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IIASA Working Paper

WP-96-081

July 1996

Working Paper

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Foreword

Siberia's forest sector has recently gained considerable international interest. IIASA, the Russian Academy of Sciences, and the Russian Federal Forest Service, in agreement with the Russian Ministry of the Environment and Natural Resources, signed agreements in 1992 and 1994 to carry out a large-scale study on the Siberian forest sector. The overall objective of the study is to focus on policy options that would encourage sustainable development of the sector. The goals are to assess Siberia's forest resources, forest industries, and infrastructure; to examine the forests' economic, social and biospheric functions; with these functions in mind, to identify possible pathways for their sustainable development; and to translate these pathways into policy options for Russian and international agencies.

The first phase of the study concentrated on the generation of extensive and consistent databases for the total forest sector of Siberia and Russia. The study has now moved into its second phase, which encompasses assessment studies of the greenhouse gas balances, forest resources and forest utilization, biodiversity and landscapes, non-wood products and functions, environmental status, transportation infrastructure, forest industry and markets, and socio-economic problems.

In order to gain from experiences made and knowledge collected in other boreal countries concerning the management of the boreal forest sector, which could be useful for the formulation of future management programs of the Russian boreal forest sector, the IIASA Siberian Forest Study has taken the initiative to produce a book on the global boreal forests. This Working Paper by Dr. Hyttinen of the University of Joensuu, and Professor Solberg of the European Forest Institute, Joensuu, Finland, is a contribution to the planned book on boreal forests.

Abstract

This paper gives an overview of the socio-economic significance of forest resources and their utilization in the Nordic countries. The investigation covers Finland, Norway and Sweden, where coniferous forest with some birch and other broadleaved trees is the natural forest type in most areas.

From the viewpoint of national economy, the major part of the socio-economic benefits from forests comes from the large-scale forest products industry. In vast rural areas, forestry is also significant in the context of regional development.

Because of relatively strong competitiveness of the forest products industries, it is likely that the role of the Nordic countries will remain high in satisfying the world's demand for forest industry products. Timber resources as such are not a limiting factor to the expansion of forest products industries in these countries. However, nature protection and non-timber values of forest, among other factors, lower the usable potential of timber resources for industrial purposes. The most challenging task is to find a sound balance in which both the economic and environmental functions of forests can be fulfilled simultaneously.

Keywords: socio-economics, boreal forests, Nordic countries, forest policy

Socio-Economic Importance of the Boreal Forests in the Nordic Countries

Pentti Hyttinen and Birger Solberg

1. Introduction

1.1. Nordic countries within the boreal forest zone

The purpose of this paper is to give an overview of the socio-economic significance of forest resources and their utilization in the Nordic countries. Geographically, the Nordic countries comprise Denmark, Finland, Iceland, Norway and Sweden. However, Denmark and Iceland were left outside the scope of this paper. The reason for excluding Denmark was that, in fact, it does not belong to the boreal coniferous forest zone but to the broadleaved deciduous forest zone. In Iceland, as exploitable forests cover only 11,000 ha, which is 0.1% of the land area (Kuusela 1994), industrial use of forest resources is marginal, and the significance of the forest sector from the socio-economic viewpoint is very limited.

The three Nordic countries included in this study are located roughly between the 55th and 70th latitudes in Northern Europe. Coniferous forest with some birch and other broadleaved trees is the natural forest type in most areas.

1.2. Historical aspects

Forests have historically played a very important role in the development of the economies of the Nordic countries. Advancing settlements were only possible with the support of wood resources. Compared to other regions in Europe, the Nordic countries were settled relatively late, mainly during the ongoing millennium. Wood was used for buildings, heating, cooking, tools, and for transportation, especially for making boats and ships. Mining and shipbuilding became great consumers of wood during the 17th century. Charcoal burning and tar extraction offered work and income until the end of the 19th century (Kuusela 1994).

Centuries of livestock grazing and slash-and-burn agriculture made a profound mark on the forests. The evolving timber industry and a variety of other human uses led to the shortage of forest land and wood resources in many areas. The best trees were felled without ensuring regeneration. Around the turn of the century, the Nordic countries began to take vigorous action to halt the devastation. The new silvicultural laws put a stop to the ruthless exploitation and made the forest owners responsible for forest regeneration. The establishment of forestry organizations, together with the financial and material support by the society, has

guaranteed the stable development of forest resources during the 20th century *(Scandinavian Forestry* 1994).

2. Forest Resources, Land Ownership and Wood Supply

2.1. Forest resources

A feature that Finland, Norway and Sweden have in common is the abundance of forest resources (Table 1). Together, they have over 60 million hectares of forest land. In Finland and Sweden, nearly two-thirds of the land area is covered with forest. In Norway, the corresponding share is 37%.

Table 1. The number of inhabitants, land area and essential forest resource assessment data on exploitable forests in Nordic countries around 1990. Source: UN 1992.

Country	Finland	Norway	Sweden	Total
Number of inhabitants, mill.	5.0	4.2	8.6	17.8
Number of inhabitants, per km^2	15	13	19	15.7
Land area, mill. ha	30.5	30.7	40.8	102.0
Forest and other wooded land, mill. ha	23.4	9.6	28.0	61.0
Forest area, mill. ha	19.5	6.6	22.0	48.1
Forest area per capita, ha	3.91	1.57	2.58	2.7
Growing stock, mill. m^3 overbark	1,679	571	2,471	4,721
Net annual increment, mill. m^3 overbark	69.7	17.6	91.0	178.3
Fellings, mill. m^3 overbark	55.9	11.8	57.5	125.2
Removals, mill. m^3 underbark	44.6	10.1	48.0	102.7
Fellings/Net annual increment	0.80	0.67	0.63	0.70

The forest area per capita is high, as the total population of 17.8 million people lives relatively scattered. The national averages of population density varies from 13 inhabitants per km^2 in Norway to 19 in Sweden, compared to the Central European average of 105 inhabitants per km^2. The forest area per capita is the highest in Finland being almost four hectares. The average in the whole of Europe is 0.24 hectares.

The exploitable forest area has increased in Finland and Norway in recent decades mainly due to forest drainage, and because unproductive as well as agricultural land has been planted with trees. In Sweden, the exploitable forest area has recently slightly decreased

which is due to the establishment of several large nature reserves *(Statistical Yearbook of Forestry* 1995).

The growing stock volume per hectare is relatively small in the Nordic countries compared with the other regions of the boreal coniferous forest zone (Kuusela 1994). In spite of this, the net annual increment per hectare is by far the greatest in this zone. The annual growth is about 180 million cubic meters. Approximately two-thirds of this growth is felled. As significantly less forest has been felled than has grown during the whole 20th century, there is now twice as much wood in the Nordic countries as there was one hundred years ago.

2.2. Forest land ownership

Forest ownership patterns form an essential factor regarding the socio-economic impacts of forests and wood supply. Private forests are exceptionally predominant in the Nordic countries compared to other countries and continents *(Yearbook of Nordic Statistics* 1994). In the productive forest area the share of private forests ranges from 72% in Finland to 86% in Norway. In the European countries, shares of that level can be found only in Portugal, France and Austria.

Private individuals or families own 49% of the forest land area in Sweden, whereas in Finland and Norway the shares are 63% and 64% respectively. In Sweden, about one-third of the private forest area is owned by forest industry companies.

The typical forest owner is a small-scale farmer or other private individual for whom the forest is not the main source of income. The average size of a family forest holding is between 30 and 50 hectares. Forest owners' associations play a major role in forestry promoting policies aimed at benefiting its members, including negotiations with industry on the framework for timber prices.

In all of the three countries, privately-owned forests are located mainly in the south and the state-owned and other public forests in the north. As private forests are generally located in better growing areas, their importance is even higher than what their share of the total land area would indicate. In Finland, for instance, up to 80% of the timber used annually by the forest industry comes from private forests.

2.3. Sufficiency of timber resources

The amount of timber resources as such is not a limiting factor regarding the expansion of forest products industries. Nowadays, in all three countries, the net annual increment of growing stock far exceeds the annual fellings (Table 1). The ratio between fellings and net increment is the smallest in Sweden, 0.63, and the greatest in Finland, 0.80. In Sweden, fellings have been smaller than the annual increment since 1950 (Kuusela 1994).

The case has not always been the same. In Finland, for example, as the annual consumption of industrial wood increased from 17 million m^3 to 41 million m^3 during 1950-1975, finding the means to increase the wood resource potential used to be the major concern (Kuusela 1994). The removals of wood exceeded the sustainable yield during the 1960s. This

concern led to intensive incentive programs to encourage investments to increase the growth of forests.

Though the situation now looks good in this respect, the concern of wood resource potential is not totally overcome. There are many factors, such as nature protection and non-timber values of forest, lowering the usable potential of timber resources for industrial purposes. In addition, the fragmented ownership structure, together with difficult and expensive logging and transport conditions, decrease the supply of timber (Kuusela 1994). Therefore, especially in Finland, the recent decisions on new forest industry investments, increasing the annual consumption of industrial wood around eight million m^3, may lead to a situation where forest policy intervention, in terms of encouraging the production and/or selling of timber, is required to guarantee the timber supply needed for the expanded industrial capacity.

2.4. Timber harvesting and transportation

The mechanization of timber harvesting has increased rapidly. In Finland, where the development has been the fastest, the share of mechanized cutting in stumpage sales amounted to 74% in 1993, compared to 19% in 1986. In 1993, an average of 720 multiprocess machines were operating in Finnish forests, while the corresponding figure for 1986 was 210 *(Yearbook of Nordic Statistics* 1994).

Truck transportation is the dominant method used in the long-distance transportation of roundwood. A very important factor behind this is the density of the forest road network. In Sweden, for example, the road network used for forestry transportation is 350,000 km, which is 30 times longer than the railway network, and about six times more roundwood volume is transported by road than by rail *(Statistical Yearbook of Forestry* 1995). In Finland, truck transportation covered 62%, rail 29% and water transportation 10% of the total volume of roundwood transported in 1993 *(Yearbook of Nordic Statistics* 1994). At the beginning of the 1980s, water transportation still covered more than one-third of the long-distance transportation.

Comparing the three countries, the conditions for logging and transport are the most difficult and expensive in Norway. In this mountainous country, unexploitable forests account for 2.1 million ha, which is as much as 24% of the total forest area. In Sweden and Finland, topography is more favorable for logging and transport. The share of unexploitable forests is 10% and 3% respectively. They are located mainly in the most northern parts of the countries, where growing conditions are poor and the demand for nature conservation and forest protection is high.

3. Industrial Production and Trade

3.1. Production

The Nordic countries are major producers of paper and paper board, as well as printing and writing paper in the case of Finland (Table 2). The principal reason for the specialization in paper products is obviously the relative competitiveness of the forest industry in this respect.

Table 2. Production of forest industry products in Nordic countries in 1992. Source: FAO 1994.

Country	Finland	Norway	Sweden	Total
Sawnwood coniferous, 1,000 m^3	6,917	2,350	11,928	21,195
Sawnwood non-coniferous, 1,000 m^3	67	12	193	272
Plywood and veneers, 1,000 m^3	480	4	65	549
Particle board, 1,000 m^3	354	310	581	1,245
Fibreboard, 1,000 m^3	104	157	164	425
Mechanical pulp, 1,000 m.t.	3,156	1,217	2,525	6,898
Semi-chemical pulp, 1,000 m.t.	456	78	276	810
Chemical pulp[1], 1,000 m.t.	5,005	711	7,107	12,823
Newsprint, 1,000 m.t.	1,257	934	2,124	4,315
Printing and writing paper, 1,000 m.t.	4,799	308	1,805	6,912
Other paper and paperboard, 1,000 m.t.	2,767	441	4,447	7,655
Paper and paperboard total, 1,000 m.t.	8,823	1,683	8,376	18,882

[1] The following commodities are included: chemical wood pulp, dissolving wood pulp and other fibre pulp.

During the second half of the 1980s, the forest industry companies' investments were very high, dwarfing in the early 1990s, and growing again in the mid-1990s. This is an indication of the extreme economic fluctuation that took place in the Nordic countries during the last decade. The forest products industry companies defended their competitiveness by merging, mainly within the countries. Nowadays they are extremely highly concentrated. In

Finland, there are only three major forest products industry companies: Enso, UPM-Kymmene and Metsä-Serla. In Sweden, the four major companies are Svenska Cellulosa, Stora, MoDo and Korsnäs. It is likely that the search for the economies of scale will lead to new mergers, and that international mergers between the Nordic countries will take place in the future.

3.2. Trade

More than three-quarters of the forest products industry exports from Finland, Sweden and Norway go to the rest of Europe. To put it another way, of all the paper and wood products consumed in the European Union countries, about one-fourth comes from these countries. For some products, the percentage is much higher. For example, every third newspaper has its origin in the forests of the Nordic countries *(Scandinavian Forestry* 1994).

Imports traditionally dominate Finland's and Sweden's foreign trade in roundwood (Tables 3 and 4). In Finland, imports of roundwood, mostly from Russia, totaled 6.6 million m^3 in 1993 *(Yearbook of Nordic Statistics* 1994). More than two-thirds of that was birch pulpwood. Exports of roundwood remained at the modest level of 1.0 million m^3. In Sweden, imports of roundwood totaled 4.3 million m^3 in 1993, and exports 0.9 million m^3 *(Statistical Yearbook of Forestry* 1995).

Table 3. Exports of roundwood and forest industry products from Nordic countries in 1992. Source: FAO 1994.

Country	Finland	Norway	Sweden	Total
Industrial roundwood (without bark), 1,000 m^3	571	844	1,001	2,416
Sawnwood coniferous, 1,000 m^3	4,642	809	8,240	13,691
Sawnwood non-coniferous, 1,000 m^3	12	2	18	32
Plywood and veneers, 1,000 m^3	349	4	28	381
Particle board, 1,000 m^3	95	143	120	358
Fibreboard, 1,000 m^3	58	12	79	149
Mechanical and semi-chemical pulp, 1,000 m.t.	83	176	250	509
Chemical pulp, 1,000 m.t.	1,196	268	2,506	3,970
Total[1], 1,000 m.t.	1,291	533	2,756	4,580
Newsprint, 1,000 m.t.	1,146	751	1,665	3,562
Printing and writing paper, 1,000 m.t.	4,347	271	1,447	6,065
Other paper and paperboard, 1,000 m.t.	2,389	362	3,512	6,263
Paper and paperboard total, 1,000 m.t.	7,882	1,383	6,624	15,889

[1] The following commodities are included: wood pulp and other fibre pulp.

Table 4. Imports of roundwood and forest industry products from Nordic countries in 1992. Source: FAO 1994.

Country	Finland	Norway	Sweden	Total
Industrial roundwood (without bark), 1,000 m^3	6,024	1,466	6,254	13,744
Sawnwood coniferous, 1,000 m^3	81	411	91	583
Sawnwood non-coniferous, 1,000 m^3	40	36	70	146
Plywood and veneers, 1,000 m^3	21	74	118	213
Particle board, 1,000 m^3	14	42	169	225
Fibreboard, 1,000 m^3	42	9	80	131
Mechanical and semi-chemical pulp, 1,000 m.t.	10	6	35	51
Chemical pulp, 1,000 m.t.	149	39	133	321
Total[1], 1,000 m.t.	199	45	202	446
Newsprint, 1,000 m.t.	-	-	11	11
Printing and writing paper, 1,000 m.t.	29	125	117	271
Other paper and paperboard, 1,000 m.t.	115	177	190	482
Paper and paperboard total, 1,000 m.t.	144	302	318	764

[1] The following commodities are included: wood pulp and other fibre pulp.

4. Non-Wood Products

There is a wide range of non-wood forest products, which are of considerable importance for national and, especially, for local economy in certain areas of the Nordic countries. As far as the monetary value is concerned, the most important are berries of different kinds, mushrooms and game meat (Hultkranz 1991; Matero and Saastamoinen 1994). However, there is not yet very much reliable statistical information available on these products.

Solberg and Svensrud (1992) composed the contribution of industrial wood and environmental goods to the national account in Norway. For 1990, they estimated that 412 million ecus (NOK 3373 million) came from the sale of timber, 22 million ecus (NOK 180 million) from hunting, and 235 million ecus (NOK 1925 million) from CO_2 fixation. In

addition, they calculated 64 million ecus (NOK 522 million) for the net growth of timber, and -18 million ecus (NOK -146 million) for the negative environmental effects of the forestry practices. Thus, they ended up with the total net value added of 715 million ecus (NOK 5854 million).

The right of public access gives everyone the right to take walks, hike, and pick berries and mushrooms. In Finland, for example, the income from the picking of wild berries and edible mushrooms totaled 5 million ecus (FIM 30 million) *(Yearbook of Nordic Statistics* 1994). The value of hunting was estimated at 44 million ecus (FIM 246 million) in 1993.

In a broader sense, also the supply of drinking water can be taken as a forest product, or at least forestry can have a great impact on the quality of groundwater resources. For example, fertilizers and ditching of forest wetlands may decrease water quality. In general, the quality of groundwater is excellent in the Nordic countries, which may become a crucial socio-economic factor in the future.

5. Economic Importance

5.1. Macroeconomic value

The concept of "forest sector" is used here for the entity of forestry and forest products industries together. In the national accounts "forestry" comprises silviculture, roundwood harvesting and promotion of forestry. The forest industries are divided into two sub-groups: the wood products industry and the pulp and paper industry.

Among the nations of the world, Finland has traditionally been the most dependent on its forests and forest industries. In 1993, Finland's GDP in basic values amounted to 74 billion ecus (FIM 417 billion), of which the combined share of forestry and forest industries was 7.3%. At the beginning of this century over 85% of Finland's export income was derived from forest industry products. The forest sector and its exports provided a considerable stimulus to the national economy during the post-war reconstruction period in the 1950s and 1960s. The significance of the forest sector remains high -- about 34% of the 1993 gross export earnings and almost 40% of the net export earnings still come from wood, paper and related industries *(Yearbook of Nordic Statistics* 1994).

In Sweden, the relative importance of the forest sector and its exports in the national economy is the second highest in Europe, after Finland *(Statistical Yearbook of Forestry* 1995). Sweden has a broad industrial base, which evolved from its natural resources of iron ore and water power -- and of forests. Pulp and paper products, motor vehicles, engineering and high technology are all important. In 1993, the total value of all Swedish exports was 41 billion ecus (SEK 388 billion). Of this, 7 billion ecus (SEK 67 billion), or 17% of the total exports originated from the forestry and forest industry sector of the economy.

In Norway, forestry and forest industry accounts for 4% of the GDP and 9% of exports. The development of oil and gas reserves in the 1970s transformed the national economy from its traditional dependence on forestry and fishing and made it, in terms of

income per head, one of the richest countries in the world. Oil and gas account for around 40% of exports, although this proportion and economic performance as a whole fluctuate sharply with the world oil prices *(Statistical Yearbook* 1993).

The value of the export of forest sector products is of greatest importance to Finland, 1209 ecus per capita in 1992 (Table 5). The corresponding value for Sweden was 791 ecus, and for Norway 252 ecus.

Table 5. The value (mill. ecu) of foreign trade in roundwood and forest industry products in Nordic countries in 1992. Source: FAO 1994.

Country	Finland	Norway	Sweden	Total
Roundwood, Exports	39	35	52	126
Roundwood, Imports	223	79	235	537
Forest industry products, Exports	6,128	1,025	6,755	13,908
Forest industry products, Exports	286	469	583	1,338
Total, Exports	6,167	1,060	6,807	14,034
Total, Imports	509	549	818	1,876

The importance of the forest sector for the national economy can also be approached by assessing the role of the so-called forest cluster, which includes not only forestry and forest products industry but also other industries and services that are directly connected to the forest sector. Examples of these are manufacturing of paper machines and harvesting machinery in the metal industry, and certain branches of the chemical industry providing chemicals for the forest products industries. According to a Finnish study (Lammi 1994), the share of the forest cluster of the total export was 41% in Finland, 24% in Sweden and 4% in Norway in 1992 (Table 6).

Table 6. Exports of forest cluster in Nordic countries in 1992. Source: OECD foreign trade database.

Country	Export in mill. ecu	Percentage of the total value of the export of the country in %
Finland	7,593	40.7
Norway	1,138	4.2
Sweden	9,204	24.2
Total	17,935	23.0

5.2. Employment

The direct contribution of the forest sector to employment is relatively low, and it is declining in the course of mechanization of timber harvesting and automatization of the forest products industry.

In 1993, an average of 2.0 million people were employed in the Finnish economy. Of this figure, about 28,000 were working in forestry. The labor force in forestry has decreased by approximately 60% since the beginning of the 1980s, when the figure was 63,000 persons. About 26% of the forestry labor force were unemployed in 1993. The total employment of the Finnish forest industries has fallen from 120,000 persons in 1980 to 73,000 in 1993. During the past few years, the pulp and paper industry has stabilized its labor force at around 45,000 people. In the wood products industry, on the other hand, the employment situation has continued to deteriorate. In 1993, the unemployment rate in the forest industries was 11%.

In Norway, about 6,000 persons were employed in forestry in 1993 *(Forestry Statistics* 1995). The labor force in forestry has decreased by a quarter during the last ten years. The manufacture of wood and wood products employed 20,600 persons, and the pulp and paper industry 11,400 in 1991 *(Statistical Yearbook* 1993). Thus, the total employment of the forest sector is around 38,000 persons.

In Sweden, the number of people employed in forestry was 18,600 in 1993. In the Swedish wood processing industry, the number of employees decreased from 71,000 in 1980 to 44,500 in 1992, whereas in the pulp and paper industry the decrease has been slower, figures being 61,000 and 46,000 respectively.

A significant fact related to the employment effects of the forest sector is that a notable part of private forests is still owned and managed in combination with agriculture. It means that forestry-based production and services can relieve the problem of depopulation and contribute rural development by offering part-time employment to the people living in those areas.

6. Socio-Economic Driving Forces

Identifying the main socio-economic driving forces is far from a straightforward task. Due to the limitations of the scope of this paper, only some broad lines have been used here to give a better understanding of the current situation of the forest sector in the Nordic countries and its background. This section is mainly based on Solberg's (1994) previous study.

From the beginning of this century until the 1950s, the main question was how much of the available timber resources could be cut annually without a decline of sustainable yield. The main driving force was, on the one hand, the profitability of the forest industry, and on the other hand, forest research. National forest inventory systems were established in Finland, Sweden and Norway around 1920 to investigate this problem.

In the 1950s, due to the intensive rebuilding phase after the Second World War, the timber prices reached their all time high. The basic driving forces were the same as earlier, but also rapid economic growth both internationally and domestically took place and the wave of urbanization had a strong quantitative and structural impact on the demand for forest industry products. The consequence of this expansion was the increased intensity of forest management practices aiming at higher production of timber. The size of clearfelling areas grew, the pace of mechanization of timber harvesting picked up, forest improvement investments, such as forest roads and drainage of peatlands, were supported by massive incentive programs, etc.

In the late 1960s, and more strongly during the 1970s, environmental concerns arose. Due to higher welfare and urbanization, and the increased awareness of people to environmental issues, the demand for forestry environmental goods became more and more important. However, it took a relatively long time until this led to notable changes in everyday forest management practices. In fact, it was not until the early 1990s when the environmental aspects were taken into account in detail in the forest management guidelines. The process of integrating them into the forestry legislation is still going on.

The major issue in the Nordic countries has recently been the economic incorporation with the rest of Europe. Finland and Sweden became members of the European Union at the beginning of 1995, whereas Norway decided to remain an outsider. Another matter of particular importance, especially regarding Finland, has been the impact of the changes in the former Soviet Union.

As far as the economic development is concerned, not only the near future expectations but also the experiences during the last few years have been different between Norway and the other two countries. During the 1990s, the Finns have experienced a period of deep recession and extremely high unemployment. By the mid-1990s, the recession in terms of GDP has been overcome but unemployment remains high. Sweden has been famous for its sophisticated welfare system. The other side of the coin is that the costs of the huge public sector have given the Swedes one of the world's highest tax burdens. Therefore, notable public spending cuts have recently taken place and are expected to continue in the near future. The forest sector is expected to play a key role in the economic development in both of these coun-

tries. In Norway, forestry and forest industries will most likely continue to be the most important land-based industry.

7. Concluding Remarks

The process of economic and political integration in Europe is expected to tighten the competition in the markets of forest industry products as well as in those of roundwood. Because of the relatively strong competitiveness of the forest sector, it is likely that in the "distribution of labor between the nations of the world" the role of the Nordic countries will remain high in satisfying the demand for forest industry products. From the viewpoint of the national economy, the major part of the benefits from forests will come to the Nordic people through the large-scale forest products industry.

It is also likely that the decreasing trend in the returns from agricultural production will continue, and forestry is becoming more significant in the context of rural development in the Nordic countries. As a result of the policy programs to encourage farmers to convert their agricultural land to forest land, afforestation of agricultural lands is expected to increase, but the extent of this activity seems to remain relatively low. The most challenging question regarding the development of vast rural areas is how to manage and to keep a greater part of the chain from raw-wood to end-use products in those areas.

The ongoing and accelerating structural change in forest ownership from farmers to non-farmers, together with the differing values of the public towards forests and their utilization will increase the importance of multiple forest uses other than timber production. Environmental issues related to forestry will play an increasingly important role. The most challenging task for the Nordic forest sector is to find a sound balance between the economic and environmental functions of forests.

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