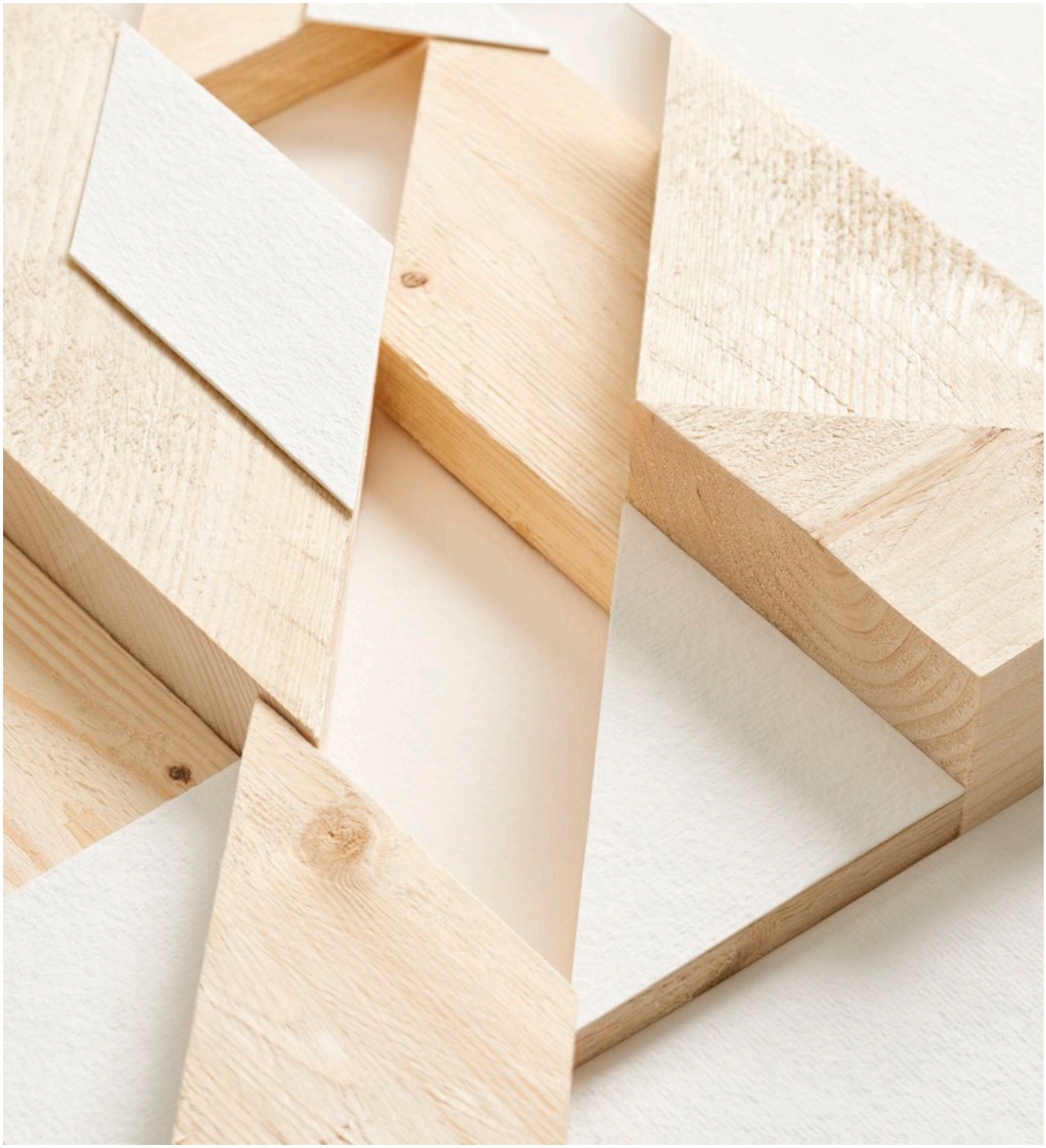
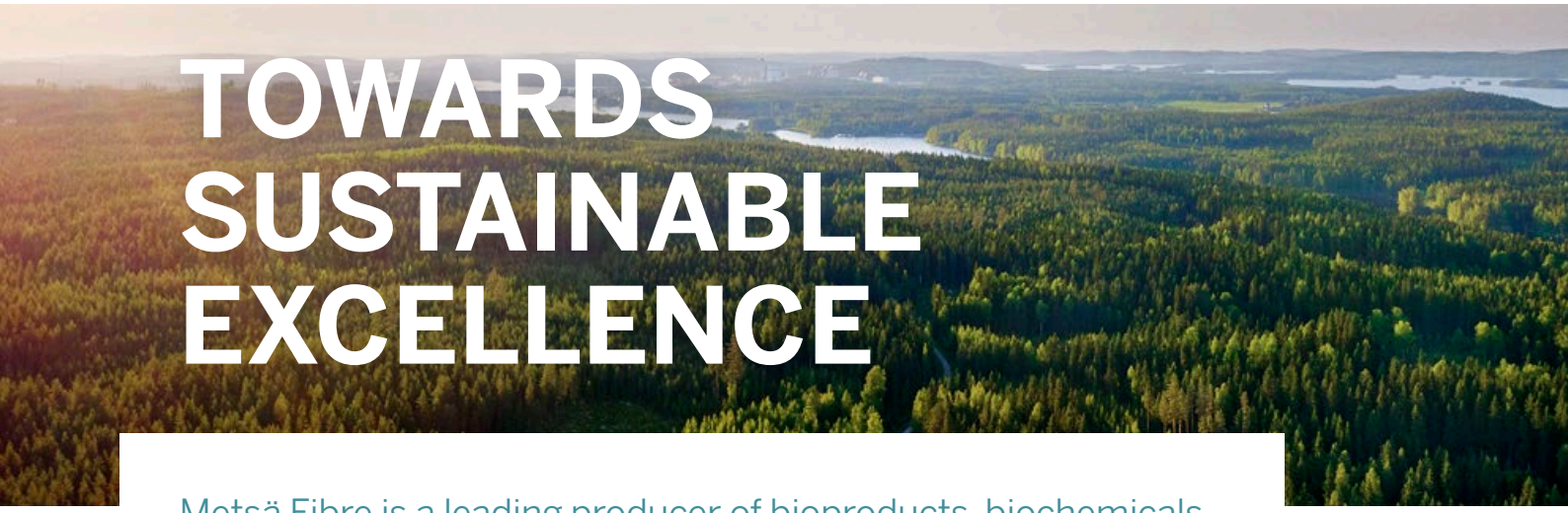
Metsä

METSÄ FIBRE
Annual review 2020



Metsä



TOWARDS SUSTAINABLE EXCELLENCE

Metsä Fibre is a leading producer of bioproducts, biochemicals and bioenergy. We are the world's biggest producer of softwood market pulp and a major producer of sawn timber. Our strategic goal is to be the world's best and most profitable in converting northern wood raw material into valuable bioproducts. In accordance with our mission, we create sustainable growth from our renewable wood raw material. Metsä Fibre is part of Metsä Group.

Review of Metsä Fibre's year 2020 by Ismo Nousiainen, CEO

The year 2020 was exceptional. The global coronavirus pandemic had a significant impact on the market situation of our products. In these exceptional times, it has been utmost important to us to guarantee the health and safety our personnel, borne our social responsibility in the prevention of virus infections and chains of transmission, secure the continuity of our operations and ensure the reliable deliveries of our products to our customers. At the same time, we have systematically advanced our development projects that strengthen our position as the leading market pulp supplier and a significant sawn timber producer.

The global demand for softwood market pulp grew in the tissue paper and paperboard segment, while decreasing significantly in the printing and writing papers end-use sector, especially in Europe. The rapid recovery of the Chinese economy late in the year increased the consumption of market pulp significantly. At the same time, major maintenance shutdowns and unplanned production losses put a strain on the demand and supply situation of the global pulp market.

Early in the spring, construction nearly stopped in Central Europe due to the impact of the coronavirus pandemic and the whole value chain slowed down, decreasing the demand for sawn timber. Demand recovered in the summer, and increased in all main markets during the autumn. The inventory levels of both spruce and pine sawn timber producers decreased towards the end of the year, contributing to a diminished supply.

The production levels of pulp and sawn timber were cut by strikes in the chemical and mechanical forest industry early in the year. In 2020, Metsä Fibre's operating result decreased clearly from the previous year. The company's result was weakened by a lower price level than in the previous year, reduced pulp and sawn timber sales volumes and decreased production levels of other bioproducts.

Investments for future growth

We create sustainable growth from renewable wood raw material. Our operations are based on continuous improvement, and in 2020 we continued the company's purposeful development in line with our strategy. The year's most important investment projects were the construction of the Rauma pine saw mill and advancing the pre-engineering for the Kemi bioproduct mill.

In March, we made the investment decision on building the world's most modern sawmill in Rauma. This is the largest sawmill investment ever made in Finland, and the new sawmill will mean a considerable technological leap for the whole industry. The value of the investment is approximately EUR 200 million, and the new unit's annual capacity will be around 750,000 cubic metres of pine sawn timber. The sawmill will employ around 100 people directly in Finland and around 500 people across its direct value chain. Construction work began in the spring of 2020 and will be completed by the end of September 2021.

Production will start in the third quarter of 2022. The degree of Finnish origin in the construction work is high – approximately 70 per cent – and the employment impact of the construction phase will be 1,500 person-years.

Pre-engineering for the Kemi bioproduct mill progressed as planned. Preliminary agreements for the main equipment deliveries were concluded during the year. Based on the preliminary agreements, the project's degree of Finnish origin is estimated to be high, approximately 70 per cent. The value of the investment is EUR 1.6 billion.

The Regional State Administrative Agency for Northern Finland granted the environmental and water management permits to the mill in December, and the final investment decision was made on 11 February 2021. The planning of the new bioproduct mill is based on a high degree of environmental, energy and material efficiency. The bioproduct mill will not use any fossil fuels at all, and its electricity self-sufficiency rate will be 250 per cent. This will further strengthen Metsä Group's position as a major producer of renewable electrical energy.

The employment impact of the construction phase is estimated to be nearly 10,000 person-years. The Kemi bioproduct mill will produce some 1.5 million tonnes of softwood and hardwood pulp per year, as well as many other bioproducts.

Demand for bioproducts continues to grow

Metsä Fibre's operations are based on our company's strengths: excellent delivery reliability enabled by a stable wood supply and our modern

production units, our solid expertise in the pulp and sawn timber business, and our corporate culture of continuous improvement. These factors, together with the premium-quality wood raw material obtained from sustainably managed forests, form the foundation for our strong market position and long-term customer relationships.

The market for our bioproducts continues to grow. Mitigating climate change requires that we stop using fossil fuels. Resource scarcity, on the other hand, emphasises the significance of the circular economy and resource-efficient operations. Urbanisation and population growth increase the demand for pulp-based products as well as construction, and technology enables innovative co-operation between industrial ecosystems.

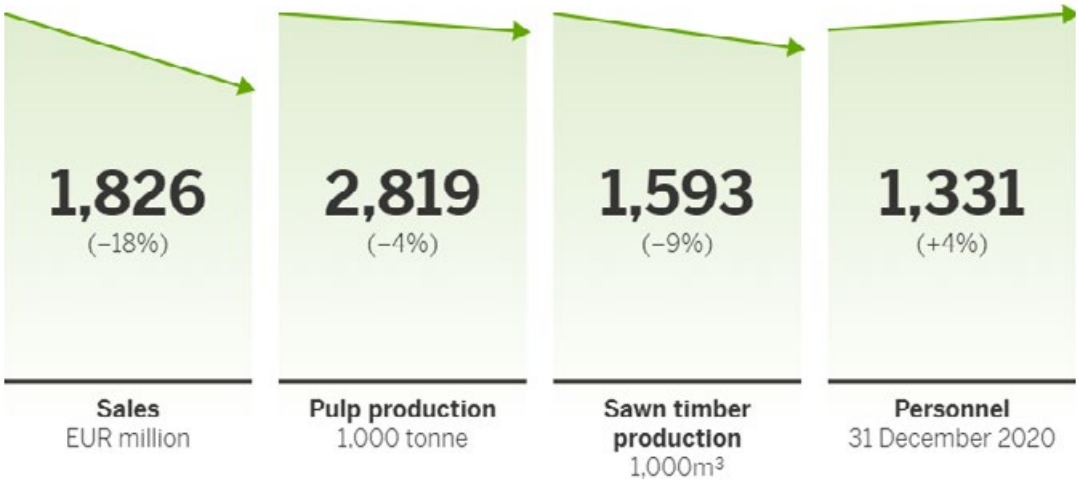
The pulp market is expected to continue on a path of steady growth, especially in China, where the continued rise of the middle class will increase the demand for consumer products. The demand for sawn timber is anticipated to grow, especially with the increasing popularity of wood construction.

Metsä Fibre offers sustainable solutions for global challenges. Sawn timber binds carbon for its entire lifecycle, and products based on renewable wood raw material will increasingly replace fossil-based materials in the future.

I want to thank our employees, customers and partners for their great collaboration in 2020!

Ismo Nousiainen
CEO
Metsä Fibre Oy

2020 key figures



2020 highlights

We are building the world's most modern sawmill in Rauma

We began building a new pine sawmill in the Rauma mill area in spring 2020. The value of the investment is approximately EUR 200 million, and production is scheduled to start at the sawmill during the third quarter of 2022. This will be the largest sawmill investment ever in Finland, and the Rauma sawmill will be a trailblazer in technology and efficiency at a global level.

Kemi bioproduct mill project progressed

Project planning for the construction of the new bioproduct mill in Kemi proceeded to plan. The environmental permit was received in December and the final investment decision was made on 11 February 2021. The value of the investment will be EUR 1.6 billion, which makes it the largest domestic investment in the history of the Finnish forest industry. Preliminary agreements for the main equipment deliveries were concluded during 2020. Based on the preliminary agreements, the project's degree of Finnish origin is estimated to be high, approximately 70 per cent. The plant will produce approximately 1.5 million tonnes of softwood pulp and birch pulp annually, as well as numerous other bioproducts.

Metsä Fibre awarded for its sustainability work

Metsä Fibre received the EcoVadis platinum-level award – the highest possible level – for its efforts to promote sustainability, and is among the top one per cent of pulp paper and paper carton manufacturers assessed by EcoVadis. Metsä Fibre received recognition for work related to the environment, working life practices, fair business practices and supply chains. Metsä Fibre's operations received particularly good reviews (90 out of 100 points) in relation to environmental matters.

Uncompromising efforts to prevent coronavirus infections

All Metsä Fibre sites have worked hard to prevent coronavirus infections, and production has continued as usual even during the pandemic. Personnel have been involved in developing new practices, and some of the new measures have been found to be so good that they will remain in use even after the crisis.

Äänekoski bioproduct mill chosen as the Mill of the Future

Äänekoski bioproduct mill won the Mill of the Future award at the Pulp & Paper Industry's PPI Awards 2020. Among the assessment criteria were modern and innovative solutions affecting the mill's efficiency, production and environmental performance. The mill won especial praise for its its efficient solutions regarding material, energy and environmental matters and extensive bioproduct concept.

Our unique bioproduct concept expanding

Metsä Fibre, in collaboration with Veolia, has investigated the purification of raw methanol from the pulp production process into commercial biomethanol. As part of this partnership, Veolia is planning to build a raw methanol processing plant in connection with the Äänekoski bioproduct mill. This project strengthens Metsä Fibre's bioproduct concept, whereby all components of renewable wood raw materials are used as various value-added products.

FINANCE

In 2020, we delivered 2.8 million tonnes of pulp and 1.6 million cubic metres of sawn timber to our customers. We are the world's leading producer of bleached softwood market pulp and a major producer of sawn softwood. We aim to strengthen our position further in both the pulp and sawn timber business. To achieve this goal, we will build the world's most modern pine sawmill in Rauma, as well as a new bioproduct mill in Kemi.

Read more about Metsä Fibre's year 2020 in CEO Ismo Nousiainen's review.

Key figures

	2020	2019	2018	2017	2016
Sales EUR million	1,826	2,236	2,469	1,876	1,351
Comparable operating result EUR million	4	249	669	320	219
Investments EUR million	132	63	62	436	548
Return on capital employed %	0.2	12	35	24	20
Equity ratio %	55	57	55	48	57
Net gearing ratio %	15	10	1	35	23

Production

Metsä Fibre has four pulp mills and six saw mills

Our pulp mills are located in Joutseno, Kemi, Rauma and Äänekoski. Their combined annual pulp production capacity is 3.3 million tonnes and we are the world's leading producer of bleached softwood market pulp.

Our Finnish sawmills are located in Kyrö, Lappeenranta, Merikarvia, Renko and Vilppula and in addition to these, we have one sawmill in Russia, in Svir. Our combined annual production capacity for sawn timber is 1.8 million m3 of sawn softwood.

Pulp production (1,000 tonne)

	2020	2019	2018	2017	2016
Joutseno	574	638	675	655	619
Kemi	570	566	593	598	604
Rauma	541	600	557	568	585
Äänekoski*	1,134	1,143	1,148	666	510
Total	**2,819**	**2,948**	**2,973**	**2,487**	**2,318**

*) The previous Äänekoski mill in production until 8/2017, and the new bioproduct mill as of 8/2017. 2017 production figure represents the combined production at Äänekoski in 2017.

Timber production (1,000 m³)

	2020	2019	2018**	2017	2016*
Kyrö	196	221	228	232	219
Lappeenranta	206	238	243	253	234
Merikarvia	179	214	220	223	227
Renko	257	290	308	310	322
Vilppula	488	491	510	514	481
Metsä Svir	268	288	281	274	263
Total	**1,593**	**1,741**	**1,819**	**1,852**	**1,795**

*) Metsä Group's Finnish sawmills were integrated into Metsä Fibre on 1 November 2016.
**) Eskola sawmill was part of Metsä Fibre until 7/2018

Sales

Pulp sales

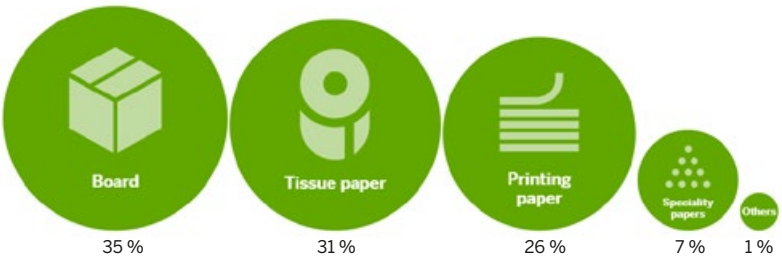
We manufacture softwood and hardwood pulp. The end products of softwood pulp have excellent strength properties, while hardwood pulp improves the surface properties of products.

All pulp grades in the Metsä range are certified and meet the purity criteria for products that come into contact with food, for example. The most important end uses of Metsä pulp are paperboards, tissue papers, printing papers and speciality products.

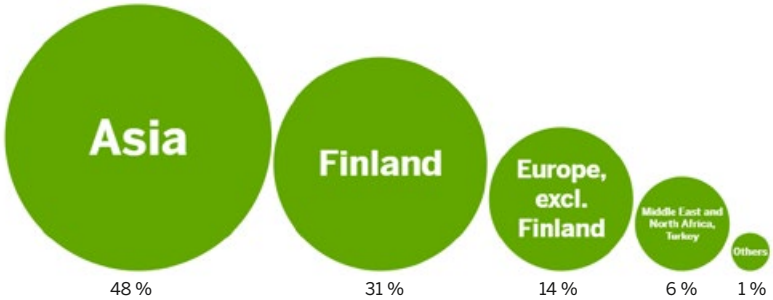
Most of the pulp we produce is used in Finland and Asia. Market pulp accounts for approximately 70 per cent of the pulp deliveries.

We develop our pulp grades in close collaboration with our customers to ensure that our products meet their requirements for the properties of the fibre and paper. Our pulp selection is complemented by our diverse expert services, which allow us to support our customers' processed and business operations.

End use of Metsä pulp



Pulp sales volumes by market areas, %



Sawn timber sales

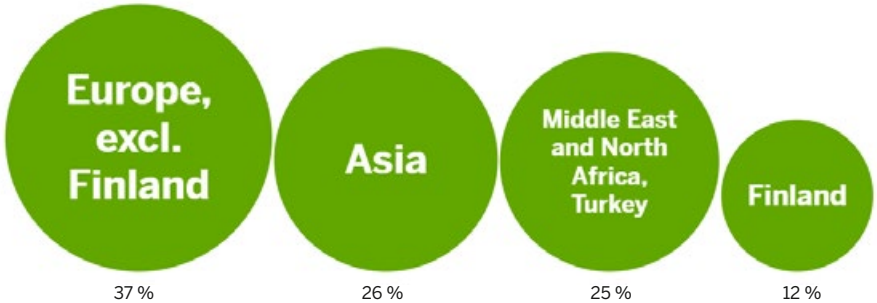
We produce premium sawn timber from northern pine and spruce, and serve customers around the world.

Our most important export markets for sawn timber are Europe, Asia and the Middle East. We export some 90% of our spruce sawn timber and some 80% of our pine sawn timber.

Our sawn timber is delivered mainly to distributors for use in industrial planing, the woodworking industry as well as the door and window industry. Our efficient production lines ensure a high-quality, smooth and even sawn surfaces, precise dimensions and excellent drying results.

End use of sawn timber, %

Sawn timber sales volumes by market areas, %

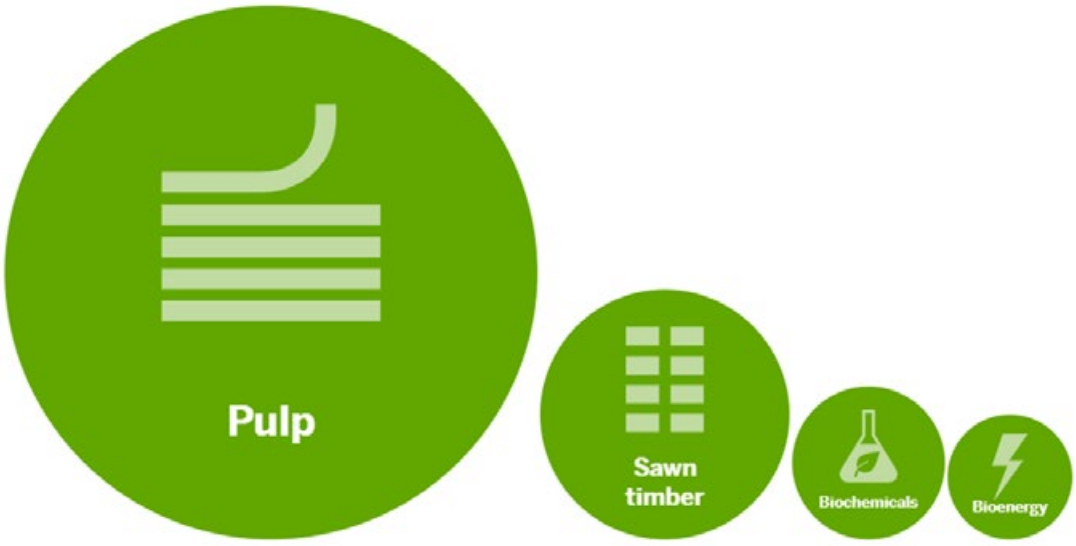


Other bioproduct sales

Metsä Fibre is a leading producer in the world market of chemicals derived from northern wood. We produce crude tall oil and crude turpentine as well as bioenergy as a by-product of pulp production.

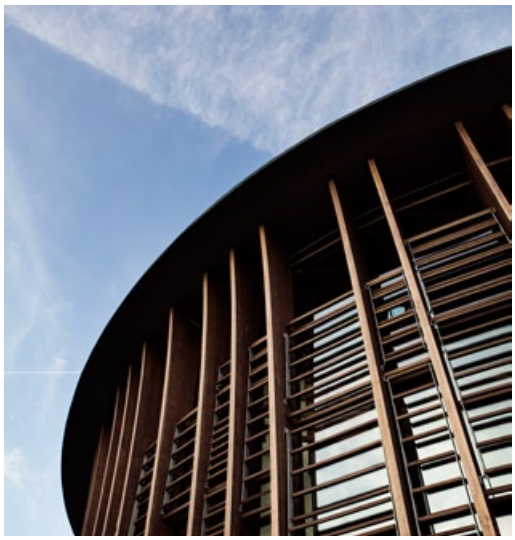
- **Crude tall oil** is used as a raw material in the production of adhesives, rubbers and inks as well as pharmaceuticals and biofuels. It is also used as a binding agent in cement and asphalt.
- **Crude turpentine** is a compound used, in a processed form, in fragrances, cosmetics, paint, varnish and solvents, and in household and industrial detergents.
- We supply **bioenergy** in the form of district heat to local communities and electricity to the grid.

We have made a commitment to utilise our wood raw material as efficiently and diversely as possible. The material side streams accumulating from the main production of pulp offer a wide range of possibilities for the development and conversion of innovative bioproducts.



73 % 16 % 6 % 4 %

Read more



Growing popularity of wood construction

Wooden buildings have an important role in efforts to mitigate climate change. New wood construction is based on industrially manufactured materials and large elements, from which houses can be assembled quickly.

Pulp lends itself to many things

Pulp has been manufactured for over 100 years, but its versatility still comes as a surprise. Did you know that pulp based products can be used to replace plastic, you can wear them and even eat them. Pulp has numerous end uses and more are being discovered.

Sawmills use 100 per cent of their wood raw material

Metsä Fibre's sawmills do not waste a single stick of wood. The parts not fit for refining are used in the production of bioenergy. Thanks to the meticulous use of wood, the sawmills are virtually fossil-free.

The bioproduct mill concept is a cost-effective solution for sustainable business operations

Bioproducts made from renewable raw materials replace fossil-based raw materials. Metsä Fibre's unique bioproduct mill concept takes resource efficiency to a whole new level. The basic idea is to make 100% use of the different parts of a tree.

SUSTAINABILITY

Sustainable development and responsibility are an integral part of all our operations. We use Nordic wood from sustainably managed forests and make products that can replace fossil-based raw materials and other materials in a resource-efficient manner. We ensure environmental, energy and materials efficiency as well as the high quality of our products, and we aim for sustainable excellence through continuous improvement.

Our operations support the achievement of the UN's Sustainable Development Goals.

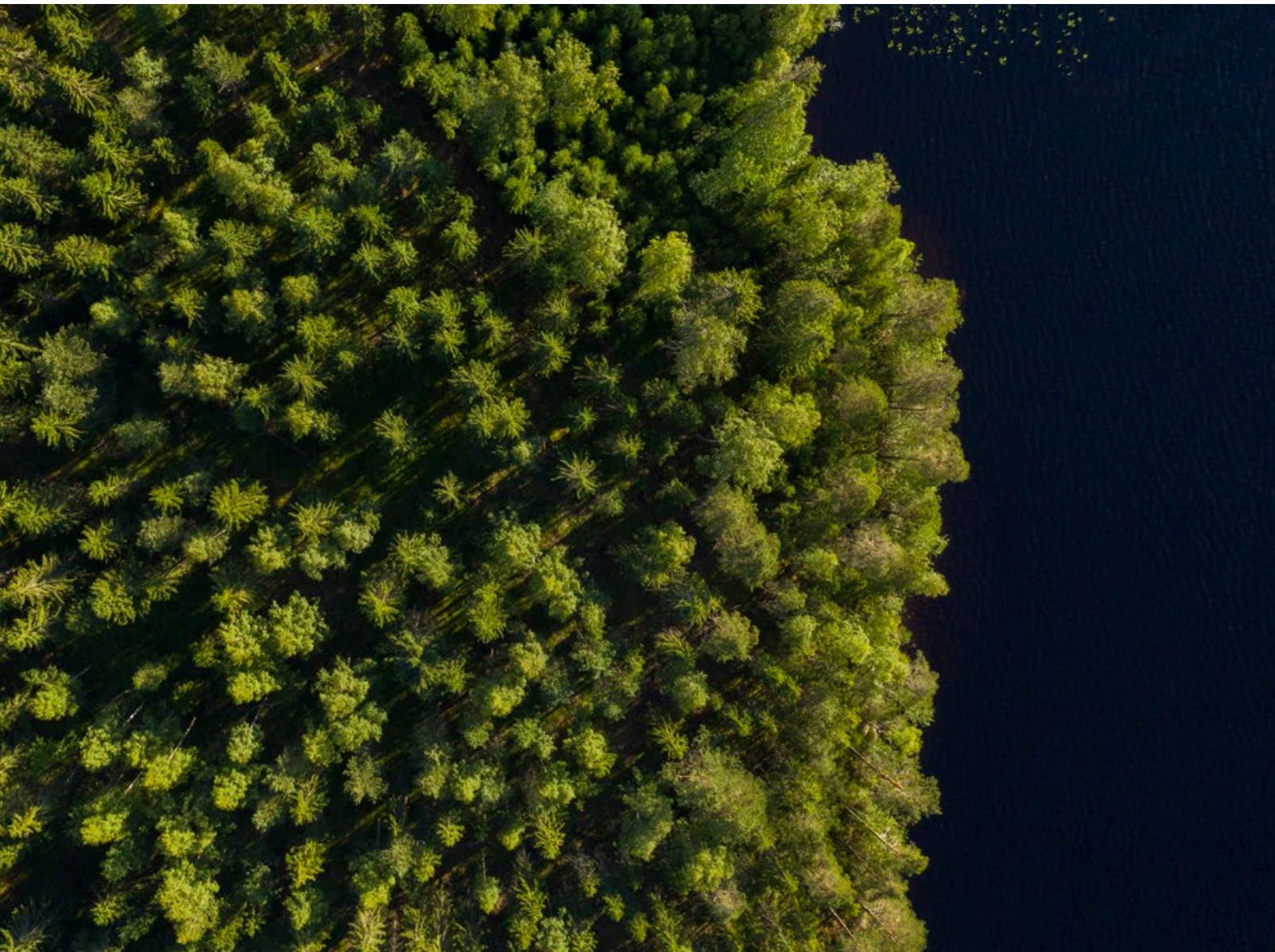
Sustainable Development Goals 2030

Metsä Group's strategic sustainable development goals for 2030 create a path towards a climate-neutral society. Metsä Fibre plays an important role in achieving these goals.

- Increasing the amount of carbon sequestered in forests by 30 per cent since 2018.
- Increasing the amount of carbon sequestered in products by 30 per cent from 2018.
- Safeguarding the diversity of forest nature.
- Fossil-free mills: no fossil fuels.
- Production side streams are utilised 100 per cent.
- Process water use per product tonne (m^3/t) will be decreased by 25 per cent between 2018 and 2030.
- Share of fossil-free raw materials 100 per cent.
- All our suppliers operate according to the set environmental, social and economic responsibility requirements (Supplier Code of Conduct).
- Traceability of raw materials 100 per cent.
- Ethics barometer 100 per cent.
- An accident-free working environment – aiming for zero accidents.

For further information, please visit our web pages: www.metsafibre.com.

In 2020, we received EcoVadis' highest platinum level recognition for our work on sustainability. With this result, we are among the top one per cent of pulp, paper and paperboard manufacturers assessed by EcoVadis.



Use of wood

All of the wood we use, meaning 100% of it, is traceable and comes from certified or controlled forests. This allows us to ensure the legality of the wood supply as well as the acceptability and sustainability of the supply chain. A tracing system allows us to trace the origin of the wood we purchase all the way up to an individual felling site.

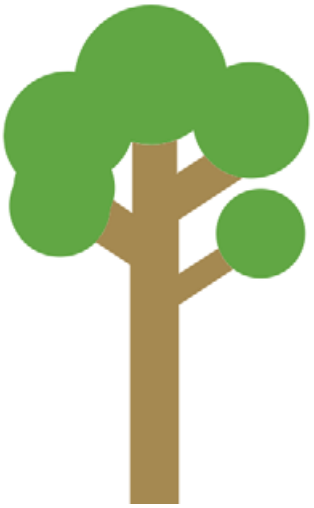
The northern wood used by Metsä Fibre is bought from sustainably managed forests in areas where the forests grow more than they are used. 90% of the wood used by Metsä Fibre is certified – an excellent figure in our line of business.

Forest regeneration is always part of sustainable forest management, and we require environmental values to be considered in all forestry measures. A forest is always regenerated after a felling, and Metsä Group uses domestic tree species and seedlings in forest regeneration. The diversity of forest nature is also protected in many ways.

We use every part of the tree in the best possible way to create the most value. We use logs at sawmills, and produce pulp and other bioproducts from pulp wood and sawmill chips. Branches and treetops are used to produce bioenergy.

	2020	2019	2018	2017	2016
Total wood consumption million m³	18	19	19	17	13
Share of certified wood %	90	90	92	92	90

We utilize wood 100%



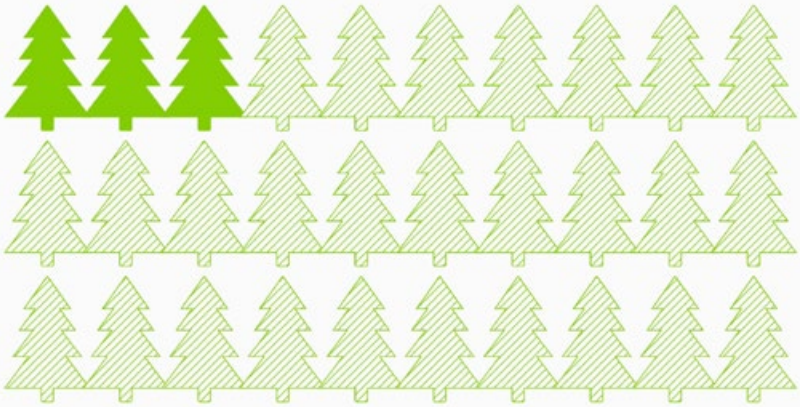
15 %
Bark, branches and treetop
For renewable energy

25 %
Pulpwood
For pulp and other bioproducts

60 %
Log wood
For sawn timber and other wood products

Forest certification

Around **10%** of the world's forests are certified



Only **25%** of the (industrially) recoverable forest assets are certified

90% of the wood used by the Metsä Fibre's production units comes from certified forests

Environmental performance

Emissions into water

Our sustainability goals include decreasing the use of process water per product tonne throughout Metsä Group by 25% by 2030. To achieve this goal, we engage in long-term and systematic work in line with the principles of continuous improvement.

The steady operation and good usability of production units as well as scheduled preventive maintenance and maintenance shutdowns play a key role in increasing the efficiency of water use.

We use and recycle water as efficiently as possible within our processes and actively look for new targets where the water flow can continue to be improved.

The sawmills' production processes generate nominal volumes of wastewater, which is treated in municipal wastewater treatment plants. The exception to this is the Svir sawmill, which has its own wastewater treatment plant.

	Process water volume 1,000 m³	Total suspended solids t	Chemical oxygen demand (COD) t	Biological oxygen demand (BOD) t	Phosphorus P t	Nitrogen N t	AOX t
Joutseno	17,230	844	7,144	189	8	138	97
Kemi	17,609	496	7,545	126	5	114	54
Rauma	12,380	165	8,390	69	3	52	69
Äänekoski	24,267	508	8,150	143	7	85	133
Total	**71,486**	**2,013**	**31,229**	**526**	**23**	**389**	**353**
2019	74,675	2,297	33,422	522	26	445	363

Definitions of the terms can be found on page 28 of this report.

Emissions into air

Our sustainability goals include fossil-free mills by 2030. Even today, most of the fuels used in our production are bio-based, and the majority of them are production side streams. Among the materials we use as energy are bark, black liquor produced in pulp production and sawdust from sawdust sawn timber production.

The increase in fossil-based CO2 emissions figures is explained by the incorporation of the Äänekoski energy production unit (formerly Äänevoima Oy) into Metsä Fibre in 2019. The unit produces energy for the Äänekoski integrated mill (excluding the bioproduct mill) and district heating for the town of Äänekoski.

By utilising the side streams generated in the process as extensively as possible, we improve the resource, energy and environmental efficiency of our production facilities.

Pulp mills

	Sulphur dioxide (as SO_2) t	NOX (as NO_2) t	CO_2 from fossil sources 1,000 t	CO_2 from biomass 1,000 t	Particles t	TRS (as S) t
Joutseno	252	990	27	1,439	230	5
Kemi	89	1,139	63	1,372	69	15
Rauma	20	864	85	1,273	178	17
Äänekoski	8	1,662	0	3,071	28	12
Energy Unit	93	93	49	106	2	0
Total	**463**	**4,748**	**224**	**7,262**	**507**	**49**
2019	625	4,730	237	7,640	473	47

*) The energy production unit (formerly Äänevoima Oy) produces energy for the Äänekoski integrated mill and district heating for the town of Äänekoski. The unit was incorporated into Metsä Fibre in 2019.

Sawmills

	Sulphur dioxide (as SO_2) t	NOX (as NO_2) t	CO_2 from fossil sources 1,000 t	CO_2 from biomass 1,000 t	Particles t
Kyrö	3	20	1	1	19
Lappeenranta	0	22	0	0	2
Merikarvia	0	16	1	1	11
Renko	0	23	1	1	5
Vilppula	14	79	2	2	11
Metsä Svir	0	23	0	0	1
Total	**17**	**183**	**5**	**5**	**50**
2019	28	224	4	4	64

Total

	Sulphur dioxide (as SO_2) t	NOX (as NO_2) t	CO_2 from fossil sources 1,000 t	CO_2 from biomass 1,000 t	Particles t	TRS (as S) t
Company total	**480**	**4,930**	**229**	**7,455**	**557**	**49**
2019	653	4,954	341	7,867	537	47

Waste

Our goal is to utilise production side streams fully by 2030 and to achieve a state in which our production will not generate landfill waste. Already, an extremely large portion of production side streams can be put to use as various by-products and energy. At the moment, the green liquor dregs generated in the pulp process is the only category for which there is not yet a clear use. We are actively looking for applications in which it could be used and the topic is also the subject of research projects.

Pulp mills

	Landfill waste t	Hazardous waste t
Joutseno	9,405	121
Kemi	7,111	38
Rauma	9,127	66
Äänekoski	15,791	38
Total	**41,433**	**264**
2019	48,329	279

Sawmills

	Landfill waste t	Hazardous waste t
Kyrö	0	15
Lappeenranta	0	56
Merikarvia	76	9
Renko	712	7
Vilppula	0	8
Metsä Svir	6	0
Total	**794**	**96**
2019	266	73

Total

	Landfill waste t	Hazardous waste t
Company total	**42,227**	**360**
2019	48,595	352

Energy

The self-sufficiency rate of Metsä Fibre's mills in terms of electrical energy totals 166%, and we are a significant producer of bioelectricity. In 2020, Metsä Fibre accounted for 8% of the electricity produced from renewable energy sources in Finland, and 12% of renewable energy.

In addition to our own production, we produce bioenergy for the grid as electricity and as district heat for nearby communities.

Alongside increasing the share of bioenergy, we are focusing on energy efficiency and the replacement of fossil fuels by renewable fuels. Improving the energy efficiency of our production units is a key part of our investments in production.

Pulp mills

	Wood based fuel use GWh	Fossil fuel use GWh	Purchased electricity GWh	Purchased heat GWh	Electricity self-sufficiency %
Joutseno	3,635	134	-249	-22	142
Kemi	3,465	221	-148	-428	141
Rauma	3,216	297	-146	-168	170
Äänekoski	7,755	–	-601	-272	191
Energy Unit	268	154	14	-306	
Total	**18,339**	**805**	**-1,052**	**-1,252**	**168**
2019	19,293	853	-1,358	-1,640	177

Sawmills

	Wood based fuel use GWh	Fossil fuel use GWh	Purchased electricity GWh	Purchased heat GWh
Kyrö	59	3	14	0
Lappeenranta	62	0	16	0
Merikarvia	57	2	13	0
Renko	72	2	8	0
Vilppula	164	9	14	0
Metsä Svir	72	0	12	0
Total	**487**	**17**	**78**	**0**
2019	577	25	89	-74

Total

	Wood based fuel use GWh	Fossil fuel use GWh	Purchased electricity GWh	Purchased heat GWh
Company total	**18,825**	**822**	**-1,035**	**-1,252**
2019	19,865	869	-1,271	-1,711

The continuous development

Our operations promote sustainability every day of the year

Sustainability principles are visible daily in Metsä Fibre's operations. Our central goal is to minimise emissions and environmental impact, and we all have an important role to play in this work. Our personnel's expertise plays a key role as we implement the necessary measures to achieve Metsä Group's targets in decreasing fossil carbon dioxide emissions, and improve our production's process water use and resource efficiency. We are also systematically making investments that support our sustainability goals.

The strikes in the chemical and mechanical forest industry early in the year caused exceptionally long production shutdowns, during which the management of the operation of pulp mills' wastewater treatment plants and other issues required special care. It was essential that biological wastewater treatment could be kept in operation, and the conditions and wastewater treatment could be restored to normal as soon as possible after production resumed. Wastewater was treated effectively in all situations, and the environmental burdens led into waterways were below the limit values at all our mills in 2020. The environmental impact of sawmills' production processes was nominal, and the operation of sawmills conformed to the requirements in 2020.

During 2020, our operations had six cases of non-conformity regarding emissions into the air. In Äänekoski, a process malfunction of the lime mud filter led to exceeding the permit limit for TRS concentrations, i.e. reduced sulphur compounds. Another case of exceeding the permit limit in Äänekoski occurred at the energy unit, where the NOx content, i.e. the amount of nitrogen oxides, exceeded the permit limit in June. At the Joutseno pulp mill, the processing of weak odorous gases exceeded the permitted monthly average limit in October. In addition, the chlorine content of vapour discharged into the air from bleaching exceeded the permitted limit in the annual one-off measurement. At the Rauma pulp mill, the daily permitted limit for the recovery boiler's SO_2 (sulphur dioxide) content was exceeded twice during the boiler start-up. In all situations, we analysed the reasons for the non-conformities and immediately started corrective measures to restore operations to the normal level.

Our most important environmental investment in 2020 was the scrubber for the lime kiln at the Joutseno pulp mill to enhance the treatment of its particulate matters. In addition, a new retention pool for treating water with solids content was introduced in Joutseno. The new retention pool will significantly decrease the solids load on the waterways.

We develop our operations continuously

Metsä Fibre's goal is to be a forerunner in the continuous development of environmental performance. We work towards this goal both within our daily operations and through long-term strategic development and investments. We use the best available techniques (BAT) at our production units.

We continued the long-term efforts to decrease the use of process water by investigating new possibilities for increasing water efficiency. This work is continuing systematically so that we can achieve our targets for process water use by 2030. Our objective is to reduce process water use per product tonne by 25% in 2018–2030. We can thus also

minimise the nutrient load on waterways. For example, at the Kemi pulp mill, we have been able to minimise the dispensing of additional nitrogen nutrients needed at the treatment plant through a review of ways of working and the mill's operating models. We have thus minimised the nitrogen load on waterways.

We improve our resource and material efficiency by using the side streams arising from our production as much as possible. Our goal is to use production side streams in full by 2030. To accomplish this, we are actively studying possible sustainable uses for green liquor dregs. A concrete example of this work is the test field constructed in Äänekoski, where green liquor dregs were used in the structure.

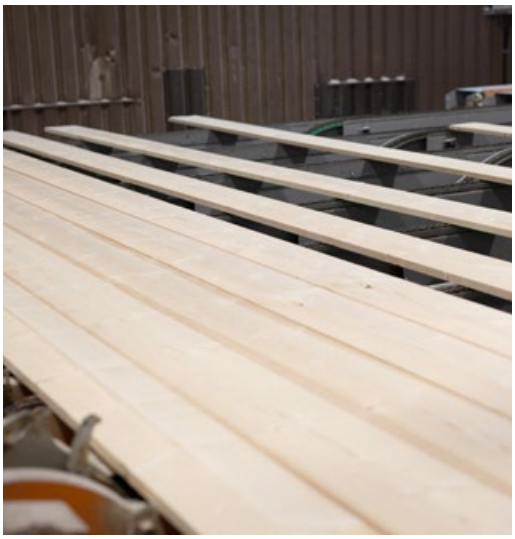
We further improve the energy efficiency of our production units through active development work and investments. Metsä Fibre has joined the Energy Efficiency Agreement for energy-intensive industry. The mills' energy efficiency will be constantly developed in line with it. For example, an external analysis of energy-saving possibilities was conducted at the Äänekoski bioproduct mill, and several improvements were implemented based on the results. Through these actions, we ensure efficient bioenergy production at our mills. Our operations are based on high environmental, material and energy efficiency, and our target is fossil-free mills by 2030.

In accordance with the principles of continuous improvement, we take sustainability into consideration in all our action plans and investments. We collaborate actively and openly with various stakeholders. For example, we have organised a number of open public events and meetings with stakeholders about the Kemi bioproduct mill project. Our good environmental performance also provides our customers with added value and a competitive edge.

Read more

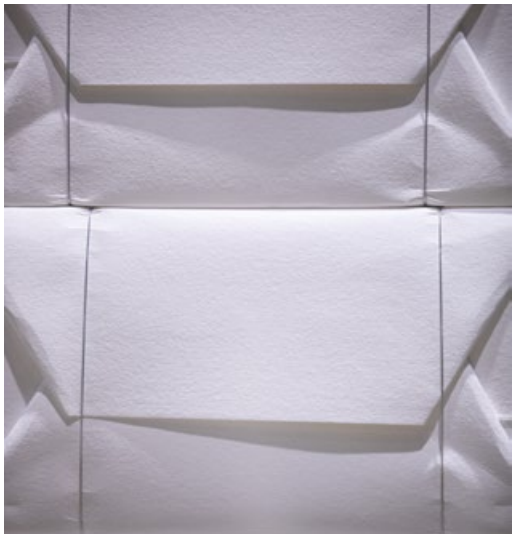
Wood products provide significant carbon storage

Growing forests remove carbon dioxide from the atmosphere, and sawn timber stores carbon for decades.



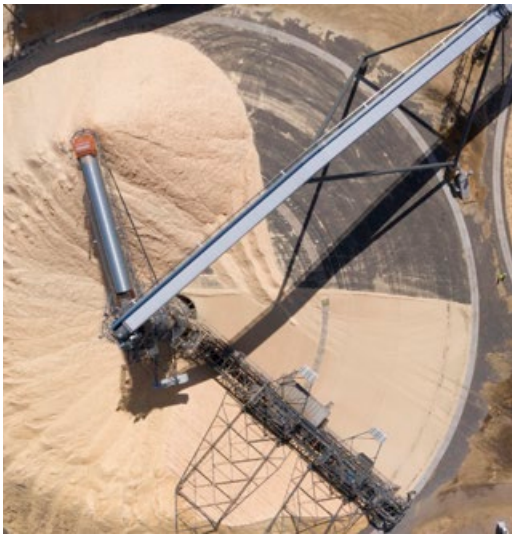
Sustainably produced sawn timber

The sustainability of sawn timber produced by Metsä Fibre is based on sustainably managed forests, the certification and traceability of wood raw materials and low-carbon production.



Sustainably produced pulp

Metsä Fibre aims to be the world's most responsible pulp producer. That is why our goal is to completely replace fossil fuels in our production with biofuels. Reliability in matters involving sustainability also benefits customers.



The bioeconomy is based on the sustainable use of renewable natural resources

Renewable resources are used as raw materials in the bioeconomy. With the aid of the economy, it is possible to decrease dependence on fossil natural resources, to prevent the impoverishment of ecosystems and to facilitate economic development by creating new jobs according to the principles of sustainability.

PERSONNEL

Our operations aim for sustainable excellence. Its achievement requires first-rate safety at work and our goal is indeed zero accidents in all our locations. At Metsä Fibre, safety is part of our professional skills, and proactive safety work is part of our everyday operations. We invest in the continuous development of our employees' professional skills through both on-the-job learning and training, and we offer summer jobs to dozens of young people as well as apprenticeship training for several people every year.

Metsä Fibre employs 1,331 professionals. We are also a significant employer indirectly, as each job in the Finnish forest industry indirectly creates three other jobs.

Metsä Fibre is a leading producer of bioproducts and bioenergy. We produce pulp and other bioproducts as well as bioenergy at four mills in Finland. We produce sawn timber products at five sawmills in Finland and one sawmill in Russia.

Joutseno pulp mill
- 138 employees
- Capacity 690,000 t bleached softwood pulp
- Wood consumption 3,155,000 m³
- Share of certified wood 89%
- Electricity self-sufficiency 142%

Kyrö sawmill
- 75 employees
- Capacity 230,000 m³ pine sawn timber
- Wood consumption 410,000 m³
- Share of certified wood 97%

Renko sawmill
- 82 employees
- Capacity 320,000 m³ spruce sawn timber
- Wood consumption 542,000 m³
- Share of certified wood 96%

Kemi pulp mill
- 161 employees
- Capacity 620,000 t bleached softwood and hardwood pulp
- Wood consumption 2,887,000 m³
- Share of certified wood 95%
- Electricity self-sufficiency 141%

Lappeenranta sawmill
- 75 employees
- Capacity 250,000 m³ pine sawn timber
- Wood consumption 424,000 m³
- Share of certified wood 97%

Vilppula sawmill
- 104 employees
- Capacity 535,000 m³ spruce sawn timber
- Wood consumption 1,014,000 m³
- Share of certified wood 93%

Rauma pulp mill
- 124 employees
- Capacity 650,000 t bleached softwood pulp
- Wood consumption 2,939,000 m³
- Share of certified wood 83%
- Electricity self-sufficiency 170%

Merikarvia sawmill
- 75 employees
- Capacity 220,000 m³ pine sawn timber
- Wood consumption 373,000 m³
- Share of certified wood 97%

Metsä Svir sawmill
- 117 employees
- Capacity 285,000 m³ spruce sawn timber
- Wood consumption 574,000 m³
- Share of certified wood 61%

Äänekoski bioproduct mill
- 181 employees
- Capacity 1.3 million t bleached softwood and hardwood pulp
- Wood consumption 5,774,000 m³
- Share of certified wood 92%
- Electricity self-sufficiency 191%

Safety and wellbeing at work

Occupational safety

Safety is our top priority in everything we do, and everyone at Metsä Fibre has the right to a safe workplace. Our goal is zero accidents and we want to make sure that every Metsä Fibre employee and every employee of our partners heads home healthy. Safety is part of our professional skills.

Key aspects of safety management include proactive safety work, risk identification and assessment, addressing unsafe working methods, and the entire personnel's commitment. Examples of daily proactive safety work include regular toolbox meetings and safety inspections at our mills and sawmills, as well as actively implemented safety observations. We report and investigate all accidents at work and also share the lessons learned from the inspections with our other mills in order to avoid similar accidents in the future.

We engage in long-term efforts to improve safety at work and require occupational safety skills from our suppliers and partners as well. We familiarise each of our employees and partner companies working in our mills with safe working methods, and working in the mill area requires a safety orientation.

Lost-time accident frequency rate per million worked hours	2020	2019	2018	2017	2016
Sawmills	10.3	14.8	7.2		
Pulp mills	4.8	4.7	5.9		
Metsä Fibre total	**6.6**	**8.7**	**5.9**	**5.2**	**7.2**

	2020	2019	2018	2017	2016
TRIF total recordable incident frequency per million worked hours	8.4	20.2	17.1	17.2	21.6
Sickness absenteeism % of theoretical working time	3.7	4.1	3.7	3.7	3.7
Work accident absenteeism % of theoretical working time	0.2	0.2	0.1	0.2	0.1

Wellbeing at work

Continuous improvement. This creates opportunities to increase skills and find new strengths. As an employer, we are guided by a number of policies and our Code of Conduct, which was revised in 2019, and we require every Metsä Fibre employee to comply with it.

For us, excellent management is inspiring, goal-oriented, demanding and fair. Everyone has a right to an annual performance and development appraisal. We support employee development by providing on-the-job learning, training courses and work cycles.

Promoting and maintaining wellbeing at work and working capacity is based on proactive action. We have at our disposal early support, work capacity assessments and a model with a personal work capacity plan.

Based on a regular personnel survey, development measures are set for identified development areas, and we systematically monitor the implementation of these.

Sustainable and responsible business culture

In 2020, Metsä Group carried out a large-scale ethics barometer survey with the aim of investigating how personnel feel that the company's Code of Conduct is implemented in practice. A total of 810 Metsä Fibre employees responded to the survey.

Overall, the results of this first ethics barometer were good, and employees' awareness of the ethical requirements of the company's operations is very good level. Also, the topic is considered important and employees feel that the company is operating ethically. There are areas where personnel management can be improved, as well as in regard to equal treatment of personnel and the working culture, where employees dare to report unethical activities. Shortcomings are also addressed. Based on the results, development measures have been initiated to promote an increasingly ethical operating culture.

Sustainable business culture, which the ethics barometer measures, is one of Metsä Group's strategic sustainability goals for 2030. The target set for the ethical index resulting from use of the barometer is 100% by 2030. The result of the first survey was 83.5 per cent for Metsä Fibre. In the future, the ethics barometer will be carried out every second year in connection with the work community functionality study.

People in Metsä Fibre

We at Metsä Fibre are proud of our heritage and strong industry expertise. We work in the forefront of the forest industry and focus on developing sustainable solutions for the future. We work together to implement Metsä Fibre strategy for sustainable excellence.

The high quality of our products is based on the extensive expertise of our employees. We invest in the continuous development of our employees' professional skills through both on-the-job learning and training. Each one of us is focused on developing, producing and delivering products and services that meet our customers' needs. We aim for a strong, innovative culture with a winning attitude, and we do it all while paying close attention to safety, responsibility and sustainability.

Our work is guided by our values: reliability, cooperation, responsible profitability and renewal. We develop our operations in cooperation with our stakeholders.

Personnel 31 December 2020 1,331 persons	Share of permanent employees 90 %	Share of full-time employees 98 %	Average age 44.2 years	Average years served 15.9 years	Recruitments 91 persons
Ratio between men/women 84/16 %	Male/female ratio among supervisors 86/14 %	Male/female ratio in the company's management team 85/15 %	Ethics barometer result 2020* 83.5	Code of Conduct performance 99 % of employees	Average training hours per employee 9.5 hours

Read more

Nature paths close to the Kemi pulp mill

Environmental responsibility is an important part of Metsä Fibre's operations in the localities where our mills operate. In Kemi, nature is safeguarded in partnership with the area's residents. Only about half a kilometre from the mill area is located Kiikeli outdoor recreation area.

Practical safety work is everyday life at pulp mills and sawmills

Metsä Fibre's safety management aims to ensure safe working conditions for all employees and partners at all the company's locations. The key roles include foresight, identifying risks related to work tasks, and continuously making safety observations.

Seamless collaboration for preventing coronavirus infections

The coronavirus crisis resulted in extensive special arrangements for annual maintenance shutdowns at Metsä Fibre pulp mills. The healthcare services provider Terveystalo set up testing stations at the mill sites, carrying out almost 2,000 coronavirus tests during the shutdowns. The major test effort was a fine display of well-functioning cooperation.

Sawmill project a once-in-a-lifetime experience

Liisa-Maija Perävainio, Mill Manager of the sawmill to be built in Rauma, has been working on the Rauma sawmill project since the beginning. "This is a unique opportunity to be involved in a rarely encountered world-class project", Perävainio says.

Glossary

AOX

AOX derives from chlorine dioxide bleaching and it describes the organic chlorine compounds bound to biological compounds.

Biological oxygen demand BOD

The volume of oxygen consumed by the degradation of wastewater in the waterways. The BOD figure provides an idea of how much wastewaters contain easily degradable biological materials.

Chemical oxygen demand COD

A value used to monitor the quality of treated wastewater and its organic load on waterways. The COD describes the combined volume of both quickly and slowly degradable biological materials in the wastewater.

CO_2 biofuel

Carbon dioxide emissions are produced during the combustion of biofuels, such as wood-based fuels.

CO_2 fossil-based

Fossil-based carbon dioxide emissions are produced during the combustion of fossil fuels, such as heavy fuel oil.

Nitrogen (N)

The nutrient inputs of waterways, which have an impact on their eutrophication.

NO_x NO_2

Nitrogen oxides produced during combustion which have an impact on air quality.

Phosphorus P

The nutrient inputs of waterways, which have an impact on their eutrophication.

Particles

Combustion-derived particles which have an impact on air quality.

Sulphur dioxide SO_2

Compounds produced during combustion which have an impact on air quality.

TRS S

Reduced sulphur compounds generated in pulp production which may cause odour nuisance during a disturbance. In a normal situation, the compounds are recovered and treated.

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