

Summary

The context

The natural and socio-economic context

Norway is situated in the boreal coniferous vegetation zone, with Norwegian mainland stretching from 57° to 71°'s latitude. A large part of the country is thus north of the polar circle and temperature is to a large extent the limiting factor of forest growth. Topography is varied: 32% of the land area is below 300 meters above sea level, and 20% of the land area is situated above 900 meters above sea level.

Three species are important in commercial exploitation of forests: Norway spruce (*Picea abies* (L.) Karst), Scots pine (*Pinus silvestris* L.) and birch (*Betula pubescens* and *pendula*).

Norway has a strong tradition for statistics on natural resources. A national inventory of forests (the National Forest Inventory, NFI) is carried out with a 5 to 10 year cycle, the first performed in the period 1919-30 and the latest in 1994-98. In 1986 a set of permanent sample plots were established. In total there are 16 000 sample plots, with about 10 500 situated on productive forest land and other wooded land below the coniferous forest limit¹.

The productive² forest area in Norway is approximately 74 020 km² (~27% of total land area). Non-productive forest areas and wooded mires covers respectively 17 300 (6%) and 6 030 km² (2%), while open mire covers 7 630 km².

Norwegian forest resources have increased substantially the last 80 years surveyed by the National Forest Inventory, and the standing stock has increased for all three forest species during this period. Standing stock (including bark) on productive forest land is estimated to 716.3 million m³. The standing stock holds 46% Norway spruce (*Picea abies* (L.) Karst), 32% Scots pine (*Pinus silvestris* L.) and 22% deciduous trees (mainly birch species: *Betula pubescens* and *pendula*). The yearly net increment is estimated to 21.053 million m³ (excl. bark and harvest waste), with 53% spruce, 25% pine and 22% deciduous tree species. The annual harvest of industrial roundwood has the last decade varied between 8 and 11 mill m³. In addition about 1.5 mill m³ of fuelwood is harvested annually.

Forestry has been important in Norway for a long time. Around the previous millennium change, exploitation of different forest products became organised and commercialised. During the 11th, 12th and 13th century, timber was widely used as a source of energy for production of iron, salt and later tar. Salt was exported to other Nordic countries. Also, timber for shipbuilding became important as a commodity and along with that transportation in itself became an important business. As saw milling and sawing technology developed throughout the 14th and especially the 15th century, sawn wood became a large export commodity to close-by countries like Denmark, Scotland and the Orkneys. Later, during the 16th century, England, northern Germany, the Netherlands and also the countries on the Iberian Peninsula were large buyers of sawnwood. As transport from the Baltic Sea, and thus the other Nordic countries, was expensive, Norway was for many years a dominating supplier of pine and spruce to the West-European lumber and timber markets.

¹ The definition of (coniferous) forest is at least 60 trees pr. hectare that reaches a height of at least 5 meters

² Productive forest has an annual yield of at least 1 m³ wood including bark per hectare.

In 2001, industrial forestry (i.e. the harvest of industrial roundwood and the silviculture operations) constitutes 0.15% of Norway's GDP.

Norway has a strong forest industry, mainly based on lumber, and pulp and paper production. Both are industries with long traditions, and have been important in building and developing the Norwegian economy throughout the 19th century and the beginning of the 20th century. In the last half of the previous century, oil has been dominating in the economy. According to Statistics Norway, the groups "Wood Products" and "Pulp, Paper and Paper Products" constituted 0.76% of GDP in Norway in 2001. In addition, part of the furniture industry is wood based and hence can be viewed as forest industry. During the 1990's, forest industry has been one of our main export industries. Forest industry is spatially scattered, and thus plays an important role for employment in many peripheral communities.

Non-industrial private ownership dominates Norwegian forestry. Of the total of 125 522 forest owners that were registered in 1989, more than 120 000 were so called individual owners. Individual ownership is especially common on the smaller properties. The average forest property is approximately 56 hectares.

The number of owners, both non-industrial private and others, has been fairly stable for the last fifty years, although with a small increase. During the same period, there has been a large increase - by some 15% - in productive forest area. The changes in the number of forest owners is most likely related to splitting of existing properties due to inheritance, while the increase in forest area most likely is due to varying definitions of the upper timber line.

The policy and legal context

Several acts are relevant to the forest sector, and although we have a specific forest act in Norway, other laws have large impacts on forestry. The most important ones are described below.

Forest Act

Forestry is regulated by the Forest Act (Anon., 1965, revised 1976). The purpose of the Forest Act is to "*promote forestry, afforestation and forest protection [...] by means of rational tending to achieve satisfactory results for those engaged in forestry and ensure an efficient and regular supply of raw materials for industry purposes*". Thus, it may seem that most emphasis is put on production of wood. However, the act also states that "*emphasis should be put on forests role as a source for recreation, part of the landscape, environment for animals and plants and arena for hunting and fishing*".

A new act on forestry is under way, and will most likely be approved by the parliament during 2005.

Nature Conservation Act

The law on Nature Conservation (Anon., 1970) affects forestry only indirectly. The act relates to nature conservation in general, like national parks, landscape protection areas, nature reserves etc. However, the law (§2) states that *Any person who is planning major works, construction or activities that will involve substantial changes in the character of the landscape or appreciable damage to the natural environment otherwise shall, before such activities are initiated, submit the matter to the competent authority pursuant to this Act for consideration. If development, construction or other activities will entail damage to the landscape or the natural environment otherwise, measures must be implemented to limit or*

counteract the damage to a reasonable extent. This must be interpreted as including forestry and supports the Forest Acts emphasis on forests as *an important part of the landscape and as an environment for plants and animals* (The Forest Act of 1965, §1). The Nature Conservation Act is the formal basis for protection of large areas of forest, Only to a small extent does the Nature Conservation Act apply to conservation of minor areas like e.g. key biotopes.

Allodial law

For farming or forest properties larger than 2 and 10 hectares respectively, special regulations apply as to inheritance and right of primogeniture (Anon., 1974). In addition to securing inheritance by rights of primogeniture, the Allodial Law imposes a duty to settle down (within 1 year from transfer) and live on the property for a certain period of time (presently 10 years). The heir may also according to the Allodial Law be allowed a discount (approximately 25%) when taking possession of the property. §56 of the Allodial Act states that *the primogeniture inheritor has a claim to a value assessment that is reasonable according to his/her financial situation.* The Act on Tax on Heritage and Gifts, states that for agricultural properties being transferred subject to primogeniture rights, value is set to $\frac{3}{4}$ of assumed market price. Clearly these regulations will affect the property structure as well as the pattern of settlement, and thus have an influence on the forest sector and forestry. There is no purpose stated in the act, but it is evident that the act aims at securing a structure of farms owned and inhabited by those who work the land. Farm forestry is supposed to be a part of this structure.

Land Act

Both private and public land use is regulated by the Land Act (Anon., 1995). The purpose of the Land Act (§1) is to *provide suitable conditions to ensure that the land areas in the country including forests and mountains and everything pertaining thereto (land resources) may be used in the manner that is most beneficial to society and to those working in the agricultural sector.* The Land Acts regulations concern forestry mostly when it comes to restricting the division of properties. The act emphasizes *a property structure and operational solutions that may lead to reductions in costs of operation* (Ministry of Agriculture, 1995).

Concession Act

Sale of land used for agricultural or forest production is regulated by the Concession Act (Anon., 1974). The Concessions Acts' purpose is to *regulate and control the sale of real property in order to achieve effective arrangements to protect areas used in agricultural production and to bring about such ownership and user conditions as are in the best interests of the community at large in order to benefit (i) farming, horticulture and forestry and (ii) the need for land zoned for development purposes.* The act should work for a *socially desirable development in property prices, settlement and operational solutions.* In a white paper from 1999 commenting practise of the Concession Act, a socially desirable development in property prices is understood as a price development that considers *the property as a basis for housing and trade/business,* and that *prices should favour the person who acquires the property.*

This is mainly achieved through regulations of land prices. Calculations of land prices are subject to detailed regulation, and *the value of capitalised yield is seen as the natural basis for valuation of properties* in the agricultural sector (Note from the Ministry of Agriculture). The actual control of prices is accomplished by regulating the interest rate that is used for

capitalisation of future annual yield. The Ministry of Agriculture & Food³ states that *the present exercise of the Land and Concession Acts, and their decrees, leads to market prices on forest properties that to an unsatisfactory extent reflect the value of the underlying investments*. Thus, the rules have to an increasing extent in recent years been given a liberal interpretation.

The institutional context

There are three levels of governance in Norway: State, county and municipal level. Public administration of forestry exists at all levels.

The highest public authority within the forest sector is the Ministry of Agriculture & Food. Directly placed under the ministry is the Norwegian Institute for Forest Research and the Norwegian Institute for Land Inventory. Both these institutions have tasks connected to research and data collection needs of the ministry. The Norwegian Agricultural Authority is an underlying directorate of the Ministry of Agriculture & Food, but has only limited relevance to forestry.

Within each county administration there is a department of agriculture that has a forestry section. In addition, there is a politically elected Board of Agriculture at the county level. The Municipality Administration has extensive responsibility both regarding forestry and the environment in general. In recent years, it has been a goal for the government to give the local level of public administration more responsibility in matters concerning agriculture and forestry. At the same time the budgetary situation of many municipalities has forced them to reduce personnel resources allocated to forestry.

Statsskog (literally State Forest), a state owned company, is the largest land owner in Norway with 11 million hectares of land (appr. 1/3 of Norway). Out of this, 2.7 million hectares is municipal forest where rights of use are administered by Fjellstyrene (the Mountain Service). 10% of the total area of Statsskog is forest and the company's annual harvest amounts to 2% of total fellings in Norway. The Minister of Agriculture constitutes the General Assembly and appoints the Board of Directors.

Statsskog's history goes back to 1860, when Statens Skovvesen (the State's Forest Service) was established to supervise the state's forest properties. Up till 1957, the State's Forest Service existed as part of the Ministry of Agriculture, but has after that been a directorate under the authority of the same ministry. In 1993, the Directorate for the State's Forests was replaced by an enterprise with legal entity and with the state as sole owner. Although it is still a publicly owned forest holding all legislation relevant for private forest ownership applies to it. It is subject to the same arrangements for public support and control as private forest owners.

The Norwegian Forest Owner's Federation (NFOF) with its 45000 members is the main organisation for forest owners in Norway. NFOF is a cooperative organisation consisting of 8 regional associations and 380 local associations. The federation is an economic organisation involved with marketing roundwood and other forest products, and working for technical progress among its members. The organisation is also a considerable shareholder in Norwegian forest industries (appr. 20% of Norske Skog) with the intent to secure the market

³ Until 2004 known as the Ministry of Agriculture.

for its products. Its members had an annual harvest of industrial roundwood of approximately 6 million m³ in 2001 - around 60% of total harvest in Norway.

Norskog, the second major forest owner organisation, has only 220 members, but they represent an annual harvest of approximately 1 million m³. Thus, Norskog is an association for large forest owners. The organisation is an economic and political organisation, working to develop their members' possibilities to utilize their natural resources.

The objectives

The main objectives of forestry in Norway are defined by Parliament (Stortinget) and stated in the Forest Act (cf. previous section). The objectives of the other laws and regulations influencing forestry should be seen as supplements to the Forest Act in order to fulfil overall political objectives regarding the use of forest based resources.

The Ministry of Agriculture and Food has stated that *forest resources should be utilised such that the highest possible utility is achieved for the population, at the same time as resources are maintained and developed*. To secure forest resources for the future is in itself seen as a strong argument for public support to the forest sector.

The financial instruments

The main instrument in Norwegian forestry is the Forest Trust Fund (FTF). The FTF is a fund built by compulsory deposits made by all forest owners commercially selling timber. Different forestry actions may be financed by drawing from the fund, and may at the same time release public grants. Almost all direct public financing of forestry is channelled through the FTF.

From 1990 to 2000, the following main instruments and programmes were employed in Norwegian forestry.

1) Grants and soft loans for forestry investments (Forest Act)

- Afforestation
- Regeneration, reforestation and related works
- Tending of young stands
- Pruning in stands
- Fertilisation
- Thinning (first time)
- Drainage and improvement of existing drainage
- Forest operations (in steep terrain)
- Construction and improvements of forest roads
- Forest plans (individual plans for forest owners)
- Transport subsidies
- Investment grants

2) Technical assistance

- Forest (Extension) Service
- Support for forestry organisations

3) Environmental compensations

- Acquirement of privately owned lands for nature conservation purposes (Nature Conservation Act)

- 4) Joint public supply programme for private and public forestry:
- Seed production

Financial and administrative inputs

Public financing of forestry started already in the middle of the 19th century, towards the end of the 1850's. However, funds were limited and quite modest. Grants for forestry grew steadily towards the First World War. With the war came a financial crisis that brought subsidies to forestry to an end temporarily. It was not until after the Second World War that public funding of forestry picked up again. There were some short term programmes for forestry funding from 1930 to 1940, but they were mainly a means to reduce unemployment. In this first period, the main part of grants went to silvicultural measures like reforestation.

Later there has been a multitude of sources for public funding of forestry. Several different public funds have been raised to support forestry, and in certain time periods they have been the main source of support. Today, the main share of public funding of forestry comes directly from the Ministry of Agriculture and Food or via the Agricultural Development Fund.

The main source for funding is direct contributions from the Ministry of Agriculture and Food. However, some funds come from municipalities. A large share of funds from the Ministry is distributed through the Forest Trust Fund. Also, the FTF is an important source for funding of forestry, as forestry measures financed via the fund may release substantial tax concessions.

For the period 1991-2000⁴, total public funding of the forest sector totals € 587 million⁵, approximately € 59 million per year. The annual sum has varied from 47 to € 99 million. On an annual basis, approximately € 25 million of total funds are distributed through the Forest Trust Fund. The remaining sum is distributed directly from the Ministry of Agriculture and Food. Of the funds through FTF, some € 21.5 million are direct grants and € 3.5 million are from the interest earned on the fund. Total administrative costs of neither the FTF nor other programmes have been available.

According to the previously described instrument groups, total public funding for forestry in Norway has been as follows:

1) Grants and indirect technical assistance has for the period been € 33 million on an annual basis (€ 330 million in total). Of these, € 11.6 million goes to silvicultural work. The main silvicultural investment is reforestation. Grants covered approximately 1/3 of total silvicultural costs. Annual grants for construction of roads are approximately € 9 million. Also for forest roads, around 1/3 of the total costs were covered by grants. Forest plans are annually supported with € 1.5 million. Annually, some € 3.8 million from the interest earned on the fund is redistributed as funding for projects (€ 1.5 mill.), informational services and courses (€ 0.9 mill.), and the Forest Owners Association (€ 1.4 mill.). Also for the years 1993 and 1994, a temporary investment support was granted because of difficult market situations. The grants were € 22.7 and 3.6 million respectively.

⁴ It must be taken into consideration that data are incomplete for 1991 and 1992. However, no significant errors should exist.

⁵ Inflated to 1999-prices with cost-of-living index and converted to € with exchange rate 8.3101 NOK/€. All numbers hereafter are real prices in 1999 currency.

2) The cost of the Forest Service, i.e. public technical and administrative support, is estimated to approximately 20 million € annually, or 200 million € in total for the period 1991 to 2000. This is the cost of administration at both the municipal and regional level. Funds are mainly allocated for advisory services and estate-level planning, and partly for administration of the Forest trust Fund.

3) Public funding for conservation and protection of forest land amounts to € 70 million. The funds have varied a lot over the years, from a low € 2.3 million in 2000 to € 24.5 million in 1993. Funds are mainly spent for establishing conservation areas on private land according to the Nature Conservation Act. From 1995, all funds are from a special programme for the protection of coniferous forests in Norway.

4) The Norwegian Forest Seed Station is a joint programme for public and private forestry as it is publicly supported to secure future provision of seeds for forestry purposes. At the same time it provides seeds for Norwegian nurseries, thus enabling production of seedlings. An annual quantity of 70 (1991) to 40 (2000) million seedlings has been provided by nurseries at national level. The annual public support for the Norwegian Forest Seed Station is estimated to € 400 000.

The beneficiaries

All policy means in Norway have in principle been available for all forest owners. Statistics have not been available for this report to show whether certain groups of forest owners have benefited more than others. Preliminary analyses indicate that over such a long period as 10 years, a very large part of the forest owners have utilised the different and most important support programmes. Approximately 20 000 forest owners have benefited from grants for silvicultural activities each year during the analysed period. The number of forest owners receiving grants for forest plans has annually been around 2000. A total of 83 000 forest owners have received grants for construction of forest roads. Investment support in 1993 and 1994 was given to 30 000 forest owners.

Maintaining rural employment opportunities has been an important objective of many forest policy initiatives in Norway. For many years forestry generated a substantial part of employment in rural societies. Subsidies that contributed to higher activity in forestry, therefore, also contributed to more jobs in rural areas. As mechanisation of various forestry operations took place, particularly from 1945 to 1985, employment in forestry has been drastically reduced. Consequently, subsidies to forestry are no longer a powerful means of rural development policy.

The public at large have benefited through improved forestry and income generated from the use of the forest resources. This includes the benefits of non-marketed services like recreation and protection of biological diversity. On the other hand some subsidies, e.g., to road construction, drainage of bogs and mires, and afforestation, have had negative impacts on biodiversity and recreational quality. Such subsidies, therefore, have benefited forest owners (and consumers of wood), but have to some extent harmed the general public.

The output

Annually, some 30 to 40 million (at the end and the beginning of the period, respectively) seedlings have been used to reforest approximately 20 000 hectares of land. Somewhere in the range of 9 to 11 million hectares have been treated annually in relation to reforestation

(clearing of fields, site preparation etc.). 9 - 18 thousand hectares of young forest have been tended for wood production purposes each year.

At the beginning of the 90's, drainage of land was extensive, with 1400 and 1200 kilometres of ditches made in 1991 and 1992. In 2000 however, only 20 kilometres of new ditches were made.

From 1991 to 2000, a total of 18 000 kilometres of roads were constructed. There has been a decrease in activity, from 2 800 km of new roads in 1991 to 1014 km of new roads in 2000.

The annual harvest of industrial roundwood has the last decade varied between 8 and 11 mill. m³. In addition about 1.5 mill m³ of fuelwood is harvested annually.

Investment support was given for 8.8 million cubic metres of harvested roundwood in 1993 and 1994.

The output of the financial assistance in terms of effectiveness and efficiency is hard to judge at present due to the fact that very few studies exist regarding the effectiveness and efficiency of forest policy means in Norway.

Forestry taxation

The following taxes are the most important for forestry in Norway:

Average income taxation of forestry

From 1954, there has been direct taxation of net income in Norway (the previous Tax Act: Ministry of Finance, 18th of August 1911 no. 8, changed 12th of December 1952). Direct taxation in forestry leads to tax credits and increased rotation periods, i.e. it becomes more favourable to use forest as a capital placement (Johansson & Löfgren, 1985). Furthermore, there is a progressive taxation system in Norway. With large variations in income, as is a typical situation in forestry, progressive taxation becomes unfavourable. Therefore, an average tax is applied to income from forestry in Norway. The average taxation system was introduced together with direct taxation in 1954. Income declared for taxation in a given year is the average income for the previous five years-period. This reduces the effects of the marginal tax rate, as well as giving further tax credits. Also, special rules apply to ending and starting of average taxation, which implies further gains for the owner.

The system with average taxation of income from forestry will, most likely, end in 2005 or 2006.

Taxation of property and estates

Wealth tax on forest properties are regulated by both the Tax Act (Ministry of Finance, 26th of March 1999 no. 14) and the Tax Assessment Act (Ministry of Finance 13th of June 1980 no. 24).

The Tax Act, §4-11 states that *the value of forest is set to the yield the forest may produce when subject to rational management*. Further details on the calculations are given in *Regulations on assessment and appraisal of forest* (Ministry of Finance, 14th of November 1999 no. 1211, by authority of the Tax Assessment Act §7-1). Here, it is stated that the value of forest is decided by *capitalising the calculated real net value of the annual usable increment* (§9).

The value declared for wealth taxation is thus highly dependent on the applied rate of capitalisation. At the moment, this capitalisation rate is politically decided to be 12.5% p.a.

Taxation of property transfers and transactions

Transactions of forest properties are regulated by the Concession. Prices on forest land are controlled by regulating the allowed interest rate applied in valuations of forest properties. At present, this rate of capitalisation is 4% p.a. However, it has varied throughout the period of study in this report. From 1989, it was increased from 7 to 9% p.a. In 1997, it was again lowered to 7% p.a. It was in 2001 lowered further to 5%, before being lowered to 4% p.a. in 2002. The effect of lowering the capitalisation rate is that property prices increase. Whether the price control has had positive or negative aspects to it depends on whom you ask, but the price regulations have most likely been effective with regards to cementing the property structure. Most probably the price regulations have led to a much lower trade of forest land than we would otherwise have seen.

Prior to 1996, means from the Forest Trust Fund could be used to lower the cost price of property at transfer (the previous Tax Act: Ministry of Finance, 18th of August 1911 no. 8). This arrangement was limited to transfer between close relatives. Maximum 10% of the cost price could be financed via the fund, and only deposits exceeding the minimum of 5% deposited within 5 years prior to and 3 years after property transfer could be used for this purpose. The arrangement was originally ended in 1992, but reintroduced for 1993. As the arrangement involved deposits from 3 years after property transfer, it was effective until 1996.