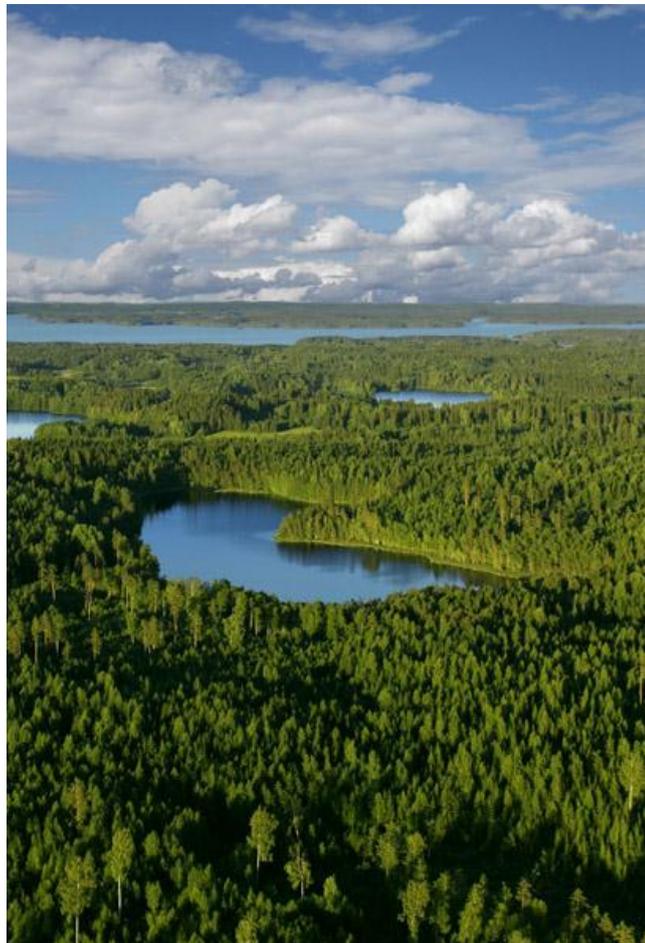


The Forests Dialogue

**The Field Dialogue on Food, Fuel, Fiber and Forests in Finland
September 2nd - 5th, 2014**

Well-being from Green Economy



**Background paper
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CONTENT

1. Introduction.....	4
2. Finland in a nutshell.....	5
2.1. Geography & Climate	5
2.2. Cities	5
2.3. People.....	5
2.4. Government.....	5
2.5. Economy	6
2.6. Finland’s political system.....	7
2.7. The president is Finland’s head of state.....	7
2.8. Finnish Parliament	8
2.9. Society	8
2.10. Environment	9
2.11. Climate policy	9
3. Forest industry is the mainstay of South-East of Finland, the 4F Finland location	10
4. Finnish forests in short	12
4.1. Finland - the most forested country in Europe	12
4.2. Finnish forest resources increase	13
4.3. Pine dominates in forests	16
4.4. Finnish forests – owned by Finns	17
4.5. Forest industries	19
4.6. Forest policy	20
4.7. Safeguarding and protecting forest biodiversity.....	23
4.8. Forest certification in Finland.....	25
4.9. Energy from wood	25
4.10. Cultural and multiple use of forests	26
4.11. Indigenous peoples in Finland.....	27
4.12. Forest inventory, monitoring and assessment.....	28
4.13. Interaction in forest resource planning.....	28
4.14. Forest management planning	29
4.15. Education and training	29
4.16. Some forestry and environmental organisations.....	30

Annex 1	Colonization and landowning in Finland	32
Annex 2	Fact sheet: Energy from Finnish forests.....	34
Annex 3	Fact sheet: Forest industry in Finland.....	36
Annex 4	Fact sheet: Forest ownership	37
Annex 5	Fact sheet: Forest management	39
Annex 6	The ice age forming Finnish landscape, flora and fauna.....	41



All charts: www.forest.fi, unless noted otherwise

1. Introduction

The issues related to natural resource governance and resource use are often complex. They involve multiple stakeholder interests covering various economic, ecological, social as well as cultural needs. In the context of Finland, there is a need to find a balance between the raw material requirements of the forest-based industries – a significant player in the Finnish economy – and other ecosystem services including the “Everyman’s Right”, i.e. the right to freely move in the forests and to pick berries and mushrooms.

Over a long period of time, Finland has developed participatory planning processes at municipal, regional and national levels to balance the interests of various stakeholders. These processes are anchored both in the legislation and in various institutional setups which for example aim at supporting individual small-scale landowners in decisions related to forest management and conservation.

The 4Fs dialogue in Finland will shed light on the experiences and challenges in the implementation of some of these processes. And based on the lessons learnt in Finland, international participants will share their experiences of the processes and of finding an overall sustainable pathway for future development.

Some of the key issues that will be explored during the dialogue include:

- Balancing diverse land and forest uses
- The multiple use of forests, expectations
- Demands on forest biomass - from the bioenergy sector to other diverse use, competing or accommodating uses?
- The private forest owner as an ecosystem service provider in the context of Finland’s everyman’s right - goals and expectations
- Protecting biodiversity - from mandatory protection towards voluntary schemes
- Stakeholder consultation in the formulation of policy and legislation, and in the reconciliation of land and forest use
- Green consumption and the forest industry

This paper aims to provide relevant information for participants to understand the context around 4Fs in Finland and to build a common foundation for informed discussions during the dialogue around the key issues listed above.

2. Finland in a nutshell

2.1. Geography & Climate

- **Area:** 338,424 km² , the fifth-largest country in Western Europe
- **Greatest length from north to south:** 1,160 km
- **Greatest width from east to west:** 540 km
- **Climate:** Four seasons with stark contrasts between them; snowy winters with the Northern Lights and the polar night, warm summers with white nights and the Midnight Sun. (2013 extremes: coldest day in Sodankylä, Lapland -39.7 C/-39.5 F, warmest day in Liperi, East Finland 32.4 C/90.3 F). The sun can remain below the horizon for more than 50 days around mid-winter in the north, only to shine day and night for more than two months in the summer.
- **Lakes:** 188,000 lakes in Finland
- **Islands:** 180,000 islands in coastal area of Finland
- **Archipelago:** The largest in Europe is situated off the southwest coast of Finland. Parts of the archipelago make up Åland, an autonomous Swedish-speaking province.

2.2. Cities

- Helsinki, capital (590,000 inhabitants; Helsinki metropolitan area about 1.25 million)
- Espoo (250,000)
- Tampere (215,000)
- Vantaa (200,000)
- Turku (180,000)
- Oulu (145,000)

2.3. People

- **Population:** 5.4 million, 16 inhabitants per km²
- **Life expectancy:** Men 76 years, women 83 years
- **Official languages:** Finnish and Swedish
 - 91 % speak Finnish as their first language, while 5.4 % speak Swedish as the first. Sámi languages are the mother tongue of about 1,700 indigenous Sámi people.
- **Religion:** Christianity; 75,2 % Lutheran, about 1,1% Orthodox, about 1,5% others. In practice the society is fairly secularised

2.4. Government

- **Head of State:** President of the Republic, elected every 6 years, two-term maximum. Current President Mr Sauli Niinistö, elected in 2012;
- **Independence:** Declared on December 6th, 1917. Previously a grand duchy in the Russian empire for 108 years, and a part of Sweden for 600 years before that;
- **Form of government:** Republic, parliamentary democracy;

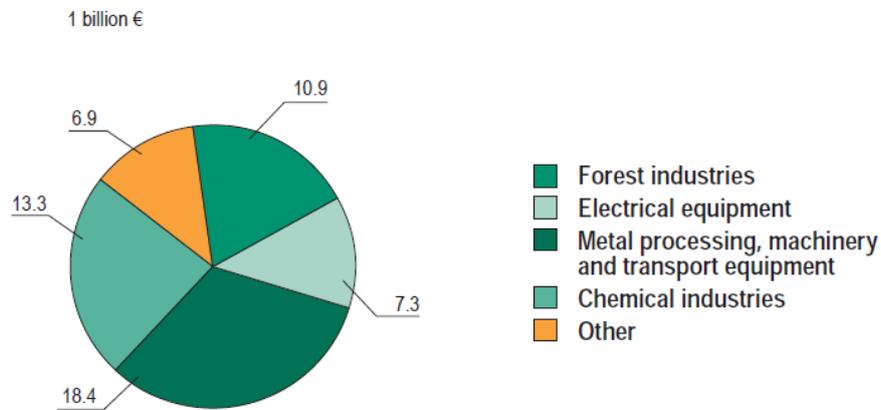
- Parliament: 200 members, in one chamber, elected every 4 years in a direct vote (next elections in 2015);
- Cabinet: Multi-party coalition cabinet. The current Cabinet is run by Prime Minister Alexander Stubb;
- International cooperation: Member of the United Nations since 1955 and the European Union since 1995;
- The government consists of the prime minister and 16 other ministers in 12 ministries;
- The prime minister is elected by parliament. After elections, based on parliament election results, parties engage in government negotiations. The government is officially appointed by the president;
- The government is to be understood, on the one hand, as the body which convenes for the general governing of the country, and on the other hand, the decision-making body for governmental and administrative matters;
- The prime minister directs the activities of the government and oversees the preparation and consideration of matters that come within the mandate of the government. The prime minister chairs the plenary sessions of the government. The government must enjoy the confidence of parliament;
- There are 12 ministries in Finland.

2.5. Economy

Finland has a highly industrialized, mixed economy with a per capita output equal to that of France, Germany, Sweden or the United Kingdom. The largest sector of the economy is services at 65,7 percent, followed by manufacturing and refining at 31,4 percent. Primary production accounts for around 2,9 percent. With respect to foreign trade, the key economic sector is manufacturing. Finland has a high standard of education, social security and healthcare, mostly financed by the state.

- **Currency:** Euro (the only Nordic country)
- **GDP per capita:** 35,571 euros (2012)
- **Main exports:** Electro-technical goods, wood and paper products, metal products, machinery, transport equipment, chemicals
- **Main imports:** Raw materials, investment goods, energy, consumer goods (for example cars and textiles)

Exports of goods from Finland by sector in 2012



- In 2012, the total value of goods exported from Finland was 56.8 billion €.
- The share of the forest sector of the goods exported was 19.2%.
- Source: National Board of Customs 2013.

2.6. Finland's political system

Power in Finland is vested in the people, who are represented by the parliament. At the local level, Finland is divided into municipalities which elect local councils. Every citizen who has reached the age of 18 by election-day has a right to vote and to stand for election. Everyone who is entitled to vote is automatically entered in the electoral register.

2.7. The president is Finland's head of state

The head of state is the President of the Republic who is elected for a period of six years. The new constitution, adopted in 2000 and further adjusted 2012, moved the political system in a more parliamentary direction, by increasing the amount of power that the parliament and the government wield.

The new constitution strengthened the position of the prime minister and reduced the president's power. The president still conducts Finland's foreign policy together with the government, is in charge of relations with other states, and participates in international organizations and negotiations. The president is also the Commander-in-Chief of the defence forces.

After gaining independence, there have been 12 presidents of Finland. Since 1994 the president has been chosen by direct popular vote. If no candidate wins an overall majority in the first round of voting, there is a run-off between the two leading candidates. The maximum number of terms that can be served is two.

In 2000, Finns elected their first female president, Tarja Halonen, who was re-elected in 2006. The newly elected president is Mr. Sauli Niinistö.

2.8. Finnish Parliament

The Parliament has 200 members elected every four years. The latest election was held in 2011. The Finnish Parliament is unicameral.

Parliament enacts Finnish law, approves the state budget, ratifies international treaties and oversees the government. Parliament is also responsible for choosing the prime minister and approving the government programme. The government programme is a plan of action agreed by the parties participating in the government and it sets out the main tasks facing the incoming administration.

Finland has a multiparty system. One feature of the multiparty policy is that no single party is likely to win an absolute majority in parliamentary elections, so the country invariably has a coalition government that enjoys the confidence of parliament. Usually the leader of the party with most seats in the parliament becomes the prime minister.

In recent decades, the three biggest parties in parliament have consistently been the moderate conservative National Coalition Party, the Social Democratic Party and the Centre Party. In the parliamentary elections of 2011, a party called True Finns received a significant amount of votes.

2.9. Society

From the 1940s onwards, Finland set out to build a Nordic welfare state. Modernisation in Finland happened very quickly. Urbanisation, industrialisation and the creation of a service economy happened largely at the same time.

Finland represents the traditions of the Nordic welfare state model. Equality between men and women has been emphasised in the Finnish model, and the welfare system has played a crucial role in that. Tax revenues are essential for funding Finnish welfare and society. The unemployment rate stood at 9 percent in April 2014.

2.10. Environment

Finland has been rated among the world's leading countries in many international comparisons of environmental protection standards.

An unpolluted environment is considered the norm and Finns put a great deal of effort into safeguarding the environment. Finland has a long tradition of nature conservation and conservation areas of various kinds have been set up.

2.11. Climate policy

In the climate and energy package agreed in 2008, the EU set the so-called 20-20-20 targets. This means in practice that the EU has agreed to reduce greenhouse gases by 20% below the 1990 levels, to increase the share of renewable energy to 20% and to improve energy efficiency by 20%. All these targets should be met by the year 2020. Finland's national target is to raise the share of renewable energy to 38 per cent of gross energy generation.

Both the EU and Finland share the long-range target of mitigating climate change so that the rise in the average global temperature remains below 2° C when compared against pre-industrial times. To meet this target, the EU intends to cut its greenhouse gas emissions by 80-95% by the year 2050 compared to 1990 level..

Finland participates in the EU emissions trading system through the EU Emission Trading Scheme (EU ETS) launched in 2005. The third emissions trading period started in 2013 and will last until 2020. Aviation has been included in the EU ETS since the beginning of 2012.

The Ministry of Employment and the Economy published the most recent long-term climate and energy strategy for Finland in 2008. The strategy presents concrete measures until 2020 and visions for Finland's climate and energy strategies up to 2050.

The Government Foresight Report on Long-term Climate and Energy Policy, published in 2009, leads the way towards a low-carbon Finland. It continues the work started by the climate and energy strategy and sets long-term targets. The most important of these targets is to cut Finland's emissions by 80% from the 1990 level by the year 2050.

Mitigation of climate change and adaptation to it also constitute an essential element of Finland's development policy. The importance of the climate perspective is underlined in Finnish development cooperation. Together with other EU Member States, Finland is committed to providing financing for climate actions taken in developing countries in both the

short and long term. In 2011, Finland's climate support for developing countries totalled about EUR 62 million.

The Finnish government is currently preparing a climate Act. Bringing it to the Parliament for decision needs a separate decision. The preparation of the Climate Act began last spring in the Ministry of the Environment.

The preparation work does not aim at enacting obligations for ordinary citizens or private enterprises. Instead, the act would obligate the Government authorities to create a system for planning the Finnish climate policy in order to make it predictable and long-term.

However, a long-term target of reducing the greenhouse emissions by at least 80 per cent by 2050, in comparison to the 1990 level, would be set and would concern all sectors of Finnish society.

Municipalities play a key role in adaptation because they steer land use and planning. The national climate and energy strategy, published in 2005, has been revised this year.

Although Finland's atmospheric emissions are small in international comparison, the consumption of energy per capita is considerable. Finland's objective is to achieve a downturn in total energy consumption during the coming decade. The use of energy must be made more efficient, particularly in housing, building and transportation.

Forests (trees and soil) absorb a significant proportion of the carbon dioxide emissions. The forest sink varied between 22.4 and 48.2 million tonnes CO₂ equivalent during the years 1990–2012, which represents 20–60 per cent of Finland's total emissions. The proportion has varied considerably due to fluctuating trends in emissions and forestry activity.

3. Forest industry is the mainstay of South-East of Finland, the 4F Finland location

The south-east of Finland is located on the main logistics route which essentially connects the European Union and Russia. The region is connected by the major sea routes to the markets of Russia and Central and Southern Europe. Highway E18 and rail connections to St. Petersburg, Moscow and the Far East go through the region. Important transport-related junctions are the harbours of Kotka and Hamina and the logistics center of Kouvola. The region is specialised in the forest industry and logistics.

The south-east consists mainly of two regions: Kymenlaakso forms, together with the South Karelia region, one of the largest forest industry concentrations in the world. The main economic driver is the paper, bioenergy and machinery industry cluster related to the forest industry. The second mainstay of the economy is transport, the most important branches of which are land transportation and logistics services. The economy in the South East of Finland is highly dependent on export due to the importance of the forest industry and logistics in the region's business structure.

A strategic logistical location between Helsinki and St. Petersburg and strong tradition of the forest industry are linked in these regions. This creates challenges but at the same time also future opportunities. The overall rise in demand in Russia has had a significant contribution to the growth of transport, trade and tourism. There has been a change in the industrial structure in Kymenlaakso. The region has been successful in creating new jobs in emerging industries, like renewable energy business, IT and various services.

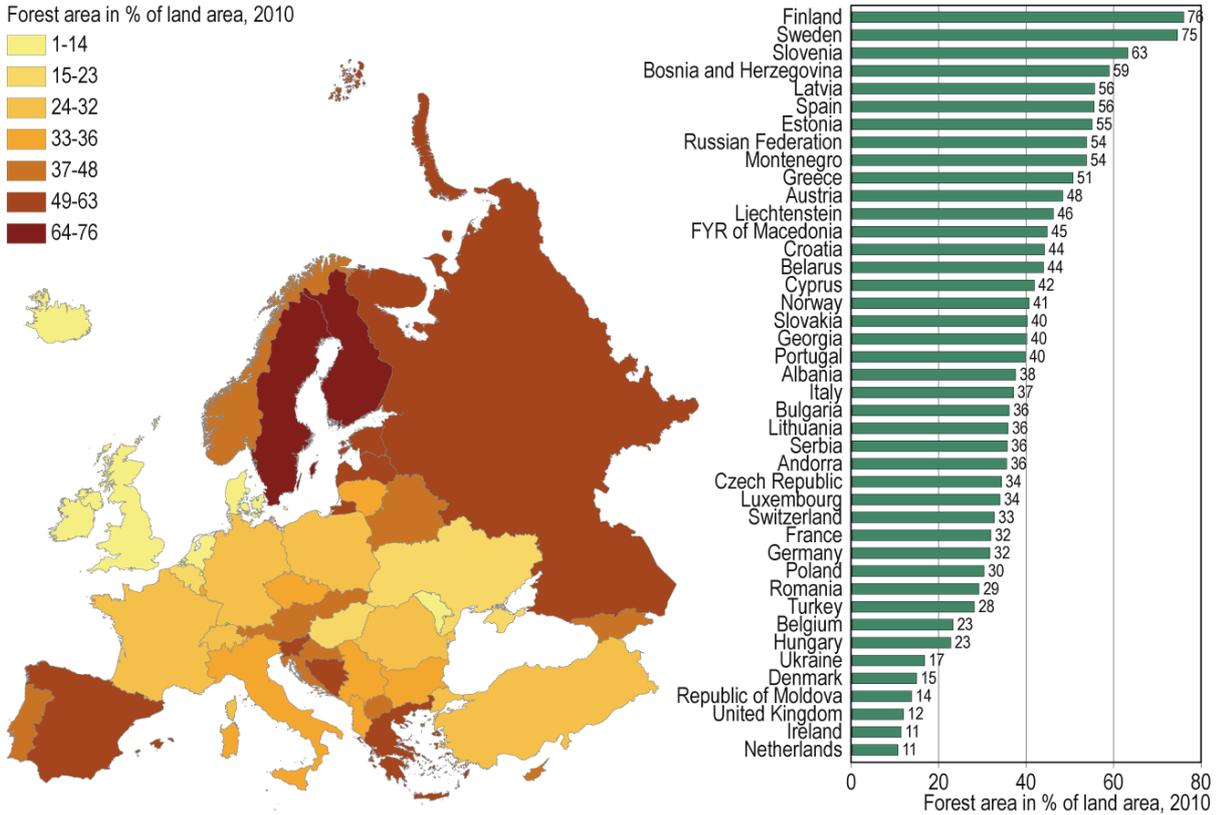
The forest sector is the only manufacturing branch, which is viable, self-supporting and survives in world market in all areas of Finland. Regionally, the importance of the forest sector is largest in southeastern corner of Finland and in Etelä-Savo and Central Finland regions, where the sector produces ten percent of the regional GDP.



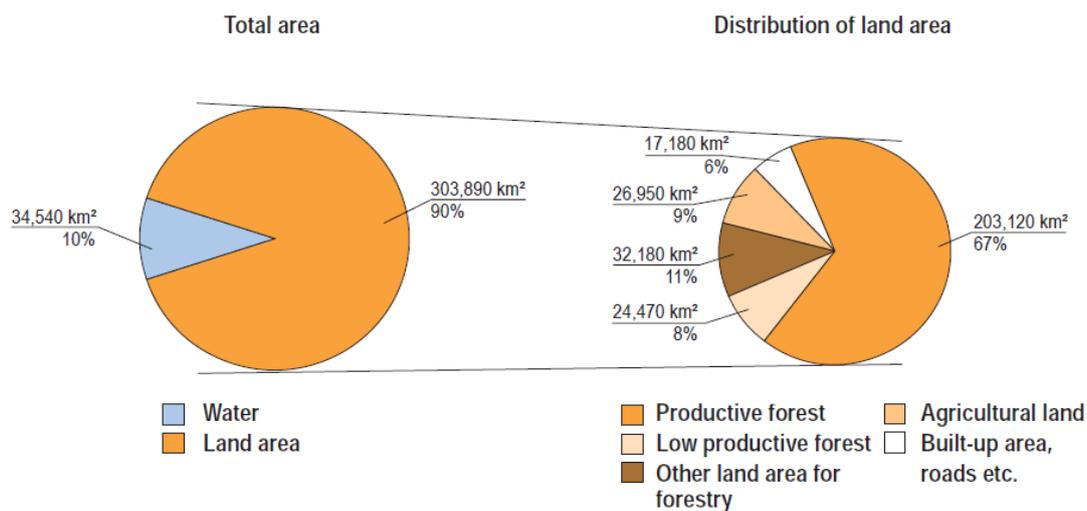
4. Finnish forests in short

4.1. Finland - the most forested country in Europe

Forests cover 76 percent of Finland’s land area. For every Finn, there are nearly 4.5 hectares of forest.



Finland – a land of forests



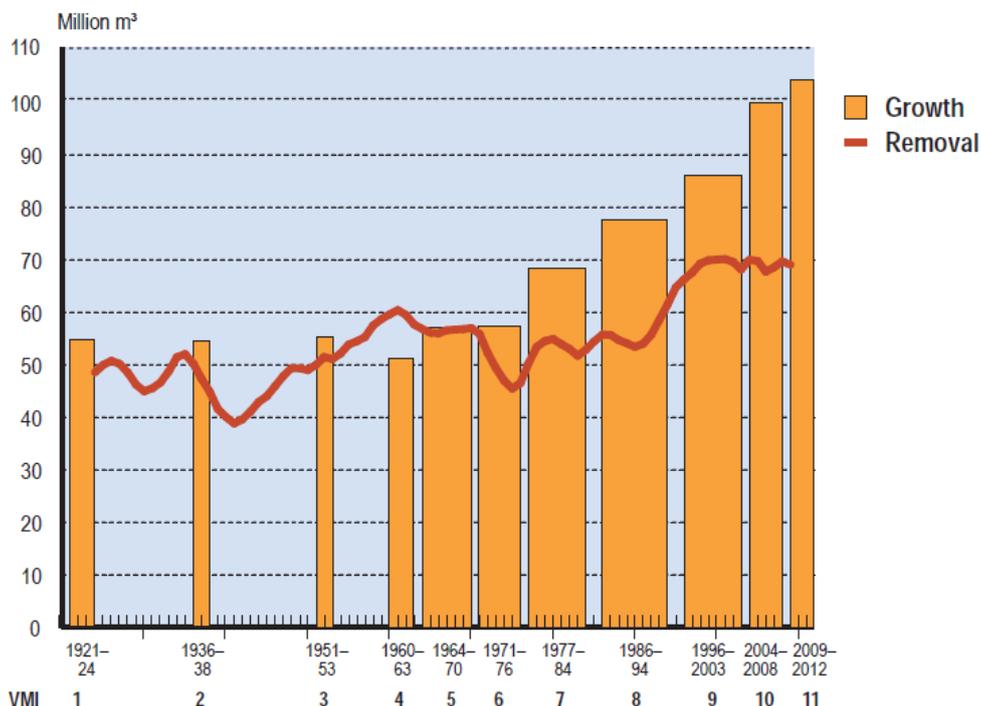
4.2. Finnish forest resources increase

The human influence on forests in Finland has a long history. The livelihoods and cultural development of people have long relied on forests and their natural resources.

The amount of timber in Finnish forests increases every year. Annual fellings have for decades been smaller than the annual growth.

The total volume of timber in Finnish forests is 2,189 million cubic metres. The annual growth of Finnish forests has for a few years already exceeded one hundred cubic metres. Trees grow only during the growing season, which in Finland is about 80 days long. In 2012, the annual growth was 104 million cubic metres, so the daily growth was over one million cubic metres.

Forest growth and removal during 1920–2012



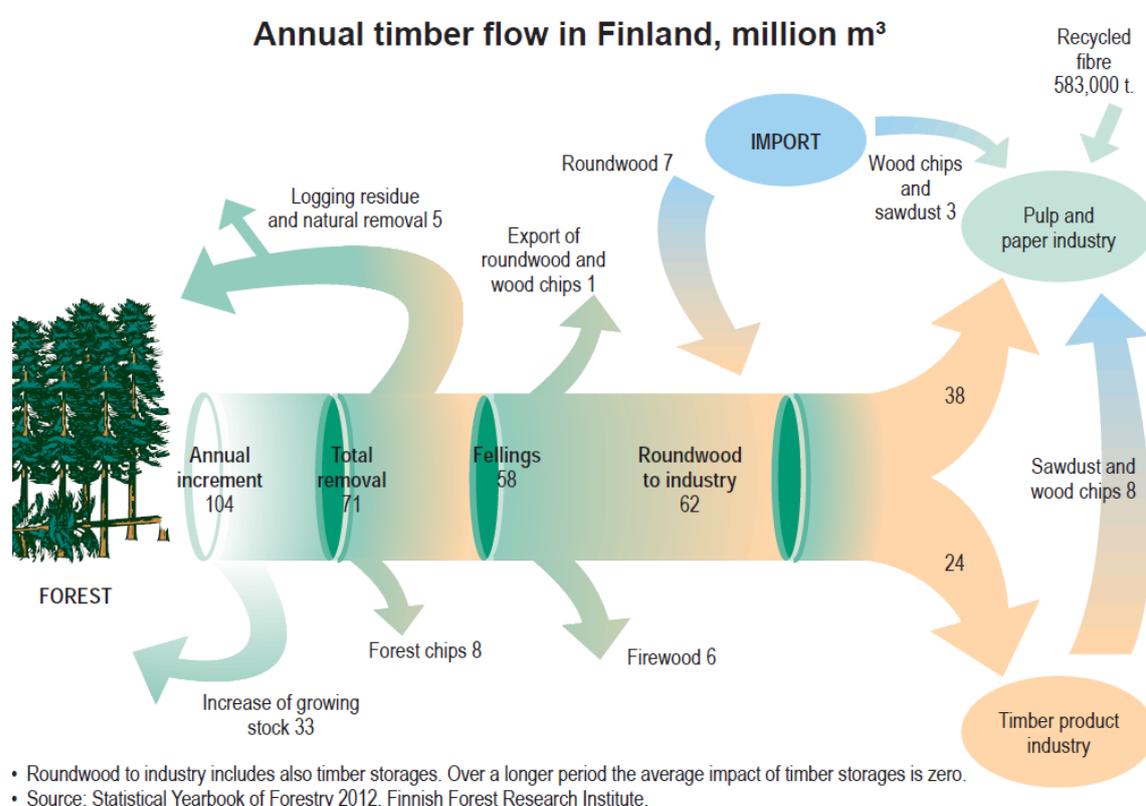
Forest management in Finland is mainly based on the use of native tree species. Forests are generally managed quite intensively, with practices based on regular thinnings and clear-fellings. As part of forest management, over half of Finnish mires have been drained. Peatlands cover one third of the total land area in Finland, approximately 9.3 million hectares. Regional differences in the coverage and drainage are considerable. Approximately 6.3 million hectares of peatlands have been drained for forestry and about 0.3 million hectares for agriculture. The total area of undrained peatlands is approximately 4 million hectares.

Of the land area in Finland, 86% (26 mill. ha) is classified as forestry land. On the basis of site productivity, forestry land is divided into forest land (20 mill. ha), low-productive land (3 mill. ha) and non-productive land (3 mill. ha). The proportion of mires is 34% of the forestry land area.

Of the total forestry land in Finland, 84% is available for wood supply, i.e. felling is permitted in these areas. The total growing stock volume in Finland has increased since the 1970s, amounting to 2,206 million cubic metres (over bark).

The annual increment of the growing stock in Finland is 104 million cubic metres, of which 97 million cubic metres are in forests available for wood supply. In 2008, the total drain of stemwood was 70 million cubic metres, or 3.2% of the standing volume. Since the 1970s, drain has continuously remained lower than the volume increment of the growing stock. The difference between increment and drain was largest in pine.

Since 1970 the growing stock has increased by 40 %. This is remarkable as during the same period the total felling has been 2,2 billion cubic metres, which equals the total current growing stock in Finnish forests.



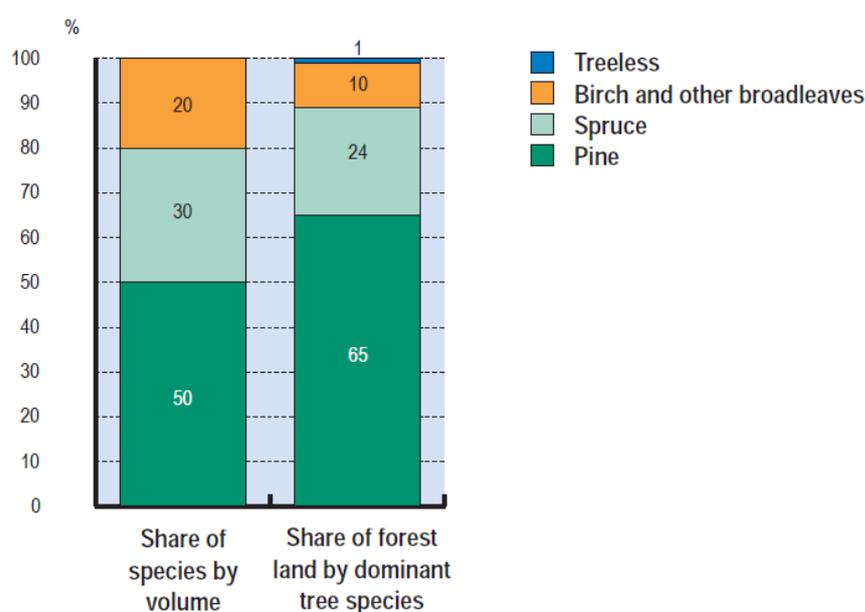
Finland reports its greenhouse gas emissions annually to the UN Framework Convention on Climate Change and the EU. In 2007, the annual increase in carbon stocks sequestered by forests was 33 million tonnes. This means that Finnish forests act as carbon sinks.

Owing to conditions in the north, forest management in Finland takes place in climatically exceptional conditions. Finland belongs for the most part to the boreal vegetation zone.

4.3. Pine dominates in forests

The vast majority of Finland is situated in the boreal coniferous zone. In the boreal coniferous zone the soil is poor and acidic, and there are few trees species to form forests. All in all, Finland has about thirty indigenous tree species. Half of the growing stock volume consists of Scots pine (*Pinus sylvestris*), 30% Norway spruce (*Picea abies*) and 20% broadleaves, mainly downy birch (*Betula pubescens*) and silver birch (*Betula pendula*). These species make for 97 percent of total timber volume in Finland. The majority of Finnish forests are mixed, made of more than one species.

Distribution of tree species in 2012



• Source: Statistical Yearbook of Forestry 2013, Finnish Forest Research Institute.

Compared to the beginning of the 20th century, the timber resources in Finland have increased by 60 percent, even though large areas of Finland were ceded to the Soviet Union after the Second World War in the 1940s. On average, there are 111 cubic metres of timber on a hectare of forest land; in 1970s the figure was 75 cubic metres. The majority of forests in Finland are predominantly coniferous, with broadleaves growing in mixed stands.

4.4. Finnish forests – owned by Finns

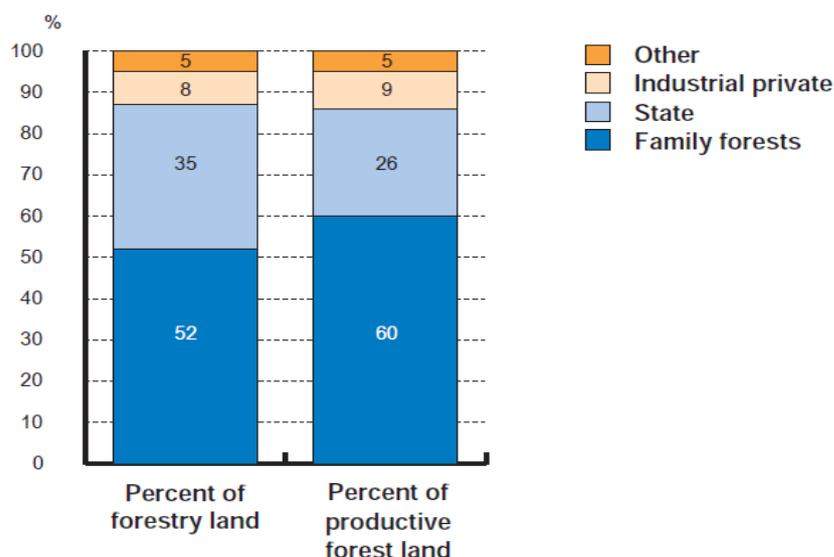
As in other countries in Western Europe, forests in Finland are mainly owned by individuals and families. The holdings are relatively small in size. Individuals and families own about 60 percent of the productive forestry land in Finland. The number of farms with more than two hectares of forest is 345,000. The average size of holdings is 30 ha. The share of holdings over 100 hectares is only five percent, while almost half of the holdings (155 000) are under 10 hectares. The share of the largest, as well as the smallest forest holdings is increasing.

There are more forest owners than there are holdings, because spouses often have joint ownership of the holding. The number of people owning forest is estimated to be about 735,000, if all those who own forest holdings jointly and forest holdings larger than two hectares are included. This means that nearly 14 percent of the population is forest owners. Adding an average 2 children per family means that almost 1 500 000 Finns - 28 percent of the population - have direct connection to family forestry.

The forests owned by families and individuals pass from one generation to the next through inheritance; this is why Finns generally use the term 'family forestry'. Due to long rotation periods (from 70 years in Southern Finland up to 150 years in Northern Finland) trans-generational thinking is fundamental characteristics of Finnish family forestry. Finnish family forestry is a profitable and sustainable economic activity, which is unusual elsewhere in the world and even in Europe.

Of the total forestry land in Finland, 52% is under private family ownership; the State owns 35% and forest industry companies own 8%. The remaining 5% represents forests under municipal, parish, shared or joint ownership. State-owned forests are mainly situated in Northern Finland, and the state also manages most of the conservation and wilderness areas. Private forest owners have 64% of the total growing stock volume and 70% of the growing stock in forests available for wood supply. The state forests are mainly situated in the north of Finland, and 45 percent of them are under strict protection.

Forest ownership



Forest industries are key to profitable forestry in Finland, as they guarantee a reliable market for the timber. Almost all of the raw material used by the Finnish forest industries is domestic, and most of their energy sources as well. In 2011, the forest industries purchased around 1,500 million Euro worth of timber from family forest owners. This money was spread to hundreds of thousands of families owning forest across the whole country: two thirds of the money procured for families by selling timber stays in the very same municipality, where the forest are located. The south-east and east of Finland have been the mainstays for the Finnish forest industries for decades. In Finland, forest operations or timber sales can be carried out in many different ways, depending on the circumstances.

In a standing sale (or stumpage sale), the forest owner sells a felling right to a certain area, and the buyer obtains the right to perform wood harvesting as agreed in the sales agreement (felling agreement).

In a delivery sale, the forest owner is responsible for harvesting and delivers the processed timber to the roadside.

In business-to-business sales, the timber is delivered to the point of use. This type of sale is usually conducted by companies and Metsähallitus.

A forest service agreement is an agreement on work that a forest service provider will perform in the forest owner's forests. The services may be related to timber sale, silviculture, forest

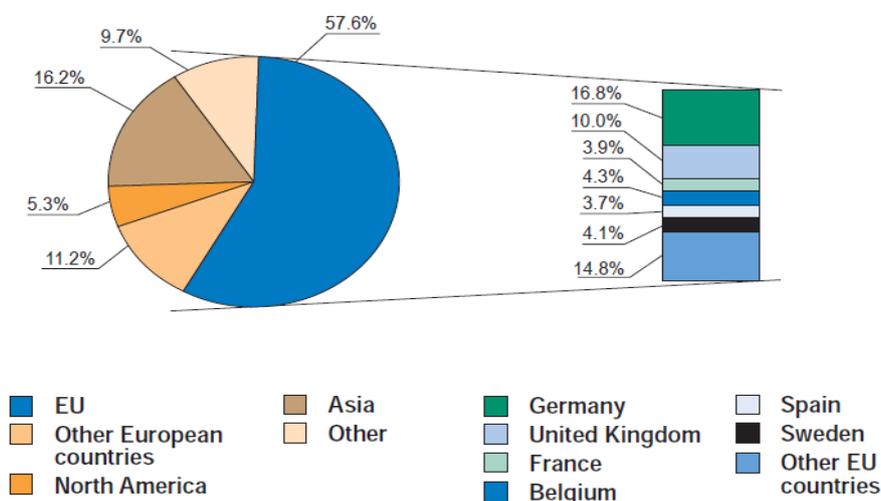
operations, management planning and/or forestry advice. Such services may be provided, for example, by companies, forest owners' own Forest Management Associations and Forestry Centres.

4.5. Forest industries

Finland is a country, which depends on forests and relies on the forest sector business. Forestry and forest industry account for approximately 5% of the gross domestic product. The vast majority of forest industry products are exported. The most important market is the European Union, which represents nearly 70% of the exports.

The forest sector has also led to the creation of other industries and economic activity in Finland, such as the manufacturing of paper and forestry machinery, and an extremely diversified sector of engineering, consulting and expert activity. In one way or another, the roots of practically all large Finnish companies – including, for example, the mobile phone company Nokia – can be traced to forest industries.

Value of forest industry exports by destination in 2012



- The share of forest industry exports destined for the European markets in 2012 was 69% (7.6 billion €).
- Source: Statistical Yearbook of Forestry 2013, Finnish Forest Research Institute.

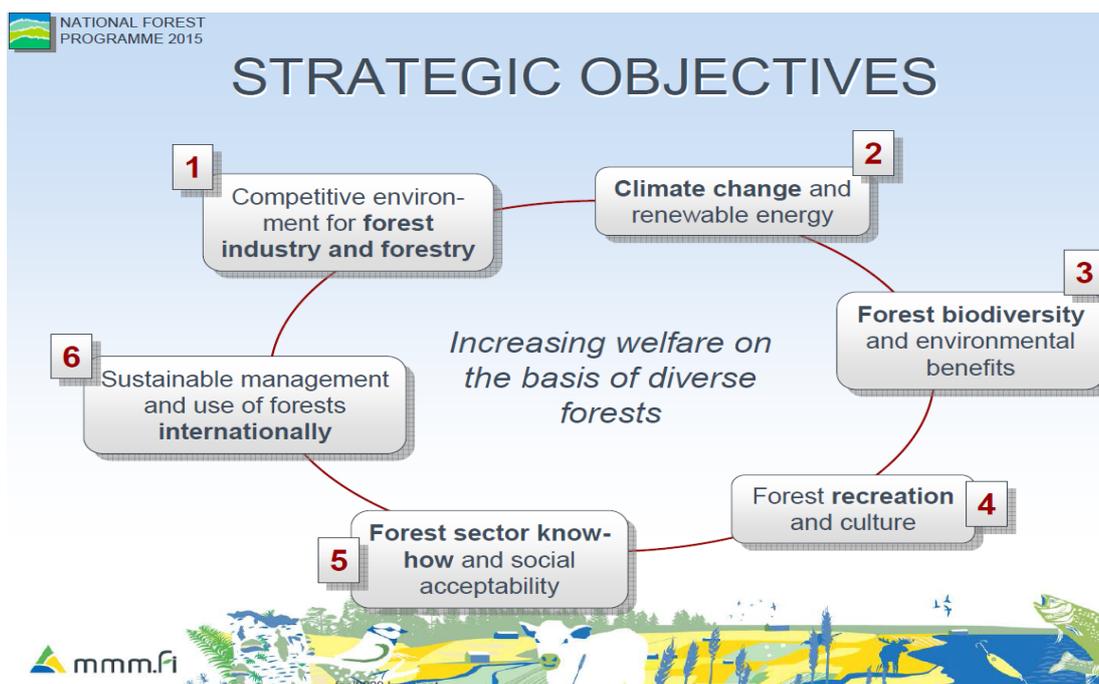
Forestry and forest industry are important in maintaining the vitality of rural areas, employing about 89,000 persons, three-fourths of whom work for the forest industry. Forestry provides jobs for about 23,000 people, mostly in small forestry contracting and transport businesses. In addition, a considerable part of silvicultural work in particular is done by private forest owners and their families.

4.6. Forest policy

The objective of the Finnish forest policy is to ensure the welfare founded on the sustainable use of forests while maintaining the diversity of the forest ecosystem. The tools of forest policy are legislation, public funding, committed organizations as well as informational means. Sustainable forest management has several dimensions: economic, environmental, social and cultural sustainability. Their reconciliation is a challenge to which forest policy needs to respond. Success can be evaluated through the criteria and indicators for sustainable forest management.

Finland participates actively in international forest policy and co-operation, and is committed to implementing its international obligations. These and EU objectives are incorporated nationally in various policy programmes and strategies. The National Forest Programme 2015, the National Strategy for Sustainable Development, the Forest Biodiversity Action Programme for Southern Finland (METSO), the National Climate and Energy Strategy as well as Finnish development policy in forestry are consistent and supportive of each other.

The main elements of Finnish forest policy are defined in the National Forest Programme 2015. Its aim is to secure employment and livelihoods based on the use of forests, the biological diversity and vitality of forests, as well as their recreational benefits.



The regional objectives are written down in the Regional Forest Programmes. In 2008, the Government adopted the Forest Biodiversity Action Programme for Southern Finland 2008–2016 (METSO). The aim of the METSO programme is to improve the maintenance of habitats and structural features of forests vital to the survival of threatened species. In June 2014 the Programme was extended until 2025.

In the Strategy Programme for the Forest Sector, by the Ministry of Employment and the Economy, the focus is on improving the preconditions for enterprises in forest industry as well as the forest sector as a whole.

International agreements have been implemented in legislation and in other guidelines. The forest legislation regulating the sustainable management and use of forests gives special attention to protection of biodiversity. Besides other constitutional rights, the Constitution of Finland guarantees the linguistic and cultural rights of the (indigenous) Sámi people. Economic policy instruments along with research and education play an important role in achieving the international objectives. Forestry organisations and different stakeholders have paid more and more attention to international and EU-level forest issues, being actively involved in preparing international forest policy and EU forest affairs together with various ministries.

Forest destruction is prohibited by law. The destruction of forests was prohibited in Finland by the very first Forest Act in 1886. Currently this prohibition means that within five years of the rotation period has ended a new forest must be established to replace the one felled.

The majority of forest legislation has been recently renewed. The updated laws came into force as of January 1st 2014. These include the forest Act, the Act on forest management associations (of private forest owners), Act on the Prevention of Insect and Fungal Damage in Forests, Act on delivering wood and wood products to the markets as well as sections on energy wood measurement. The Act concerning the state forest organization Metsähallitus is currently being prepared.

Thanks to the Act on the Financing of Sustainable Forestry (Kemera), nowadays Government financing is available not only for traditional silvicultural work, but also for safeguarding forest biodiversity, habitat management and wood harvesting for energy.

Statutes affecting forest management also include the Act on Trade in Forest Reproductive Material as well as the Act on Environmental Impact Assessment Procedure. Issues such as zoning are governed by the Land Use and Building Act. During the preparation of local and master plans, various uses of forests are merged together at the regional and municipal levels.

Employment relationships and occupational safety and health are covered extensively by legislation. Forestry is also covered by special legislation which applies to the safety of wood harvesting work, for instance.

Nearly all persons working in the forest sector are covered by collective agreements made by employer organisations and trade unions, negotiated within the framework of labour legislation.

Finland's National Strategy for Sustainable Development was adopted by the Government in 2006, aimed at ecological sustainability and creating the economic, social and cultural preconditions for achieving this end. The National Strategy for the Conservation and Sustainable Use of Biodiversity in Finland 2006–2016 was also adopted by the Government in 2006. The aim of the strategy is to halt the decline of biodiversity in Finland, and to establish a favourable development of biodiversity in the long term.

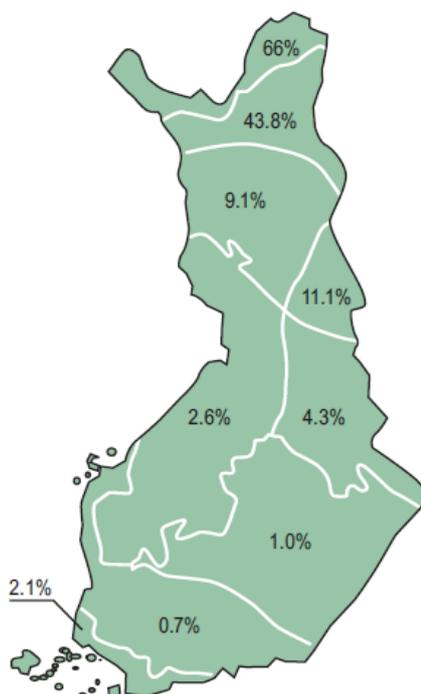
4.7. Safeguarding and protecting forest biodiversity

Safeguarding and protecting forest biodiversity is carried out with a dual strategy: close-to-nature silviculture and an extensive network of protected forests. Strictly protected areas cover 5.2% of forest land in Finland (2008). In addition, 0.4% of forest land is protected as areas where restricted forest management is possible. Of the total land area (including low-productive and non-productive lands), 13.7% is strictly protected. Most of the forest conservation areas have been established in Northern Finland, where the state owns a lot of forests, while there are fewer of them in Southern Finland, where the majority of forests are owned by private persons.

The main challenge in the forest conservation network is to increase the rate of conservation in the hemiboreal, southern boreal and middle boreal forest vegetation zones, where only about 2% of forest land is strictly protected. The aim of the above-mentioned METSO programme is to improve the maintenance of habitats and structural features of forests vital to the survival of threatened species.

Conservation in Finland is based on statutory conservation programmes specific to habitat types. National parks (37 total) and nature reserves are the backbone of the conservation programmes. These have been complemented with special conservation programmes for mires, herb-rich forests, old-growth forests, wetlands, shoreline areas and esker formations. The smallest sites are protected under separate conservation decisions. The preservation of wilderness areas in Lapland is secured by the Wilderness Act. The EU Natura 2000 network includes 1,860 protected sites in Finland, totalling 4.9 million hectares (of which 3.6 mill. ha is land).

Level of strict forest protection by vegetation zone



• Here, forest includes productive forest land and low productive forest land.

As a modern way of securing biodiversity protection, the METSO Programme is based on voluntary protection. The programme has tested and adopted new solutions in protection based on voluntary participation to promote forest biodiversity, especially for individual forest owners. Sites protected under the METSO programme may remain in private ownership or be sold to the state.

Biological diversity in commercial forests is promoted by the Forest Act, recommendations and guidelines for best practices in forest management as well as fixed-term conservation agreements, forest certification and training. According to the Forest Act, habitats of special importance for biodiversity shall be preserved by forest owners. These habitats include over 120 000 sites and 105 000 hectares in private forests. Forest owners invest annually 50-65 million euros in forest environment and biodiversity.

Forestry professionals take a special qualification in ecosystem management. The Nature Conservation Act lists nine protected habitat types, three of which are found in forests, while the Forest Act contains definitions of habitats of special importance.

According to recommendations, old broadleaved trees are left standing in the forest in fellings, and decaying trees or other trees that have special biological value are also preserved.

About a half of the approximately 43,000 species known in Finland live in forests. Since the 1990s, there have been significant inputs in the research in forest species, and the interaction between forest management and forest species. The occurrence of threatened species is monitored regularly. According to a recent 2010 survey, there are 1,505 threatened species in Finland, of which 37% are forest species that favour especially herb-rich forests or old-growth forests. The majority of threatened forest species are invertebrates and fungi.

An assessment of threatened habitat types in Finland was first published in 2008. It assessed the status 400 habitat types and human influence on them. Two-thirds of the 76 habitat types in forests were found to be threatened. In the evaluation, mires were classified into 54 types, of which about a half was assessed to be threatened throughout the country.

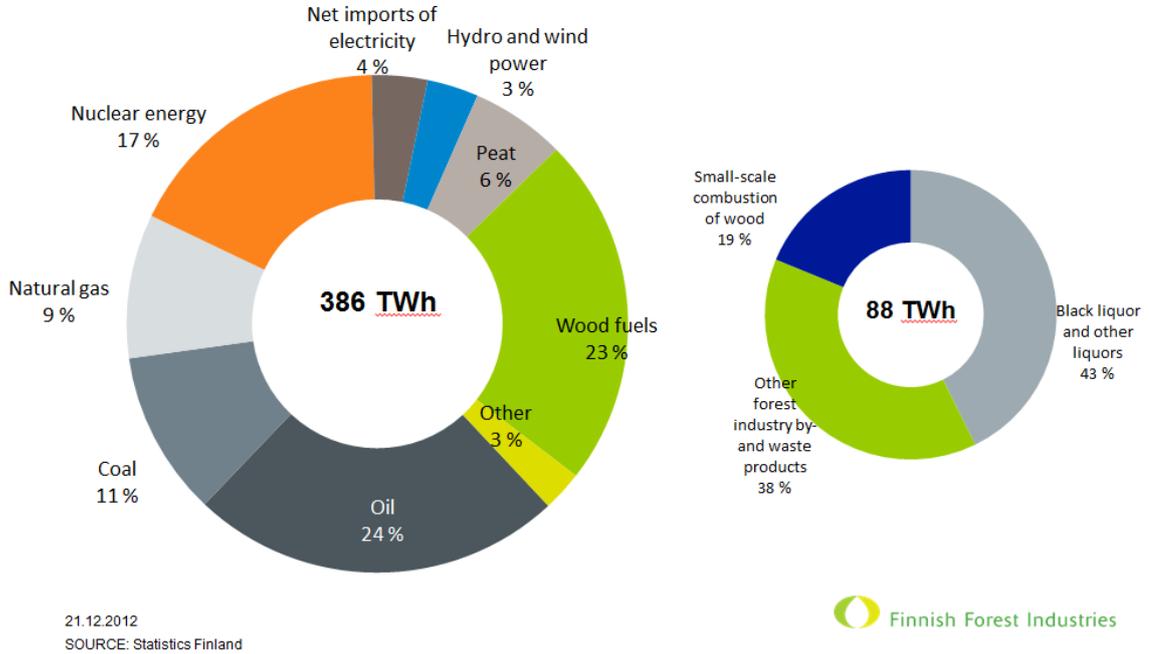
4.8. Forest certification in Finland

Both major global forest certification systems are applied in Finland. The Forest Stewardship Council (FSC) -certification covers about 462 000 hectares in Finland, (2% of forestry land). It has 97 chain of custody certificates. The Programme for the Endorsement of Forest Certification Schemes (PEFC) covers around 20,7 million hectares, (79% of forestry land) in Finland, and has 199 chain of custody certificates.

4.9. Energy from wood

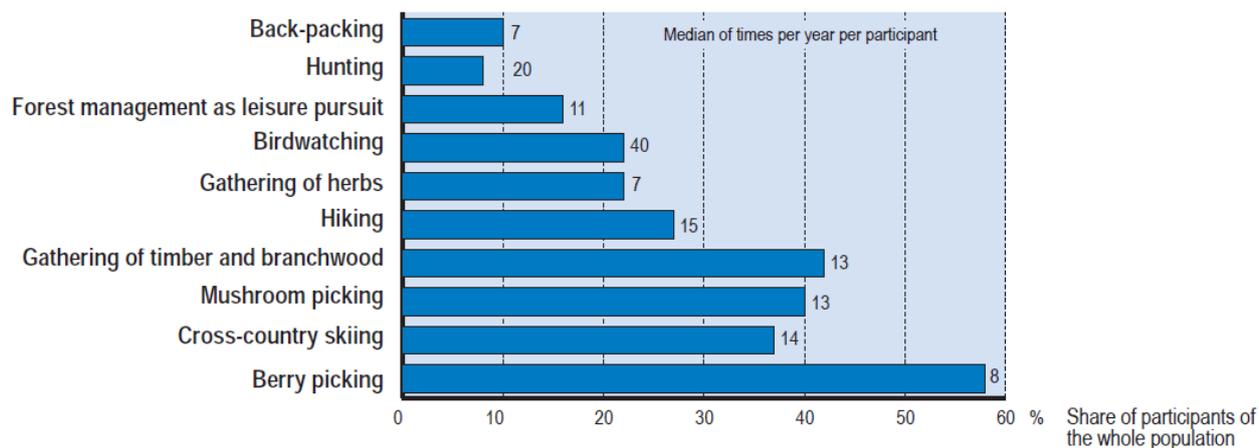
The share of wood-based fuels of the total consumption of energy in Finland is about 20%. Most of the wood-based energy is produced by the forest industry. Forest industry companies produce their own energy using bark, sawdust and chips, logging residues from thinnings and regeneration fellings as well as process by-products such as black liquor. Wood is also used increasingly in rural areas and cities, especially for heating. A target has been set to increase the use of forest chips to 13.5 million cubic metres by the year 2020.

Total energy consumption in Finland and share of wood fuels



4.10. Cultural and multiple use of forests

Forests are an important environment for recreation in Finland. Access to and recreational use of forests is free for all in Finland. The “Everyman’s rights” (freedom to roam) bestow on all people a free right to use land owned by others to travel on foot, skis, bicycle or horseback, provided that they do not cause any damage. Other activities freely permitted even on other people’s land are picking wild berries and mushrooms. The use of motor vehicles and making fire in forests, however, always require permission from the landowner.



- According to studies, 95% of Finns spend time in outdoor pursuits and seek refreshment from nature.
- Source: Sievänen T. (ed.): Outdoor Recreation 2010. Finnish Forest Research Institute 2011.

Participation in forest related pursuits in Finland 2010

The most important non-wood products, which have an economic value are game, berries, mushrooms and lichen. The greatest value in economic terms is game, particularly moose. In Northern Finland, reindeer management is also regionally significant. The volume of nature tourism has increased in recent years.

4.11. Indigenous peoples in Finland

The Sámi are an indigenous people recognised by the UN. The Sámi in Finland can be divided by language into the North Sámi, the Inari Sámi and the Skolt Sámi. As determined by the Constitution and other legislation, the Sámi people have use rights to the land and cultural autonomy in their homeland in Northern Finland (northernmost municipalities of Enontekiö, Inari and Utsjoki, and part of Sodankylä). Reindeer herding and management is not only part of the Sámi culture, but also important for the overall economy in Northern Finland, for Sami and rest of the Finns alike. Metsähallitus, the company which manages the State forests, shall consider the Sámi people in particular, negotiating with them about forest management operations in the Sámi homeland. The Sámi interests in local and political decision making are represented by the Sámi Parliament, the Skolt Village Assembly and the reindeer herding co-operatives. Many Sámi organisations have proposed the approval of tenure to the State land, but the processes are still under way.

4.12. Forest inventory, monitoring and assessment

The Finnish Forest Research Institute implements a national forest inventory by surveying all areas every 10 years. National Forest Inventories (NFI) have been conducted since the 1920s. Structural features that have impacts on biodiversity and can be measured have been included in the latest inventories.

The Finnish Forest Research Institute maintains central statistics on harvesting and silvicultural work in commercial forests.

Regional Forestry Centres continuously assess the implementation and quality of felling and other forest management operations. Features being assessed include the number of retention trees, the amount of decaying wood, buffer zones of water courses, protection of valuable habitats and any damage caused to the remaining stand and soil.

Forest owners have access to the information regarding their own holdings. However, wider distribution of information on individual landowners is restricted by the Privacy Protection Act.

The regional Centres for Economic Development, Transport and the Environment (ELY Centres) and Metsähallitus Natural Heritage Services monitor the implementation of forest protection at the regional level. The Finnish Environment Institute (SYKE) is responsible for forest protection monitoring at the national level.

Furthermore, forest industry companies and Metsähallitus monitor and assess internally the quality of silvicultural and other forest management activities in their own areas.

Inventory and monitoring data are continuously used in updating and developing forest management plans and forest information systems.

4.13. Interaction in forest resource planning

The sustainable management and use of forests depends on the smooth co-operation between the public and private sectors, since the development of the forest sector is very much influenced by the actions of forest industry companies, SMEs, forest owners, forestry and civil society interest groups and many others. These actors participate in the direction and monitoring of forest policy in the national Forest Council and regional Forest Councils, as well as numerous forestry-related working groups.

Regional special characteristics are considered in regional forest programmes. This work relies on co-operation with other organisations preparing regional programmes, such as Regional Councils, Centres for Economic Development, Transport and the Environment (ELY Centres) as well as authorities responsible for statutory land-use planning, such as municipalities. Regional forest programme work is developed as a participatory process. The comprehensive land-use planning system used in Finland (regional plans and municipal master and local plans) is a good example of the participatory process. Zoning has a significant effect on forest use as well.

4.14. Forest management planning

Regional Forestry Centres conduct regional forest management planning, complemented by management plans for individual forest holdings and owners. The Forestry Centres have surveyed valuable forested environments in their respective regions. Management plans include compartment-specific information on the area, volume, structure and increment of the growing stock as well as the location and characteristics of valuable habitats. The plans also suggest measures for both forest management and habitat management.

Forest management plans for individual holdings are an important instrument for systematic long-term forest management. Forest management plans are voluntary planning tools which help forest owners to achieve various objectives the owner has set for the forest holding and its management. Plans normally come in printed form and are valid for 10–15 years, mostly prepared by the Forestry Centres and the Forest Management Associations. The management plan is an account of the forest resources of the holding, based on a field visit and documented by map data, and including calculations of harvesting opportunities and needs for silvicultural work and environmental management.

GIS-based, continuously updated forest management plans or forest information systems are applied in the forests of companies and other large forest owners. Detailed mapping and calculation functions are essential features of these systems. Information on forest resources is continuously updated on the basis of data coming from the field.

4.15. Education and training

Forestry education is provided in the universities of Helsinki and Joensuu, and at the technical and vocational level in several institutes and colleges around the country. Training for private forest owners is provided by private forestry organisations, forestry colleges and polytechnics, as well as various further training centres.

Extension and advisory services for forest owners are provided by Forest Management Associations, Forestry Centres as well as forest service and forest industry companies. Advisory services may take the form of personal or group consultation, or consultation provided in conjunction with exhibitions, competitions or field trips.

There are several journals in Finland dealing with forestry. They publish information about forests for interested parties, primarily for forest owners and forestry professionals.

4.16. Some forestry and environmental organisations

The highest forest authority in Finland is **the Ministry of Agriculture and Forestry**, whose mandate is to create conditions for the sustainable and diversified use of renewable natural resources and to secure the quality of the commodities obtained from them. The Department of Forestry in the Ministry is charged with directing and developing forest policy in Finland. **Metsähallitus** (State forests), the **Finnish Forest Research Institute**, the **Forestry Development Centre Tapio** and the regional Forestry Centres are all under the performance guidance of the Ministry. The Forest Centre and the Forestry Development Centre Tapio are responsible for promoting the sustainable management of forests, protecting their biodiversity and other activities within the forest sector. Metsähallitus manages, uses and protects the natural resources and other property on State lands under its administration. Forests and forestry are studied in Finnish universities and research institutions by about 650 researchers. Nearly one half of them work in the Finnish Forest Research Institute. **The Finnish Forest Association** is the cooperation organization for the forest sector.

The Finnish Forest Industries Federation is the interest organization of the forest industries.

The function of the 89 **Forest Management Associations in Finland** is to promote the profitability of forestry practised by forest owners and to support the attainment of objectives they set to their operations. The Associations are local members of the national interest group, the **Central Union of Agricultural Producers and Forest Owners** (MTK).

There are also a number of organisations for forest and wood products industry employers, employees, contractors and other interest groups as well as great many NGOs active in the forest sector.

Several environmental and nature conservation NGOs promote the protection and more sustainable use of forests. Among their activities, they produce information on valuable forest

areas, prepare action proposals and recommendations, participate in political processes related to forest use as well as organise different nature-related activities. Organisations working actively with forest nature include **BirdLife Finland, Greenpeace, the Finnish Nature League, the Finnish Society for Nature and Environment, The Finnish Association for Nature Conservation and WWF Finland.**

Annex 1) COLONIZATION AND LANDOWNING IN FINLAND

Colonization of Finland started some 5.000 years ago. The first settlers were of Baltic and Germanic origin. The Finno-Ugrian tribes, the ancestors of the current Finns, started to enter the country from the south across the Gulf of Finland and from the east through the Karelian Isthmus around 2.000 years ago. The first permanent settlements were established in the Aland Islands, on the coast of Southwestern Finland, on the banks of the Kumo River (Kokemäenjoki in Finnish) and along the shores of Lake Ladoga in Karelia. The rest of the country, the vast wilderness of Central and Northern Finland, was very thinly populated by a few reindeer herding Lapps (the Sami people). In the course of centuries, Finnish colonization advanced gradually along the waterways towards inland. In the early ages, land ownership was based on reclamation.

The Swedes made crusades to Finland in the 12th and 13th centuries. They annexed the country to the Kingdom of Sweden as her easternmost province for 700 years. In the early 13th century, Swedish colonizers came to Finland and settled on the southern and western coasts of the country. They were the ancestors of the current Swedish speaking Finns. In 1277, the king of Sweden vested the taxation of Lapps on a Tavastian tribe living in Western Finland. In 1323, a treaty between Novgorod and Sweden was signed in Notenburg, Russia (Pähkinäsaari in Finnish). The eastern border of Finland was first time defined. In the 16th century, Gustav Vasa, the King of Sweden, desired to promote the colonization of the country. He declared that all uninhabited wilderness belongs to the Swedish Crown unless reclaimed by someone. The Savonians, a tribe from Eastern Finland, took the challenge. In a few centuries, they succeeded, using slash and burn agriculture, to reclaim huge tracts of land in Central and Northern Finland.

In the Middle Ages, houses were built along the village roads. All arable land was around the village, and each farm had its fields in batches. Private landowning was highly respected. However, forests, fishing grounds and pastures were under common usage. Land tax was introduced in Sweden in the 17th century. A farm became a taxation unit. Large farms, owned by the noble families, had their own privileges. Colonization of the Crown lands was promoted, and the number of farms increased considerably. Taxation was largely based on landowning. A peasant farmer was able to get patrimonial rights to his land by paying three years taxes as a lump sum. A Land Allocation Degree was vested in 1757 with amendments in 1762 and 1775, respectively. All rural parishes were divided into villages, and all villages into farms. Each farm got 1.000-2.000 hectares of land depending on location and soil fertility. Arable land and forest were normally given in one uniform block.

In 1809, Finland became an autonomous Grand Duchy in the Russian Empire. All Swedish laws remained in force, and Land Allocation continued. The work was mainly completed in the early 1800's. In 1848, the Degree was still amended to finalize the reform, and a number of new farms were established on excess lands. In 1859, the National Board of Forestry was established and all remaining state lands, mostly in Northern and Eastern Finland, were handed over to the new forest authority. Since the beginning of the 1800's, an increasing number of tenant farms were established in the backwoods of many old and new farms. Labour was needed for the development of commercial agriculture. The value of forests increased rapidly in the 1870's, when the forest industries emerged. The farmers were not any more willing to establish tenant farms. At the same time, birth rates were very high. This created a social problem. The number of rural landless people increased radically. Some of them moved into towns to work for the industries, but this was not enough to overcome the crisis, the Civil War of 1918.

Finland became independent republic in December 1917. Soon thereafter, a Civil War between the pro-Socialism Reds and the pro-Capitalism Whites started. Most of the farmers and other land owners supported the Whites, whereas many tenant farmers and other landless people joined the Reds. The four-month war ended in the victory of the Whites in May 1918. Two months after the war, the Land Reclamation Act (*Lex Haataja*) passed the Parliament. All tenant farms were given rights to reclaim their leasehold lands. One million hectares were reclaimed and a total of 90.000 new landholdings were established. In the early 1920's and 1930's, the government promoted actively colonization. The Act on Land Reclamation for Colonization (*Lex Kallio*) passed the Parliament in 1922. Soft loans were granted, and the landless, former tenant farmers and crofters, were able to reclaim additional land. State lands were extensively used for colonization. In addition,

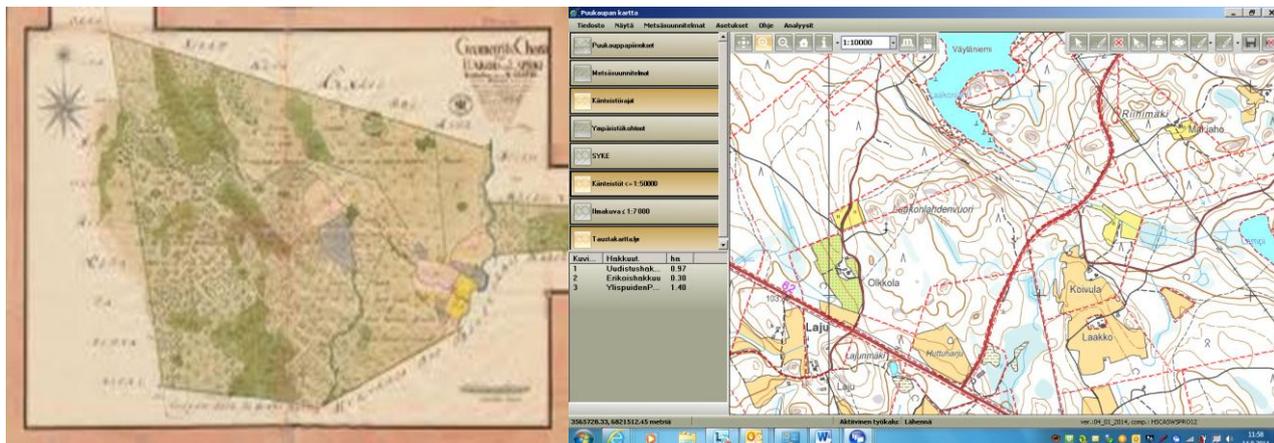
the government bought large tracts of private land and later distributed them in smaller lots to the landless. Before the World War II, a total of 120.000 new landholdings were established.

Finland was in war with the Soviet Union in 1939-1940 (Winter War) and 1941-1944 (Continuation War). After the wars, half a million people, including 40.000 farmer families, had to leave their homes, when the Karelia province was handed over to the Soviet Union. Based on the Land Procurement Act of 1945, migrants, war veterans, farm workers and other comparable persons were allowed to reclaim land. Large tracts of state lands were used for colonization. In addition, the government bought land from municipalities, parishes, companies and private persons. By the late 1950's, more than 100.000 new landholdings and building lots were established. By the early 1960's, it was realized that most of the farms established during past decades were too small for mechanized agriculture. Many of them have less than 10 hectares of arable land and 20-30 hectares of forest. It was not anymore enough to sustain livelihood for a farmer family. When industrialization boosted up in the 1960's and 1970's, many farms were abandoned, especially in Northern and Eastern Finland. Many people moved to the towns of the South or immigrated to Sweden.

In 2010, there were 65.000 active farms in Finland. Their number is still decreasing. Since 1960's, abandoned farm lands have been afforested with the support of the prevailing agricultural policy. At the same time, many larger farms have been parceled into smaller portions for siblings. The trend still continues. At the moment, there are 375.000 private forest holdings with an average size of less than 25 hectares. There are more than 700.000 private forest owners in Finland. Many forest holdings are jointly owned by families or heirs. The share of urban dwellers, women and retired people amongst the forest owners has increased considerably, whereas the share of farmers as has decreased. The average age of a Finnish forest owner is 62 years.

Every piece of land in Finland has an owner. Land can be freely sold and purchased. The National Land Survey (NLS) of Finland maintains the register on landowning in the country. The land information system is national and meant for public use.

Pekka T Rajala

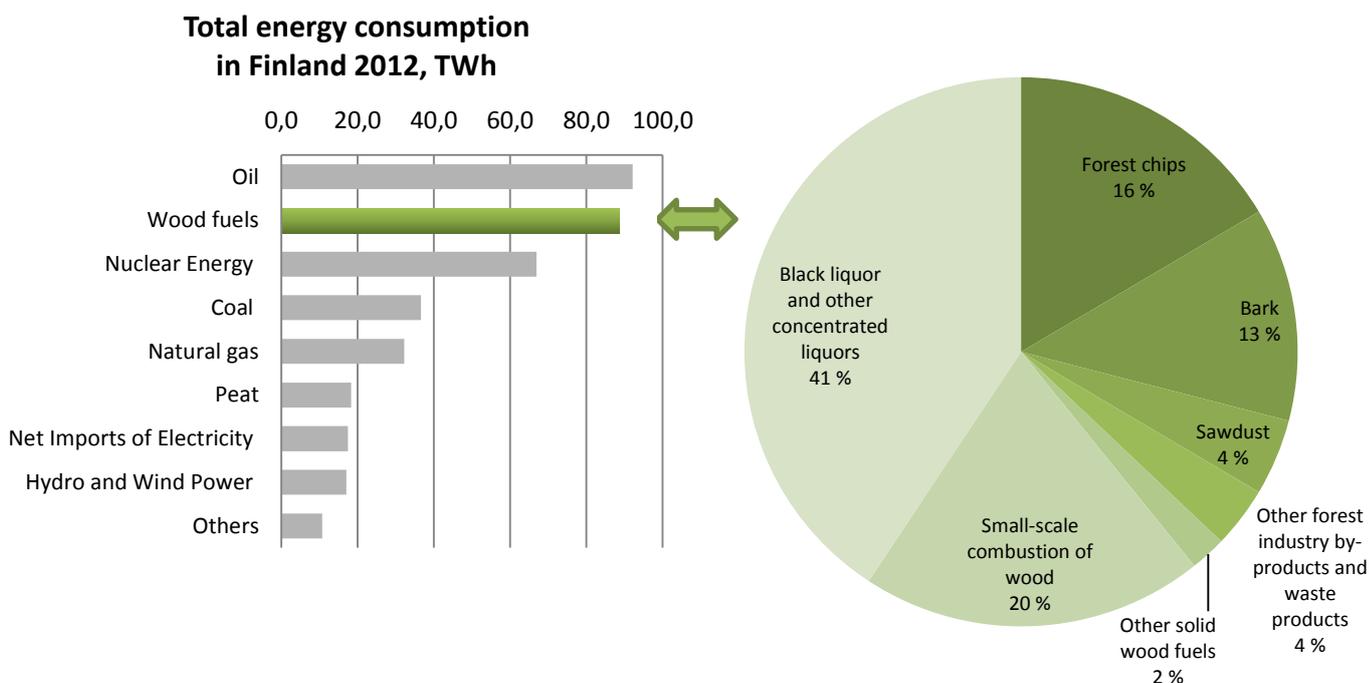


Annex 2) Fact sheet: Energy from Finnish forests

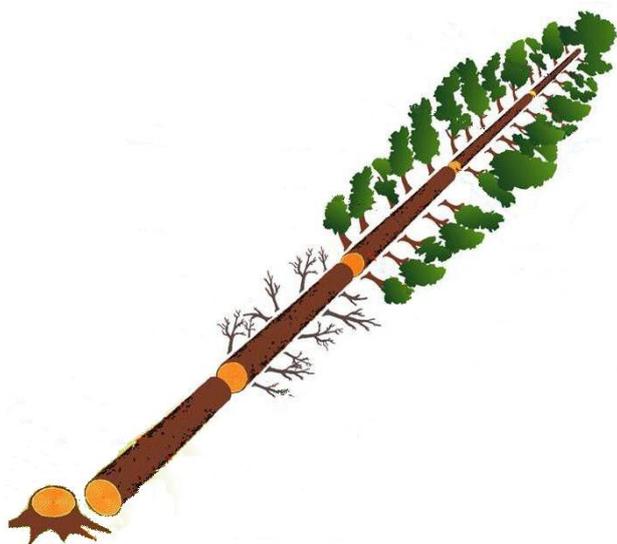
Nearly one fourth of Finland's energy is derived from wood

24 per cent of the total energy consumption in Finland was derived from wood-based fuels in 2013.

In the Finnish forest industry, the significance of wood-based fuel is even greater. In 2011 its share of the used fuels was 78 percent.



Every part of a tree is utilized for the purposes they suit best



Logs are used by the sawmill and construction industries. The residues, i.e. outer sections of logs are used as raw material for pulp and the sawdust is used in energy production and particleboard production.

Pulpwood, or stemwood not suitable for logs, is used in pulp and paper production.

Small-diameter wood, such as branchwood, tops or small-sized trees from thinnings, as well as **stumps** are used in energy production.

Most of the logging residues, such as stumps, branchwood and foliage, remain in the forest and contribute to the nutrient circulation. Part of the residues is used to produce bioenergy.

Logging residues are gathered from every third regenerated hectare and stumps lifted from every third regenerated hectare

Energy wood is gathered in connection with other forestry activities as much as possible.

Small-sized trees

Energy wood thinnings are carried out in young forests which are too dense and require thinning due to forestry reasons. In forests of this kind, the stem diameter is too small for use as pulp wood, and the thinnings are used for energy.

Logging residues

During a felling, the harvester debranches the stems and cuts the crowns into piles. They are then left for a couple of weeks so that they dry and the needles fall off.

The harvester always spreads some of the logging residue on to the strip roads used by the harvester and the forwarder to protect the soil from damage.

Currently, logging residues are gathered from every third hectare where regeneration felling takes place.

Stumps

The stumps are lifted, split and left in large piles at the felling site. In this way, they are washed clean of soil by the rain and dried by the sun and the wind.

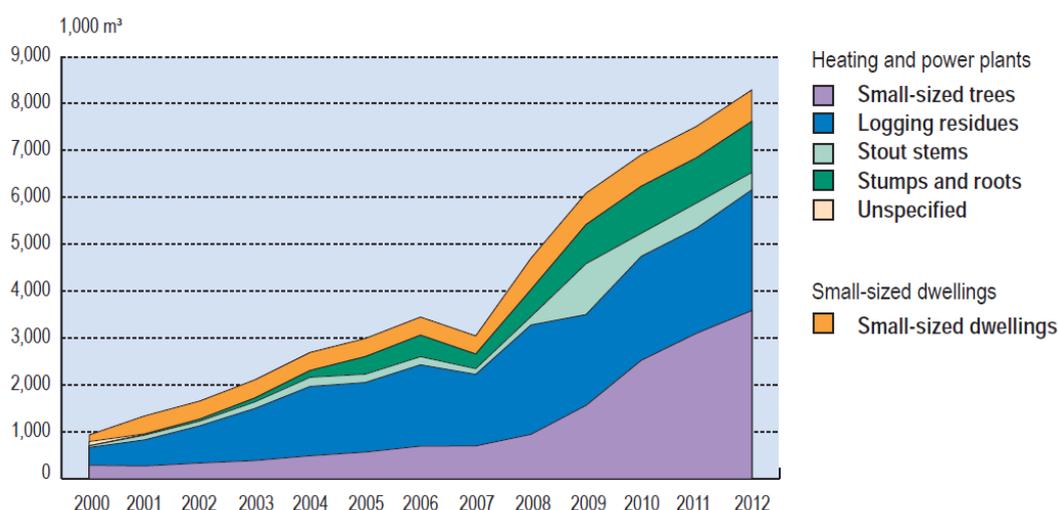
Currently, stumps are lifted from every tenth hectare where regeneration felling takes place.

The use of forest chips has almost multiplied by ten during the 2000's

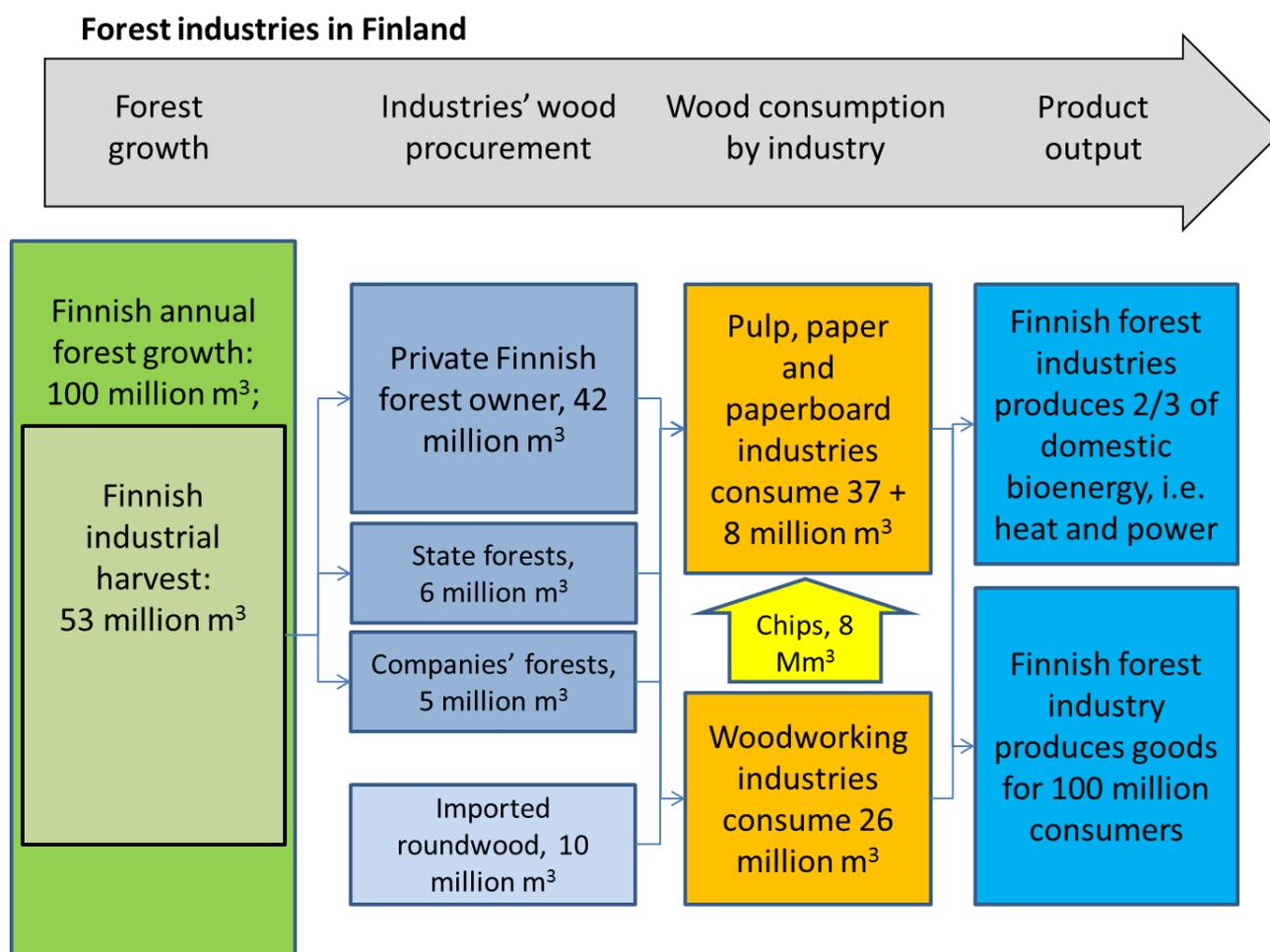
Finland's goal is that in 2020 the annual use is 10-12 million cubic meters.

In 2010, some 6.2 million cubic meters of forest chips were gathered in Finland. This employed some 1,200 persons – forest workers, harvester, and forwarder operators and truck drivers. If the use of forest energy reaches 12 million cubic metres per year, the need for employees rises to 6,000.

Use of forest chips and its raw materials 2000-2012



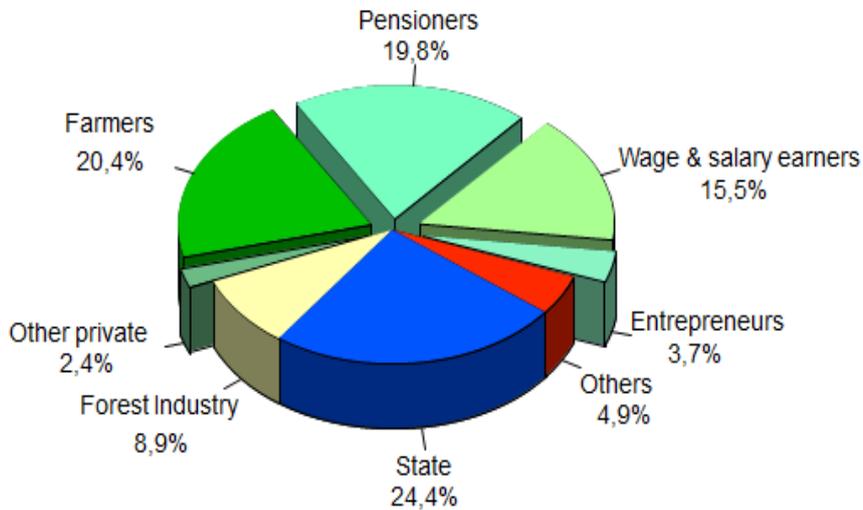
Annex 3)



- The production value of the Finnish forest industries summed up to EUR 20.8 billion; 18% of total national production in 2012
- The export value of the Finnish forest industries was EUR 11.1 billion; 20% of total Finnish export in 2012
- There are 49 pulp and paper mills and over 240 industrial sawmills, panel factories or other wood product companies in Finland
- The Finnish forest owners' income from wood sales to the industry is some EUR 1.5 billion annually
- The forest industry is export oriented and the main market is the European Union (62%).

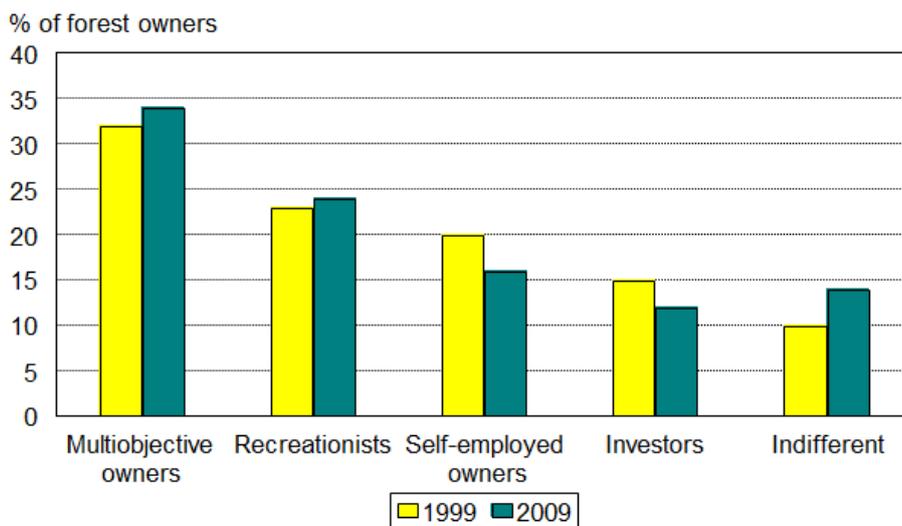
Annex 4) Finnish forest ownership

62 % (12.5 million ha) of forests owned by private families



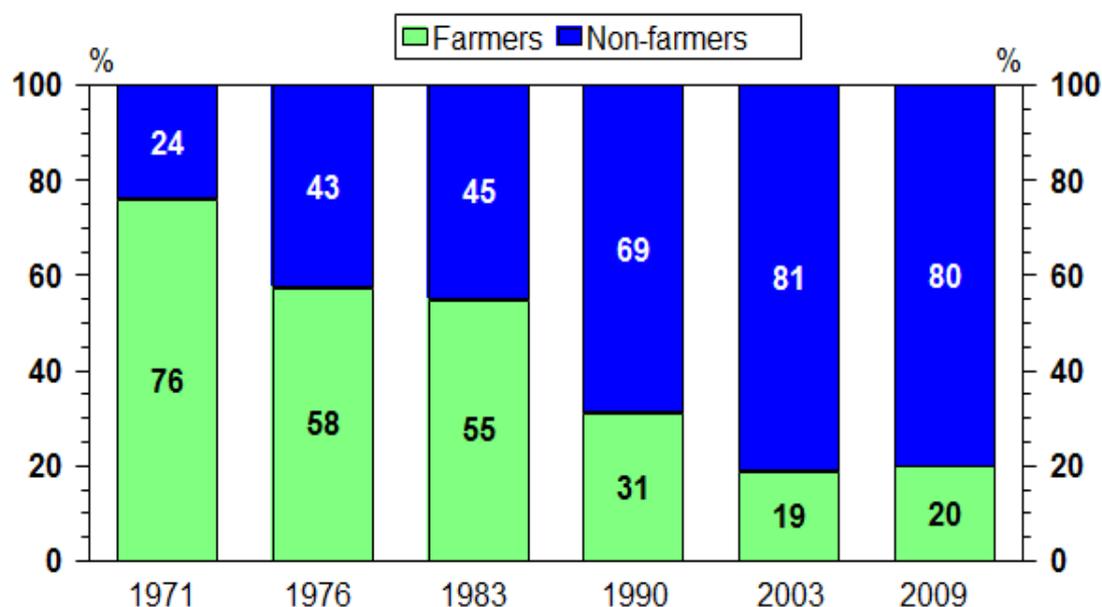
- 345 000 private forest holdings - over 1 million Finns involved in family forestry
- Average size 30 hectares
- Half of the holdings under 10 hectares - small amount of large estates (>500 ha)

Forest owners' objectives are changing



- Changed objectives guide forestry and forest management towards multifunctionality

Forest ownership structure is rapidly changing



- More pensioners, women and urban citizens as forest owners

→ Traditional close linkage to forests and forest management is weakening

Key messages

- Privatisation of forest land started 1750 → national policy have supported family forestry (land reform 1918, Lex Pulkkinen 1925, land acquisition to refugees 1944)

- Protection of property rights is strong and secured in Finnish Constitution

- Forest ownership structure and forest owners' objectives are changing → poses various challenges to Finnish forest sector

- In the future need for increased and more diversified advisory services, measures and policies to combat decreasing holding sizes and supportive policies for entrepreneurial ownership

Annex 5) UNEVEN-AGED FORESTRY AND CONTINUOUS COVER FOREST MANAGEMENT

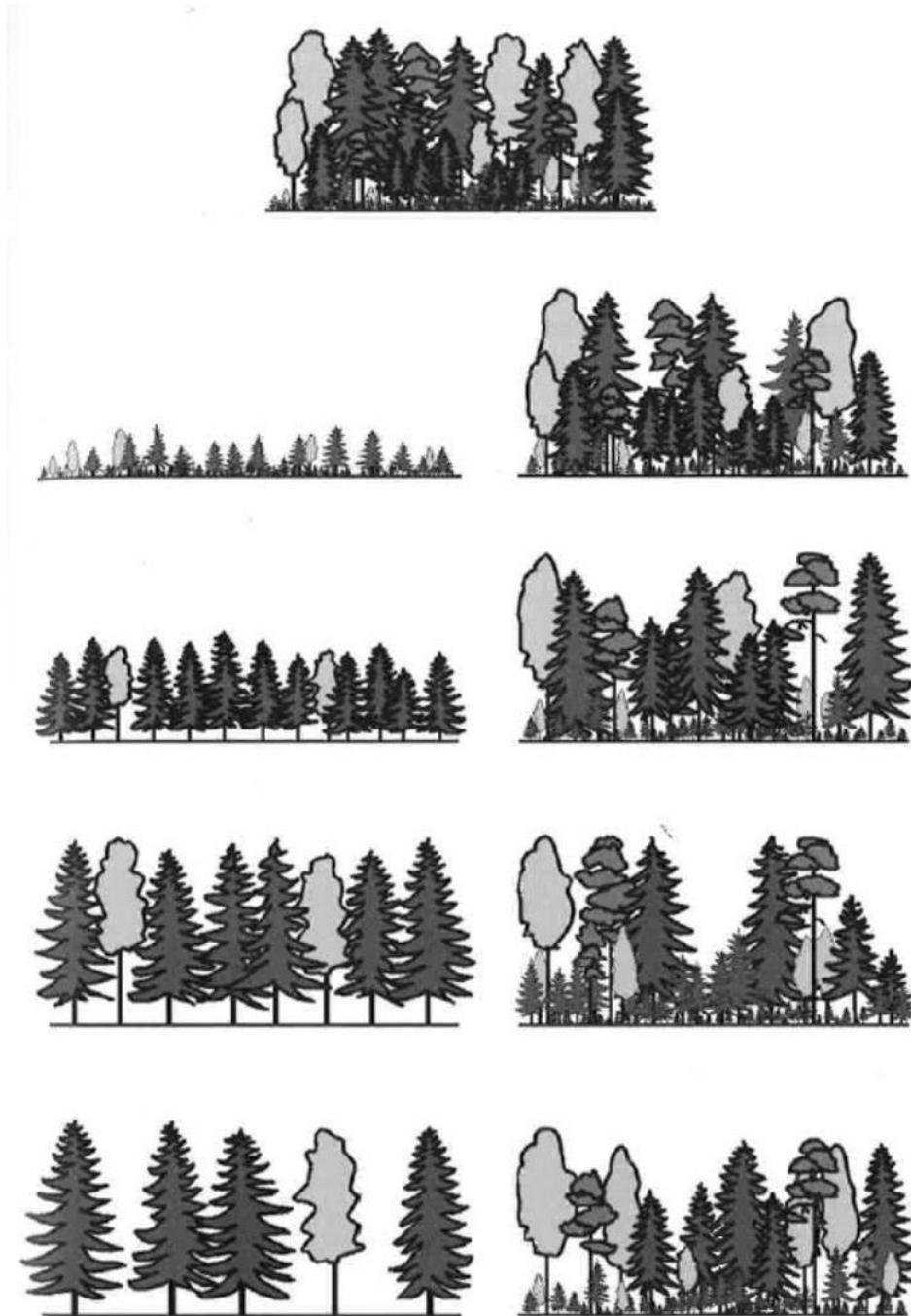
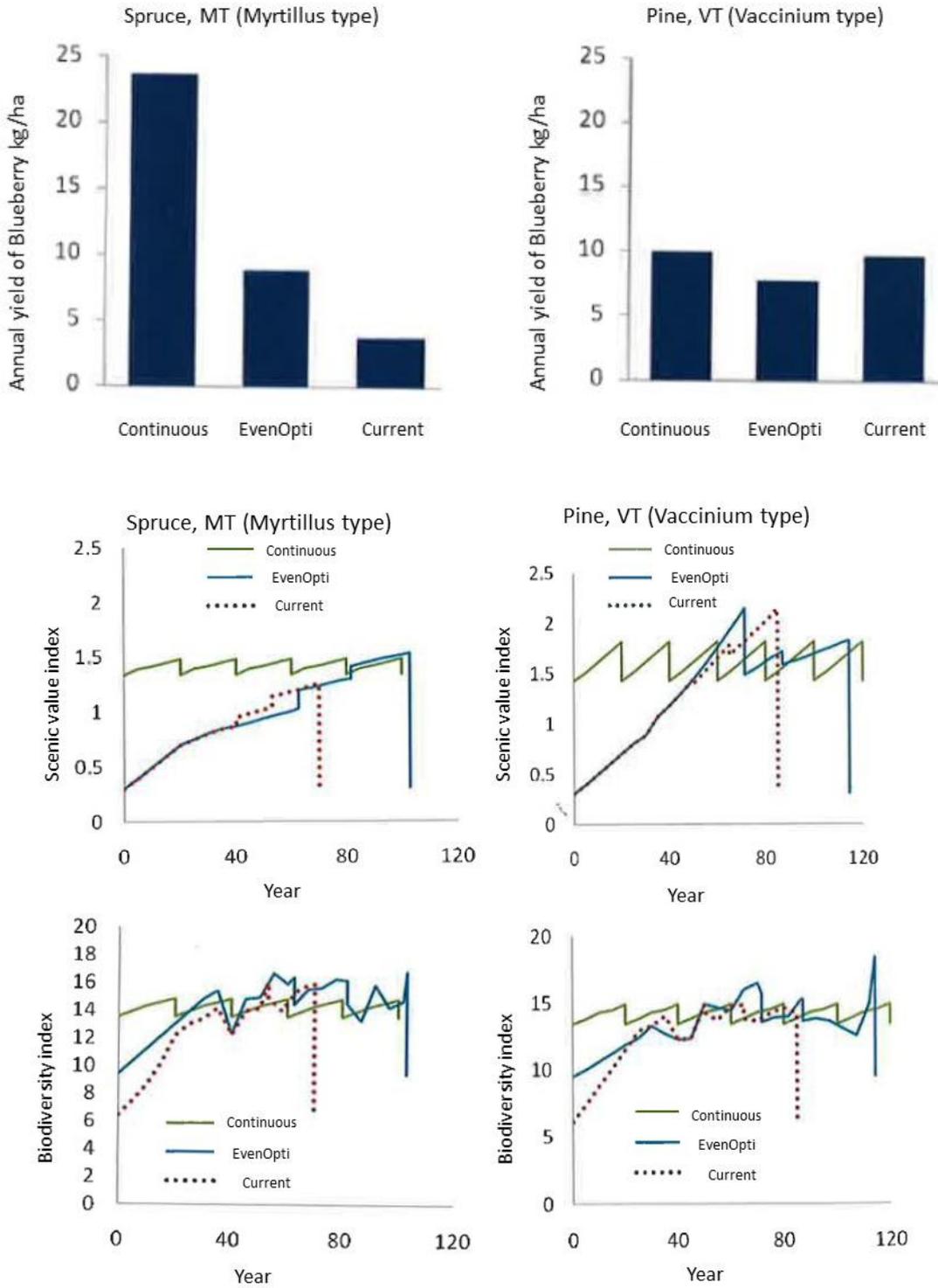


Figure 1. The difference in traditional even-aged forestry (left) and continuous cover forestry (right).¹



Comparison of non-timber benefits between even-aged and continuous cover forest management.²

^{1,2} Pukkala, T., Lähde, E. & Laiho, O. 2011. *Metsän jatkuva kasvatus*. Joen Forest Consulting, Rauhankatu 41, 80100 Joensuu. Bookwell, 2011.

Annex 6) The ice age forming Finnish landscape, flora and fauna

- An ice age is a result of a colder climate, which cause large land areas to be covered by ice. The last ice age, Weichsel, started about 115 000 years ago and ended about 10 000 years ago covering again Finland



The Weichsel glacier at its largest point some 20 000 years ago. On Finland the thickness of the glacier was some 3000 meters.



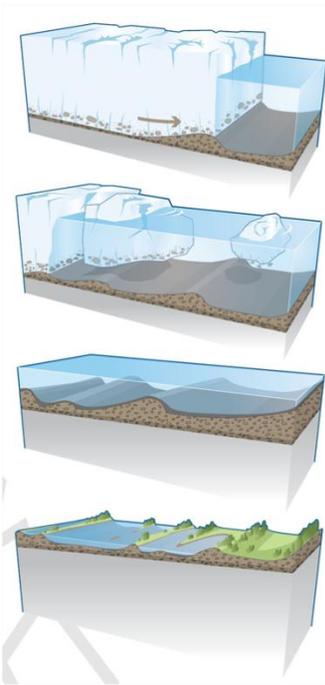
The Baltic sea firstly was a lake some 12 200 years ago, when melting had started.

- Ice ages leave tracks in the environment, as sediment deposits, rock scouring and scratching. They indicate the direction of the moving ice
- The land uplift started 15 000 years ago, at the beginning of deglaciation. Western Finland is actually still rising at 8.5 mm/year; almost one meter in 100 years; Southern Finland 1-3 mm/year.

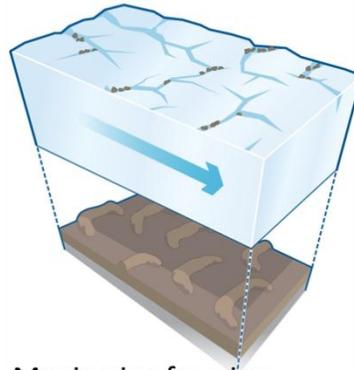


The uplift: shoreline in 1978 and 2006 in Merenkurkku area.

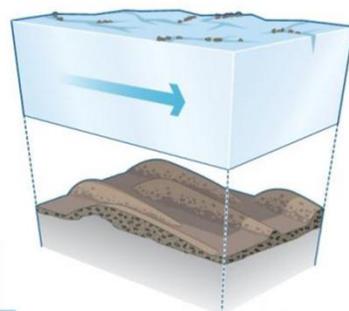
Moving ice forming De Geer moraines



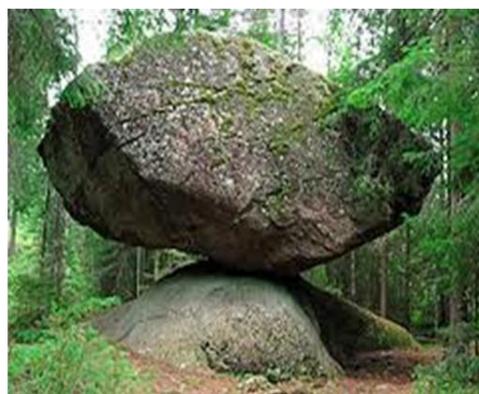
Moving ice forming transversal moraines



Moving ice forming drumlins (ridges)



Giant's **kettles** have formed when flowing water has forced stones to rotate at the same place



The **erratics** separated from the bedrock when the ice sheet flowed over the ground, breaking bits of it loose

Tree species expanding to newly appeared land area:

Birch was the first species of trees to appear in South-East Finland after the ice age, approximately 10 000 years ago. Also aspen was among the first trees to emerge. In Southern Finland pine started to supersede birch already some 9 000 years ago, with the same development starting in Lapland 1 000 years later. In Eastern Finland the proportion of birch remained high until the arrival of spruce approximately 5 000 years ago.

Pine appeared in Southern Finland around 9 000 years ago and in Lapland 1 000 years later. As the climate was favourable pine was able to grow much further north than today. Cooling climate caused pine to retreat from the North, and some 3 000 years ago the northern border of its distribution settled at the present position.

Spruce appeared in Eastern Finland some 5 000 - 5 500 years ago. It took some 2 000 years before it had spread to Western Finland and Lapland. The spread of spruce was connected to the commencing cooling of the climate.

Source: Merenkurkku.fi