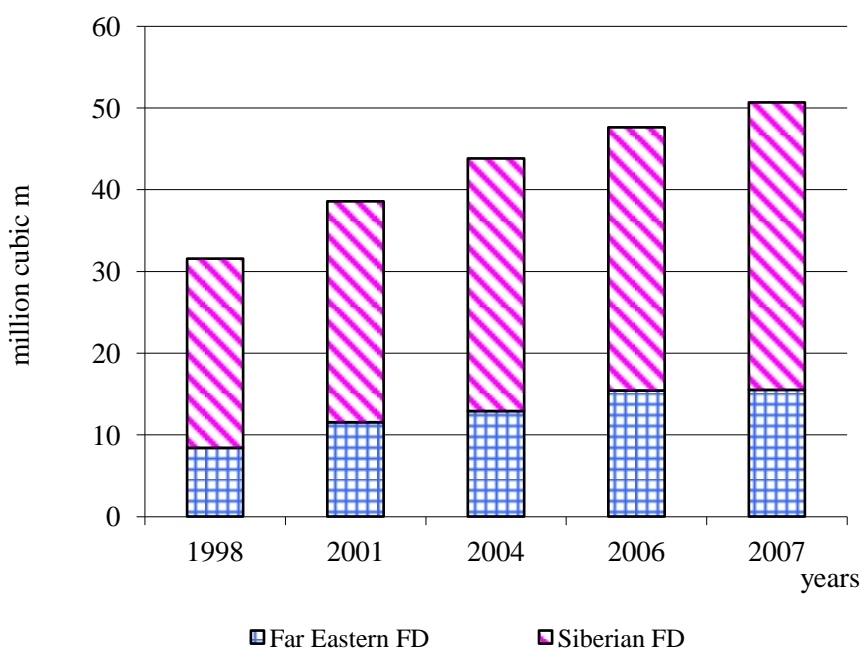


Figure 8. Commercial harvesting in mature and over mature forest in the Russian APR

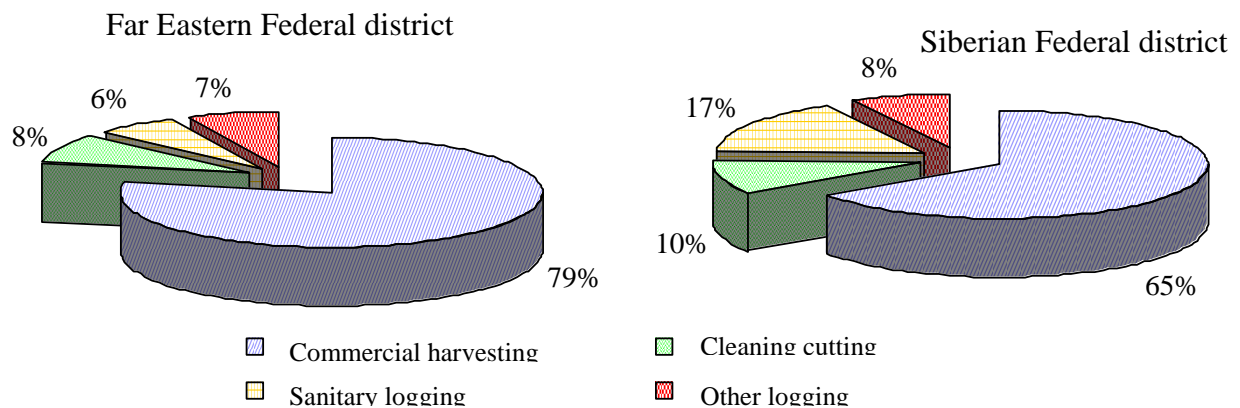
Table 6. The use of calculated logging area in different regions of the Russian Federation (SFD and FEFD) from 2004 till 2007

Region	The use of annual allowable cut (%)			
	2004	2005	2006	2007
SFD	16,1	16,2	16,4	17,9
Republic of Buryatia	11,6	10,4	11,2	14,0
Republic of Tyva	2,5	2,0	2,3	3,4
Altai Territory	11,7	10,0	9,7	13,9
Republic of Altai	9,5	6,3	7,5	10,6
Krasnoyarsk Territory (including Evenki Autonomous)	14,7	15,2	15,8	15,7

Area and Taimyr Autonomous Area)				
Irkutsk Region	31,0	30,6	31,0	33,5
Kemerovo Region	2,7	3,3	3,5	4,2
Novosibirsk Region	7,7	8,6	10,8	8,8
Omsk Region	3,9	4,2	4,7	6,3
Tomsk Region	5,4	5,8	5,3	6,6
Chita Region	7,2	7,8	7,6	11,3
Republic of Khakassia	6,2	6,8	6,5	5,0
Agin-Buryat Autonomous Area	4,0	6,2	8,3	7,8
Ust-Ordyn Buryat Autonomous Area	15,3	17,4	22,0	32,8
FEFD	15,6	14,9	16,9	17,1
Republic of Sakha (Yakutia)	3,3	3,0	3,4	2,9
Primorskiy Territory	37,8	36,3	43,1	41,5
Khabarovskiy Territory	30,2	29,1	32,9	33,6
Amur Region	10,9	11,6	13,5	14,7
Kamchatka Region and Koryak Autonomous Area	11,8	7,4	8,6	9,4
Magadan Region	3,7	3,7	4,0	2,4
Sakhalin Region	12,9	6,9	7,1	9,2
Evreyskaya Autonomous Region	11,5	17,8	24,3	31,4
Chukot Autonomous Region	0	0	0	0

Considerable volumes of timber in these districts are extracted during improvement felling, sanitary logging and other types of logging (Table 5, Figure 9). Rapid expansion of logging is due to the construction boom and infrastructure development.

Figure 9. Types of logging in the FEFD and SFD



Most timber is harvested from forest plots that are under lease. In the SFD this number is higher (78%) than in the Far East (65%). The total area awarded for lease is not large – 23% in the SFD and 19% in the FEFD. The leaders are Primorskiy province, where 49% of all the calculated logging areas is under lease, Irkutsk region (47%), and Khabarovskiy province (42%). In general, long- and medium-term forms of lease (20-49 years) prevail. More than 95% of the forest companies comprise private, stock-holding or mixed ownership.

The timber industry in the Russian APR, as elsewhere in Russia, has an important, but not a leading role in industrial production and GDP (Table 7). A considerable share of production, as a rule, can be found in regions with low industrial outputs. Irkutsk region, where cellulose production is developed is an exception.

Table 7. Timber industry production in different provinces of the Russian APR

Federal units	The share of forest industry production in total industrial manufacture, %
SFD	
Republic of Altai	8,1
Republic of Buryatia	5,4
Republic of Tyva	2,5
Altai Territory	2,5
Krasnoyarsk Territory	3,7
Irkutsk Region	21,1
Kemerovo Region	0,3
Novosibirsk Region	2,2
Omsk Region	1,4
Tomsk Region	1,1
Chita Region	2,9
Republic of Khakassia	1,4
Agin-Buryat Autonomous Area	1,1
Ust-Ordyn Buryat Autonomous Area	27,2
Taimyr Autonomous Area	-
FEFD	
Republic of Sakha (Yakutia)	0,5
Primorskiy Territory	8,5
Khabarovskiy Territory	13,3
Amur Region	6,2
Kamchatka Region	0,5
Koryak Autonomous Area	-
Magadan Region	0,2
Sakhalin Region	2,0
Evreyskaya Autonomous Region	20,4
Chukot Autonomous Region	-

There is disproportionate distribution of timber processing factories in various districts. They are mostly concentrated in the SFD, while the FEFD is oriented to the export of round wood. Disproportion can be also observed in the distribution of pulp and paper industries. In the SFD only 30% of all Russian pulp is produced and only 1% of paper. In the FEFD in the last few decades pulp has not been produced at all.

Till 1991 the share of roundwood in the Russian APR was 40% of value of all forest products; approximately half the roundwood produced was consumed inside the region, 25% was sent to the European part of Russia, and 30% was exported. By 1997 85% of value of primary forest products was represented by round wood, and 60% of roundwood produced was exported. By 1997 less than 10% of all timber was being processed inside the region.

Sustainable growth of the timber industry started after 1998. In 1999 its development was one of the most active in comparison to other industries (Table 8). Constant growth of sawn wood, pulp and particle board production was observed (more than 10% a year), as well as moderate growth of paper board and plywood manufacture (6% a year). The production of particle board and general production of industrial round wood slowed after 2003; this can be partially explained by worn out machinery and instrumentation. In paper production no considerable changes occurred (Figures 10-14).

Table 8. Manufacturing dynamics of the main types of timber industry products in the Russian APR

Years	Wood removal	Industrial round wood 000 m ³	Sawn wood, 000 m ³	Plywood, 000 m ³	Plbrd 000 m ³	Fiber board mln m ²	Pulp 000 tons	Paper 000 tons	Paper board 000 tons
FEFD									
1990	29598,0	23456,0	5414,1	25,3			539,9	215,5	240,6
1995	10521,0	7370,3	972,7	1,0	22,1	5,6	60,0	14,2	13,1
1997	8245,5	6138,1	550,9	0	8,9	3,0	1,6	0,7	5,1
1998	6400,3	4914,3	483,7	0	6,2	2,6	2,2	0,2	6,1
1999	9320,6	7544,2	581,0	0	6,2	4,5	12,6	9,1	31,9
2000	10161,0	8450,5	673,3	0	2,7	4,0	11,3	9,5	32,8
2001	11398,0	9625,3	788,1	0	1,0	4,3	11,1	11,5	32,0
2002	12549,0	10580,0	830,2	0	11,3	8,8	4,6	4,6	30,8
2003	13370,0	11375,0	1009,6	0	16,7	8,8	0,4	0,3	26,5
2004	14337,0	12191,0	1146,1	0,5	19,3	8,8	0	0	21,2
2005	14477,8	12484,4	1234,2	0	24,5	3,0	0	0	22,5
2006	14992,7	13119,2	1297,9	0,1	31,2	1,4	0	0	24,0
2007	15841,4	13808,1	1369,9	0	33,8	0,02	0	0	22,0
2008	13116,0	11866,0	1152,1	0			0	0	23,5
SFD									
1990	83220,0	69917	22747,0	240,8			1809,1	110,8	585,3
1995	29894,0	23707,0	7185,4	115,6	354,1	58,8	1380,9	60,3	318,0
1997	19214,0	15579,2	5045,2	72,2	106,0	52,78	829,1	42,2	224,2
1998	17075,8	14445,0	4996,4	88,3	137,7	55,4	891,5	35,9	188,8
1999	18756,7	15924,0	4808,6	104,3	163,2	60,6	1287,2	48,6	255,4
2000	20393,0	17326,0	4843,2	135,0	221,3	70,7	1476,3	53,2	332,3
2001	20839,0	19189,0	4432,9	137,4	263,6	78,0	1543,8	46,1	337,5
2002	23584,0	21560,0	4749,3	139,5	277,3	79,6	1679,8	41,9	386,1
2003	27119,0	24316,0	5403,2	148,6	354,1	81,8	1769,7	45,9	418,9
2004	28463,0	19981,0	6037,6	165,4	389,5	80,0	1801,2	44,4	453,3
2005	27772,4	24796,3	6664,7	178,6	441,0	87,1	1797,6	41,1	453,2
2006	33275,9	22686,5	6646,6	188,0	461,5	91,1	1895,5	47,0	463,9
2007	35037,9	25116,1	7339,9	206,2	526,5	100,7	1984,0	43,9	474,1
2008	33376,0	26420,0	7199,2	191,4			1885,1	42,0	491,7
Total for Russian APR									
1990	112818,0	93373,0	28161,1	266,1			2349,0	326,3	825,9
1995	40415	31077,3	8158,1	116,6	376,2	64,4	1440,9	74,5	331,1
1997	27459,5	21717,3	5596,1	72,2	114,9	55,78	830,7	42,9	229,3
1998	23476,1	19364,3	5480,1	88,3	143,9	58	893,7	36,1	194,9
1999	28077,3	23468,2	5389,6	104,3	169,4	65,1	1299,8	57,7	287,3
2000	30554	25776,5	5516,5	135	224	74,7	1487,6	62,7	365,1
2001	32237	28814,3	5221	137,4	264,6	82,3	1554,9	57,6	369,5
2002	36133	32140	5579,5	139,5	288,6	88,4	1684,4	46,5	416,9
2003	37489	35691	6412,8	148,6	370,8	90,6	1770,1	46,2	445,4
2004	42800	32172	7183,7	165,9	408,8	88,8	1801,2	44,4	474,5
2005	42250,8	37280,7	7898,9	178,6	465,5	90,1	1797,6	41,1	475,7
2006	48268,6	35805,7	7944,5	188,1	492,7	92,5	1895,5	47,0	487,9
2007	50879,3	38924,2	8709,8	206,2	560,3	100,7	1984,0	43,9	496,1
2008	46492,0	38286,0	8351,3	191,4			1885,1	42,0	515,2

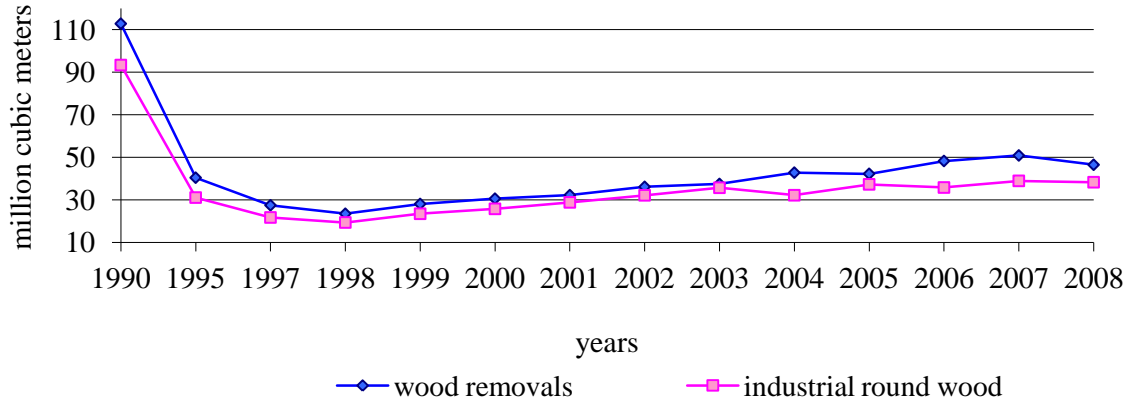


Figure 10. Dynamics of the wood removals and round wood production

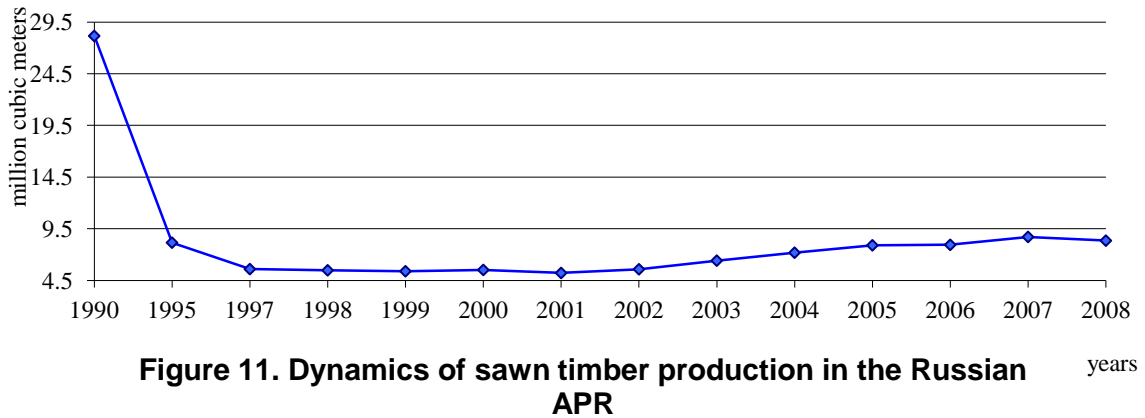


Figure 11. Dynamics of sawn timber production in the Russian APR

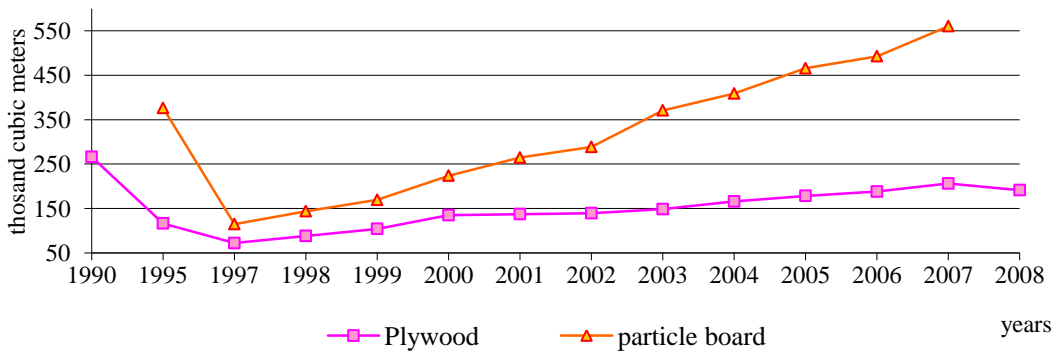


Figure 12. Dynamics of plywood and particle board production in the Russian APR

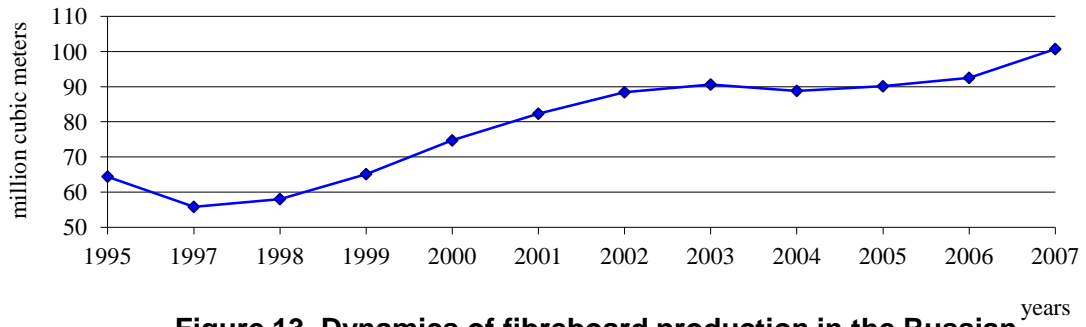


Figure 13. Dynamics of fibreboard production in the Russian APR

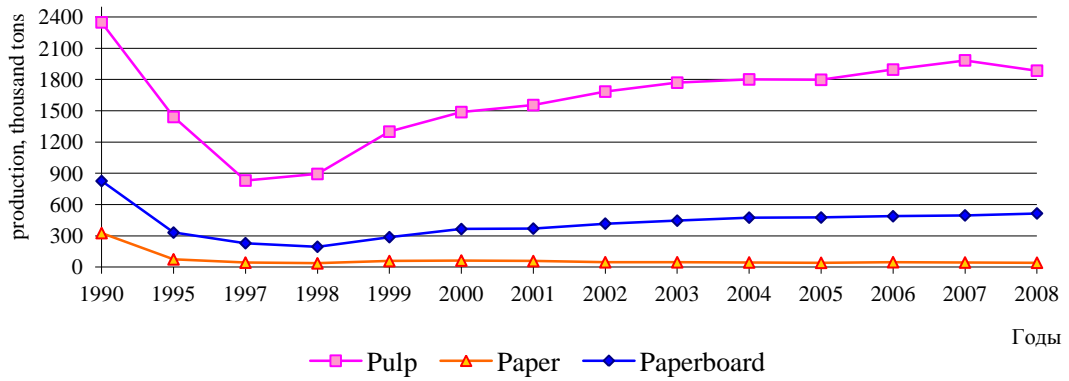


Figure 14. Dynamics of pulp, paper and paperboard production in the Russian APR

6. THE USE OF NON-TIMBER FOREST PRODUCTS AND OTHER FOREST USES

The use of non-timber forest products (NTFPs) and hunting was not tracked by official statistics after the collapse of the system of state special enterprises (promkhoses) at the beginning of the 1990s. Nevertheless, in some regions of SFD and FEFD these products play an important role for locals. Most of them are consumed in the provinces. Siberian and Korean pine seeds, furs, and medicinal herbs are exported in large quantities.

Special areas of the forests are designated for nut-harvesting in the SFD and FEFD. In these areas priority is given to the organization of hunting, collection of food and medicinal herbs, mainly – nuts. Timber harvesting in mature and overmature forests of nut-harvesting zones is prohibited. Improvement felling is possible. Nut-harvesting zones are allotted in the forests with prevalence of Siberian or Korean pine, which grow only in the Asian part of Russia. . The total area of nut-harvesting zones in the SFD is 8.88 million ha and 1.02 million ha in the FEFD.

The use of plant resources

There are 350 trees, shrubs and herbs with edible fruits growing in the forests of the FEFD and SFD. Around a thousand species are known to be medicinal, 300 plants are melliferous and polliniferous. More than 400 species of edible mushrooms grow here.

According to experts' estimations, industrial harvest of edible berries (cranberries, cowberries, and blueberry) in the SFD and FEFD is more than 4 million tons, Siberian and Korean pine nuts – 1 million and 2.1 million tons of mushrooms. Also there are valuable species of medicinal herbs and mushrooms growing (eleuterococcus, golden root, magnolia-vine). They have high demand not only in Russia, but also abroad (Table 9).

Table 9. Biological stock of edible products in Russian forests

Type of product	Biological stock, 000 tons		
	Total for Russia	In Federal districts	
		SFD	FEFD
Wild berries:	8840.5	4257.2	1186.3
Cranberries	1600.0	390.1	281.8
Cowberries	3010.2	1328.6	507.6
Whortleberries	2618.7	1723.5	57.2
Blueberries	1013.8	626.8	258.2
Raspberries	144.3	30.4	70.2
Cloudberry	453.5	157.8	11.3
Nuts:	3592.7	1098.5	2288.6
<i>Siberian and Korean pine</i>	<i>1071.8</i>	<i>777.8</i>	<i>88.4</i>
<i>Mountain pine</i>	<i>2520.9</i>	<i>320.7</i>	<i>2200.2</i>
Mushrooms	4325.4	1089.6	2151.7
Birch sap	875504.6	420041.5	52794.0

The economic viability of NTFPs of the permafrost forests is much higher than the value of their timber.

According to experts' estimation, the market value of annual stock of wild berries is equivalent to 10 billion US dollars. The value of annual mushroom stock is around 5 billion US dollars.

Data on non-timber plant resources are absent, excluding Siberian and Korean pines and mountain pine.

The nuts plants in the area are: Korean and Siberian pines (*Pinus koraiensis* S. Et Z., *P. sibirica* (Rupr.) Mayr.), mountain pine (*Pinus pumila* (Pall.) Rgl.), nut trees (*Juglans manshurica*, *J. sieboldiana*), three species of hazel-nuts (*Corylus*) and six species of sanghara-nuts. Especially valuable are Siberian and Korean pines nuts. Good harvests occur every 3-4 years, the harvest in other years is usually small or nil. Once every ten years especially abundant harvests occur. The average amount of Korean pine nuts harvested is calculated to be 17 kg/ha, and 55 kg/ha for Siberian pine.

Within the last 15 years, due to growth in transportation costs and other costs during harvesting, the area of economically accessible fruit and berry lands has declined two-fold, and potential productivity has also decreased two-fold in comparison with figures for the 1980s.

Gathering of birch sap is a traditional practice. Gathered resources are estimated in the millions of tons. The area of birch forests in the Russian APR is 62.7 million ha, including the SFD – 39.8 million ha and the FEFD – 22.9 million ha.

There are not less than 600 species of medicinal herbs in Siberia, 100 are used in national medicine. In the FEFD 974 plant species are used for medical treatment and as preventive measures. At present only around 200 species are officially considered to be medicinal and only 70 are actually used for treatment. Such a low percent of official usage can be explained by insufficient research on plant medical properties.

There are 3 000 species of pileate fungi in the Russian Federation; more than 400 species grow in the SFD and FEFD. In the FEFD their industrial harvesting is estimated to comprise 110 000 tons, and around 21 000 tons can be actually gathered. Mushrooms are widespread but are not so well studied. The most economically viable species are: milk mushrooms (*Lactarius*), Russula, coral milky caps (*Lactarius torminosus*), whitecaps (*L. pubescens*), ceps (*Boletus edulis*), Boletus luteus (*Suillus*), orange-cap boletus (*Leccinum aurantiacum*), brown cap boletuses и Leccinum, saffron milk caps (*Lactarius*), prickly cups (*Armillariella*), russules (*Russula*), *R. foetens*, and field mushrooms (*Agaricus*).

During recent decades the high nutritional value of forest vegetables has been proven. At present only ferns are harvested in large amounts – bracken and flowering ferns, as well as wild leek. In the economically accessible areas of the FEFD the potential harvest of bracken fern could be 19 000 tons although only 5 000 tons are actually harvested.

The south of the SFD and FEFD, especially the area of coniferous-broadleaved forests, is rich in more than 300 species of melliferous and pollineferous plants. In Siberia the main harvesting of honey is done in croplands, and also from flourishing plants and shrubs in non-forest areas. In the FEFD honey harvesting is ensured by forests with linden (which does not grow in the SFD). During linden blooming, Amur cork tree (*Phellodendron amurense*) and maple (*Acer mono*) bees collect 90% of the total amount of honey, and 70-80% is linden honey (Table 10).

Table 10. Dynamics of honey production in the Russian APR (tons)

Regions	Years										
	1990	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005
SFD	7845	8139	6735	6729	5901	7107	6807	6788	6403	7031	6910
FEFD	4033	15504	7042	5272	4676	5105	4121	3827	2087	3195	3185
Total for Russian APR	11878	23643	13777	12001	10577	12212	10928	10615	8490	10226	10095

The effectiveness of FEFD beekeeping is ensured by the diversity of melliferous plants. The area of forests with linden domination is 789 800 ha, and the area of forests with linden is 7-8 million ha. Every 100 ha of such forest during favorable years can give 4 tons of honey. Almost a half of linden afforestation can be used for beekeeping. Potentially, in the FEFD almost 1 million bee families can be kept and 30 000 tons of honey obtained.

The use of forest lands for hunting

The use of forest lands for hunting in the SFD and FEFD is an inseparable part of forest relations. Forest lands are allocated to organizations or individual hunters (Table 11). After the adoption of the Forest Code in 2006, forest areas for hunting purposes are given under lease.

Table 11. The area of hunting estates in the Russian APR (000 ha)

Regions	2000	2001	2002	2003
SFD	496716,6	347131,6	306786,6	292566,5
FEFD	376394,5	393670,0	355269,0	322379,8
Total for Russian APR	873111,1	740801,6	662055,6	614946,3

There are 31 species of fur-producing animals, 81 species of ungulates and around 70 species of birds in the Russian APR. The southern part of the region has especially rich biodiversity, where the following animals live: wild boar (*Sus scrofa*), red deer (*Cervus elaphus*), racoon dog (*Nyctereutes procyonoides*), Himalayan and brown bear (*Ursus tibetanus*, *arctos*), badger (*Meles meles*), marten (*Martes flavigula*), phesnat (*Phasianus colchicus*) and some other species. In the forests the moose (*Alces alces*) is widespread. Some game animals and birds live only or mostly in the northern regions. These are: reindeer (*Rangifer tarandus*), bighorn (*Ovis nivicola*), Arctic fox (*Alopex lagopus*), ermine (*Mustela erminea*), white grouse and rock ptarmigan (*Lagopus lagopus*, *L. mutus*), and rock capercaillie (*Tetrao urogalloides*). The numbers of these species vary constantly and sometimes considerably; this is especially true for those species which multiply fast, such as squirrels (*Sciurus vulgaris*), musk-rat (*Ondatra zibethica*), and mountain hare (*Lepus timidus*). The most important fur-producing animals in the region are sable (*Martes zibellina*), musk-rat in wetlands and mountain hare for thinned forest and meadows.

In the 1990s, a five-fold drop in financing for the protection and restoration of game species, including financing of game inspectors and game wardens had a considerable effect on hunting estates. Due to unemployment growth, decrease of purchasing power, sales of many rifled guns and a sharp increase in car numbers, poaching spread, which was especially dangerous for ungulates. In 1991-1995, in comparison to 1986-1990, the amount of furs stocked was 57% less (the prices of 2000 were used for calculation). In the second half of the 1990s, fur stocks continued to decrease, but not as fast as before (Figure 15).

Currently, only 8% of 300 000 hunters hand in fur. Seventy percent of the amount of fur obtained is acquired by professional hunters (4 000-5 000 people).

Sable fur is the main target for Taiga hunters in the Asian part of the country and for the indigenous minority this resource is needed for survival. In areas where industry does not influence the economy, sable hunting is the only source of living. The sable share (in money equivalent) is 80% of all furs stocked.

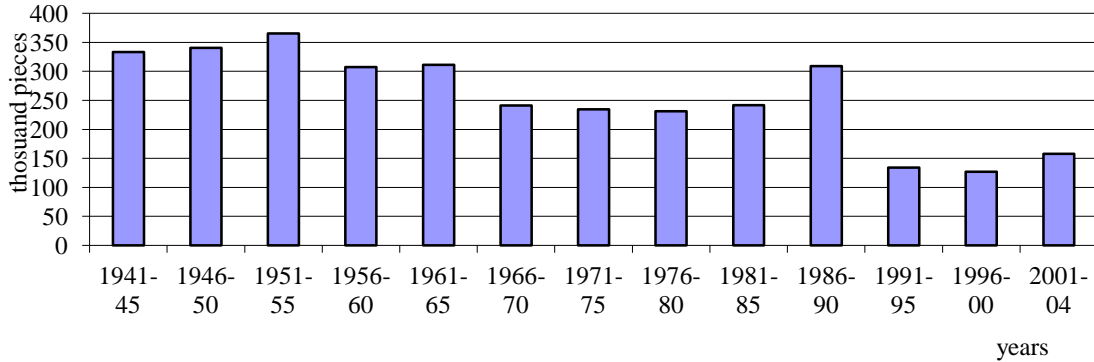


Figure 15. The average amount of fur obtained annually in the FEFD from 1941-2004

By the end of 1980s, the stock of furs obtained was around 300 000 pieces. Taking into account that the average price for one skin was 180 US dollars, the international turnover was around 22 million US dollars. In 1993, the export of sable fur was estimated to be less than 75 000 skins and their total value was 4.7 million US dollars. Gradual reconstruction of the market promoted the creation of new hunting systems and better sales methods, including export. In 2000 sable fur purchase and sales at auctions increased and reached 182 800 skins. During 2006, the “Souzpushnina” company obtained 56 million US dollars in auctions for sable skins. Currently, more than 400 000 skins are sold at auctions. Chinese buyers have started to come to these auctions, where sable skins have become more and more popular. By 2006, the average price reached 135 US dollars per piece (Figure 16, Table 12).

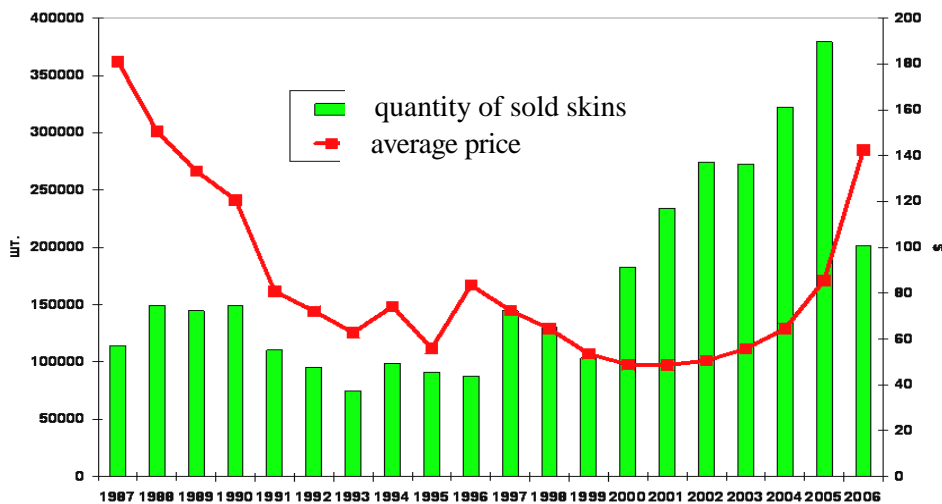


Figure 16. Sales dynamics and average price of sable skins at the auctions of “Souzpushnina”

Table 12. The average population of sable and its obtained stock for the Russian APR in 2001-2006 (000 pieces)

Federal districts	Number, 000 pieces		Amount
	Calculated pre-hunting amount	Post-hunting amount	
Russian APR	1001,8-1053,0	806,3-1094,4	148,9-241,4
Total for Russia	1068,7-1153,8	864,1-1165,7	151,2-246,5

Since the beginning of the 1990s, hunting pressure on ungulates in the region was much greater than on fur-producing species. This can be explained by the fact that at that period the cost of meat grew 50 times and the prices of fur 15-20 times.

During the recent decade game tourism has received a major boost mainly from foreign tourists. The potential of the Russian APR to organize tourist trips is poorly developed, but in future, this activity could become widespread.

In general the fall of the economic importance of hunting and the growth of its recreational importance can be observed. Nevertheless, for indigenous populations of the North, in the foreseeable future, the economic and social importance of hunting will prevail.

The use of forest lands for deer farming

Deer farming is a branch of cattle breeding, which deals with domesticated reindeer, and it is the most important branch of the rural economy of the high north (Table 13). Deer farming is a unique traditional craft, inseparable from the lifestyle of northern indigenous nationalities: Chukchis, Koryaks, Yakuts, Evenks. It forms their culture, occupations and lifestyle – nomadic or semi-settled.

The household use of deer is diverse. For the nationalities of the Siberian tundra, meat and skins are the pillars of life support; in the region to the south, where deer farming is combined with fisheries, deer are used for transportation. Deer farming in tundra and forest lands has its particular traits. In the tundra – big herds (1 500-1 800 animals and sometimes more) graze in a nomadic way. In spring and summer the deer graze in open tundra lands, in winter in forest tundra. In the Taiga, deer herds usually comprise 600-1 200 animals and in winter and in summer they are pastured in the forests.

Table 13. The area of deer farming lands in the Russian APR

Districts	Area given for pasture, 000 km ²	The share of deer farming lands in the total area, %
Evenki autonomous region	122,8	16,0
Taimir autonomous region	396,7	46,0
Republic of Sakha (Yakutia)	809,9	26,1
Khabarovskiy territory	170,3	21,6
Kamchatka region	199,8	42,3
Koryak autonomous region	162,2	53,8
Magadan region	185,5	40,2
Sakhalin region	9,1	10,5
Chukot autonomous region	435,2	59,0
Total for SFD	519,5	10,1
Total for FEFD	1972,0	40,1
Total for Russian APR	2491,5	22,0

The population and reproduction of indigenous people of the north correlates directly with the deer population. Only in deer farming areas do local people not face professional competition with newcomers.

Since the subpolar census in 1926-27, the number of reindeer has decreased considerably and the proportion of reindeer herds, belonging to different local nationalities, has also changed. Gradual dissipation of the deer farming craft is a tendency for all Taiga nations and indigenous people if their number is less than 10 000 people, also a sharp drop of Chukot and Koryak tundra farming can be observed.

The number of reindeer in the USSR in 1941 was 1.9 million, in 1973 – 2.4 million. After 1991 the number of reindeer dropped considerably.

Sakha Republic (Yakutiya) was the first northern region to adopt the law “On deer farming”, the program of socioeconomic development of areas, where national minorities of the north live, to stimulate preservation of deer numbers. It introduced payments for deer farmers. At present time there are 177 200 deer in the region.

In Koryak autonomous region the number of deer has dropped five times, from 150 000 head to 30 000. At present there is a special program to restore local deer farming, and a local budget distributes money to support deer farmers.

There is a program of the provincial government in Chukot Autonomous region, realized since 2001, aimed to develop the agroindustrial sector. The preservation of traditional deer farming is not just a social mission of this government, but also its economic target. In 2006 the number of deer was more than 154 000 animals. According to expert opinion, the organization of industrial slaughtering and development of the industrial infrastructure in the port of Chukot autonomous region, will allow annual earnings to reach 4.7 million US dollars by 2020.

Recreation and ecotourism

The Russian APR is quite attractive for forest recreation and ecotourism. Vast areas and their heterogeneity define the diversity of forest recreation.

There are several zones in the SFD and FEFD, where natural resources are in more demand for recreation than for anything else. As for the rest of the territory, due to the low population density and the absence of highly attractive recreational sites, inner tourism is not developed. Among the most popular areas are: Baikal lake, the south of Primorskiy province, mountains of Altay and Sayana, Kamchatka province, the valley of Amur river and some areas of Yakutiya. The main tourist infrastructure can be found in these areas, as well as places of interest, and issues of transportation are also solved there. The SFD is more attractive for recreation, due to its landscape diversity and developed infrastructure, and also it can comply with the international level of hospitality. Year after year the number of individual tourists and sport tourists grows, as well as the popularity of mountain recreation. Nevertheless, the more developed southern areas (Baikal lake is among them) attract most Russian and international tourists. Different types of transportation are used for trips (and railroads as well). The wide network of tourist centers in the south of the SFD (especially in Western Siberia) and developed transport infrastructure allow many opportunities for autotourism, which has become popular during the last 10 years.

It is also necessary to mention the active participation of the reserves and national parks in the development of ecotourism in Siberia. Thus, the number of people visiting “Krasnoyarskie stolbi” reserve annually reaches 200,000.

At present, there are 500 official tourist firms in the FEFD, which organize eco-, hunting and fishery tours and annually their services are used by 1.2 million people, including the residents of other regions and foreigners. The number of tourist firms dealing with inner tourism in Siberia exceeds 1 500 and sometimes around 4 million people a year use their tours.

Unorganized recreation in suburban areas is still popular: more than a half of city populations use the nearest forests for recreation in different ways.

The main two problems that hinder forest recreation from development and obstruct ecotourism development are the absence of tangible governmental support and the absence of ecotourism traditions.

7. ILLEGAL FOREST USE

Illegal use of forest resources has always existed in different forms in the forest sector. During the USSR era the share of illegal use did not exceed 5-10% of all the legal timber harvested. The transition period exacerbated mass corruption and a huge shadow economy emerged. A very large share of illegal logging in the south of the Russian APR is connected with timber export. Illegal activity is defined by 3 main factors:

- the proximity of the national boundary;
- presence of high quality forest resources;
- high level of corruption in society.

Forest Agency reports state that the annual amount of illegal logging is comparatively small. According to the official statistics of the forest service in 2000-2004, the average extent of illegal logging in the FEFD – is 72 500 cubic meters or 6% of legally obtained timber. According to various experts' estimations the actual extent of illegal logging may lie between 0.5% and 100% of the legally harvested timber. In reality, figures are different for different territories and they are higher in areas where the forests are more accessible for direct export abroad (mostly to China).

For this report, the balance of timber in the Russian APR in 2006 was calculated according to official data (Table 14). It considered only round timber exported to countries of the Asia-Pacific region from the SFD and the FEFD; transportation of round wood from the European-Ural part of Russia to the FEFD and SFD is absent.

Table 14. The balance of timber in the Russian APR in 2006

Year	Production								
	Wood removals from logging 000 m ³	Industrial round wood 000 m ³	Sawn wood 000 m ³	Plywood, 000 m ³	Plb 000 m ³	Fb million m ³	Pulp 000 tons	Paper 000 tons	Ppb 000 ton
2006	48268,6	35805,7	7944,5	188,1	492,7	92,5	1895,5	47	487,9
Equivalent of round wood, 000 m ³			14300,1	526,7	689,8	638,0	10993,9	202,1	2098,0
Total, 000 m ³						29448,8			
Export of round wood to Asia Pacific countries, 000 m ³						28473,0			
Balance of inner consumption, 000 m ³						- 22116,1 thousand m³			

Plb – particle board; Fb = fibreboard; Ppb = paper board

Table 14 indicates that to meet the production of forest products and export of round timber, it is necessary to produce an extra 22 million m³ of round timber (above the official total of 35.8 million m³ noted in the table). To produce this amount it is necessary to harvest an extra 40 million m³ of timber.

Illegal logging was especially severe in 1997, when the Chinese government introduced strict limitations on industrial logging to the north from Huanghe river within the frame of the environmental protection programs. Simultaneously, new prosperity and fiscal strength led to large sums of money (in hard currency equivalent) becoming available to the Chinese economy, which gave more flexibility to the external economic operations of China. Before that Russian-Chinese trade was based on barter exchange.

The amount of illegal timber, exported to Japan or to the Republic of Korea is much lower in comparison to China.

Although illegal logging is stimulated by external influence, it is provoked by internal factors. The main reason for illegal logging is the general “unhealthy” state of Russian society, the presence of a huge shadow economy and a high level of legislative nihilism. If the current tendency persists, illegal logging will proliferate.

There is no actual legislative regulation for harvesting of NTFPs. That is why it is difficult to define when those resources were used legally or illegally. All earlier legislation is old or does not comply with the new socioeconomic conditions. Officially, there are only several violations of harvesting plans registered in the Russian APR.

It is obvious that illegal use of wild berries, nuts, mushrooms, food and medicinal plants is widespread. The population very often does not know the norms of wild plant and berry harvesting for personal use and also regulations are not enforced.

Illegal use of NTFPs is estimated to be not less than 20% of the legal harvest. Illegal use is mostly connected with wild ginseng and pine mushroom, which are included in the Red Book of the Russian Federation. Wild ginseng (*Panax ginseng*) grows almost exclusively in the territory of Primorskiy province. In the 1980s almost 450 kilograms of its roots were gathered annually and most were sold within the USSR. In 1992 and 1995 70 and 27 kilograms were gathered according to official records, while the actual number was 1 500-2 000 kilograms. Since 1998 the collection of wild ginseng has been prohibited, but in practice, 2 000 kilograms are still harvested and exported to China. In recent years, the price for ginseng has been 40 000 US dollars per kilogram². If one accepts the figure for illegal gathering to be 1 500 kilograms, than the annual turnover is 60 million US dollars, which is equivalent to 10% of the legal annual export of timber.

The main flows of illegal mushroom export are to Japan, Republic of Korea, and China. Valuable mushrooms, used in traditional Asian treatments, are gathered in Primorskiy province, Sakhalin and other regions. Considerable amounts of pine mushrooms (*Tricholoma matsutake* [S. Ito et S. Imai] Singer) are gathered by Chinese citizens, who illegally come to Russia and return home without declaring them. Annual collection of pine mushrooms is estimated to be 8-10 tons, and the value is 120-150 US dollars per kilogram.

² Editor’s note: this price does not accord with current US market prices of US\$1200/kg for dry ginseng.

8. THE DOMESTIC CONSUMPTION OF TIMBER IN THE RUSSIAN APR

Internal consumption of timber was estimated according to data from the Russian Statistic Service as the sum of produced and imported forest products minus exported products (Table 15, Figures 17-20). The obtained data are approximate, because the official statistics do not have information about all the timber production in Russia, but present the main trends of consumption in the region.

Internal regional consumption of timber and timber products *per capita* in the Russian APR is still quite low and in 2006 figures were: industrial wood – 1.011 cubic metres, sawn timber – 0.181 cubic metres, plywood – 0.003 cubic metres, particle board – 0.017 cubic metres, fiber board – 1.729 cubic metres, pulp – 21,2 kilograms, paper – 6,6 kilograms, paperboard – 9,6 kilograms. These figures are lower than in the Russian Federation on average.

As a result of timber processing technique development during the last 5 years, the consumption of industrial timber, sawn timber, plywood and particle board in the region increased. Contrariwise, the production of pulp and paper products is decreasing because of export outside of the federal districts. Increase of timber product exports outside the region and even outside the country has occurred.

Table 15. Dynamics of domestic consumption of timber and timber products in the Russian APR

Federal districts	Timber products	Production	Inner import	Export (internal and foreign)	Consumption
2000					
SFD	Round wood, thousand m ³	17326.00	6439.60	7261.77	16503.83
	Sawn wood, thousand m ³	4843.20	1526.78	3455.93	2914.05
	Plywood, thousand m ³	135.00	16.25	129.36	21.88
	Particle board, thousand m ³	221.30	226.62	217.89	230.03
	Fiber board, million m ³	70.70	38.91	68.17	41.44
	Pulp, thousand tons	1476.40	0.00	605.20	871.20
	Paper, thousand tons	60.30	90.38	41.59	109.09
	Paperboard, thousand tons	332.30	84.54	261.50	155.35
FEFD	Round wood, thousand m ³	8450.50	1398.13	5306.65	4541.98
	Sawn wood, thousand m ³	673.30	242.52	334.73	581.10
	Plywood, thousand m ³	0.00	4.33	0.00	4.33
	Particle board, thousand m ³	2.70	21.81	4.11	20.40
	Fiber board, million m ²	4.00	6.86	4.80	6.06
	Pulp, thousand tons	60.00	0.00	0.00	0.00
	Paper, thousand tons	14.20	18.55	9.55	23.20
	Paperboard, thousand tons	32.80	14.59	9.82	37.58

Federal districts	Timber products	Production	Inner import	Export (internal and foreign)	Consumption
Total in 2000	Round wood, thousand m ³	25776.50	7837.73	12568.42	21045.81
	Sawn wood, thousand m ³	5516.50	1769.30	3790.65	3495.15
	Plywood, thousand m ³	135.00	20.57	129.36	26.21
	Particle board, thousand m ³	224.00	248.43	222.00	250.43
	Fiber board, million m ²	74.70	45.77	72.97	47.50
	Pulp, thousand tons	1536.40	0.00	605.20	931.20
	Paper, thousand tons	74.50	108.93	51.14	132.29
	Paperboard, thousand tons	365.10	99.14	271.31	192.93
2004					
SFD	Round wood, thousand m ³	19981.00	7295.74	9101.21	18175.53
	Sawn wood, thousand m ³	6037.60	1428.79	4177.28	3289.11
	Plywood, thousand m ³	165.40	24.64	155.24	34.79
	Particle board, thousand m ³	389.50	247.41	386.31	250.60
	Fiber board, million m ²	80.80	39.14	78.17	41.76
	Pulp, thousand tons	1801.20	14.31	1289.16	526.34
	Paper, thousand tons	44.40	167.10	39.53	171.97
	Paperboard, thousand tons	453.30	111.56	364.63	200.23
FEFD	Round wood, thousand m ³	12191.00	1770.35	7872.13	6089.22
	Sawn wood, thousand m ³	1146.10	361.22	616.13	891.19
	Plywood, thousand m ³	0.48	16.75	0.44	16.79
	Particle board, thousand m ³	19.30	23.18	11.58	30.90
	Fiber board, million m ²	8.80	13.12	8.56	13.36
	Pulp, thousand tons	0.00	1.16	0.00	1.16
	Paper, thousand tons	0.00	14.61	0.00	14.61
	Paperboard, thousand tons	21.20	2.53	0.18	23.56
Total in 2004	Round wood, thousand m ³	32172.00	9066.09	16973.35	24264.75
	Sawn wood, thousand m ³	7183.70	1790.01	4793.41	4180.30
	Plywood, thousand m ³	165.88	41.39	155.68	51.58
	Particle board, thousand m ³	408.80	270.60	397.90	281.50

Federal districts	Timber products	Production	Inner import	Export (internal and foreign)	Consumption
	Fiber board, million m ²	89.60	52.26	86.74	55.12
	Pulp, thousand tons	1801.20	15.47	1289.16	527.50
	Paper, thousand tons	44.40	181.70	39.53	186.57
	Paperboard, thousand tons	474.50	114.09	364.81	223.78
2006					
SFD	Round wood, thousand m ³	22686.50	11825.01	13850.80	20660.71
	Sawn wood, thousand m ³	6646.60	1317.23	4356.10	3607.72
	Plywood, thousand m ³	188.00	60.34	181.52	66.83
	Particle board, thousand m ³	461.50	176.01	222.79	414.72
	Fiber board, million m ²	91.10	41.82	92.43	40.49
	Pulp, thousand tons	1895.50	4.39	1344.95	554.94
	Paper, thousand tons	47.02	149.73	41.01	155.74
	Paperboard, thousand tons	463.87	161.76	403.46	222.17
FEFD	Round wood, thousand m ³	13119.20	1221.75	8497.99	5842.97
	Sawn wood, thousand m ³	1297.90	393.00	542.58	1148.32
	Plywood, thousand m ³	0.10	17.41	0.00	17.51
	Particle board, thousand m ³	31.20	29.07	24.20	36.08
	Fiber board, million m ²	1.42	5.16	1.72	4.86
	Pulp, thousand tons	0.00	0.55	0.00	0.55
	Paper, thousand tons	0.00	18.43	0.00	18.43
	Paperboard, thousand tons	24.00	6.06	0.19	29.88
Total in 2006	Round wood, thousand m ³	35805.70	13046.76	22348.79	26503.68
	Sawn wood, thousand m ³	7944.50	1710.22	4898.68	4756.04
	Plywood, thousand m ³	188.10	77.75	181.52	84.34
	Particle board, thousand m ³	492.70	205.08	246.99	450.79
	Fiber board, million m ²	92.52	46.98	94.16	45.35
	Pulp, thousand tons	1895.50	4.95	1344.95	555.49
	Paper, thousand tons	47.02	168.16	41.01	174.17
	Paperboard, thousand tons	487.87	167.82	403.64	252.05

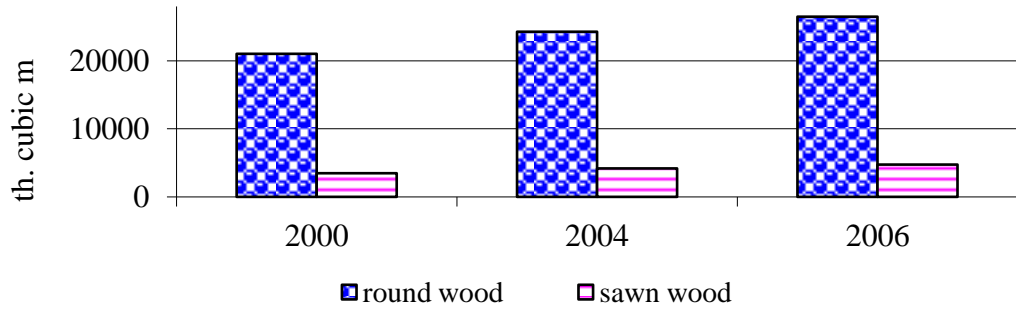


Figure 17. Dynamics of domestic consumption of round wood and sawn wood

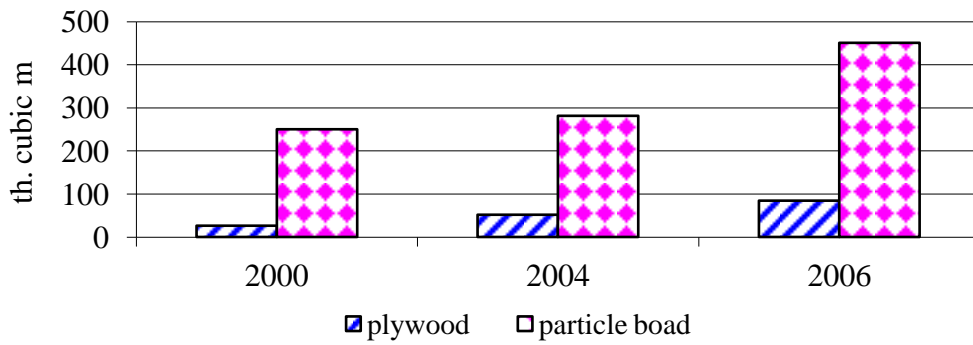


Figure 18. Dynamics of domestic consumption of plywood and particle board

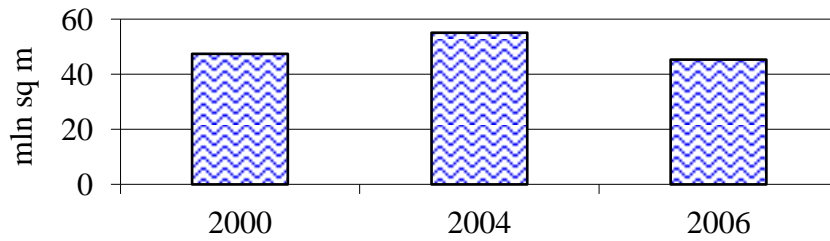


Figure 19. Dynamics of domestic consumption of fiberboard

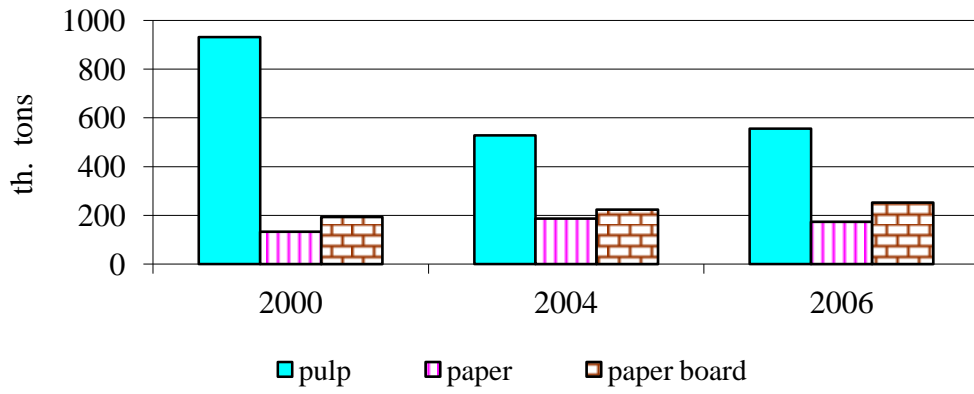


Figure 20. Dynamics of domestic consumption of pulp, paper and paperboard

9. FOREST EXPORTS

More than 80% of all forest industry products made in the FEFD and 40% of products from the SFD are exported. The FEFD customs control sends one-third of all forest exports of the Russian Federation to China, Japan, Republic of Korea (ROK) and other Asia Pacific countries. Round timber forms the major part of financial turnover and the actual volume of the timber exported (Table 16). During 2006, round timber comprised 96% percent out of 17 million cubic meters of all exported wood. In 2007-2008 the tendency did not change.

Japan, China, ROK and Democratic People's Republic of Korea (DPRK) are Russia's traditional partners in the forest market of the Asia-Pacific region (Figures 21 and 22).

The rate of exports decreased during the 1990s but exports were more stable than production; moreover they kept production from further decline and stimulated its intensification in the following years.

Table 16. Russian export of forest industry products to Asia-Pacific countries

Years	Round wood 000 m ³	Sawn wood 000 tons	Plywood m ³	Fiberboard m ³	Pulp 000 tons	Paper 000 tons
China						
2001	8608,7	262,4	-	2733,8	800,6	34,6
2004	15404,1	579,3	3128	8618,9	777,3	19,0
2007	27628,0	1146,3	10351	-	987,0	-
Japan						
2001	5320,1	410,5	-	-	1,4	-
2004	5891,5	629,9	-	-	22,9	-
2007	4456,5	632,9	-	-	3,9	-
ROK						
2001	1557,6	21,8	1	135,4	55,6	-
2004	1639,6	49,7	-	-	37,5	-
2007	1246,8	67,3	2478	-	37,3	-
Asia Pacific countries						
2001	15486,4	694,7	1	2869,2	857,6	34,6
2004	22935,2	1258,9	3128	8618,9	837,7	19
2007	33331,3	1846,5	12829	0	1028,2	0

The dynamics of forest export were influenced by several factors:

- foreign economic liberalization gave the export process much more freedom and also gave it spontaneity, due to the participation of many small and middle-sized exporters;
- new markets were opened up (China and ROK);
- ruble devaluation in 1998 increased export effectiveness radically;
- external investments;
- some diversity of wood products.

During 2003-2005, when export prices, production costs and value of the ruble were constant, growth in raw timber export slowed down. This suggests limited potential for expansion of unprocessed wood exports.

Before 2001, Japan was the main importer of the timber, but then China, whose market was more flexible in terms of prices and quality of timber imported, became a significant player.

In response to the high prices for timber processing in Japan, it started to increase the import of already processed timber (Table 17).

Table 17. The dynamics of the Russian forest products export to Japan

Type of product	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Round wood 000 m ³	5448,3	6133,9	4761,5	6086,5	5511,7	5295,2	4738,8	5086,7	5922,3	4693,8	4942,1
Processed timber 000 m ³	387,9	503,8	285,3	448,2	541,5	584,5	687,8	761,1	861,2	964,9	986,7

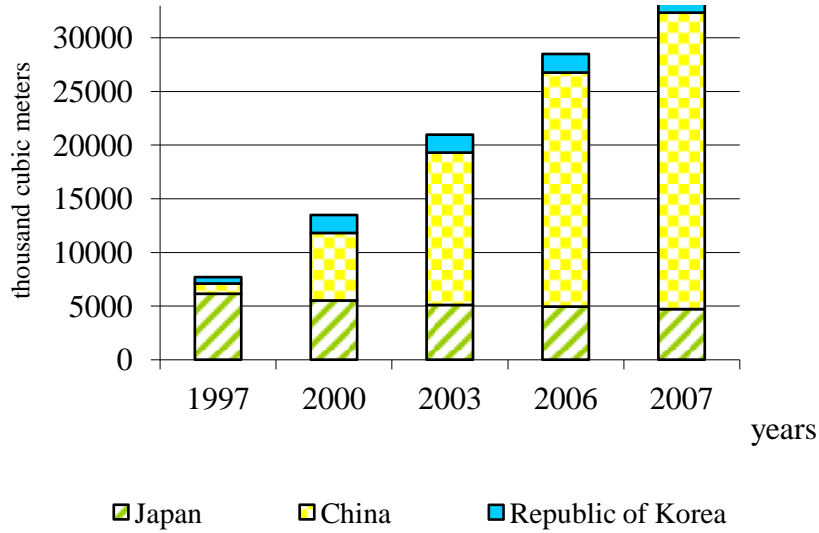


Figure 21. Russian export of round wood to Asia Pacific countries

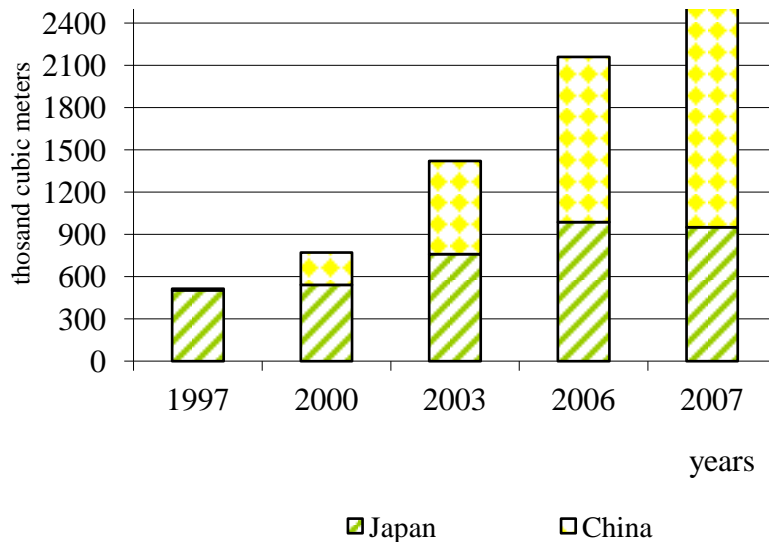


Figure 22. Russian export of sawn timber to Asia Pacific countries

Export of timber to China is characterized by rapid growth. China's 1998 program on protection of natural forests, which included considerable restrictions on industrial logging, led to the total reconstruction of the Chinese timber market. The need to compensate for the

growing deficit led to the very fast growth of Russian timber export rates. The main consumers of Russian timber are the north-eastern provinces of China. The forests there are similar to Russian forests; this made it easy for the local timber processing industry and the end users who were experiencing raw material deficits to switch to Russian timber.

China is Russia's main commercial partner and its share of Russian exports in 2004 was 19% of all earnings. The export of raw timber from Russia to China was 27,6 million cubic meters in 2007, which was 27% more than in 2006. The export of sawn wood to China was 1,6 million cubic meters, which was 35% higher than in 2006.

Round wood is the main timber exported to China. Despite the growth of pulp, plywood and fiber board export rates, their share has decreased. These data, regardless of the positive balance, do not indicate that export to China is progressive and effective, because the supply of round wood still comprises the main export component accompanied by the export of primary products from chemical and mechanical timber processing (board and pulp). Thus, the export of forest products from Russia to China has obvious raw-material character.

The full spectrum of products of Russian forest export to China keeps increasing. That is why, in the case of bad management of forest resources, the Chinese market can become a threat to the Russian forests in Asia, while normal and mutually beneficial economic relations could insure the development of Russian forest industry.

ROK increased exports of FEFD timber till 2001, however by 2003 a small decline was observed. According to data of the FEFD customs administration in 2007, the export of the round timber to ROK was 1.2 million cubic meters and approximately 70 000 cubic meters of processed timber. While exports to China and ROK were growing, export to DPRK was falling due to no extension of governmental agreement between Russia and DPRK on forest harvesting in Khabarovskiy province and Amur region, as well as the low attractiveness of the DPRK market for Russian exporters. In 2007 the export of round timber to DPRK was 53 000 m³.

The export of wood from the FEFD to other countries (Vietnam, India, Canada, USA, Taiwan, and Malaysia) during recent years was piecemeal.

The dynamics of prices for timber products were mostly defined by external factors and demands. In general, the growth of prices for coniferous and hardwood timber was a positive outcome in 1998-2003 for the whole timber industry.

Among NTFPs, the most important ones (which pass through the customs) are Siberian and Korean pine nuts. 19 400 tons of Korean pine seeds were exported to China in 2004, according to data of the FEFD customs control. Approximately 40 000 – 44 000 tons of Siberian pine seeds were exported from Siberia to China at the same period of time. In the years of low pine productivity export is lower and can be estimated to be around 11 800 tons; in 2005 – 7 700 tons, 2006 – 8 300 tons, 2007 – 11 700 tons. Purchasing prices oscillate between 25 to 75 rubles per kilogram of the peeled nuts. The share of the FEFD in the total pine nut trade is 30% and the share of the SFD is not less than 50-60%.

10. FORECAST FOR RUSSIAN APR FOREST SECTOR DEVELOPMENT TILL 2020

Economic development of eastern Siberia and the FEFD is defined by:

- considerable transportation costs, due to the low density of population, remoteness of the main sales markets of the country, and less developed transport infrastructure; in Siberia, the remoteness of the external markets is the main reason;
- the weakness of the local source of power supply in some regions, especially in the FEFD;
- extreme weather conditions.

The European part of Russia is very competitive in many ways in comparison to European countries (salaries, energy costs, tax rates are lower or comparable with European countries), but the situation is totally different in the eastern part of Russia. The level of salaries in the Russian APR is competitive in comparison only with the Asian countries, like ROK or Japan, but cannot compete with lower salaries in China and other countries. At the same time taxes in the FEFD are higher than taxes in the nearest countries.

Investments in the Russian APR

According to expert opinion, by 2015 the volume of investments will have increased 50-fold. Export of round wood will stop almost completely and almost all timber will be fully processed in Russia.

Since 2007 essential changes have occurred. A new Forest Code has been adopted, where new terms, attractive for investments, have been added, such as awarding land to the investor without auction competition or if the investor's project has a budget of more than 5 billion rubles. Also new mechanisms for tax remissions and governmental financing of forest track construction have been guaranteed.

Customs and tariffs have the main influence on forest sector development. Since 2009 new "protective" duties on hard-leaved species of round wood have been used in Russia, and since 2011 other export duties on coniferous wood will be introduced. This will encourage forest industry stakeholders to invest more to manufacture products with higher extra cost.

Other measures, undertaken by the Russian government to increase the attractiveness of investments are:

1. Lower customs duties for imported equipment not produced in Russia;
2. Decreased or cancelled duties on export of processed timber products;
3. Adoption of the law "On investment fund" with the provision "On preparation and confirmation of the priority investment projects list in the field of the forest resources development".

Practically half of all planned large investments are in the SFD or the FEFD, including Sakhalin, Krasnoyarsky, Yakutsk and Irkutsk regions. Almost half of all planned investments are in the oil and gas sector (Table 18).

Table 18. Comparative characteristics of investments in large projects in Asian and European parts of Russia.

Indicator	European part of Russia		Asian part of Russia	
Total number of investment projects	179		125	
Total budget, billion dollars	137,9	100%	262,6	100%
Oil and gas sector	27,4	20%	142,8	54%
Electric power	48,8	35%	20,0	8%
Ferrous metallurgy and coal industry	15,5	11.00%	12,0	5.00%
Non-ferrous metallurgy	6,8	5%	16,3	6%
Machinery construction	6,1	4%	0,3	0,1%
Transport infrastructure	25,1	18%	63,3	24%
Forest sector	6,4	5%	7,5	3%

More than a half of forest sector investments (around 7 million dollars) are spent on projects for creation of new timber industry clusters in the SFD and FEFD (Tumen, Irkutsk, Krasnoyarsk, Tom, Chita, Skhalin regions, Primorskiy and Khabarovskiy provinces), which are oriented to the markets of Asia Pacific countries. Thus, there are benefits for locating timber processing industries in the east of the country.

Investment projects, planned to be realized in the SFD and FEFD, are only constructing new forest processing units (upgrading projects for existing units are not planned). Almost all of the biggest projects have a status of government investment offer and being assessed by potential investors (Table 19).

The largest investment project is construction of the Asinskoe pulp and paper mill in Tomsk region (Table 19). The government of the region not only plans plant construction, but also creation of other timber-processing units for construction material production: fiberboard (218 000 cubic meters is the planned volume) and birch plywood with higher water resistance for construction work (25 000 cubic meters a year).

Table 19. Investment projects planned to be realized in Siberian and Far Eastern regions

Location	Project	Investors	Production	Investment project budget, million dollars
Krasnoyarsk Territory, t. Lesosibersk	Pulp and paper mill. Chemical–thermomechanical woodpulp mill	Krasnoyarsk Territory administration	Pulp – 710 000 tons; chemical–thermomechanical woodpulp – 200 000 tons; paper – 220 000 tons	1400
Krasnoyarsk Territory, s. Boguchany	Pulp and paper mill. MDF mill	Vneshekonombank	Pulp– 500 000 tons, MDF – 35 000 m ³	1020
Tomsk Region, t. Aseno	Pulp and paper mill. Chemical–thermomechanical woodpulp mill	“Hanfen” (China)	Pulp –360 000 tons; paper and paperboard – 350 000 tons; thermomechanical woodpulp – 150-200 000 tons	720
Irkutsk Region, t. Ust-Kut	Pulp and paper mill. MDF mill	Irkutsk Region administration	Pulp –830 000 tons; paper and paperboard – 280 000 tons;	1000

			MDF – 35 000 m ³	
Chita Region, s. Amazar	Pulp and paper mill	“Chgensun”, “Syda”, “Huachen” (China)	Pulp – 400 000 tons	533
Khabarovskiy Territory, t. Amursk	Pulp and paper mill	Khabarovskiy Territory administration	Pulp – 390 000 tons; paper and paperboard – 410 000 tons	800
Primorskiy Territory, t. Ussuriysk	Pulp and paper mill	Primorskiy Territory administration	Pulp – 400 000 tons	300
Sakhalin Region, t. Poronaisk	Pulp and paper mill	Sakhalin Region administration	Pulp – 250 000 tons	380
Krasnoyarsk Territory, t. Krasnoyarsk	Chemical–thermomechanical woodpulp mill	Krasnoyarsk Territory administration	Chemical–thermomechanical woodpulp – 200 000 tons	200
Irkutsk Region, t. Taishet	Chemical–thermomechanical woodpulp mill. MDF mill	Irkutsk Region administration	Chemical–thermomechanical woodpulp – 200 000 tons MDF – 35 000 m ³	300

In eastern Siberia (Chita region) the construction of only one new timber processing plant – Amazarskiy pulp and paper mill – was initiated in 2006. The construction of the plant included the bridge over Amur river in the area of Pokrovka – Loguhe, which would considerably simplify the transportation of the timber products from Russia into China. This project is connected with considerable environmental risks, which may result in environmental deterioration, taking into account the low rate of natural purification of the water as a result of low temperatures. Besides, there is a real threat of Arzamar river ecosystem collapse due to the lack of water resources.

There is also a promising, but not yet financed, project on the creation of an industrial complex for full timber processing in Irkutsk region, as well as a project for the reconstruction of Amur cardboard mill in Khabarovskiy province.

The main characteristic of all projects in the FEFD is the absence of investment guarantees. Not all plants will be constructed, some plant construction projects can be considered as alternative options to each other.

It is also important to emphasize that the main direction of timber industry development in the SFD and FEFD is connected with export product manufacture. There are long- and short-term programs in the pipeline on the development of different timber industry branches in the SFD and FEFD. These are:

- “Strategy of timber industry development in Siberian Federal district till 2015”
- “Main activities of the forest complex till 2020”
- “Concept of the forest industry development in Irkutsk region till 2015”
- “Main course of the timber industry development in Amur region for 2007-2010 period and till 2020”.

Apart from the creation of new timber processing clusters in the SFD and FEFD with considerable investment involved, there are some regional projects, aimed at timber processing development and rehabilitation of existing facilities. Among those are:

Sakalin companies – “Fineco” and “Krokus Ltd” industrial-investment companies – presented a new investment project on pulp and paper mill construction, with productive capacity of 100 000 tons of pulp annually. The cost of the project is 400 million dollars.

Irkutsk region is considered to be the most attractive for investors, due to its natural resources and geographic location. The newly established “Gruppa Ilim” corporation (the biggest in Russia) is planning to invest more than US\$700 million in rehabilitation of Ust-Ilim and Bratsk forestry enterprises till 2011. This will increase the production volume of pulp and cardboard up to 1.9 million tons a year and start the production of paper.

Apart from the construction of the new modern pulp mills in Bogucharskiy and Eniseyskiy regions in Krasnoyarsk province, the construction of Kondinskiy pulp mill is planned. It will produce more than 500 000 tons of bleached pulp out of high-quality coniferous timber.

Scenarios for forest sector development

The forecast for timber industry production dynamics till 2020 includes several variables depending on the economic growth rate. In Table 20 the dynamics of the main macroeconomic development indices are demonstrated for the three scenarios till the year 2020. These indices are determined based on the forecast of socioeconomic development of the Russian Federation (Table 20).

Table 20. The main macroeconomic indices of the Russian APR, calculated till 2020

Indices	2005	Scenario	Forecast (Index for the previous period = 100)			2020/2000 (index 2005 = 100)
			2010	2015	2020	
Gross Regional Product (billions of rubles) in 2006	3371,6	1	123	125	135	207
		2	135	135	150	273
		3	115	118	120	163
Industrial production (billions of rubles)	2121,3	1	125	125	140	219
		2	135	140	155	293
		3	117	119	122	170
Investments in basic capital (billions of rubles)	570,2	1	150	150	160	360
		2	160	175	190	532
		3	130	130	130	220
Population income (billions of rubles)	2250	1	128	132	140	235
		2	143	145	150	309
		3	115	117	121	163
Retail turnover (billions of rubles)	1106,5	1	125	127	135	214
		2	130	135	140	246
		3	112	115	120	155
New apartment house construction (000 m ²)	5341	1	133	125	130	217
		2	167	140	136	317
		3	113	106	106	127
The total area of apartment houses per capita, m ²	19,7	1	107	110	111	130
		2	107	110	112	131
		3	108	110	110	130
Population (millions of people)	26,23	1	98	98	97	93
		2	99	100	100	99
		3	96	95	95	87

First scenario. The most realistic scenario describes 5-10 percent Gross National Product (GNP) growth. According to comparable estimations, GNP will rise up to 60-80% in 5 years. The share of investments will form 25% of GNP. The state will contribute to material

production development through the economic mechanisms of investments and innovations, social guarantees for the population and protection of small businesses. In this scenario the main investment projects are realized. External economic activity will be oriented to the improvement of timber export structure in favor of competitive pulp export and paper and timber processing industries and maximum round timber export reduction.

Second scenario. This scenario assumes general political situation improvement, as well as improvement of socioeconomic and scientific and technological progress in all spheres of economy. During the period indicated, the level of annual GNP growth will be not less than 7% and will hit the peak of 10% by 2015. Industrial growth will comprise 8-11% a year. The growth of investments is expected to be 12-15%. House building is going to grow three-fold in comparison to 2005. This will increase the average area of apartment houses per person up to 25 m². According to the second scenario, the forest sector will not just satisfy the highest demand on the inner market, but also raise Russian forest potential for the external market and increase the level of the country's integration into the global economy.

Third or inertia scenario. It expects development but on a smaller scale, if we consider limitations to be more strict and planned activity not to be fully realized. The crisis is continuing. GNP growth is 3-4 % a year. Investment dynamics are 6% a year. According to this scenario, the increase of timber production volume after 2005 will be 2% a year. Pulp and paper industry production will increase only because of plant modernization and production growth will not exceed 4% a year.

Possible industrial timber production in the Russian APR in 2020, depending on the scenario, can vary between 62 million and 155 million cubic meters a year (Figure 23).

Forecast for timber product consumption in the Russian APR

Industrial development, construction boom and personal income growth determined the growth of timber consumption and timber products in the Russian APR. Stimulants are governmental programs for development of residential houses and construction of wooden houses. The economical crisis of 2008-09 may slightly decelerate this growth. In any case, the growth of internal consumption is expected. According to the inertia scenario the growth of internal consumption is anticipated to be not higher than 4% a year for the main types of products and according to the optimistic scenario for Russian economic development, consumption growth will be 7-9% annually (Table 21, Figures 24-30).

Table 21. The forecast for timber products consumption

Year	Scenario	Industrial round wood 000 m ³	Sawn wood 000 m ³	Ply-wood 000 m ³	Particle board 000 m ³	Fiber board mln m ³	Pulp 000 tons	Paper 000 tons	Ppb 000 tons
2006	Fact	26503.7	4756.0	84.3	450.8	45.3	555.5	174.2	252.0
2010	I	27676.2	5712.7	97.6	544.5	55.5	643.1	213.4	308.7
	II	28656.3	5991.2	103.3	552.2	59.5	699.8	222.5	321.9
	III	26640.4	5349.9	94.8	529.3	52.4	607.0	201.7	291.7
2015	I	33796.0	7753.7	124.5	746.1	77.8	820.7	299.3	433.0
	II	37464.8	8803.0	144.8	774.6	93.6	1028.2	334.6	484.0
	III	30258.5	6508.9	115.4	691.8	66.9	703.7	257.4	372.3
2020	I	42064.1	10523.8	159.0	1022.2	109.2	1047.5	419.8	607.3
	II	50443.8	12934.5	203.1	1086.4	147.4	1510.8	503.1	727.8
	III	34689.9	7919.1	140.4	904.2	85.4	815.8	328.5	475.2

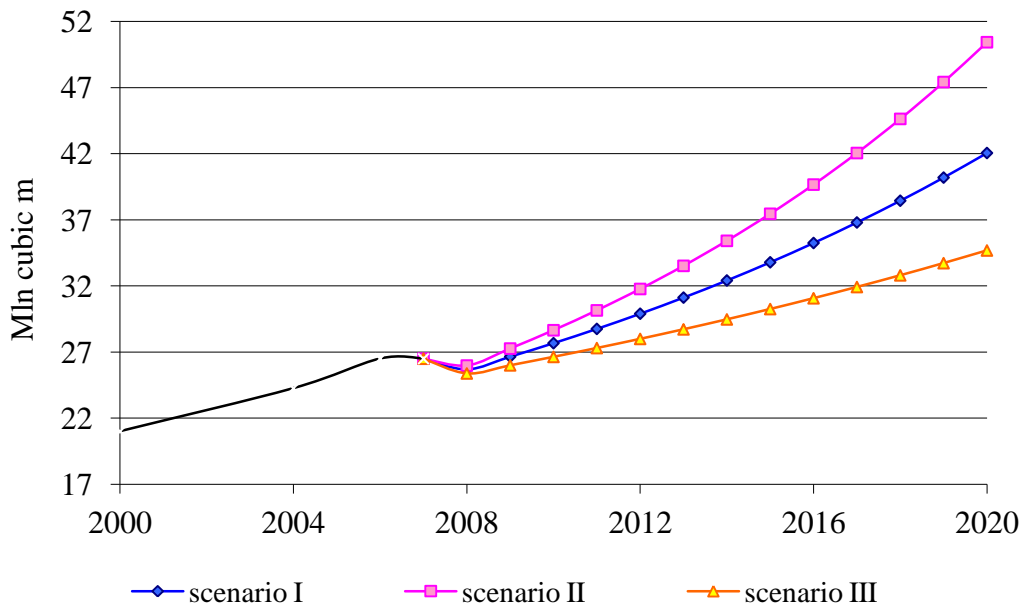


Figure 23. Forecast for domestic consumption of industrial round wood

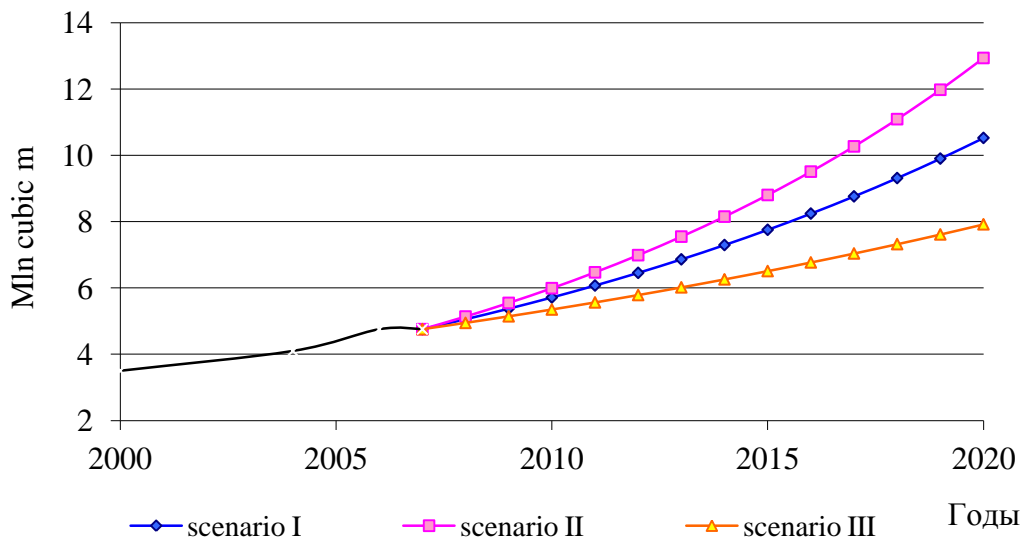


Figure 24. Forecast for domestic consumption of sawn wood

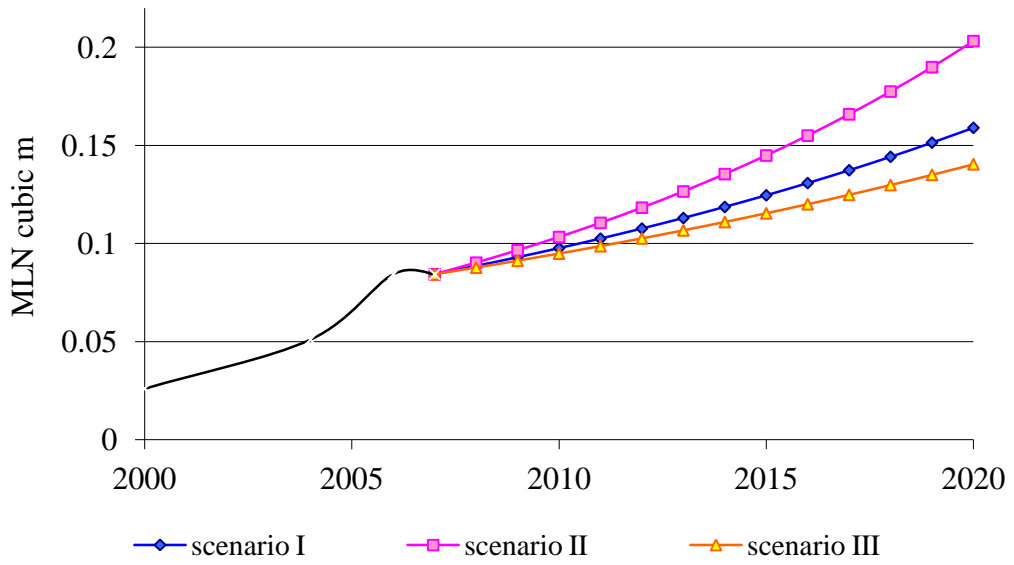


Figure 25. Forecast for domestic consumption of plywood

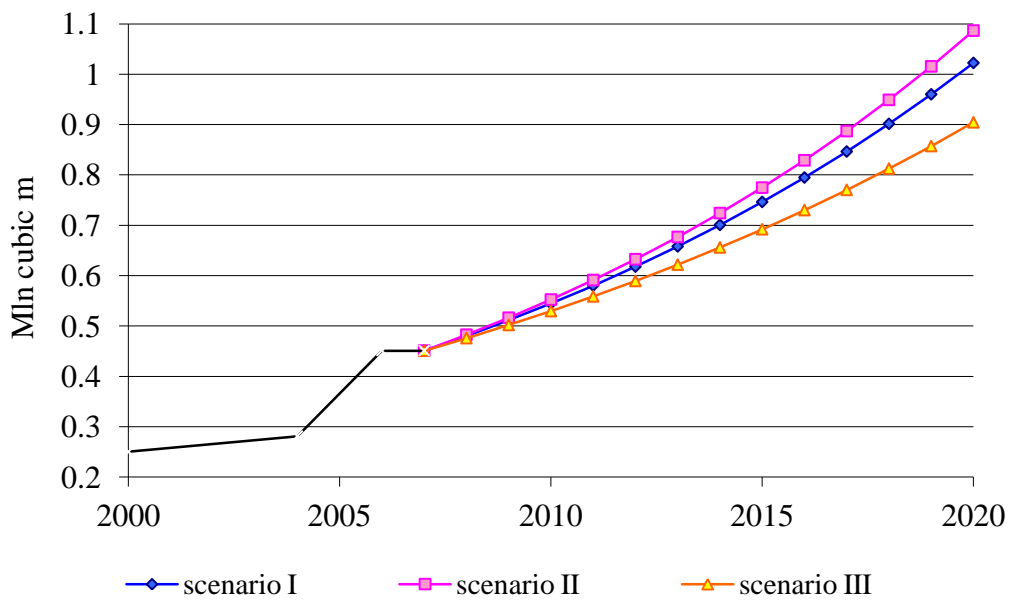


Figure 26. Forecast for domestic consumption of particle board

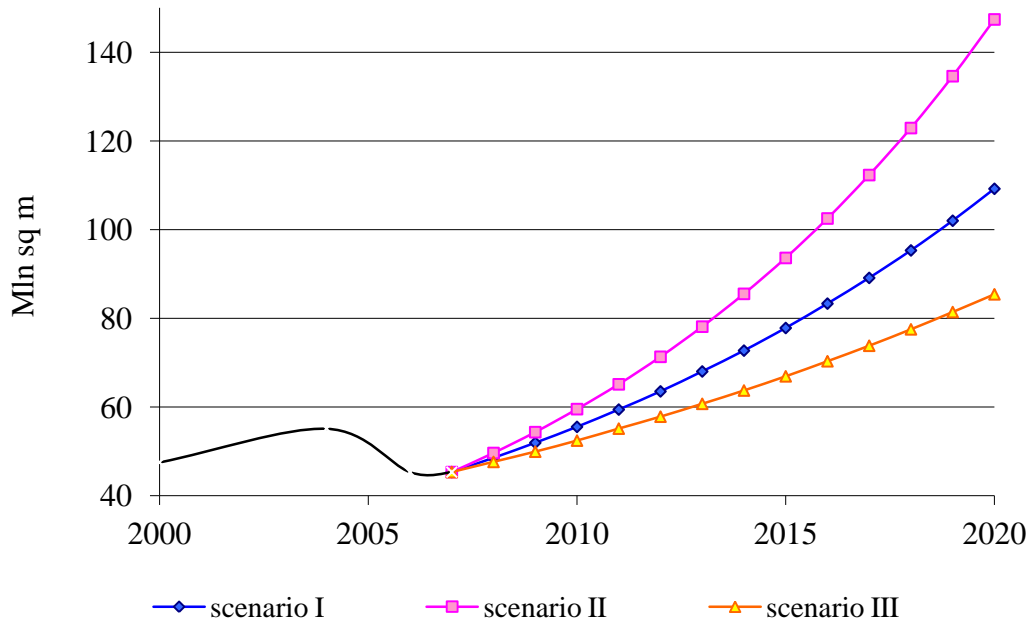


Figure 27. Forecast for domestic consumption of fiberboard

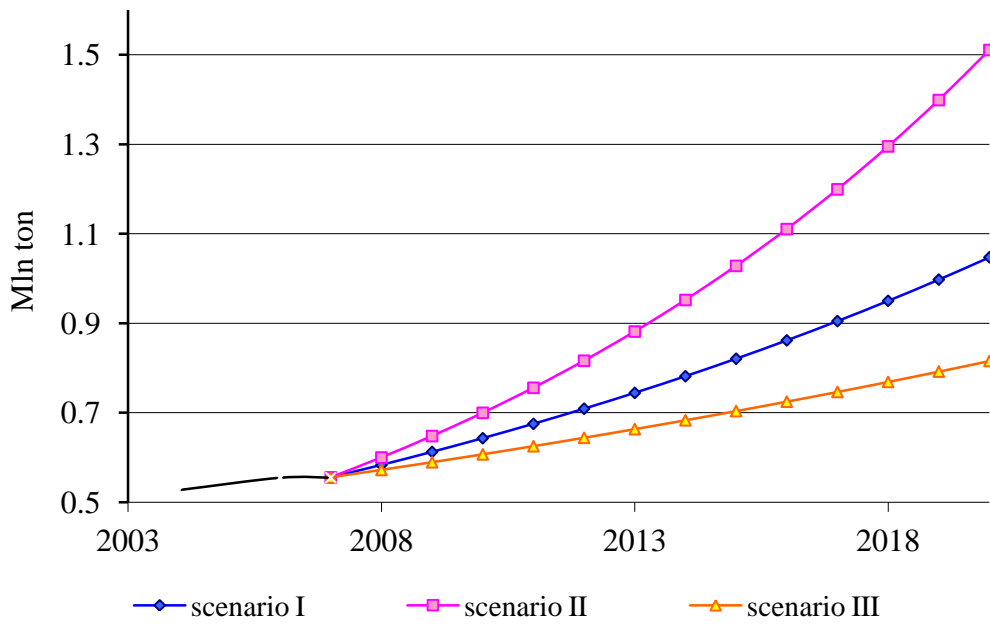


Figure 28. Forecast for domestic consumption of pulp

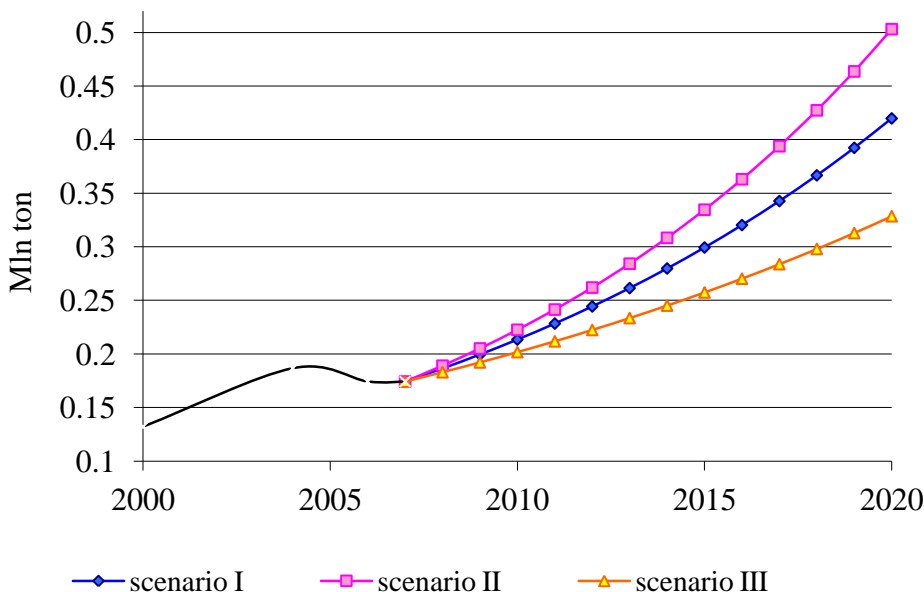


Figure 29. Forecast for domestic consumption of paper

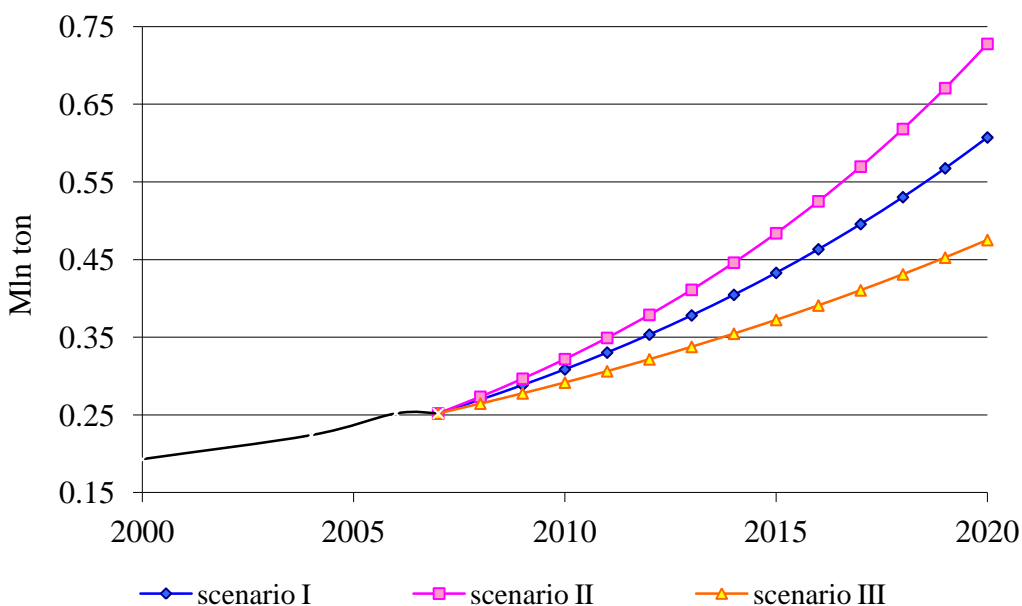


Figure 30. Forecast for domestic consumption of paperboard

Forecast for export of timber products from the Russian APR

The timber processing sector of the Russian APR will remain oriented towards export of forest products. In the next 20 years roundwood forecasts are not dependent on changes by the main importers – China, Japan and Republic of Korea. Introduction of new duties on round timber will reduce export of logs by 96%. The prognosis for export of round timber till 2020 (Table 22, Figure 31) does not show different scenarios, because it does not depend on economic factors, but rather on legislation of the Russian Federation.

It is assumed that export of expensive high-quality round timber for rule-boxes, plywood and furniture production will continue, because new duties will not affect this type of export critically.

There are dramatically different scenarios for the development of timber product exports. According to the inertia scenario exports will increase at 4% a year, taking the present level of supply and existing capacities of timber processing. There will be a leap of exports in 2011 due to the introduction of new technologies that allow processing of all the timber harvested and entry to the advanced timber processing market according to the favorable scenario. After 2011 exports on average will grow at 10% a year. The most realistic scenario shows partial increase of timber processing capacity and average growth of exports at 6% a year (Table 22, Figures 31-36).

Table 22. Forecast for export of timber products of the Russian APR

Year	Scenario	Industrial round wood 000 m ³	Sawn wood, 000 m ³	Plywood, 000 m ³	Fiberboard mln m ³	Pulp 000 tons	Paper and paper board, 000 tons
2007	Fact	33331.3	2291	12.8	10	1028	243
2010	I	20000	5426	452	10	1098	255
	II		8474	954	10	1168	258
	III		4565	13	10	1085	249
2015	I	1255	10451	1142	157	1503	326
	II		19974	2455	326	1760	355
	III		5554	16	15	1257	282
2020	I	1352	13986	1528	231	2059	446
	II		30733	3608	525	2527	520
	III		6758	19	19	1458	318

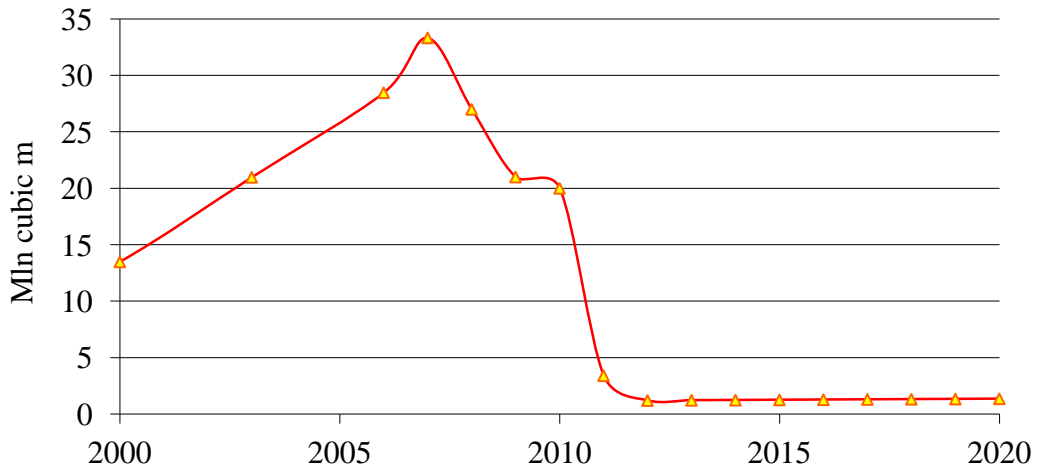


Figure 31. Forecast for industrial round wood export

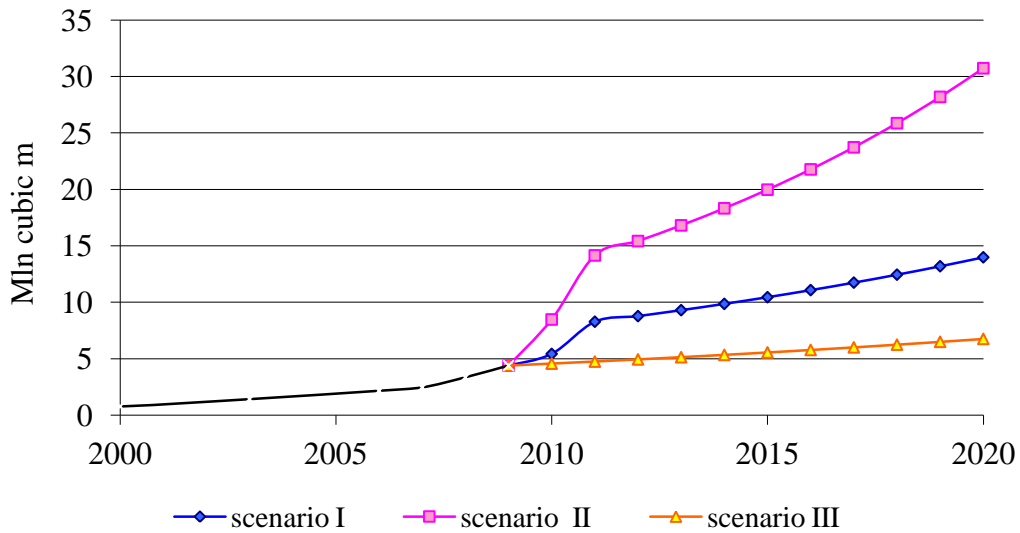


Figure 32. Forecast for sawnwood export

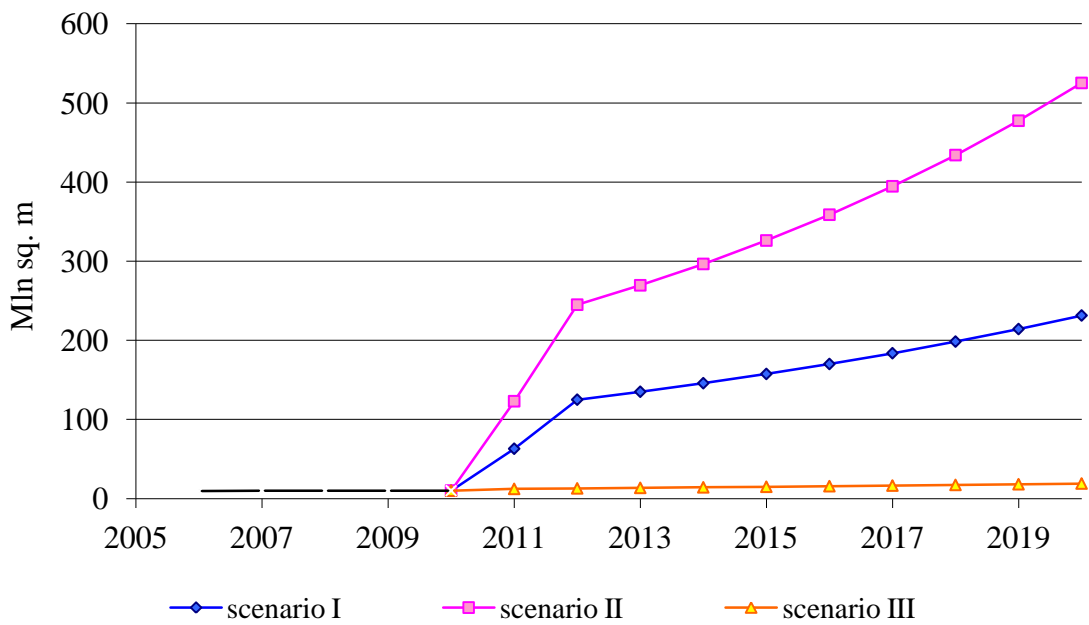


Figure 33. Forecast for fibreboard export

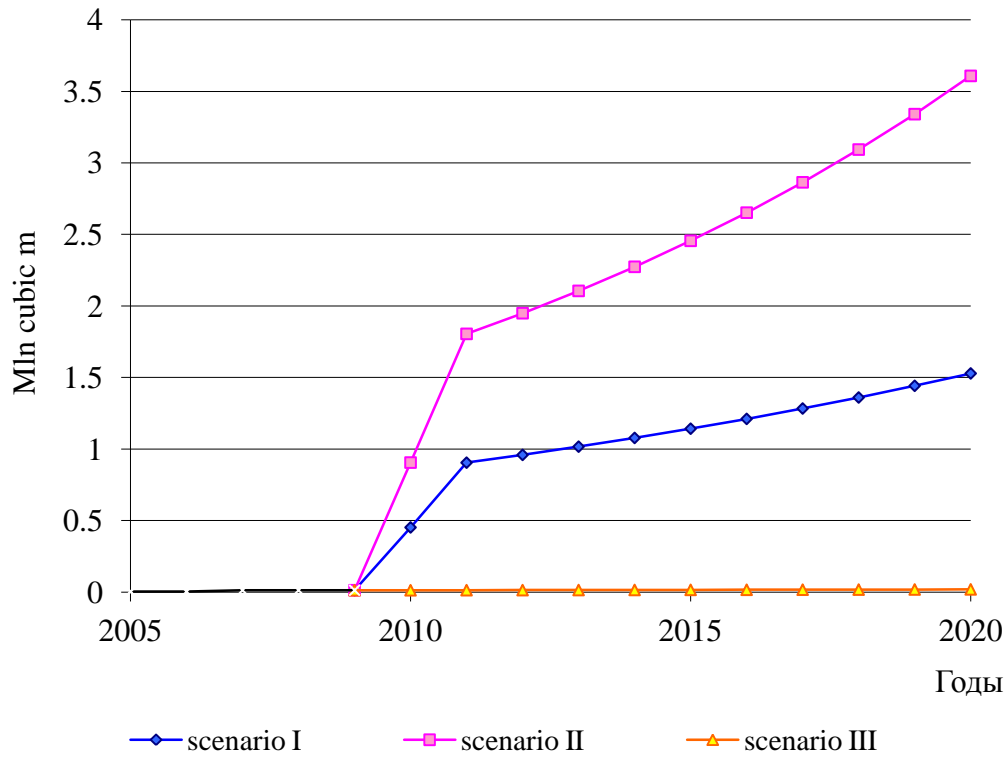


Figure 34. Forecast for plywood export

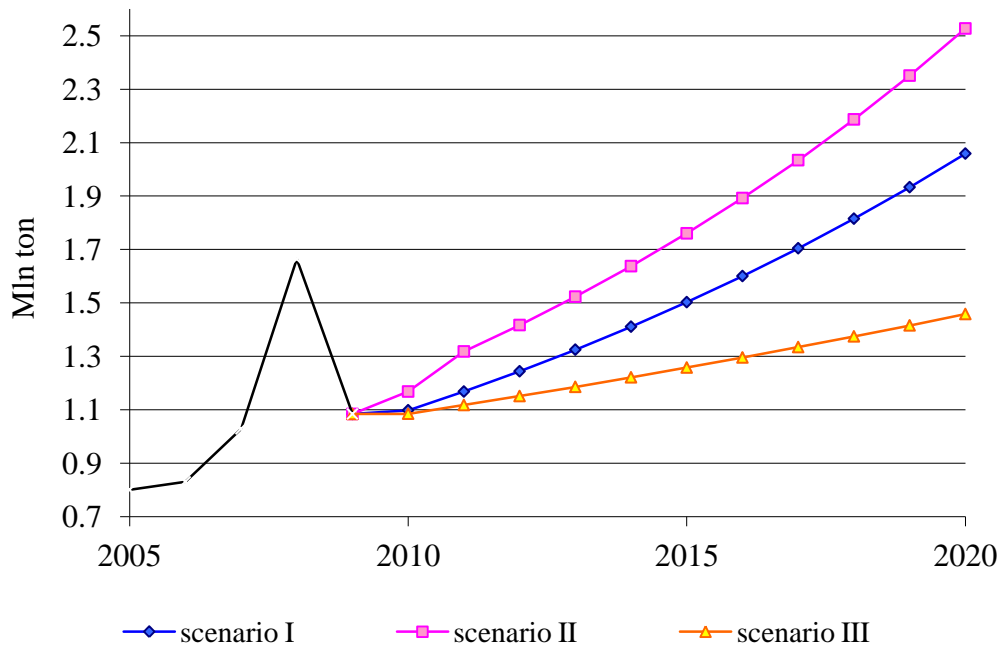


Figure 35. Forecast for pulp export

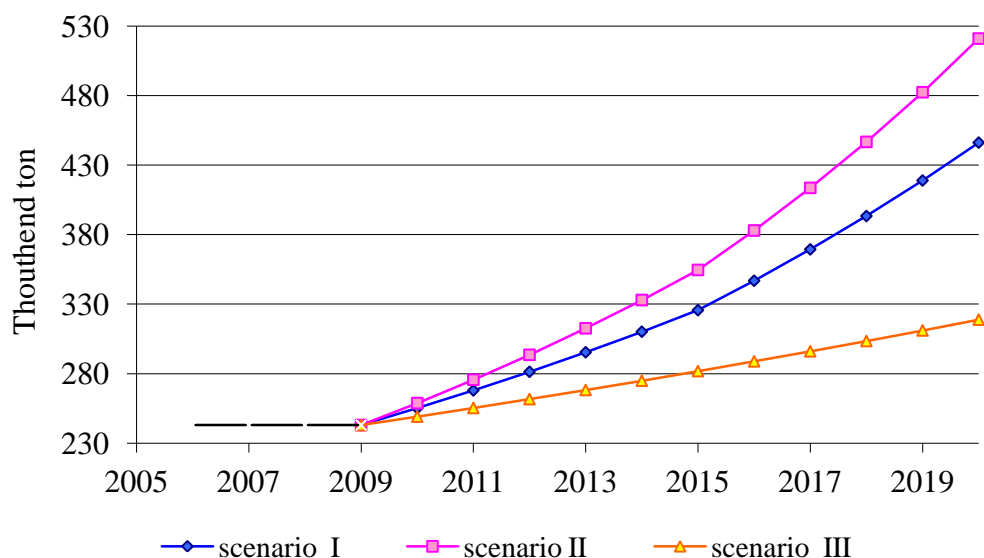


Figure 36. Forecast for paper and paperboard export

Forecast for timber production manufacture in the Russian APR

The volume of timber and timber product processing is equal to the volume of internal consumption and export. In the inertia scenario growth was estimated to be on the level of 4% a year. In the favorable scenario the volume of main types of timber products will grow dramatically due to increase in timber processing capacity. The volume of round timber production is adjusted according to actual consumption for the needs of the timber processing industry (Table 23, Figures 37-44).

Table 23. Forecast for timber production manufacture in the Russian APR

Year	Scenario	Industrial round wood 000 m ³	Sawn wood 000 m ³	Plywood 000 m ³	Plb 000 m ³	Fb mln m ³	Pulp 000 tons	Paper 000 tons	Paper board 000 tons
2007	Fact	38924.2	8709.8	206.2	560.3	100.7	1984.0	43.9	496.1
2010	I	37260	11139	549	596	108	1979	44	564
	II	44947	14465	1009	599	109	2036	45	581
	III	33732	9915	198	590	106	1942	43	541
2015	I	57260	18205	1267	817	235	2526	61	759
	II	84396	28778	2600	840	410	2991	67	838
	III	40507	12064	242	772	135	2551	55	654
2020	I	76359	24510	1687	1119	340	3224	86	1053
	II	126858	43668	3811	1179	672	4395	101	1249
	III	48693	14677	294	1009	172	2609	70	794

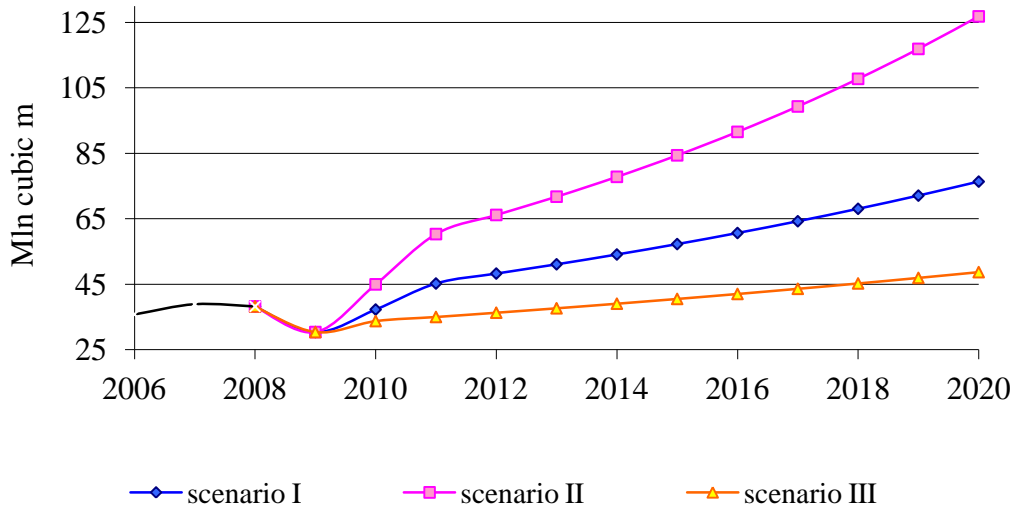


Figure 37. Forecast for industrial round wood production

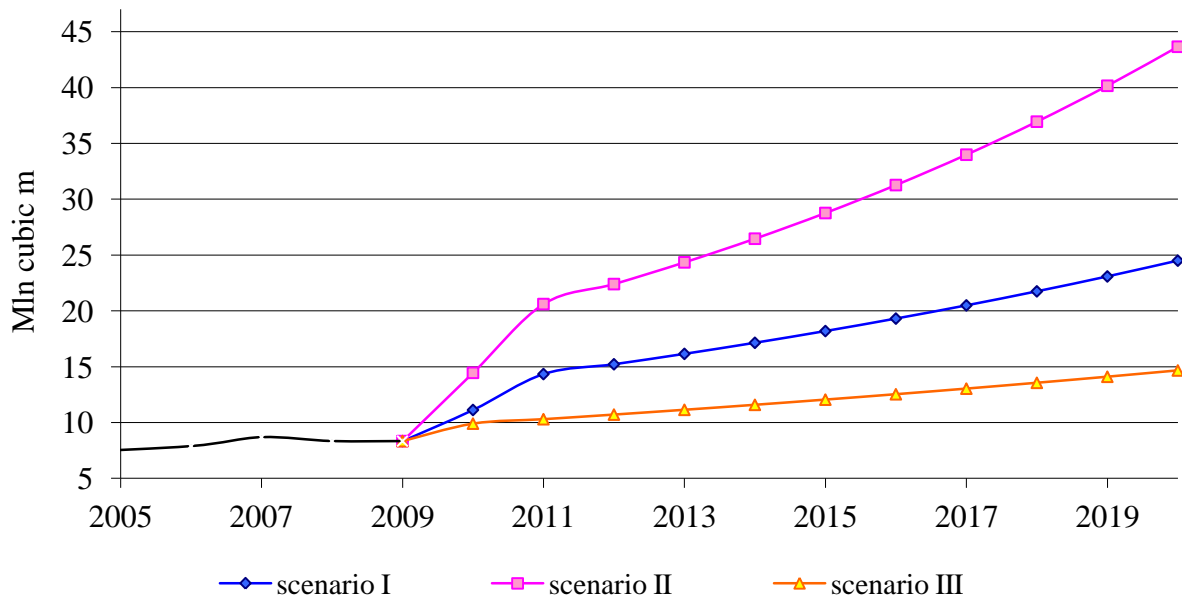


Figure 38. Forecast for sawnwood production

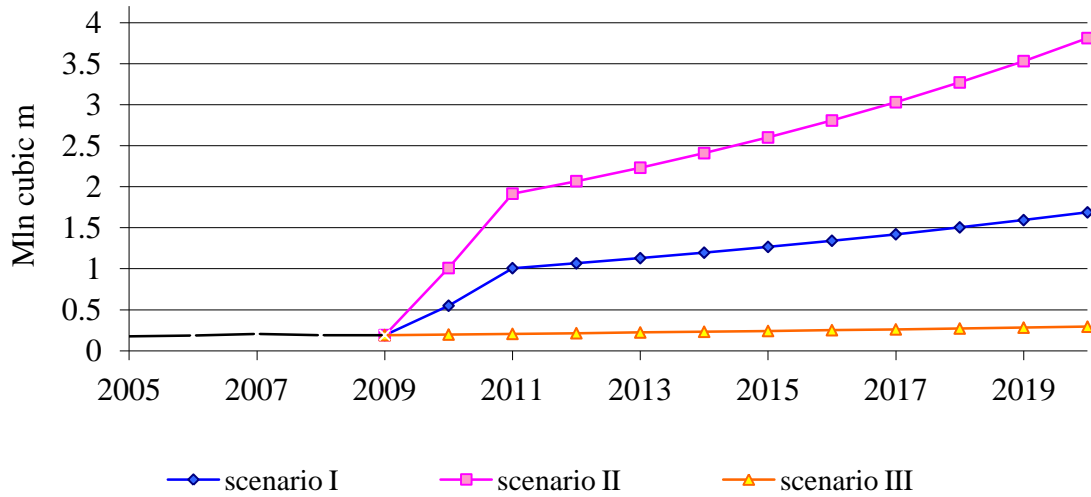


Figure 39. Forecast for plywood production

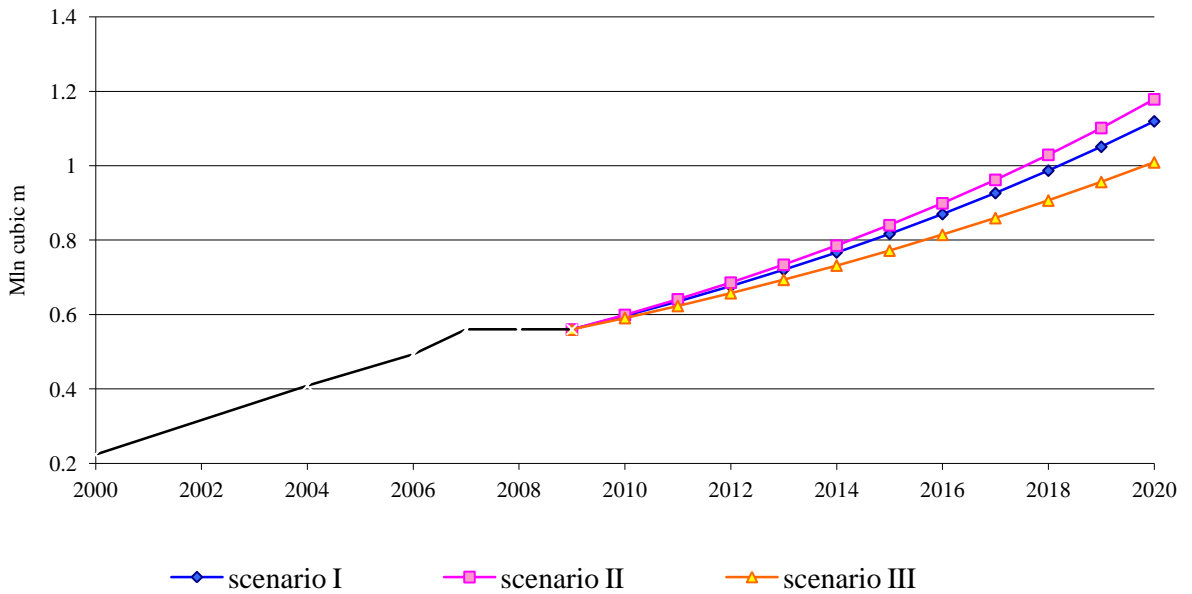


Figure 40. Forecast for particle board production

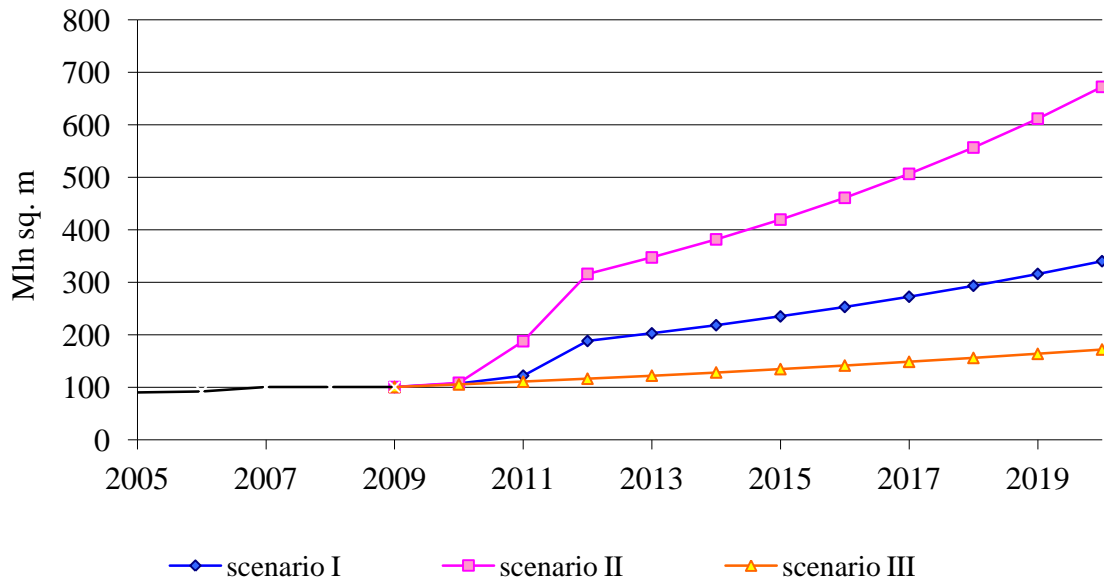


Figure 41. Forecast for fiberboard production

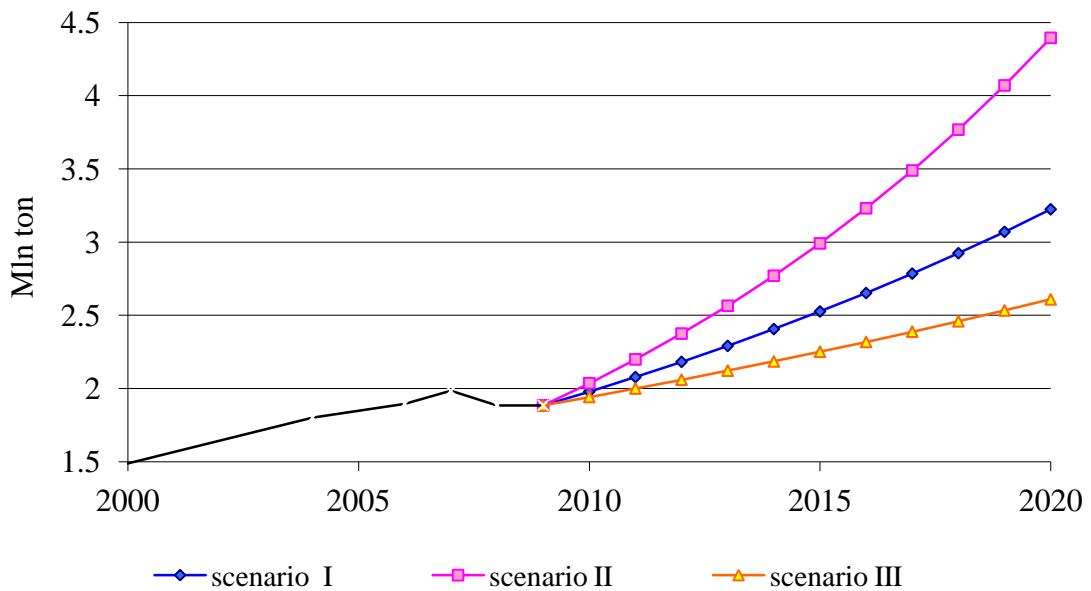


Figure 42. Forecast for pulp production

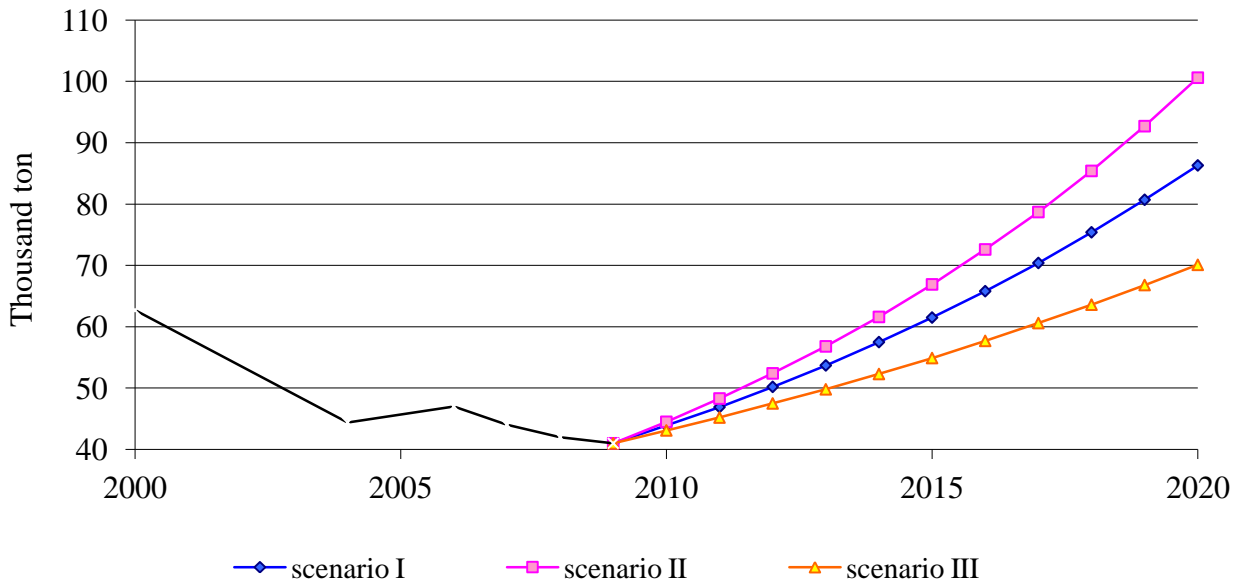


Figure 43. Forecast for paper production

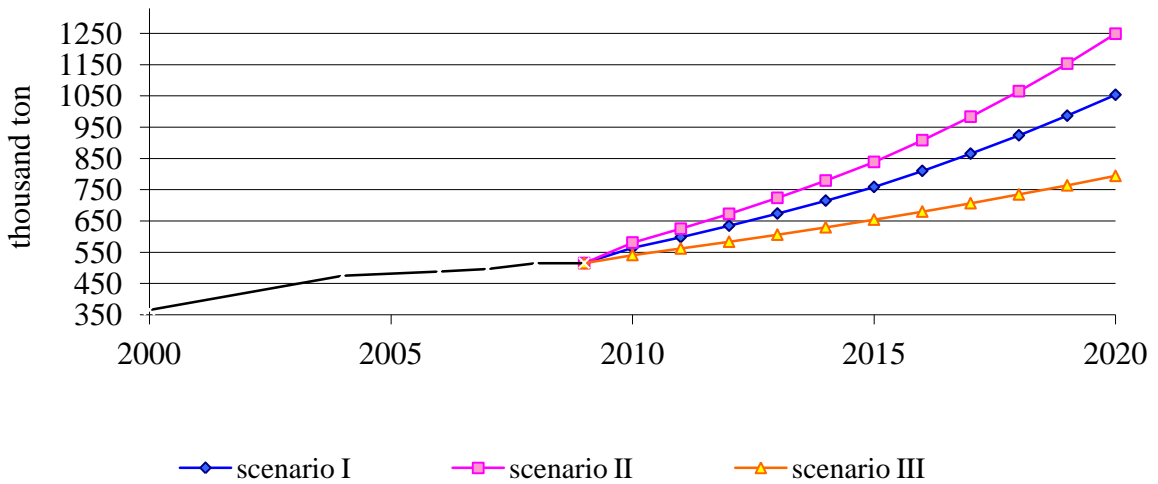


Figure 44. Forecast for paper board production

11. USE OF WOOD AS A SOURCE OF ENERGY PRODUCTION

Use of timber as a source of energy has a different direction. In the case of rapid growth of the oil and gas sectors in Russia and a new program for gas provision to power plants, industrial sectors and households as a fuel, consumption of wood decreases. On the other hand, the timber industry tends to use low-quality timber and wood waste for heating, drying of timber and even for energy production.

Wood is traditionally used for heating and cooking in the SFD and FEFD. It is usually used in villages that are more than 100 km away from the railways (in the less remote villages coal is used). Five percent of the population lives in these remote villages. Low-quality timber is used as firewood, as well as waste from local logging companies. Some of the wood is harvested by the locals. Not more than 10% of the wood waste and low-quality timber is used as a fuel. Most probably villages will not change their fuelwood consumption in the next 20 years.

Use of wood as a fuel by logging and processing companies has been stimulated by a rise in prices for electricity and oil. Despite the abrupt global fall of prices for oil in 2008-2009, internal prices for the energy carriers kept rising. In general, this tendency has a positive economic and ecological effect. In the past, when crude oil and coal were used as fuel, wood wastes were not utilized, but dumped at special landfills. Use of wood as a fuel, considerably decreases atmospheric pollution and prevents landfill growth. Conversion of boiler-houses to woodfuel is doubtful because of the considerable expense needed. According to expert opinion, the gain from such a transfer would be around 0.5 million rubles a year. It is considered that wood waste will be used for heating, product drying and electricity production at the new timber processing plants.

12. FOREST CERTIFICATION

Globally the increased share of certified forest is clearly reflected in the state of forest certification in the SFD and FEFD. Out of 19 million ha of certified forest – 25% (4765 thousand ha) are Russian APR forests. The interest of Russian logging companies in forest certification has been generated by the change in policy of the main timber purchasers – China and Japan. Since 2006 Chinese importers began to show interest in certified timber purchase. At the same time the Chinese government declared its intention to use only certified wood for sports complex construction for the Olympic Games in 2008. In 2007 the Japanese government decided that all state purchases of timber must come from certified sources. All Russian companies prefer to obtain FSC certification, as the most well-recognized and trustworthy in the world (Table 24).

Table 24. Russian APR companies obtaining FSC certificates for forest management

Year of certificate issue	Number of companies			Certified area, 000 ha
	SFD	FEFD	Total	
2000	1	-	1	32,7
2004	1	1	2	1443,8
2006	3	-	3	1433,0
2007	5	-	5	1703,9
2008	3	2	4	151,7
Total	14	2	15	4765,1

Interest has grown in the creation of regional certification advisory centers. The process of forest certification has been accelerated in the Russian Far East by the Russian Far East Association of Timber Exporters (“Dalexportles”) and the Japanese Timber Importers’ Association. They conduct forest certification in two stages. At the first stage the “Dalexportles” association conducts internal certification of logging companies, which guarantees that the timber harvested and exported is legal. In the second stage logging companies obtain international certificates (“COC”, “FSC” etc.). The first stage of internal certification was done by 14 of the biggest logging companies in the Far East.

In the near future the number of forest companies with certificates will increase. Currently 10 companies are willing to follow the procedure – 2 in the FEFD and 8 in the SFD. Their total area is 2.3 million ha.

In November 2008 the Russian standard for forest management was accredited by the Forest Stewardship Council, and all new certification processes will be conducted on the basis of this new standard.

13. CONCLUSION

An overview of the forest sector of the Asia Pacific region of Russia showed that the state of the forest resources is stable and there have been no observable changes in forest cover within last 20 years. Forest dynamics mainly depend on natural, rather than anthropogenic factors. Forest lands as well as forest covered area are growing. Within the last 5 years, forest area increased by 3.52 million ha. Forest covered area grew by 20.83 million ha, and the total forest stand increased by 878.8 million m³. Forest area where clear felling is conducted is restored due to either natural forest recovery or to tree planting activity. Reforms are happening in the forest sector.

The timber industry of the Russian APR developed intensively after the economic crisis in 1998. The volume of timber harvested and sawn timber as well as other timber processing products is growing. Unequal distribution of timber processing capacities in different regions and illegal logging, which is not taken into account by the official statistics, are having negative effects on the industry.

Timber industry products of the Russian APR are mainly exported to Asia Pacific countries – China, Japan, and ROK and comprise one-third of total Russian forest exports. Processed timber is mainly exported. In 2011 the situation must change totally because of the introduction of new duties for round timber export. New export duties will cause a change in timber industry structure. A considerable number of middle-sized logging companies, oriented towards export of round timber, will close. Forest plots rented by land owners will be redistributed.

Statistics on non-timber forest use and hunting, along with other forest use were unavailable after the system of industrial farms collapsed at the beginning of the 1990s. Nevertheless, in some regions of the SFD and FEFD non timber products play the most important role in the livelihoods of local populations. Hunting and deer farming are inseparable parts of traditional lifestyles of northern communities in the SFD and FEFD. Most non timber products are consumed domestically. Siberian and Korean pine nuts, furs, medical herbs, harvested in massive amounts, are exported.

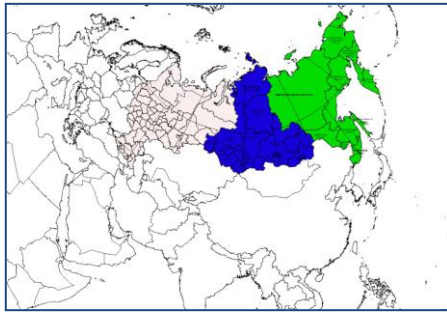
In the SFD and FEFD investment growth in construction of high-level timber processing industries is expected. Three scenarios are presented to describe the development of the sector. In the first scenario, the Russian Federation's annual gross national product growth will vary from 5% to 10%. It is expected that a number of investment projects for high-level timber processing will be completed and export will comprise processed timber.


The second scenario shows more favorable development of the general political situation as well as socio-economic and scientific and technical progress in all spheres of the Russian economy. It is expected that all investment projects for high-level timber processing will be implemented and production escalation in the area of timber production will occur. In this scenario rapid growth of the export of high-level timber processing products is expected and the gross national product will grow up to 10% per year.


Under the third inertia scenario, the growth of timber processing capacities will result from modernization of current techniques and will be 3% per year.

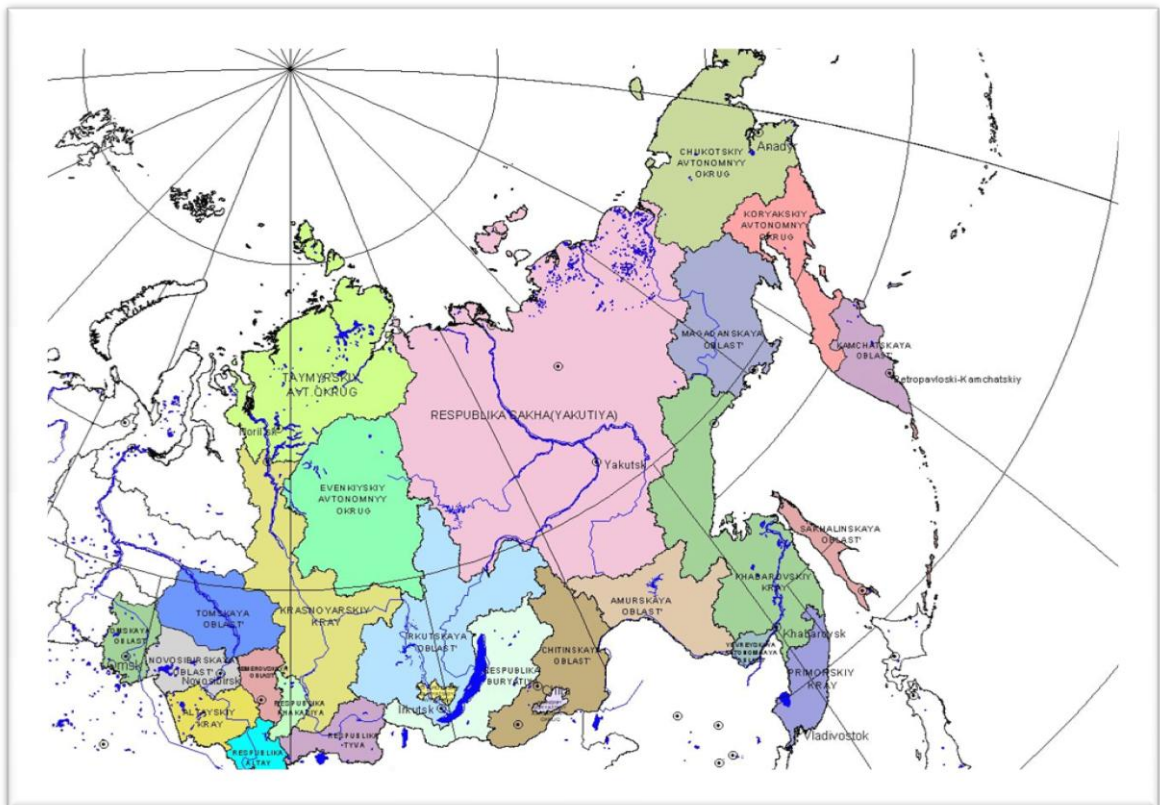
In general the Asian-Pacific Region of Russia is integrating actively into the global economy, by reformation and modernization of forest management systems. This is complemented by the strong interest of forest companies in improving practices and forest certification. The Asian-Pacific region has 25% (4765 000 ha) of Russian certified forests. In the near future this area will increase to 2.3 million ha.

ANNEX 1. LOCATION OF THE SFD AND FEFD



 **SFD – 5 114 800 km² (30% of total Russian territory)**

 **FEFD – 6 215 900 km² (36,4% of total Russian territory)**



ANNEX 2. NATIONAL STRUCTURE OF THE RUSSIAN APR'S POPULATION

Nationalities	National structure, %		
	SFD	FEFD	Total Russian APR
Russian	87,38	81,74	85,97
Ukrainian	1,86	4,23	2,45
Buryat	2,13	0,00	1,60
German	1,54	0,00	1,15
Tatar	1,26	0,83	1,15
Tuvin	1,20	0,00	0,90
Kazakh	0,62	0,00	0,46
Byelorussian	0,41	0,68	0,48
Khakass	0,36	0,00	0,27
Altaics	0,33	0,00	0,25
Yakut	0,00	6,51	1,63
Korean	0,00	0,93	0,23
Evenk	0,00	0,37	0,09
Even	0,00	0,28	0,07
Azerbaijani	0,00	0,27	0,07
Persons, who do not indicate nationality	0,00	0,65	0,16
Other nationalities	2,91	3,52	3,07
Amount of population, thousand people	20062,9	6692,9	26755,8
Density of population, person/km ²	3,9	1,2	2,63

ANNEX 3. EXCHANGE RATE DYNAMICS FOR THE LAST 5 YEARS

Currency: Russian ruble (RUB).
 Exchange rate (March 2010):
 US\$1.00 = 29.814 RUB
 Euro1.00 = 40.6007 RUB.

