The Finnish forest industry

A forerunner in the bioeconomy
The Finnish forest industry – a forerunner in the bioeconomy

**WOOD PRODUCTS** play an important role in mitigating climate change by removing carbon from the atmosphere and acting as long-term stores of carbon. In addition, by increasing the use of renewable resources such as wood we can decrease our utilisation of non-renewables and reduce environmental pollution.

**FOREST BIOMASS** and the by-products of sawmilling, pulp- and papermaking as well as wood that is unsuitable for processing are used to generate more than 70% of the renewable energy used in Finland. The forest industry is Finland’s largest producer of renewable energy, in addition to which the industry supplies surrounding communities with district heat that is created as a by-product of manufacturing.

**IN BOTH FINLAND AND THE REST OF EUROPE**, forest resources are growing more than they are being harvested. This allows for the use of wood to be increased in the future. At the same time, the full potential of wood is yet to be exploited and more research on the subject is needed.

**THE FOREST INDUSTRY** has the competence, functional infrastructure and logistical solutions needed to cost-effectively utilise biomass, as a result of this, next-generation biofuels, bioplastics and biochemicals refined from forest biomass will promote sustainable production and consumption in the future.
The Finnish forest industry consists of pulp, paper and wood products manufacturers and it is the global market leader in many product sectors. In 2009, the gross value of the forest industry’s production in Finland was about €15 billion, approximately a quarter of which was accounted for by the wood products industry and three quarters by the pulp and paper production. A major share of this is exported, mainly to other European countries.

**SUBSTANTIAL OVERSEAS PRODUCTION OPERATIONS**
About half of the turnover of Finland’s forest industry companies is generated by overseas production facilities. Some 60% of pulp and paper production capacity and around a third of sawmilling capacity are located abroad, mainly in Europe. Finnish companies are also well established in Asia and the Americas.

**MORE ADDED VALUE FROM PROCESSED WOOD THAN FIREWOOD**
Wood products can be recycled and reused, and at the end of their lifecycle they can be used to generate bioenergy. Securing an adequate supply of wood for processing purposes is essential also for the welfare of the national economy because processing creates forest industry jobs and generates income much more effectively than burning it directly as fuel.

### New products & innovations

The advantages of building with wood are already well known, but wood is the best solution for many other uses as well.

- **Heat-treated wood** is suitable for outdoor use because it is weather-resistant. Natural fibre composites can be used to construct demanding products such as musical instruments or weather-resistant structures. Wood is also well known for its ability to insulate sound and damp resonance.

- Substances obtained from wood fibres can be used in pharmaceuticals in many ways. The sweetener xylitol is already in wide use and plant stanol esters are used to lower cholesterol. Some of the latest innovations have been made with lignin, which has cancer-preventing characteristics.

### BIOFUELS AND NEW BIOMATERIALS

Finnish forest industry companies have already introduced new large-scale pilot projects in totally new production areas. Good examples of these are the development of wood-based biofuels, wood-plastic composites and RFID remote identifiers.

- **Construction, packaging, interior decoration and energy production are difficult to realise without the diverse utilisation of wood. Wood can be used as a substitute raw material for almost any oil-based product and all of the potential uses for wood have not yet been tapped.**

- The exploitation of nanocellulose technology will enable the development of entirely new paper grades. **Printed electronics** will likewise open new possibilities as soon as the electronic components, which will be connected to packaging, become inexpensive enough for the needs of the consumers.

- In addition, the forest industry has close ties with the energy sector and investments in bioenergy are opening new paths in this area. In the future, forest industry companies may become bio-integrators and start building biorefineries that generate energy and a variety of products for several kinds of end users.
The total annual growth of Finnish forests is approximately 100 million cubic meters and less than 60% of this is utilized each year. The volume of timber in Finland’s forests increases by tens of millions of cubic meters every year.

In Finland, forest industry production is based on the domestic supply of a raw material extracted from sustainably managed forests. Certification is a good way of demonstrating that forests are managed well and in a sustainable way. At the moment, only about 7% of the world’s forests are certified. Half of the forests of Europe have been certified, whilst in Finland the figure is 96%.

RAW MATERIAL FROM FAMILY-OWNED FORESTS
Over 80% of the wood raw material that the industry uses is procured from privately-owned forests, most of which are the property of ordinary families. More than 150,000 timber sale transactions are concluded annually in Finland. The high number is due to the fact that there are over 440,000 forest properties in our country. The average size of these holdings is 24 hectares.

RECREATIONAL AND COMMERCIAL FOREST UTILISATION GO HAND IN HAND
Finnish forests are used in a multitude of ways. Our unique tradition of public right of access to land, the so-called everyman’s right, allows everyone to move about in refreshing forest environments irrespective of who owns or manages the land.

In addition to the Forest Act and the Nature Conservation Act, forestry in Finland is steered by the National Forest Programme, which sets out the basic procedures to be followed in the long term. The basic point of the programme is that forests must be developed as economically, socially and ecologically sustainable entities.

MORE STRICKLY PROTECTED FORESTS THAN IN ANY OTHER EUROPEAN COUNTRY
Even though Finland has a forest industry that manufactures products for a large export market, the country is also a European leader when it comes to strictly protected forests. Almost 2 million hectares of Finland’s forests are under strict conservation.

Biodiversity is safeguarded in many ways
One of the ways in which the biodiversity of productive forests is protected is by preserving so-called key biotopes. They are valuable forest habitats, which are clearly distinct from their surroundings. In addition, biodiversity in commercial forests is protected by leaving both some living trees and a number of trees that have died standing untouched on logging sites.

More strictly protected forests than in any other European country
Even though Finland has a forest industry that manufactures products for a large export market, the country is also a European leader when it comes to strictly protected forests. Almost 2 million hectares of Finland’s forests are under strict conservation.

FINLAND’S FOREST INDUSTRY KNOWS THE ORIGIN OF ITS RAW MATERIALS
Finnish forest industry companies have since the 1990s been developing methods that aim to ensure the legal origins of wood. Tools to combat illegal logging include company-specific policies and principles, the establishment of long-term business relations with trustworthy suppliers, forest certification, environmental management systems, wood-tracing systems, training and increasing awareness through stakeholder dialogue.

The WWF and the Finnish Forest Industries Federation have agreed on a joint statement on the legal sourcing of wood.

FINNS AMONG THE WORLD LEADERS IN PAPER RECOVERY AND RECYCLING
Over 60% of the paper and paperboard consumed in Finland is recovered – globally, the average rate of recovery is around 50%.

Sustainable raw materials mainly from domestic forests
Renewable energy driver

The forest industry accounts for about 30% of Finland’s overall electricity consumption and spends more than one billion euros on energy annually. At the same time, the forest industry produces almost 70% of Finland’s renewable energy.

Some 40% of the wood acquired by production facilities winds up being used for the generation of bioenergy after various process phases.

The Finnish forest industry has invested over a billion euros into renewable energy and energy-efficiency during the 2000s. Thanks to these efforts, the amount of carbon dioxide emissions per tonne of produced product has decreased by about 40% since 1990.

MORE TONNES, LESS EMissions
Certified quality and environment systems guide the environmental protection efforts of the Finnish forest industry. The starting point is to broadly identify the environmental impacts of activities and the methods available for reducing such impacts.

The forest industry has widely employed the best available technology (BAT). In recent years, special areas of focus have included climate change control and energy-efficiency.

Over the last 15 years, forest industry production has risen by 60%. Over the same period, emissions per tonnes produced have decreased by 70–80%.
A unique combination of competence

The Finnish forest cluster, which comprises forestry, the pulp, paper and wood products industries, machinery and equipment manufacturers, harvesting and transporting contractors, the wood construction sector, the energy sector and the chemical industry as well as research institutions, employs, directly or indirectly, more than 200,000 people in Finland.

The forest cluster intends to maintain its leading position through continuous investments in R&D, innovation and competence. Therefore, the Finnish forest and wood products clusters have outlined their national research agenda and vision to lead the future development.

The forest industry utilises its procured raw materials effectively
Statistics

For the latest facts on the Finnish forest industries, please visit our web site at www.forestindustries.fi – Statistics