



Welcome to read about our contribution to circular bioeconomy. Stora Enso's Annual Report 2020 includes our strategic, sustainability and financial performance, governance, and remuneration.

THE RENEWABLE MATERIALS COMPANY

Stora Enso

Annual Report 2020



Strategy

Sustainability

Financials

Governance

Remuneration



100% plastic free is not always feasible. The majority of fossil-based materials in packaging could be reduced with existing technologies.

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Stora Enso supports customers to meet consumers' demand for sustainable products based on renewable materials. Our solutions offer low-carbon alternatives to products based on finite resources.

Strategy

Part of Stora Enso's Annual Report 2020



THE RENEWABLE MATERIALS COMPANY



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Our renewable products provide a sustainable alternative to fossil-based materials.



Stora Enso's formed fiber products help customers to replace plastics. The salad bowl made of PureFiber™ by Stora Enso is plastic-free, recyclable and made of renewable materials. The PureFiber™ product line enables approximately 75% lower CO₂ footprint compared to alternative packaging materials, such as plastic or bagasse.



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This is Stora Enso

Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden construction and paper. We employ some 23 000 people and have sales in more than 50 countries. Our shares are listed on the Helsinki (STEAV, STERV) and Stockholm (STE A, STE R) stock exchanges.

Our fiber-based materials are renewable, recyclable, and fossil free. Our solutions offer low-carbon alternatives to products based on finite resources. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.



We are the renewable materials company



Our raw material is renewable, recyclable, and fossil-free.



Our products replace fossil-based materials.



Our renewable products contribute to a circular bioeconomy.

Serving markets around the world

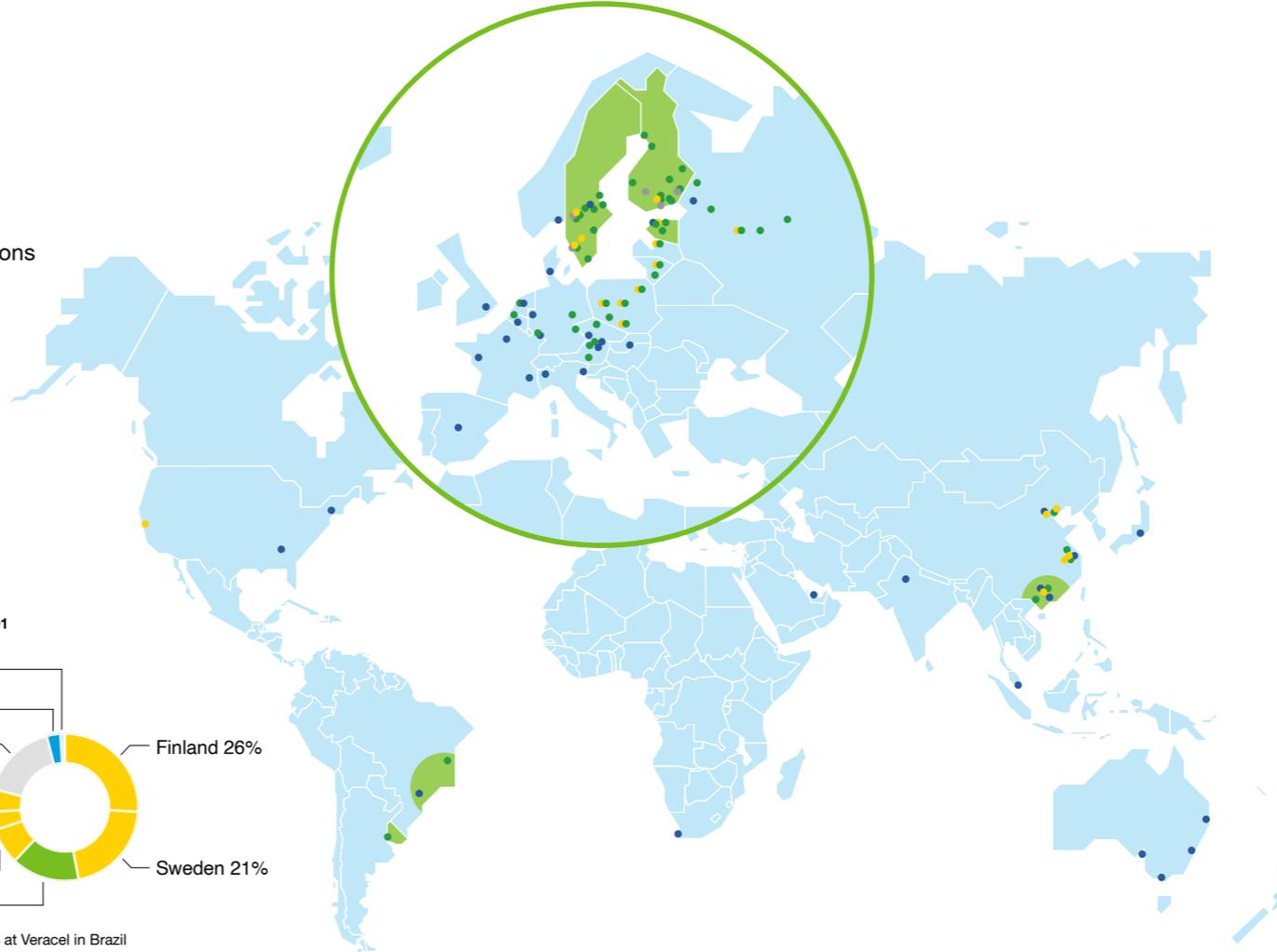
Stora Enso operates worldwide and focuses on utilising its expertise in renewable materials and creating value in packaging, biomaterials, wooden construction, and paper. We combine global resources with local presence, service and sustainability.

Sales
EUR 8.6 billion

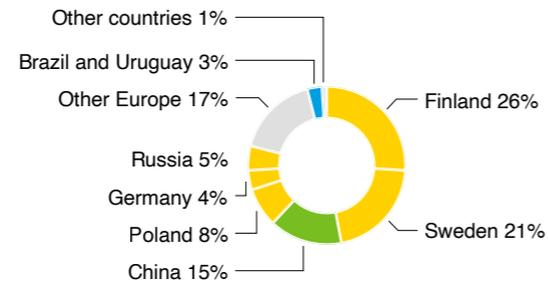
Countries
50

Employees
23 000

- Production unit
- Sales office
- Design Studio
- Innovation Centre
- Forests and plantations

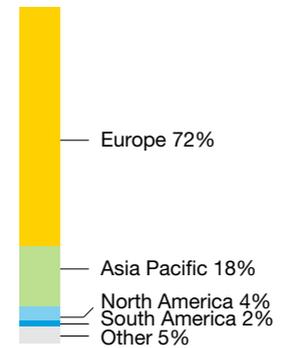


Personnel by country¹

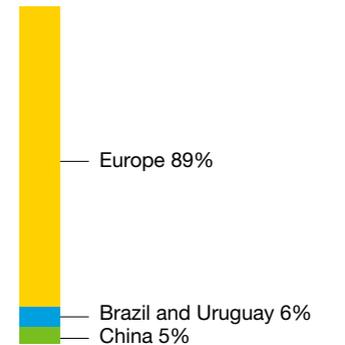


¹ Including 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay.

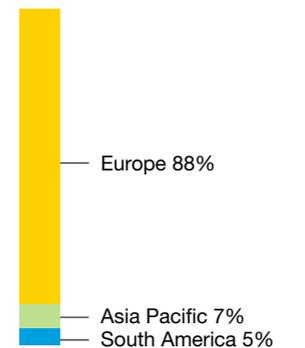
Sales by destination



Sales by origin



Purchases by region



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Stora Enso in 2020

Meeting consumer demand for eco-friendly and circular solutions.

Operational ROCE excl. Forest

7.0%

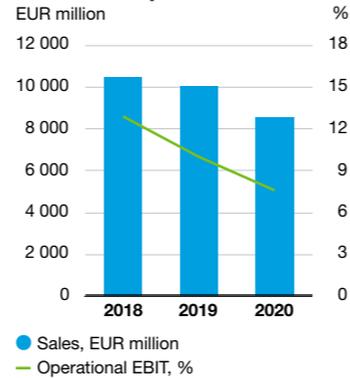
(Target >13%)

Climate impact

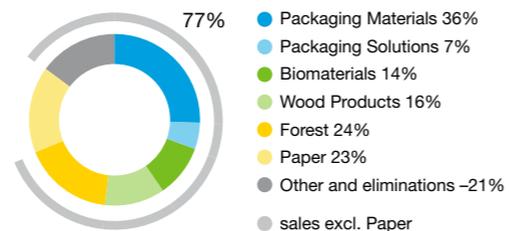
-11.5 million tonnes of CO₂e

(annual estimate)

Sales and operational EBIT



Sales by business





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Highlights of 2020



Growth in premium and low-carbon packaging

As the demand for sustainable packaging in e-commerce and food applications is increasing, we enable growth by converting production at our Oulu Mill from paper to kraftliner. The conversion strengthens our offering in the growing packaging business and is a major step forward in our transformation. The production of AvantForte™ by Stora Enso on the converted line started in the beginning of 2021. AvantForte™ is a strong, premium quality kraftliner that meets our customers' need for high-performing, safe and plastic-free packaging while using less material.



Exploring expansion of consumer board production

Stora Enso is conducting a feasibility study for possible expansion of pulp and board production at its Skoghall Mill in Sweden. The investment would allow us to meet the increasing demand for sustainable packaging among consumers. It would also bolster profitable growth in, for example, liquid packaging board and other packaging grades such as CKB. Skoghall Mill is ideally located in the proximity of Stora Enso's forests in Sweden, allowing for cost-efficient, local sourcing of wood. The feasibility study is expected to be completed by the end of 2021 and if the project is approved, the production could start earliest at the end of 2023.

Renewable, plastic-free products for eco-friendly lifestyles
 In 2020, we introduced several new renewable products for packaging. PureFiber™ by Stora Enso enables plastic- and PFAS-free food service packaging made from formed fiber. Investments in more formed fiber capacity in Sweden and China are ongoing. Performa Light by Stora Enso is a new plastic-free, lightweight board with low climate impact for food and cosmetics packaging.



Growth in mass timber construction for eco-living

Stora Enso is enhancing its position as the market leader for cross laminated timber (CLT) by building a new production line at its Ždírec sawmill in the Czech Republic. As a sustainable renewable material, CLT shows significant growth potential in construction, as it makes it possible to build higher and lighter yet stronger multi-storey buildings. Production on the new line is scheduled to begin in the third quarter of 2022.



Developments underway for bio-based protective packaging materials

Stora Enso is building a pilot facility for producing lightweight, fiber-based foam material that replaces oil-based polymer foams. Cellulose foam can be used as protective packaging for fragile products such as consumer electronics.



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Accelerating circularity along the value chain

- **Increasing the recycling of used beverage cartons in Central and Eastern Europe:** Together with Tetra Pak, Stora Enso is exploring the possibility of building a new recycling line for used beverage cartons (UBC) at its Ostroleka Mill in Poland.
- **Developing barriers designed for circularity:** Stora Enso is investing in dispersion barrier technology at its Forshaga site in Sweden. The investment supports the development of paperboard with barrier properties that are easier to handle in a recycling process, have a smaller carbon footprint and can be composted in industrial facilities.
- **Extending the lifecycle of paper cups:** During 2020 Stora Enso continued to explore the recycling potential of paperboard cups for magazine paper production at Langerbrugge Mill in Belgium. The paperboard is made from renewable, high-quality fibers that can be recycled several times.
- **Working for positive change in the circular economy:** Stora Enso is part of the 4evergreen alliance – a European circular economy platform focusing on fiber-based packaging. The aim is to drive the recycling of fiber-based packaging and collaboration in circular design.
- **Turning wastewater into renewable energy:** Stora Enso and energy company Gasum have built a biogas plant at Stora Enso's Nymölla paper mill in Sweden. The plant, built and operated by Gasum, turns the mill's wastewater into Liquefied Biogas (LBG).



A more efficient way of handling dry lignin and development of carbon fiber

Stora Enso is building a granulation and packing plant for lignin, allowing easier packing and handling of lignin compared to powder and wet form. Lignin is one of the key innovation areas for Stora Enso for delivering growth on new applications, such as energy storage, binders, and carbon fiber. Stora Enso and Cordenka, the world's largest producer of industrial rayon, are developing bio-based carbon fiber for industrial applications, such as wind energy rotor blades.



Science-based evidence for positive climate impact

Stora Enso is collaborating with the Swedish University of Agricultural Sciences (SLU) to develop more accurate climate impact research for forest product companies. In 2020, SLU published a new report, providing evidence of Stora Enso's positive climate impact. The report confirms that when our products are used to replace fossil-based and other non-renewable materials, it is possible to save 18 million tonnes of fossil CO₂e annually from entering the atmosphere.



A new valuation method for forest assets

Stora Enso started using a valuation method based on market transaction data for its forest assets in the Nordics. The methodology is based on market transactions in the regions where Stora Enso's forests are located, on the standing stock and price data of the traded forest, and own forest regional standing stock inventory. This method provides a more transparent and less subjective basis for valuation. The total value of the Group's forest assets increased to EUR 7.3 billion at the end of 2020.



Meeting the growing need for sustainable textile fibers

TreeToTextile is a joint venture between H&M group, Inter IKEA group, Stora Enso, and inventor Lars Stigsson. TreetoTextile's goal is to develop and industrialise an innovative man-made cellulosic fiber technology that will provide textile fibers with good sustainability performance at a low cost.



The pandemic has changed our buying behaviour and e-commerce is growing in specific areas, such as food. More deliveries mean more packaging, and consumers are increasingly aware of the environmental impacts of materials – they want eco-friendly and circular solutions.

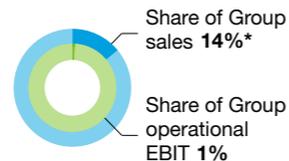
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Our divisions have specific focus areas and products that cater to a broad range of customers.

Biomaterials

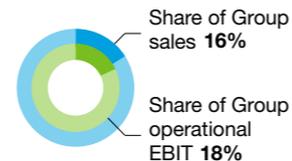
The Biomaterials division meets the growing demand for the replacement of products made from fossil-based and hazardous materials with bio-based solutions. The division's offering includes a wide variety of pulp grades.



* of which internal sales 14%
Sales include inter-segment transactions.

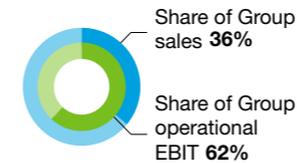
Wood Products

The Wood Products division is a leading provider of wood-based solutions for construction, the window and door industry, pellets and for the packaging and decoration industries.



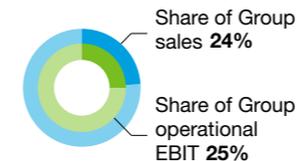
Packaging Materials

The Packaging Materials division is a global leader in high-quality renewable packaging materials based on both virgin and recycled fiber.



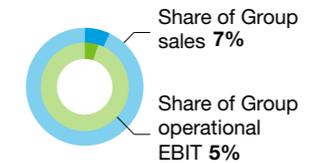
Forest

The Forest division sources all wood raw material to Stora Enso Mills in Finland, Sweden, Russia and the Baltic countries. It also manages Stora Enso's Swedish forest assets and the 41% share of Tomator, the majority of whose forest assets located in Finland.



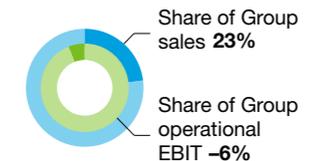
Packaging Solutions

The Packaging Solutions division develops and sells premium fiber-based packaging products and services.



Paper

The Paper division offers a wide product portfolio of paper products for print and office use based on both recycled paper and fresh fiber.





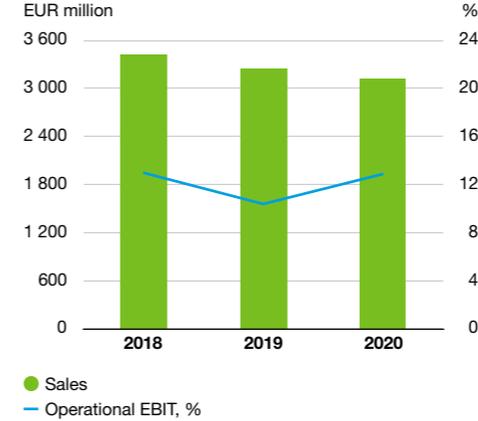
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Stora Enso has remained resilient in the challenging times, thanks to our diversified business portfolio and relatively strong balance sheet.

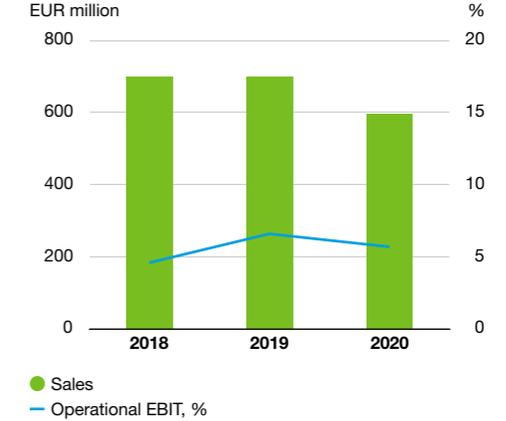
Packaging Materials

Sales and operational EBIT



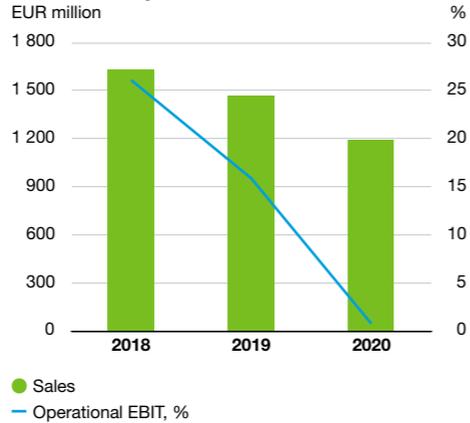
Packaging Solutions

Sales and operational EBIT



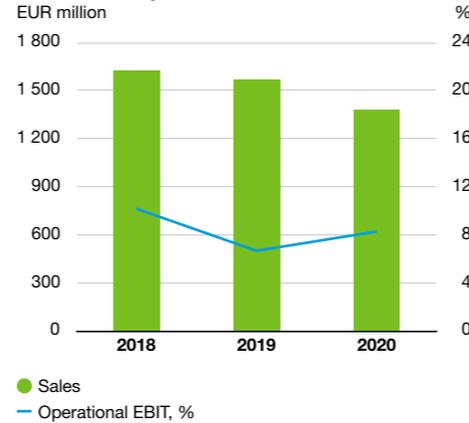
Biomaterials

Sales and operational EBIT



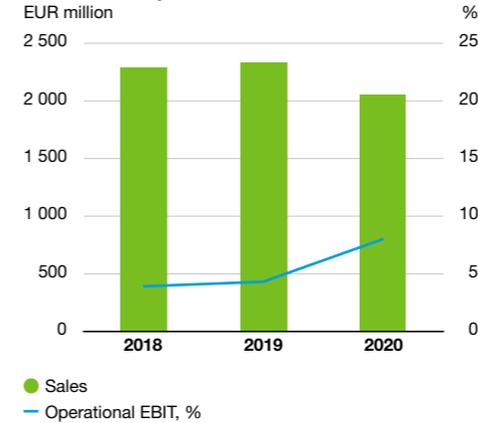
Wood Products

Sales and operational EBIT



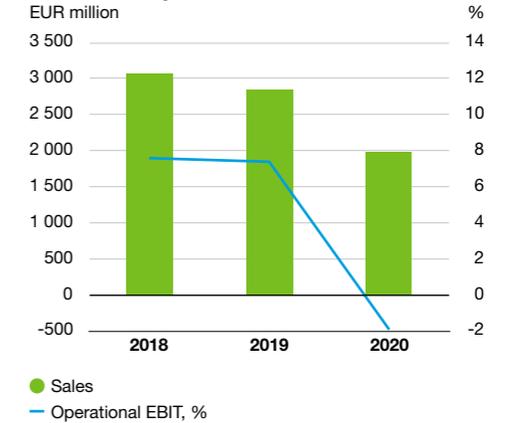
Forest

Sales and operational EBIT



Paper

Sales and operational EBIT





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Significant potential for profitable growth

Little did we know, entering 2020, what an extraordinary year it would be for the world. It was shaped by an uncertain political and economic landscape, but above all by the pandemic. In these challenging times for societies, companies, and individuals, Stora Enso has remained resilient. Our business is built on a renewable raw material, serving global markets with products that help consumers make eco-friendly choices.

Our changing world

The battle against climate change cannot be put aside – on the contrary, it is more important than ever that we accelerate the shift towards a circular bioeconomy. As a society, we need to end our dependency on fossil-based materials in favour of products based on renewable materials. Stora Enso's offering plays an important role in this. Sustainably managed forests grow back and our products are low carbon, helping to address some of the world's climate challenges.

Making choices for growth and value

In 2020 we renewed our strategy, entering a new phase in our transformation journey and shaping our business for accelerated growth and value. We have chosen to focus our growth initiatives on Packaging, Building Solutions, and Biomaterials Innovations. These are the areas where we have leading market positions and are in the frontline of customer driven innovation. And we can build on strong and competitive assets to drive accelerated profitable growth.

In Packaging, we see increasing demand for sustainable, plastic-free, and circular products and continue to drive innovation that goes beyond consumer needs. We are a global leader in wooden Building Solutions, which improve construction efficiency and can replace concrete and steel, significantly reducing the carbon footprint. New biomaterials, such as biochemicals based on lignin for binders, carbon fibers, and energy storage, provide a highly attractive innovation platform, with the potential to become a business of its own one day. Learn more about this in the [Transformation](#) section of this report.

Creating value in forest, pulp and paper

Although we have specific growth areas, our ability to create value has its foundation in the forest. We are one of the largest private forest owners in the world today. The forest is a valuable, growing asset that ensures a long-term fiber supply for our products. In addition, pulp is the base for our production of packaging materials, as well as for innovation within biomaterials. The traditional wood products business contributes to value-added solutions within Building Solutions.

In Paper, we have continuously adapted to decreasing structural demand while generating strong cash flow and providing high service levels for our customers. We aim to ensure our paper business has a high degree of operational independence so that it can be more agile in adapting costs and operational processes to the changing market environment.

Innovation through collaboration

In line with the updated strategy focus, we will concentrate our innovation efforts and resources on areas with strong business opportunities such as new sustainable packaging materials, sustainable barriers, and our biochemical platform. Speed to market is essential and we will continue to push this through collaboration and an open innovation approach. In our key initiatives, we are moving into the piloting and scale-up phase. We work across the value chain with customers, partners, suppliers, research and academic institutions, and start-ups to drive open innovation and find new solutions to some of the world's sustainability challenges. Examples



Our customers are asking us to help them reduce their carbon footprint and innovate to substitute fossil-based materials.

from 2020 include a strategic partnership with the Swedish University of Agricultural Sciences (SLU) to develop new knowledge within sustainable forestry. We have also entered several materials innovation driven partnerships, such as our collaboration with Cordenka – the world's largest producer of industrial rayon – through which we are jointly developing bio-based carbon fiber. Or the Tree-to-Textile project with H&M group, Inter IKEA group, and inventor



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Lars Stigsson, in which we are developing and industrialising an innovative, man-made cellulosic fiber technology that will provide textile fibers with good sustainability performance at low cost. We continue to explore new start-up related business ventures through the Combient Foundry Programme, which is the Nordic region's leading cross-industry collaboration network. In 2020, we were once again recognised as the most startup-friendly company in Finland. Through our Accelerator programme, launched in 2017, we have screened over 1 200 startups in nearly 40 countries.

Our investments support our strategic focus and innovation agenda. The major projects for accelerated growth are presented in the [Highlights of 2020](#) section of this report.

We want to support industries, producers and retailers in meeting the growing demand for eco-friendly and circular solutions – and developing a plastic-free supply chain is part of this. Yet this shift will not happen in isolation. Some oil-based plastics and fossil materials will be harder to replace. This change will require new levels of cooperation throughout value chains and different combinations of solutions.

Investing for accelerated growth

Our investments are intended to support our strategic focus and innovation agenda. Our transformation project at Oulu Mill in Finland and conversion to kraftliner production was finalised. We are ramping-up the production of

new-generation formed fiber products. We have also announced investments in a new production line for cross laminated timber (CLT), a granulation and packing plant for lignin, and a feasibility study on significantly enhancing and expanding pulp and board production.

Business during the pandemic

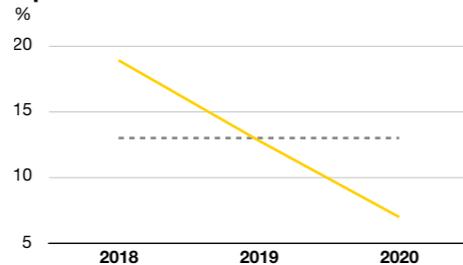
Like all businesses, we have taken numerous measures in the face of the Covid-19 pandemic. Our key priorities through the year have been to protect our people and business and to support our customers. Very early on, we took action related to mitigating the spread of the virus and its impacts, including a global travel ban, social distancing and appointed work streams to maintain the business momentum. Our units follow strict contingency plans, and significant effort has gone into managing our supply chain to serve our customers in the best possible way. We have built a strong liquidity position and continue active working capital management and cost savings with, for example, our profit protection programme. A strong cash flow gives us flexibility and therefore the ability to be ready when the markets eventually turn.

The market effects of Covid-19 have posed challenges for our paper and pulp businesses. However, with other parts of our diverse portfolio continuing to perform well during the pandemic, the overall impact has been limited. Moving into 2021, new vaccines will gradually be rolled out. In the meantime, we are prepared to

100% plastic free is not always feasible, but the majority of fossil-based materials in packaging could be reduced with existing materials and technologies.

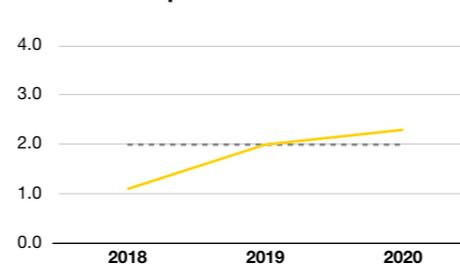


Operational ROCE excl. Forest



● Operational ROCE excl. Forest, %
— Target >13%

Net debt to operational EBITDA



● Net debt to operational EBITDA
— Target <2.0

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Dividend proposal per share

EUR 0.30

Earning per share
excl. fair valuation

EUR 0.45

We are committed to the UN Global Compact's ten principles and the UN's Guiding Principles on Business and Human Rights.

manage uncertainty and volatility in the business environment. Our focus is on ensuring that our colleagues and partners are safe, and on serving our customers by keeping our operations running, mitigating supply chain challenges and introducing new products.

True to sustainability

Sustainability is at the core of everything we do. It is integral to our relevance as a business, our role as a responsible member of society, and our ability to contribute to a greener world. Our emphasis is on social, environmental, and economic responsibility in our operations and the value chain. We have a strong commitment to keep our people and contractors safe. Our sustainably managed forests are an important part of climate change mitigation. With a focus on biodiversity, land-use, climate benefit and resilient local communities, our aim is to be the leader. We have set ambitious science-based targets for reducing greenhouse gas emissions. In 2020, our CO₂e emissions per saleable tonne of board, pulp, and paper were 26% lower than the 2010 benchmark level. Every year, Stora Enso is estimated to have a positive climate impact equivalent to a reduction of 11.5 million tonnes of CO₂e. This equates to the CO₂ emissions of some 5 million midsize cars driving 20 000 km.

New targets reflecting the focus of our strategy

We have also adjusted our long-term financial targets and our goal is to grow profitably by more than 5% annually, excluding our paper business. The majority of our future growth will come from the high-margin packaging business, with

operational EBIT margins potentially exceeding 20% in growth areas. In Building Solutions, we aim to triple our sales with margins close to 20%. Within Biomaterials innovations, we aim for margins exceeding 35% in new markets for Stora Enso.

Our people make it happen

Stora Enso is a large company with operations all over the world and our people are our greatest asset. We emphasise an inclusive culture, we have strong values and a sense of purpose, and as always, safety comes first. I am proud to work alongside so many talented colleagues. We are united in our aim to meet the demand for eco-friendly and circular solutions, further develop our product portfolio, and contribute to making the world a better place.

As I see it, the winners will be companies that have businesses which are sustainable in the long term from an environmental, social, and financial perspective; that stay close to their customers and innovate based on consumers' future needs; that can manage volatility; and that are agile in adapting to this changed reality. This is Stora Enso's competitive edge.

To our customers, suppliers, investors and other stakeholders, I am delighted that you join us on this journey.

The renewable future grows in the forest.

Annica Bresky
President and CEO

Reaching key financial targets

EUR million	2020	2019	2018	Target	Performance against target
Annual dividend	0.30	0.30	0.50	See below ¹	●
Growth (excl. Paper)	-8.7%	-3.0%	5.9%	>5% per annum	●
Net debt to operational EBITDA	2.3	2.0	1.1	<2.0X	●
Net debt to equity	33%	43%	31%	<60%	●
Operational ROCE excl. Forest	7.0%	12.8%	18.9%	>13%	●

¹ To distribute 50% of EPS excluding fair valuation over the cycle.

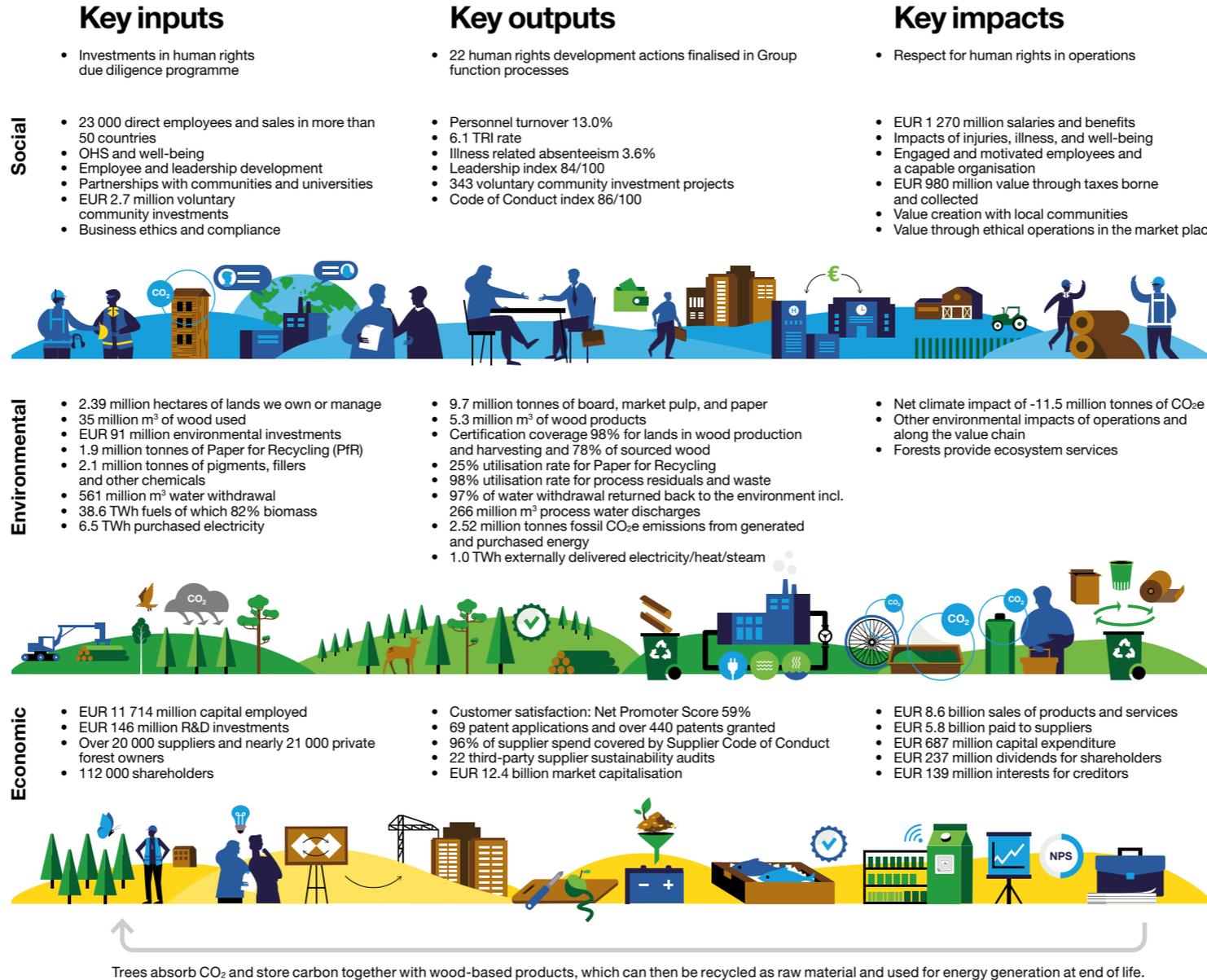
● Achieved
● Not achieved

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How we create value as a renewable materials company

Our solutions provide low-carbon alternatives to products based on finite resources.



Our fiber-based materials are renewable and recyclable.





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Accelerating the eco-evolution of materials

Out of the global megatrends impacting societies, markets and businesses, climate change is our greatest challenge. Consumers, legislators, companies and financial institutions are focusing more on raw materials, CO₂ emissions, circularity, and waste reduction as well as on land-use and forestation. Moreover, governments around the world are increasingly regulating the use of fossil-based materials, such as plastics.

Through collaboration with its customers and partners, Stora Enso provides solutions that solve sustainability challenges facing businesses and industries. For example, food and beverage companies and retailers, both physical and online, are looking for ways to replace plastics in their packaging and become more circular. The construction industry is facing a major challenge to reduce carbon emissions and waste. The energy and transport industries are looking for strong bio-based alternatives for carbon fiber.

We meet our customers' challenges with our renewable, recyclable, plastic-free materials, supported by efficient, sustainable operations and supply chains.

Our purpose:

Do good for people and the planet. Replace fossil-based materials with renewable solutions.

Our values:

Lead. Do What's Right.



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Shaping our business for higher growth and value

As the renewable materials company, our promise is that everything that can be made from fossil-based materials today can be made from a tree tomorrow. To accelerate this development, we are shaping our business to build on our leading positions and growth opportunities in packaging, building solutions and biomaterials innovations. Our forest, traditional wood products and market pulp are the foundation for value creation in our company.



- 1 We are a leader in eco-friendly, circular packaging
- 2 We drive the sustainable construction market through CO₂ efficient building solutions
- 3 We see innovation within biomaterials as a highly attractive platform for growth
- 4 Forest, traditional wood products, and market pulp are our foundation
- 5 Paper is a strong cash generator

Packaging will represent a majority of Stora Enso's growth, given the rising demand for sustainable packaging. We have strong market positions backed by cost-efficient integrated assets and have identified several attractive growth opportunities. We want to increase collaboration with brand owners, retailers and converting partners to drive the packaging innovation agenda and accelerate plastic substitution. Furthermore, we are speeding up the commercialisation of formed fiber, biofoam, biobarriers and films to replace fossil-based solutions.

We have attractive growth opportunities in Building Solutions, where we offer wooden alternatives to construction materials with a large carbon footprint, such as concrete. Supported by our strong sawmill presence in Europe, we can capture a larger share of the wood

construction value chain through value-added solutions. In line with this, we are transforming our wood products offering from a classic sawmill commodity business to integrated mills with an end-to-end focus. This entails new business models and services, such as digitalisation tools and the prefabrication of wooden buildings.

Our agenda in Biomaterials Innovation will mainly focus on bringing new innovative and sustainable materials based on lignin to the market. Here we target strong growth in new applications and end uses with our proprietary technologies and unique value propositions. Through best-in-class knowledge and strategic collaborations and partnerships, we can accelerate breakthrough innovations in for example lignin-based carbon for energy storage, bio-binders, and carbon fibers.



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Rooted in the forest, traditional wood products, and pulp

Our forests ensure a long-term fiber supply for our businesses, now and in the future. We strive to be the leader in sustainable forest management with a focus on biodiversity, land use, climate benefits and resilient local communities. We will also work to increase forest growth and sustainable harvesting levels through innovations in precision forestry and digitalisation, as well as biotechnologies for tree breeding.

Our traditional wood products business – sawmilling – is the base for value-added products within Building Solutions and supports our pulp mills by supplying fiber.

Integrated and cost-efficient pulp production underpins our board and paper manufacturing operations and is the basis for our cost competitiveness and future growth. Our two market eucalyptus pulp mills in Latin America (joint operations) are highly competitive and we continuously work to further improve their cost positions. In our market pulp mills in Sweden and Finland, we focus on developing higher value-added specialty pulp products, leveraging internal capabilities and strong customer relationships.

Our Paper business is a strong cash generator with assets and products that can remain competitive in a declining market. We will continue to focus on cost reductions and capacity management. Moreover, the division will be given higher operational independence so that the business can better adapt to the challenging market conditions.



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Innovations driving change towards a greener future



Our innovation agenda is driven by finding new renewable solutions to replace fossil-based materials. In this way, we help our customers offer eco-friendly and circular products to their customers and consumers. Innovation at Stora Enso focuses on new sustainable packaging materials, bio-based barrier solutions, and lignin-based breakthrough materials, such as bio-binders and bio-based carbon fiber for energy storage. Digitalisation is a key enabler in supporting capabilities in the industrial transformation and in developing new business models. Cooperation across the value chain with customers, suppliers, industry partners, startups, and academia is needed to develop the desired sustainable solutions.

The latest research and customer insights are important inputs in defining the winning path forward. This encompasses new properties of or uses for wood fiber-based materials, new business models or service concepts, as well as more effective energy and resources usage, in our own operations and throughout the whole value chain. In order to drive scientific development in prioritised areas we engage with leading international researchers and universities. We have strategic partnerships with four universities in the Nordics: Aalto University, Chalmers University of Technology, The Royal Institute of Technology and The Swedish University of Agricultural Sciences. These partnerships are also important in terms of ensuring access to well-educated engineers, foresters and researchers, responding to both short and long-term research needs. Stora Enso also has cooperation with other universities. We aim to gradually intensify the work with leading research and science groups globally to address challenges we want to solve together.

During 2020 we had

508
ideas

19
campaigns

69
patents filed

Our focus on innovation has resulted in a number of recent launches, partnerships, and pilots, including new offerings in formed fiber, lignin-based binders, carbon fiber, bio-based carbon materials, bio-based foam for packaging applications, and intelligent packaging.

In the search for future business opportunities, we have expanded our collaboration with Combient Foundry, a venture client alliance of 30 industry-leading Nordic companies. Through

this partnership, we are reaching out to a wider selection of startups with a materials focus. We are also working with other innovative companies, such as the world-leading rayon producer Cordenka to develop bio-based carbon fiber, HS-Manufacturing to develop plastic- and fluorochemical-free barriers for food packaging, and the TreeToTextile, a joint venture with H&M group, Inter IKEA group, and inventor Lars Stigsson, to industrialise wood-based textiles.

Increasing focus on our innovation agenda

We aim to increase the focus of our innovation efforts in the areas of sustainable barriers, new sustainable packaging materials, and our biochemical platform in lignin. Speed to market is essential and we will drive this through cooperation with other parties and an “open innovation” approach.

Three focus areas for innovation, research, and development at Stora Enso:

Formed fiber



New applications for fiber-based packaging to replace fossil-based materials

Biofoam



New technologies for barriers

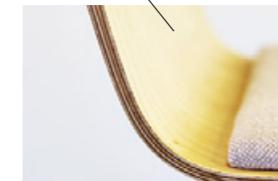


Bio-based barrier solutions for packaging applications

Carbon for energy storage



Bio-binders



Carbon fiber



Biomaterials innovation



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Cases



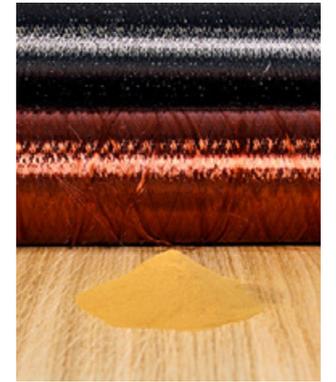
Bio-based foam for protective packaging and cushioning

Stora Enso will build a pilot facility for producing a lightweight, fiber-based foam material that replaces oil-based polymer foams. Cellulose foam can be used as protective packaging and for cushioning of fragile products such as consumer electronics. The material offers a renewable, recyclable, and biodegradable alternative to traditional oil-based inner packaging, such as plastic foam or polystyrene.



Eco-friendly barriers for food service applications

In 2020, Stora Enso expanded its range of renewable packaging materials by introducing new dispersion barrier materials for paper cups and food packaging. Barriers are needed for protection against moisture, oxygen, or fat, for example. The new barrier solution responds to market demands for eco-friendly, renewable and recyclable packaging materials to replace plastics in food service applications. The new dispersion barriers Aqua™ and Aqua+™ by Stora Enso are fluorochemical-free and used to produce paperboard for cups and food service packaging without the traditional plastic layer.



Carbon fiber for wind energy rotor blades

Today, 20% of the global carbon fiber supply is used by the wind energy industry. In collaboration with Cordenka we are developing renewable and fossil-free carbon fiber for industrial applications requiring low weight and high mechanical performance, such as wind energy rotor blades.



Bio-based carbon materials for energy storage

Stora Enso is developing bio-based carbon materials by processing lignin into a carbon intermediate for electrode materials. By converting lignin into so-called hard carbon anode materials for lithium-ion batteries, we can offer a product that replaces fossil-based anodes, mainly synthetic graphite, currently used in batteries.

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Positive climate impacts through substituting fossil-based materials

With our sustainably managed forests and renewable solutions, we contribute to climate change. Positive climate benefits are achieved through forest sequestration with trees absorbing CO₂ from the atmosphere, as well as through the replacement of fossil-based or other finite materials with renewable ones. Good management of forests means healthy forests and increased productivity. It also means protecting biodiversity and ensuring that forests are always regenerated. Better growth in the forest enables us to substitute more fossil-based products with renewable solutions.

The product substitution effect describes how much greenhouse gas emissions would be avoided if a wood-based product, serving the same function, was used instead of a fossil-based product. Our renewable products can help to reduce emissions otherwise generated in the production or consumption of fossil-based products. When the new materials come from renewable sources, as wood does, no additional fossil CO₂ will be released into the atmosphere. Carbon remains in the fibers when they are made into products, even through recycling. Non-renewable raw materials cannot be replenished during our lifetime – if ever. That is why we at Stora Enso believe the future grows in the forest.

Case

Stora Enso's climate impact



Our forests remove carbon
-1.5
million tonnes of CO₂



Our products store carbon
-2.6
million tonnes of CO₂



Our value chain emissions
+10.5
million tonnes of CO₂



Our products substitute fossil-based products, saving
-17.9
million tonnes of CO₂

Climate impact
= -11.5
million tonnes of CO₂

[Read more](#) › Sustainability 2020



Assessing the life cycle of our renewable products

Stora Enso regularly carries out Life Cycle Assessments (LCAs) to understand and develop product environmental footprints, including carbon footprints. The LCAs show great potential for renewable products in substituting fossil-based alternatives to cut carbon emissions. The LCAs are conducted by our own experts, our customers, or brand owners, often in collaboration with academia, expert organisations, or industry associations.

Our products help combat climate change



Formed fiber bowl

According to the LCA conducted by Stora Enso in 2020, formed fiber is the most low-carbon material choice on the market. The PureFiber™ product line contains no plastic or per- and polyfluoroalkyl substances (PFAS) and enables an approximately 75% lower CO₂ footprint compared to alternative packaging materials, such as plastic or bagasse.



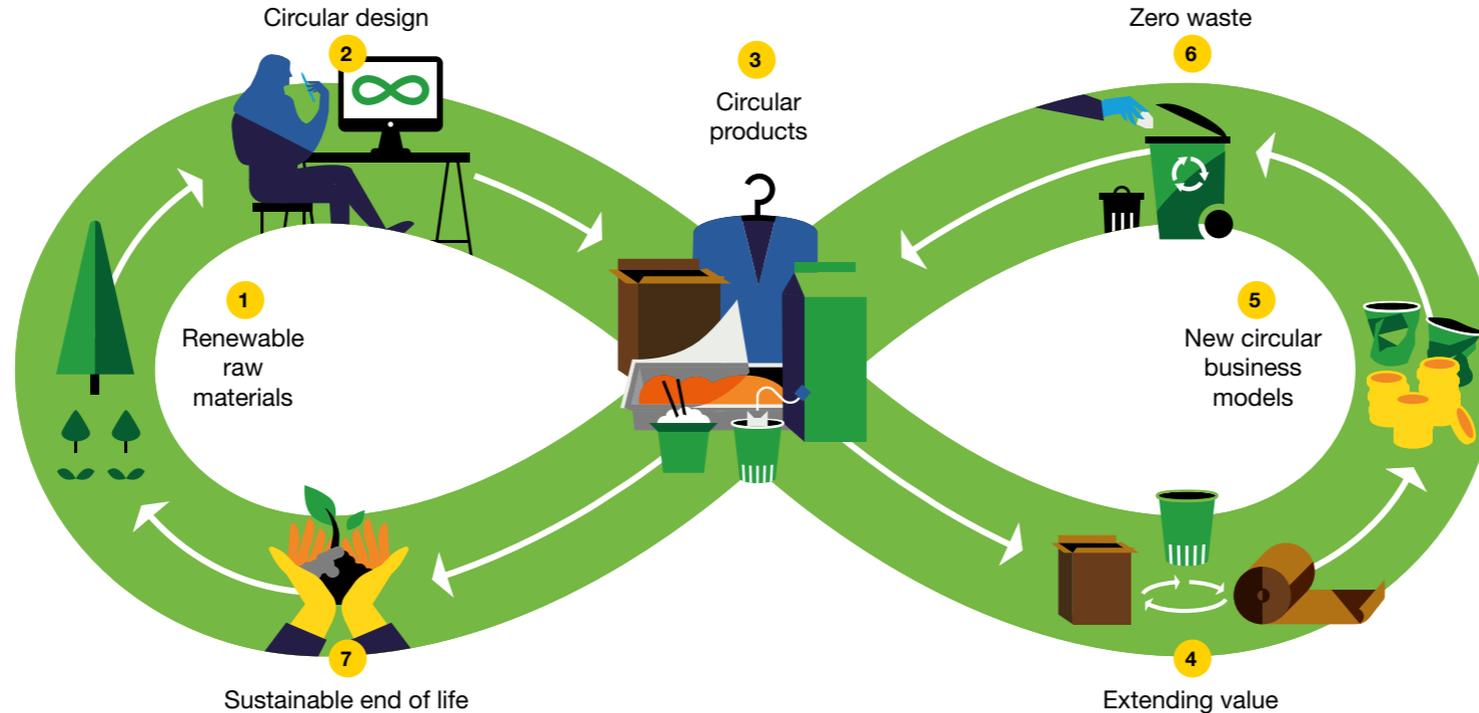
Wooden buildings

The wood used in Wood City office building, the largest wooden office building in Finland, removed 1 500 tonnes of CO₂ from the atmosphere. This equals to the annual emissions of 660 passenger cars. It takes 5 minutes for an equal amount of wood to grow in a Finnish forest on a summer day.



Towards a circular bioeconomy

The world needs materials that are both renewable and recyclable – a circular bioeconomy – to combat climate change and to limit the use of finite resources with a large carbon footprint. As a leader in the bioeconomy, Stora Enso’s focus is to create value through projects and partnerships that integrate the circular economy into design and innovation.



1 Renewable raw materials
Trees are renewable. This means that in sustainably managed forests, they can grow forever. For Stora Enso, renewability is at the core of what we do – we need healthy forests to do business. Growing trees absorb CO₂ from the atmosphere, and together with wood-based products act as carbon storage.

2 Circular design
Circular design refers to designing for all stages of the product lifecycle, instead of designing just the product itself. It considers the materials

used, the manufacturing process, the distribution and the potential for reuse, refurbishment, remanufacturing or recycling. Our aim is to maintain the value of products and materials for as long as possible through product design, innovation and recycling. Our core circular design principles are leading us on our way towards a circular future.

3 Circular products
In the circular bioeconomy, products are bio-based. They are also shared, reused, remanufactured, and finally recycled. Creating new

products and business models is all about collaboration. We are forming partnerships to build circular value chains for the future.

4 Extending value
Stora Enso is one of the biggest buyers and users of recycled board and paper in Europe. We are also exploring options to recycle products into something very different than its original purpose. Utilising side streams and waste can also bring added value. Our revenues derived from residuals amounted to EUR 105 million in 2020.

5 New circular business models
We are collaborating with customers and partners to develop new circular solutions and business models to replace fossil-based plastics and cut down on waste along the supply chain. Solutions could include leasing and take-back programmes. Stora Enso is one of the lead companies behind the 4evergreen alliance, a European circular economy platform. The aim is to drive the recycling of fiber-based packaging and collaboration in circular design and materials.

6 Zero waste
As the renewable materials company, we work to minimise waste and resource use overall. In our own operations, we focus on optimising our use of resources and creating value out of by-products through innovation and collaboration.

7 Sustainable end of life
When a material or product has reached the end of its life, we promote recycling and energy recovery to create further value. At the end of the life cycle, many of our products are biodegradable or can be burned for energy.

A circular economy requires collaboration across the value chain to drive change at all stages, from product design and recyclability testing to collection and recycling systems.

Opportunities in circular construction

Designing for products to be updated during use extends their lives and saves users’ resources. Modularity, on the other hand, allows for products to be re-used over time. For example, construction is becoming more circular as modular building solutions enable multiple uses for building elements during their lifecycle. Stora Enso Building Concepts provides tools and guidance for architects, engineers and developers to design modifiable office buildings from wood.

There are a lot of future opportunities in recycled wood: in Europe, about 25 million tonnes of wood is discarded annually as a result of construction and demolition, and by private households. This provides interesting opportunities for Stora Enso to source material.

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Forest is our foundation for value creation

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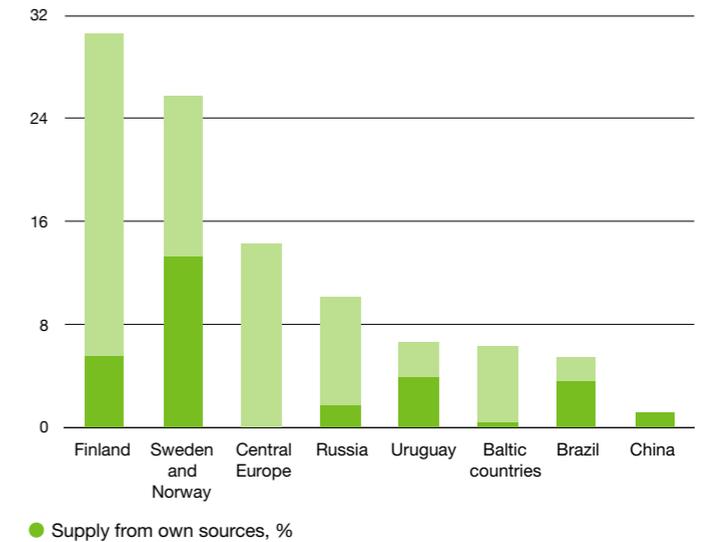
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Sustainable forest and plantation management secures long-term availability of wood – our most important renewable raw material. We ensure that forests grow to a greater extent than they are harvested, and that biodiversity is promoted as part of everyday forest management practices. The climate benefit and economic values from growing forests are gained while promoting biodiversity and other sustainability aspects. Our customers can therefore be assured that our products originate from sustainably managed forests, as 98% of the lands we own or manage are covered by forest certification. Stora Enso owns forest land in Sweden and also has biological assets in Finland, Brazil, Uruguay, and China through subsidiaries and joint operations, and indirectly through equity-accounted investments.

In 2020, Stora Enso changed its forest assets valuation method. The forest assets in Sweden are valued by using a market approach method based on the forest market transactions in the areas where Stora Enso's forests are located. Today, Stora Enso is one of the largest private forest owners in the world with forest assets valued at more than EUR 7 billion (land and biological assets) in 2020, including the biological assets of more than EUR 6 billion in Sweden and Finland. Globally, Stora Enso owns or manages lands covering a total area of 2.34 million hectares. About 30% of the Group's wood raw material needs are covered from its own sources or long-term supply agreements.

Wood procurement by region, %



We control about 30% of our wood raw material consumption globally. In 2020, we harvested in own forests and sourced from long-term agreements 10 million m³ in total. Our deliveries to our own mills was 35 million m³ in total.



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Stora Enso's productive forest land areas at end of 2020

Total forest asset value in balance sheet EUR 7.3 billion



Montes del Plata, Uruguay
Stora Enso's share
135 000 ha
of forest land
Fair value: EUR 418 million
(31 Dec 2020)

Veracel, Brazil
Stora Enso's share
112 000 ha
of forest land
Fair value: EUR 93 million
(31 Dec 2020)

Swedish forests
1 398 000 ha
of forest land
Fair value: EUR 5 603 million
(31 Dec 2020)

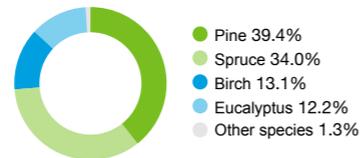
Tornator
Stora Enso's share
259 000 ha
in Finland,
28 000 ha
in Estonia, and
5 000 ha
in Romania
Fair value: EUR 825 million
(31 Dec 2020)

Guangxi, Southern China (leased)
81 000 ha
of forest land
Fair value: EUR 359 million
(31 Dec 2020)

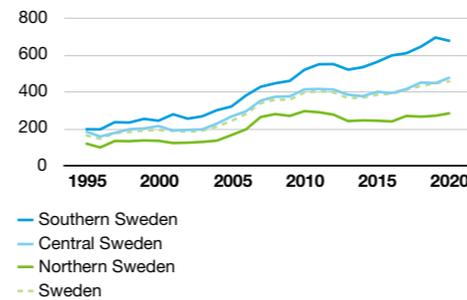
In addition:
Laos: trial plantation, 3 890 ha (leased land)
Russia: 369 000 ha (long-term harvesting rights)

Including owned land EUR 2 065 million and leased land EUR 221 million balance sheet value at the end of 2020.

The distribution of species



Market transaction based forest prices in Sweden



The importance of forests as a valuation driver has increased.

Forest growth
13.4
million m³ fo.*

Annual harvesting
9.4
million m³ fo.*

Productive standing stock at the end of 2020
195.1
million m³ fo.*

* Forest cubic metres





Focus on sustainable forest management

We established the Forest division in the beginning of 2020 to increase the transparency of our forest assets and operations. The Forest division includes wood supply operations in Finland, Sweden, Russia and the Baltics, Stora Enso's forest assets in Sweden, and a 41% share of Tornator, the majority of whose forest assets are located in Finland.

Platform for innovations

Our forest professionals, forest assets and international network create a unique set-up for innovation and development. There are several opportunities to further improve our forest management. Examples include remote sensing technology, tree breeding, and genetic engineering.

Precision forestry

Digitalisation, remote sensing technology, and artificial intelligence will enable us to take a step forward in the way we operate in forests and in the wood supply chain. In the future, improved forest data and a forest's digital twin enables more accurate forest planning and operations.

With a forest's digital twin, we can analyse, for example, the shape, height, and diameter of a single tree, the structure of a forest site, and the landscape view. We will be able to carry out forest work more precisely in the right place at the right time. Improved data will also support our ambition to achieve more influential sustainability actions. As we become more aware of the growth conditions of individual trees, we can help trees to adapt to the weather fluctuations caused by climate change.

Future-fit forests

We breed the best trees for future forests and plantations while promoting biodiversity and other sustainability aspects. Tree breeding, in other words crossing two selected parent

trees to create a new generation with improved properties, is a very important way of improving the future growth of the forest. Each crossing cycle gives a yield improvement of 10–15%. Improvements focus on growth, quality and resilience parameters. We have ongoing long-term strategic tree breeding programmes for all our forest and plantation units.

In our own nurseries in Sweden, we produce superior seedlings for next-generation forests. We improve and speed up the breeding process through, for example, somatic embryogenesis, where we produce many spruce seedlings from one single seed of a selected spruce tree. We develop gene technologies through genetic engineering to improve and protect the yield of eucalyptus plantations, and of spruce and birch in the Nordics. Our genetic engineering activities are in the research phase.

We develop and deepen our forest management practices based on the knowledge we gain from tree breeding. This work is supported by our strategic collaboration with the Swedish University of Agriculture and Forestry, which started in 2020. The collaboration focuses on four integrated collaboration areas: biodiversity, growth- and yield-adapted forest management, remote sensing technology and life cycle analysis.

See also:

- › **Financial Report:** Note 12 Forest assets
- › **Sustainability Report:** Forests, plantations, and land use

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The total amount of wood (including roundwood and wood chips) delivered to Stora Enso's mills was

35 million m³

sub¹ in 2020

Stora Enso regenerated forest by planting

62 million

seedlings in 2020

In 2020,

98%

of the land Stora Enso owns or manages was covered by forest certification schemes

In 2020 Stora Enso invested

EUR 68 million

in future growth through silviculture and fertilisation

Share of fiber costs² of Group's total costs:

32%

¹ Solid under bark cubic meters

² Including purchased pulp, recycled paper and purchased containerboards



Developing our people's skills to lead our transformation

Value and purpose-driven leadership is a key enabler for executing our strategy and the strongest driver for performance and a healthy company culture. Our values are "Lead" and "Do what's right", which we expect our leaders and all people to embrace and demonstrate through their everyday actions and behaviour.

We continuously invest in the development of our leaders through internal and external leadership programmes. Our programme "Lead Through People", targets all managers in the company. During 2020, we launched the "Stora Enso Manager" programme, our new global programme for new first-line managers. Stora Enso Manager is available with the same content and set-up globally and delivered in nine different local languages.

During 2020, we organised a series of digital webinars to support managers and address challenges especially related to remote leadership. Around 1 700 managers were invited to these online seminars. In addition, we also provided separate workshop materials related to health and wellbeing for all managers.

Our own flagship programme, the Accelerator, will be run again in early 2021 with the start-up companies and programme participants that were selected during autumn 2020. Since launching the Accelerator programme in 2017, Stora Enso has screened more than 1 200 start-ups from 39 countries and established a deeper relationship with more than 30 of these companies. Combining collaboration with start-up companies and executive training, the programme aims at further strengthening the capabilities required for our transformation in the areas of innovation, entrepreneurship and customer insight.

A global mentoring concept is in place to further build one company culture and use the learning and development opportunities that mentoring provides. Over 180 mentoring matches have been made since the launch of the concept and anyone in the company who wishes to have and/or to be a mentor can sign up.

To promote new talent and diverse perspectives, Stora Enso runs the GROW Global Trainee Programme. Within the programme, graduates are initiated into the global Stora Enso organisation during their first 16 months of employment. In 2019 we welcomed 24 new GROW trainees and they have continued their learning journey and development during 2020. Stora Enso also participates in the Female Leader Engineer programme.



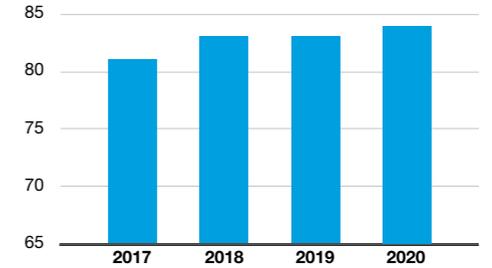
Valuable insights from our global employee survey
Stora Enso conducts an annual global survey (Your Voice) of all employees. In 2020, the survey was conducted for the ninth time and had a response rate of 83% (86%). The survey follows progress in areas that impact our ability to deliver on our strategic agenda, steering activities and priorities. It also supports managers and teams as they continuously improve their work methods. In 2020, there was a positive or neutral trend in all indices. In the leadership index, transformation index, health and wellbeing index, and employee net promoter score there was a positive improvement. Despite the exceptional circumstances this year, we have been able to maintain a good level of engagement and team efficiency among our employees.

Despite the exceptional circumstances this year, we have been able to maintain a good level of engagement and team efficiency among our employees.

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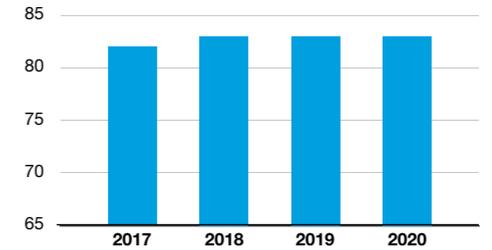
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Leadership



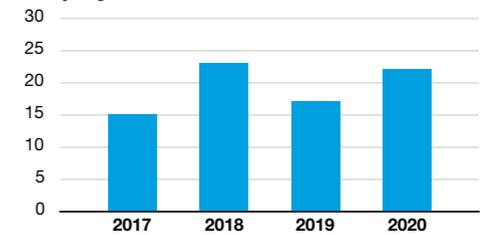
Leadership Index is measured annually in Stora Enso's Your Voice employee survey, and consists of numerical answers to 16 questions related to the respondent's view of the direct manager.

Engagement



Employee Engagement Index is measured annually in Stora Enso's Your Voice employee survey, and consists of numerical answers to seven questions related to engagement indicators including, but not limited to motivation, pride and goal orientation.

Employee Net Promoter Score



Employee Net Promoter Score is measured annually in Stora Enso's Your Voice employee survey, and consists of one question related to the likelihood of recommending Stora Enso as a workplace to a friend. A positive score indicates that there are more promoters than detractors, while a negative score indicates the opposite.



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Creating value in the bioeconomy with our renewable products

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Packaging Materials

The Packaging Materials division is a global leader in the circular economy with our premium renewable and recyclable packaging materials based on both virgin and recycled fiber. Addressing the needs of today's eco-conscious consumers, we help customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food and drink, pharmaceutical, or transport packaging. A wide selection of barrier coatings enables design optimisation for various demanding packaging end-uses.

Business environment

Stora Enso is the global leader in liquid packaging and the biggest producer of food service board and carton board in premium end-use segments Europe. In the large containerboard market, we are a niche player with world-class assets, providing high-end products with both virgin and recycled fiber. The containerboard market is fragmented with many larger and smaller players. Our cost-efficient production in Finland, Sweden, Poland and China serves our customers globally.

Markets

Our growth is faster than the global packaging market. The premium consumer board market is expanding

globally, by 9 Mt in 2014–2021. We are a market leader in LPB (Liquid Packaging Board), FSB (Food Service Board) and CUK (Coated Unbleached Kraft) in the world or Europe.

In consumer board products, Stora Enso has a strong base in Europe and competes with other Nordic board producers. Outside of Europe, the main competitors are established global and North American players. In containerboard products, the company competes with a large number of European or global large-scale producers. The main competition comes from other than fiber-based packaging materials such as plastic, metal, and glass.

Strategic choices

- Significant growth opportunities for fossil free and circular packaging
- Attractive investment options for Packaging Materials growth



Operational ROOC

13.9%

(Target >20%)

Employees 5 557

Share of Group employees: 23%



Sales



- Europe 62%
- Asia Pacific 26%
- Rest of the world 12%

Our approach



"We are the expert packaging materials partner for customers and other stakeholders in the transition to a circular bioeconomy. We see significant opportunities to replace other packaging materials with our renewable, low carbon footprint, fiber-based solutions. We continue to collaborate with our customers to accelerate our innovation efforts. This,

in combination with our continuous efforts to improve the performance, material-efficiency and recyclability of our products, allows us to meet the increasing demand for eco-friendly packaging materials."

Hannu Kasurinen
Executive Vice President,
Packaging Materials Division

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Packaging Solutions

The Packaging Solutions division develops and sells premium fiber-based packaging products and services. Our high-end eco-friendly packaging products are used by leading brands across multiple market sectors, including store retail, e-commerce and industrials. The portfolio includes corrugated and other converting, design services, automation solutions, and scalable innovations such as formed fiber and biocomposites.

Business environment

Stora Enso holds a strong position in selected corrugated packaging markets. We have a leading position in the Nordics, are among the top three in the Baltics and Poland, and among the top ten in Russia. In China, we hold a leading position of consumer packaging solutions for premium products such as consumer electronics and cosmetics.

Making of corrugated packaging is typically a local business and the market is fragmented. We serve a broad range of end-use segments such as consumer electronics, home and garden, food and beverage across traditional retail, industry, and e-commerce.

Markets

There are significant growth opportunities for corrugated packaging driven by growing e-commerce and the trend towards replacing plastics with renewable materials. Retail and e-commerce sales are forecasted to grow by 12–15% annually in our geographies.

The corrugated packaging market is fragmented, with many relatively small or medium competitors.

Operational ROOC

14.1%

(Target >25%)

Employees 5 094

Share of Group employees: 21%

Sales



- Europe 78%
- Asia Pacific 13%
- Rest of the world 8%

Strategic choices

- Drive packaging innovation closer to consumers
- Significant opportunities for new sustainable packaging



Our approach



“Our customers want packaging to provide business value as well as to accelerate their shift to a plastic-free and sustainable supply chain. We support these needs through packaging solutions that help our customers increase sales, reduce waste, minimise transportation costs, and replace plastics. In 2020 we reshaped our business and accelerated our efforts in growth opportunities such as formed

fiber, biocomposites and our digital B2B platform Box Inc. This journey continues in 2021 and together with our customers and partners we strive to create even more value with solutions that are better for our planet.”

David Ekberg
Executive Vice President,
Packaging Solutions Division

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Biomaterials

The Biomaterials division meets the growing demand for the replacement of products made from fossil-based and hazardous materials with bio-based solutions. We use all fractions of biomass, like lignin and sugars, to develop new solutions. We work to replace fossil-based materials with new applications such as carbon for energy storage, bio-based binders, and bio-based carbon fiber. The division's offering includes a wide variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers as well as materials from side streams of our processes, such as tall oil and turpentine from biomass.

Business environment

Stora Enso has the widest pulp grades portfolio in the market, and it is the leader in Europe in fluff pulp. The Biomaterials division has its own operations in Finland and Sweden, and joint operations in Brazil and Uruguay. 60% of the pulp produced is used within Stora Enso.

In our Nordic mills, our aim is to increase our share of specialised pulp, i.e. fluff and dissolving pulps, to address the changing paper pulp demand and to ensure the right product mix and customer base. This responds to

the increasing demand for sustainable fibers in the textile industry and for renewable hygiene products, for example.

Markets

Pulp is a growth business with the total market growing by 2.4% or 1.5 Mt per year. The fastest growing segments are textiles (+3%) and hygiene (+3.6%).

Apart from the direct competition in our business, the Biomaterials division faces competition from biochemical companies and the chemical industry in terms of new potential markets for renewable solutions.

Strategic choices

- A focus on strengthening competitiveness
- New biomaterials are a highly attractive innovation platform



Operational ROOC

0.4%

(Target >15%)

Employees 1 822

Share of Group employees: 7%

Sales



- Europe 61%
- Asia Pacific 32%
- Rest of the world 8%

Our approach



“Our Biomaterials offering focuses on research and innovation to develop new and viable business opportunities from fiber-based materials, especially in carbon for energy storage, bio-binders, and carbon fibers. As a strong and specialised chemical pulp producer, we focus on maximising the value

of eucalyptus pulp in Latin America, generating sustainable profits from our Nordic pulp operations, and delivering growth in new products.”

Markus Mannström
Executive Vice President,
Biomaterials Division

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Wood Products

The Wood Products division is the largest sawn wood producer in Europe and a leading provider of sustainable wood-based solutions for the construction industry. Our growing Building Solutions business offers building concepts to support low-carbon construction and eco-friendly designs. We develop digital tools to simplify the designing of building projects with wood. We also offer applications for windows, doors and for packaging industries.

Business environment

Stora Enso is the largest supplier of sawn goods in Europe and the fourth largest in the world with 17 production units in 10 European countries. This gives a strong base to produce wooden building materials such as CLT (cross-laminated timber) and LVL (laminated veneer lumber), targeting the growing wood construction markets. We are increasing the share of wooden solutions for new end uses like multi-storey houses, offices and schools.

As the supplier and customer base in the wood products industry are fragmented, we have strengthened the direct supply chains to merchants and end-users globally. In addition, our integrated distribution centres offer customers local service supported by digital tools such as our online ordering channel, MySupply.

Global megatrends shape our business environment: growing population size and urbanisation require more housing while the increasing eco-awareness raises demand for sustainable construction.

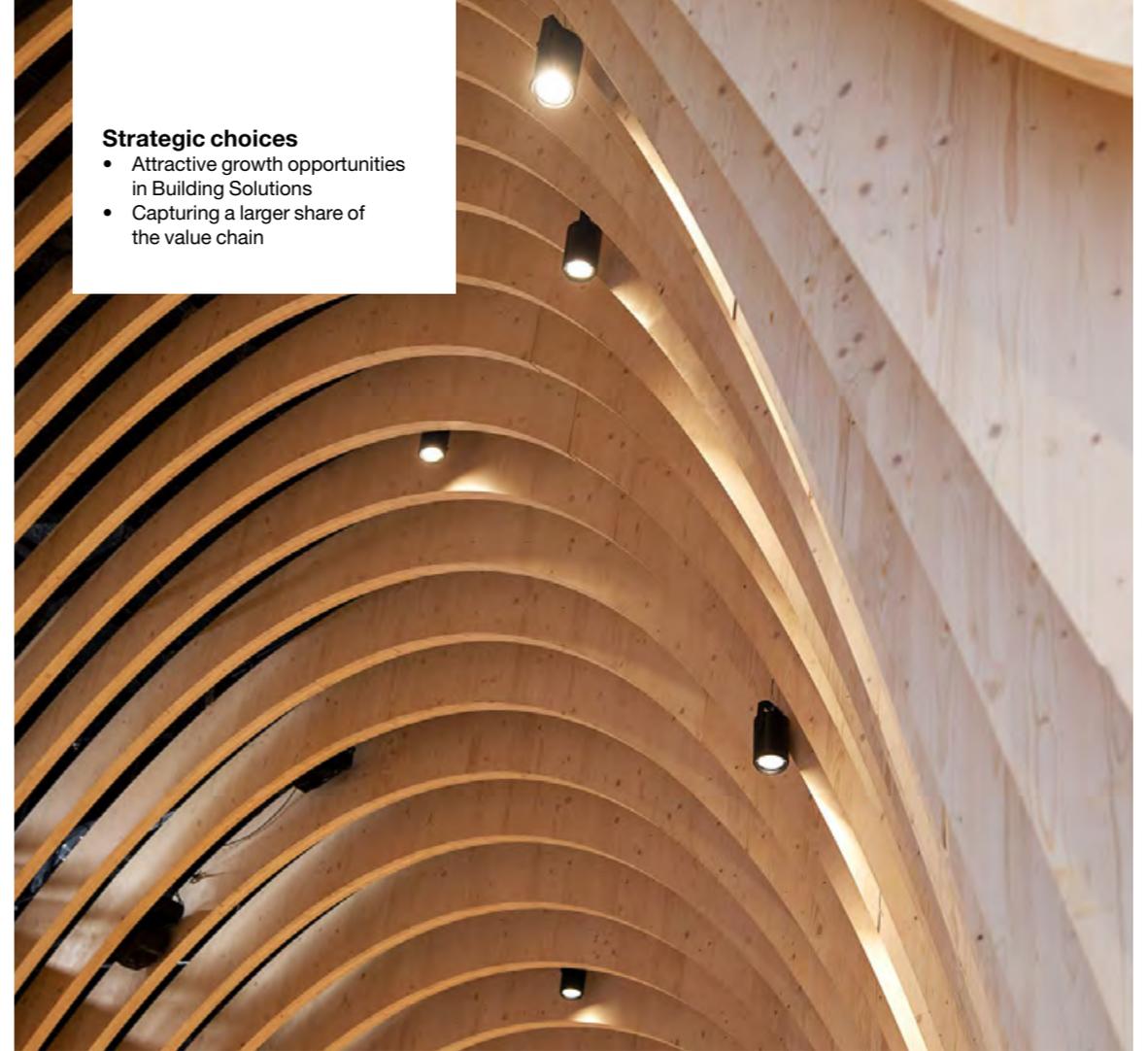
Markets

Global sawn softwood is growing by 2–3% annually, and European new construction is expected to grow by 5–6% in 2021, recovering from Covid-19 related decreases during 2020.

Competition is fragmented and strong, ranging from sawmills to manufacturers of construction and interior products. In the construction market, wood competes mainly with concrete and steel. New end-uses for wooden buildings, especially multi-storey constructions, are increasing in market share.

Strategic choices

- Attractive growth opportunities in Building Solutions
- Capturing a larger share of the value chain



Operational ROOC

19.1%

(Target >20%)

Employees 4 026



Share of Group employees: 16%

Sales



- Europe 63%
- Asia Pacific 22%
- Middle East and North Africa 7%
- Rest of the world 7%

Our approach



“As the market shift continues towards sustainable and renewable building materials, we strive to be the best choice for customers looking to reduce their construction carbon footprint. To drive profitable growth, our focus is on further industrialising the wood construction value chain via digitalisation and prefabrication of building elements such as walls, floors, columns, beams,

and stairs. We will also leverage our saw milling competences to develop customer-relevant innovations and digital solutions for the construction market, including architects, engineers and developers.”

Lars Vöikel
Executive Vice President,
Wood Products Division



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Forest

The Forest division creates value with sustainable forest management, competitive wood supply and innovation, which are the foundation for Stora Enso's renewable offerings. The division manages Stora Enso's forest assets in Sweden and the 41% share of Tornator, the majority of whose forest assets are located in Finland. The division is also responsible for wood sourcing for Stora Enso's Nordic, Baltic and Russian operations and B2B customers. Stora Enso is one of the biggest private forest owners in the world.

Business environment

Stora Enso's wood supply operations in Finland, Sweden, the Baltics and Russia cover the entire management cycle in forests: from planning to harvesting, logistics and forest regeneration. Private forest owners are one of Forest division's main stakeholders, providing us with 32% of the wood delivered to customers. We build long-term relationships with private forest owners and provide them with comprehensive forest management services, such as forestry care, harvesting, procurement, and certifications.

Our own forest assets support competitive and stable wood sourcing and create value by increasing long-term yield, mitigating climate change impacts, and optimising land use. To capture the full value of our forest asset management, we have intensified our focus on R&D and digitalisation. We invest particularly in precision technologies for more accurate forest planning and in tree breeding for future-fit forests. We are also actively exploring new land-use possibilities, such as wind power and recreational forest use.

Operational ROCE

3.9%

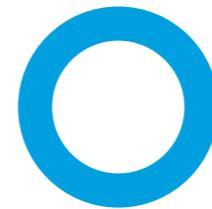
(Target >3.5%)

Employees 1 520



Share of Group employees: 6%

Sales



- Europe 100%
- Rest of the world

Strategic choices

- The leader in sustainable forest management
- Innovation to increase forest growth



Our approach



"As growing trees absorb carbon, we always strive to keep forests healthy while promoting biodiversity and other aspects of sustainable forestry. This ensures that Stora Enso's portfolio of fiber-based products stands on a truly renewable and traceable resource. To provide the best possible value to our customers and stakeholders, we focus increasingly on research and

development, as well as on the use of technology and digital solutions in forest management. In this way we ensure that our forests are fit for the future."

Jari Suominen
Executive Vice President,
Forest Division

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Paper

Stora Enso is the second largest paper producer in Europe, with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of paper products made from recycled and virgin fiber, our technical expertise and our sustainability know-how as well as our mill and customer service centre network.

Business environment

Paper markets have been in structural decline for several years, and in 2020, paper demand was further impacted by the Covid-19 pandemic. This is due to retail stores advertising less during lockdowns, and consumers buying fewer newspapers and magazines and printing less when working from home. The development has resulted in severe overcapacity in many paper grades as well as declining paper prices. One of the most challenged paper segments has been woodfree coated (WFC), which Stora Enso exited as planned at the end of 2020, with Oulu Mill being converted to produce kraftliner.

Markets

During 2020, the Covid-19 pandemic accelerated structural demand decline and placed additional pressure on both prices and deliveries in all paper grades. In the Paper division, we compete with other major European and global papermakers, not just in the quality and range of our products, but with the efficiency and sustainability of our operations and strong customer service. Our customer satisfaction, measured by Net Promoter Score, is very good and has increased by 20 percentage points in the past five years. More than 90% of our products are covered by one or more ecolabels, providing external recognition of superior environmental performance over the life cycle.

Cash flow after investing activities to sales

1.6%

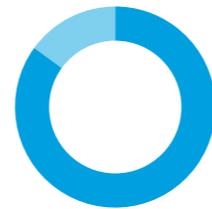
(Target >7%)

Employees 4 356



Share of Group employees: 18%

Sales



- Europe 85%
- Rest of the world 15%

Strategic choices

- Strong cash generation through cost reductions, active capacity management, and customer service
- Higher operational independence to adapt to challenging market conditions



Our approach



"Paper will continue to play a role in media, advertising, education, retail and office use in the future, alongside with digital media and digital tools. We work closely with our customers to enhance value for their business and customers, for example by offering fit-for-purpose products and services, increasing efficiency in transactions with digital tools and by helping our customers to improve their sustainability performance. At the same time, we strengthen our

competitiveness by further lowering costs and improving our operational efficiency. Moreover, our paper products are inherently circular, using production processes that are optimised for resource efficiency to maximise value throughout their lifecycle."

Kati ter Horst
Executive Vice President,
Paper Division



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Our renewable solutions

Meeting consumer demand for eco-friendly and circular solutions



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Our renewable solutions

Replacing plastics in food packaging

Recycling alone cannot solve the plastic waste problem. To transition towards a sustainable circular bioeconomy, we need to move away from fossil-based materials. Renewable materials are the way forward. Our renewable food and beverage packaging solutions help our customers to replace plastic and meet consumer and end-user demand for eco-friendly solutions.



End-use

- 1 Dry food, frozen food, beverage
- 2 Food service, quick-service restaurants
- 3 Cutlery, pulp for food packaging, food packaging papers
- 4 Fresh produce, fish and seafood

Benefits for companies, brands, and consumers

- Lowering CO₂ emissions compared to non-renewable materials
- Improving brand perceptions through replacing plastic in packaging
- Differentiation with safe and eco-friendly solutions for fast food and food delivery services
- Helping consumers reduce plastic waste

New



A new generation of eco-products to replace plastic

PureFiber™ by Stora Enso is a new range of ready-made formed fiber packages suitable for food service and consumer goods products. The PureFiber™ product line is plastic- and PFAS-free and enables a carbon footprint that is approximately 75% lower compared to alternative packaging materials such as plastic or bagasse. Stora Enso's formed fiber products are designed for circularity, meaning that they are renewable, recyclable and biodegradable.

Division: Packaging Solutions

New



A new eco-friendly material for folding cartons

Perma Light™ by Stora Enso is a plastic-free, lightweight and low-carbon material for premium folding cartons. Produced with patented lightweighting technology, Perma Light™ is designed for chocolate boxes, as well as for packaging confectionery, cosmetics, and personal care products. Perma Light reduces CO₂ emissions during production more than 70% compared to the competition due to the mill's energy production which is free from fossil-CO₂ emissions.

Division: Packaging Materials

New



A food-safe premium kraftliner for corrugated packaging

AvantForte™ by Stora Enso is a three-layer structured kraftliner for corrugated packaging, made from 100% virgin fibers. It meets brand owners' need for high-performing, safe and plastic-free packaging while using less material. AvantForte™ kraftliner is produced in Oulu, Finland, where a paper machine was converted for kraftliner production.

Division: Packaging Materials

New



Renewable EcoFreshBox for berries

EcoFreshBox by Stora Enso is a berry box made from corrugated board as a sustainable alternative to plastic packaging. The box is easy to recycle and keeps the berries fresh for a long time. The raw material for the box is sustainably sourced Finnish wood.

Division: Packaging Solutions



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Our renewable solutions

Natural cosmetics & personal care

Combatting climate change and reducing the environmental impacts of packaging are high on the agenda for cosmetic brands. We help our customers to meet these new demands by offering innovative solutions made from renewable materials for cosmetics, personal care, pharmaceutical, and hygiene products. For hygiene products like diapers, feminine care, and adult incontinence products, we work together with customers to provide more environmentally friendly and low-carbon fluff pulp to meet consumer demand.

End-use

- 1 Cosmetics packaging, pharmaceutical, and health care packaging
- 2 Fluff pulp for personal hygiene products
- 3 Rigid boxes for cosmetics, leaflets for cosmetics, and pharmaceutical packaging
- 4 Pulp for tissues, bio-based chemicals

Benefits for companies, brands, and consumers

Opportunities to collaborate around replacing plastics in packaging with direct product contact (primary packaging)

Lowering carbon emissions with light-weight, renewable packaging

Differentiating with eco-friendly solutions for consumers who want less plastic

Reduced environmental footprint for hygiene products with renewable, traceable and biodegradable materials



A renewable alternative to plastic cosmetics tubes

The introduction of paperboard for tubes to reduce plastic in primary packaging of cosmetics was welcomed by our customers in several acceptance test projects. We are expecting to see the first paperboard tube on the market in early 2021. The body of the tube is made from Natura Shape™ by Stora Enso, which is 70% based on renewable raw material, reducing the need for fossil-based materials.

Division: Packaging Materials



Fluff pulp for hygiene and air-laid products

Fluff pulp is a soft, absorbent material created from 100% sustainably sourced Nordic spruce and pine. It is used as a raw material in disposable hygiene products, such as baby diapers, feminine care, and adult incontinence protection products, as well as in air-laid nonwoven materials used for tabletops and napkins. NaturaFluff by Stora Enso helps to meet the increasing demand for sustainable, disposable hygiene products without compromising on the end-product performance.

Division: Biomaterials



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Our renewable solutions

Plastic-free e-commerce

As online purchasing grows, so does the importance of packaging – to meet consumer requirements for a smooth and seamless unboxing and returns process. E-commerce packaging requires a careful selection of packaging materials, inserts, and structural design features that can help to safeguard the product and reduce packaging waste. Stora Enso's plastic-free and renewable e-commerce solutions help our customers to enhance the online buying experience while reducing the climate effect of online shopping.



End-use

- 1 E-commerce packaging
- 2 Envelopes
- 3 Catalogues

Benefits for companies, brands, and consumers

- Reduced plastic usage in online retail through fiber-based e-commerce packaging
- Optimised and smart solutions to reduce void-fill
- Intelligent features such as RFID tagging to capture a variety of data
- Improved consumer perceptions, for example through a better unboxing experience, easy returns, and reduced plastic usage



Delivering circularity to e-commerce
 The ePaperBag is the circular delivery solution that is tailor-made for e-commerce to meet the demands of eco-conscious online consumers. It is a reusable bag that is efficient in e-commerce logistics and can be used to replace plastic bags. The raw material is wood fiber from sustainably managed forests, and the bag is carbon neutral.
Division: Packaging Solutions



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Our renewable solutions

Sustainable textiles and nonwovens

While textile consumption continues to grow, consumers are increasingly aware of the climate impacts of petroleum-based artificial fibers and cotton. Dissolving pulp from Stora Enso enables the manufacture of textiles based on renewable and fully traceable wood from sustainably managed forests. For our fluff pulp, end uses in nonwovens include high-quality tabletops and napkins, and pads for food packaging containing liquids.



End-use

- 1 Textiles
- 2 Nonwovens

Benefits for companies, brands, and consumers

A more sustainable alternative to petroleum-based artificial fibers and cotton

Fabrics made from cellulosic-based fibers are breathable, comfortable to wear, and absorb moisture well

Enable a wider range of sustainable fashion choices for consumers



Dissolving pulp helps shape the fabric of the future

Pure by Stora Enso, a dissolving pulp, is used primarily to make viscose staple fibers for the textile industry, for example, to replace cotton and fossil-based materials, such as polyester. Dissolving pulp is made from a renewable raw material and sourced from sustainably managed forests, with FSC® and PEFC chain of custody certifications. Viscose has significantly lower water requirements than cotton, is more sustainable than polyester, and requires less land use than wool.

Division: Biomaterials

* Stora Enso Communications' FSC® trademark license number is FSC-N001919



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Our renewable solutions

Circular retail

Strong brands communicate their commitment to creating a greener future. We support retailers in meeting the growing consumer demand for eco-friendly and circular solutions. With our renewable materials and circular design services our customers can reduce their use of plastics, lower their carbon emissions, and reduce waste. Our circular retail solutions support needs in packaging, consumer goods, RFID technologies, and more.

End-use

- 1 Food, grocery, and electronics packaging
- 2 Furniture, construction, interior, toys, childcare, apparel
- 3 Handles and hangers, RFID tags
- 4 Retail flyers and catalogues, pulp for specialty papers, and food packaging

Benefits for companies, brands, and consumers

- Renewable, recyclable, and compostable solutions for a broad range of retail packaging
- Reduced plastic usage in high-volume in-store items such as coat-hangers and RFID tags
- Improved environmental footprint for everyday consumer items, such as children's toys



Biocomposites – an affordable way to replace fossil-based plastics

Our wood-fiber biocomposites blend wood fibers and polymers – virgin, recycled, or bio-based. Biocomposites are a more sustainable alternative to fossil-based plastics with the ability to reduce the carbon footprint by up to 80% compared to fossil-based plastics. In addition, Biocomposites are an outlet for recycled plastic streams that would otherwise be sent to landfill or incinerated.

Division: Packaging Solutions



A digital B2B marketplace for corrugated packaging

In 2020, Stora Enso introduced Box Inc, a new B2B platform business designed to help companies source packaging online easily and cost-efficiently. Box Inc digitalises the traditional buying process by integrating every single step on the platform – from the design of the boxes to supplier quotes and even the ordering process. As a result, companies save both time and money while choosing sustainable packaging from verified suppliers.

Division: Packaging Solutions



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Our renewable solutions

Carbon neutral buildings

Today, production of construction and building materials account for 11% of the CO₂ emissions related to global energy end-use. As the global building stock is estimated to double by 2060, there is a growing need to shift from non-renewable construction materials to renewable wood. Our building concepts and digital tools and services show the best ways of using wood as a construction material. Third party verified EPD's (Environmental Product Declarations) for our products and Life Cycle Assessments of wood products and buildings prove the positive climate effect of using wood.

Building Concepts leading the way in the wood industry

To grow wood as a building material and to simplify its use in construction, Stora Enso has, together with partners, developed building concepts for wooden offices, multi-storey residential buildings, and schools. The concepts show how to create well-performing and cost-competitive buildings based on our wooden components, products, and services.
Division: Wood Products

End-use

- 1 Building materials and components for panels, columns, beams, and stairs
- 2 Building concepts for office buildings, school buildings, and multi-storey residential buildings
- 3 Services and digital tools to support the construction process
- 4 Bio-based adhesives for construction materials

Benefits for companies, brands, and consumers

Lower CO₂ emissions: reduction by up to 75% when building with wood instead of non-renewable materials

Lower construction costs and less pollution: reduction of construction time by up to 70%, with up to 80% fewer truck deliveries on site

Increased health and safety for construction employees, with less noise related construction

Increased health and safety for people living or working in wooden buildings, through biophilic design, which means that occupants can feel more connected to nature

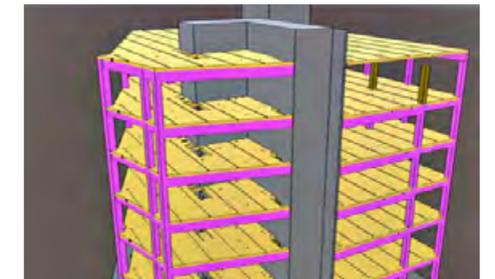
New



Lignin-based glue reduces the carbon footprint of plywood products

Stora Enso's customer Latvijas Finieris, a birch plywood producer, is replacing phenol with lignin in resins used in their plywood. This new lignin-based glue is a bio-based solution that helps replace a fossil-based material. It significantly reduces the carbon footprint of plywood products all the way from production to final end-use applications, without compromising on technical performance.

Division: Biomaterials



Digital tools to streamline sustainable construction

Stora Enso offers a range of digital solutions to expand the use of wood in construction, from design to element installation. These include: CLT360+, a mobile assistant for element installation; BIM toolbox, an essential Building Information Modelling resource for timber products; Calculatis®, timber design software for engineers; and a digital wood moisture meter and dashboard, a material monitoring solution.

Division: Wood Products



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Our renewable solutions

Sustainable print

Paper is recyclable, biodegradable, and made of renewable materials. Our products are manufactured from responsibly sourced wood, and the origin of the wood we use is 100% traceable. More than 90% of our paper brands hold ecolabel certification recognizing their reduced environmental impact over the product life cycle.

End-use

- 1 Newspapers, magazines
- 2 Catalogues, flyers, and leaflets
- 3 Book papers and covers
- 4 Office paper, graphical board, pulp for paper

Benefits for companies, brands, and consumers

Products manufactured from responsibly sourced wood that is 100% traceable

More than 90% of our wide product offering is covered by one or more recognised eco-labels

Business models and services aimed to enhance business and sustainability performance

New



The new-generation uncoated magazine paper

PrimaPlus by Stora Enso is a new uncoated magazine paper that performs like a lightweight coated paper. It has the brightness and gloss but with added bulk for a pleasant touch and feel. The raw material used in PrimaPlus comes from Scandinavian forests, is completely traceable, and is FSC and PEFC certified.

Division: Paper

New



A new digital solution to support customers remotely

To drive efficiency, Stora Enso and the startup company Snap Support launched a new digital solution, Snap Support by Stora Enso, for remote technical customer services. The solution includes a mobile application used to transfer real-time information and media whenever a customer encounters challenges or has questions related to their printing and converting processes.

Division: Paper



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Our renewable solutions

Low-carbon industrial solutions

In the face of climate change, producers, retailers, and brand owners are being forced to rethink every step of the supply chain – from raw material sourcing, to production, to packing, and logistics. Packaging is a critical area as it accounts for 40% of the world's plastics – most of which are made from fossil oil.

End-use

- 1 Corrugated boxes
- 2 Industrial and heavy-duty packaging, industrial components
- 3 Recycled minerals, bio-based chemicals and adhesives

Benefits for companies, brands, and consumers

Reduced weight in transport and storage solutions

Reduced carbon footprint by replacing engineered plastic products and components with biocomposite solutions

Replacing fossil-based materials in applications such as bioplastics, biochemicals and biofuels

Increased circularity and reduced carbon footprint with recycled minerals

New



A recycled mineral from paper and board production

VersaLime™ by Stora Enso is a recycled mineral from pulp and paper refinement processes that can be used to reduce the carbon footprint of products. It replaces non-renewable materials with a circular by-product which can be applied in, for example, lightweight concrete, cement raw material, or infrastructure uses.

Division: Paper



Corrugated solutions for industrial and heavy-duty packaging

Stora Enso's corrugated packaging for industrial and heavy-duty end-uses offers a sustainable and strong but light solution that helps our customers save on logistics costs and reduce emissions. Less packaging material also means reduced waste and, as a result, a smaller environmental footprint.

Division: Packaging Solutions

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Group Leadership Team



Annica Bresky
President and Chief Executive Officer (CEO)



Seppo Parvi
Chief Financial Officer (CFO), Deputy to the CEO, Country Manager Finland



Tobias Bäärnman
Chief Strategy and Innovation Officer, member of GLT as of 1 November 2020



David Ekberg
Executive Vice President, Packaging Solutions Division, member of GLT as of 1 April 2020



Johanna Hagelberg
Executive Vice President, Sourcing and Logistics



Kati ter Horst
Executive Vice President, Paper Division



Hannu Kasurinen
Executive Vice President, Packaging Materials Division



Katariina Kravi
Executive Vice President, Human Resources as of 1 September 2020



Ulrika Lilja
Executive Vice President, Communications and Marketing



Per Lyrvall
Executive Vice President, Legal, General Counsel, Country Manager Sweden



Markus Mannström
Executive Vice President, Biomaterials Division



Teemu Salmi
CIO, Head of IT & Digitalisation, member of GLT as of 1 November 2020



Annette Stube
Executive Vice President, Sustainability as of 1 September 2020



Jari Suominen
Executive Vice President, Forest Division



Lars Völkel
Executive Vice President, Wood Products Division as of 1 July 2020

For more detailed information about the Group Leadership Team, see **Governance 2020**, or storaenso.com/investors/governance.



Our sustainability work covers social, environmental, and economic responsibility throughout our value chain, with respect for human rights integrated into everything we do.

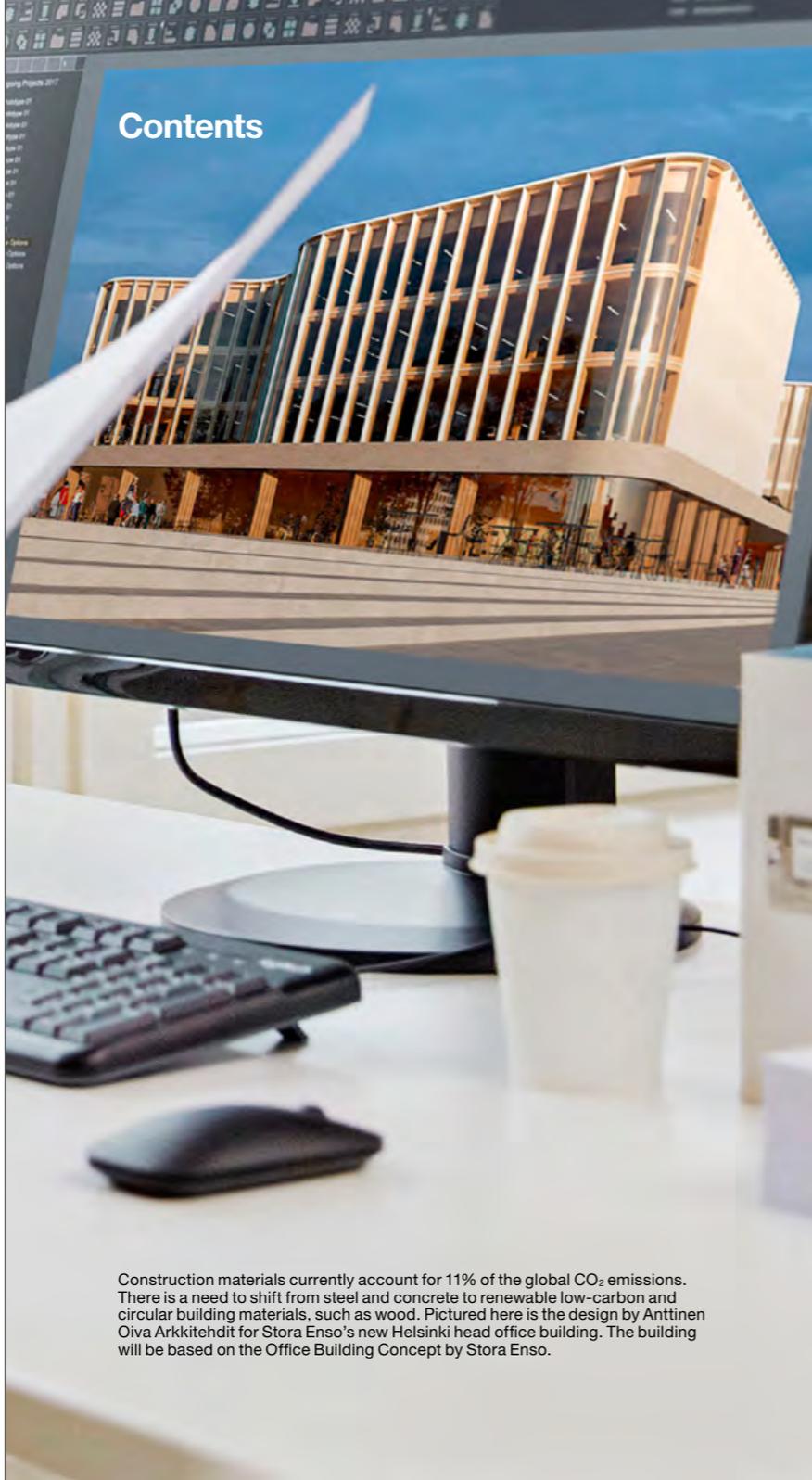


Sustainability

Part of Stora Enso's Annual Report 2020

THE RENEWABLE MATERIALS COMPANY





Contents

Construction materials currently account for 11% of the global CO₂ emissions. There is a need to shift from steel and concrete to renewable low-carbon and circular building materials, such as wood. Pictured here is the design by Anttinen Oiva Arkkitehdit for Stora Enso's new Helsinki head office building. The building will be based on the Office Building Concept by Stora Enso.



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The report contents have been assured by an independent third-party assurance provider with a level of Limited Assurance. A level of Reasonable Assurance has been provided for our direct and indirect fossil CO₂e emissions.

The GRI Index is available at storaenso.com/gri2020



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Sustainability at Stora Enso

At Stora Enso, sustainability covers the social, environmental, and economic responsibility of our operations and value chain. We care for people and the planet – from the forest to innovation, manufacturing, product use, and end-of-life, while respecting human rights in all that we do.



We are the renewable materials company



Our raw material is renewable, recyclable, and fossil-free.



Our products replace fossil-based materials.



Our renewable products contribute to a circular bioeconomy.

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Our year 2020



Protecting biodiversity

Sustainable forestry helps safeguard forest health and biodiversity, while securing the long-term availability of our renewable products. 100% of our wood comes from sustainable sources and we apply recognised industry standards to ensure this. During the year, Stora Enso developed a new ambitious Forest Sustainability Strategy focusing on four areas: Carbon, Biodiversity, Land use, and Communities.



Driving circularity together with our partners

Transforming to circularity does not happen overnight or in isolation. Stora Enso works with its partners, customers, and other stakeholders to create circular solutions throughout the value chains. For example, we are one of the founding companies of 4evergreen, a European circular economy platform.



Substituting fossil-based materials

When Stora Enso's renewable products replace fossil-based or other non-renewable alternatives, they have significant benefits for the climate. Our substitution of fossil materials prevents nearly 18Mt of CO₂ annually from entering the atmosphere.



Climate impact

-11.5 million tonnes of CO₂e
(annual estimate)

Promoting sustainable forestry

98% of the lands we own or manage were covered by forest certification schemes

Sustainable finance

EUR 1 506 million total amount of Stora Enso's outstanding green bonds

An exceptional year

The global Covid-19 pandemic has changed our lives in ways we could not have imagined. As a company, our duty is to ensure the health and safety of our colleagues. While Stora Enso continues to provide vital renewable materials to its customers, many of whom serve the medical, hygiene, and food industries, our units are also supporting their local communities. During the pandemic, many of our community investment projects consisted of donating materials, such as personal protective equipment (PPE), but also cash donations to charity organisations dedicated to health and social welfare.

Highlights of 2020

By replacing fossil-based materials with our renewable solutions, we help drive the transition from a fossil fuel consuming world to a sustainable future based on circular bioeconomy. Here are some of the highlights of our year throughout our value chain.

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Employee volunteering

2 684
employees involved in community investment activities during working hours.

› Read more on page 24



Calculating our climate impact

We carried out extensive research with the Swedish University of Agricultural Sciences (SLU) on the carbon balance in the value chain from forest to end-products.

› Read more on page 45

Safety during a global pandemic

We acted early to secure the wellbeing and health and safety of our employees and others working on our premises.

› Read more on page 20



Our CO₂e emissions were

26%
lower than the 2010 base-year level.

› Read more on page 46

Enhancing human rights training

In 2020, we launched a new human rights e-learning.

› Read more on page 16



Value from waste and residuals

Our utilisation rate for process residuals and waste was

98%

› Read more on page 38

Comprehensive monitoring

Our code of conduct index increased to

86

› Read more on page 31



Cooperating for low-carbon sea logistics

We took steps to decarbonise our sea logistics through industry collaboration and close cooperation with a major supplier.

› Read more on page 62

Green bonds and the use of proceeds

In 2020, the proceeds were used to finance sustainable forest acquisition and management in Sweden, reduce greenhouse gas emissions at our Maxau Mill as well as to develop a production line for cross-laminated timber (CLT), at our Gruvön Mill and Ždírec sawmill.

› Read more on page 65



Contributing to the circular bioeconomy

We published our Circular Design Guidelines that outline our commitment to contribute to a circular bioeconomy through our products and solutions.

› Read more on page 57





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We work towards a renewable future.

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We create value in the bioeconomy with our renewable products and contribute to solving global challenges.

As the renewable materials company, our promise is that everything that can be made with fossil-based materials today can be made from a tree tomorrow. To accelerate this development, we are shaping our business to build on our leading positions and growth opportunities in packaging, building solutions and biomaterials innovations. Our forest, traditional wood products and market pulp are the foundation for value creation in our company.

Out of the global megatrends impacting societies, markets and businesses, climate change is the greatest challenge. A growing global population and more consumption mean that the planet's resources are being stretched even further. Through collaboration with customers, industry partners, recyclers and innovators, we aim to make the fossil-free circular economy an everyday reality.

Our Sustainability Agenda encompasses the social, environmental, and economic responsibility of our operations throughout the value chain. The agenda is based on the Triple Bottom Line framework widely used in corporate responsibility work. It addresses the ten sustainability topics identified as material to Stora Enso and our key stakeholders: Employees and wider workforce; Community; Business ethics; Materials, water, and energy; Carbon dioxide; Forests, plantations, and land use; Customers; Suppliers; and Investors. As respect for human rights is considered so integral to our long-term success, it constitutes an overarching theme of our Sustainability Agenda.

In line with the agenda, we have set targets and defined key performance indicators (KPIs) for our sustainability work. Progress is regularly monitored at Group level and via division-level business reviews. Consolidated results on our performance are reported annually in our **Sustainability report**. Selected sustainability indicators are also reported quarterly in our Interim Reports.

Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals (SDGs) as part of a commonly agreed global ambition to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere. Read more about our approach to the SDGs on pages 10–11.

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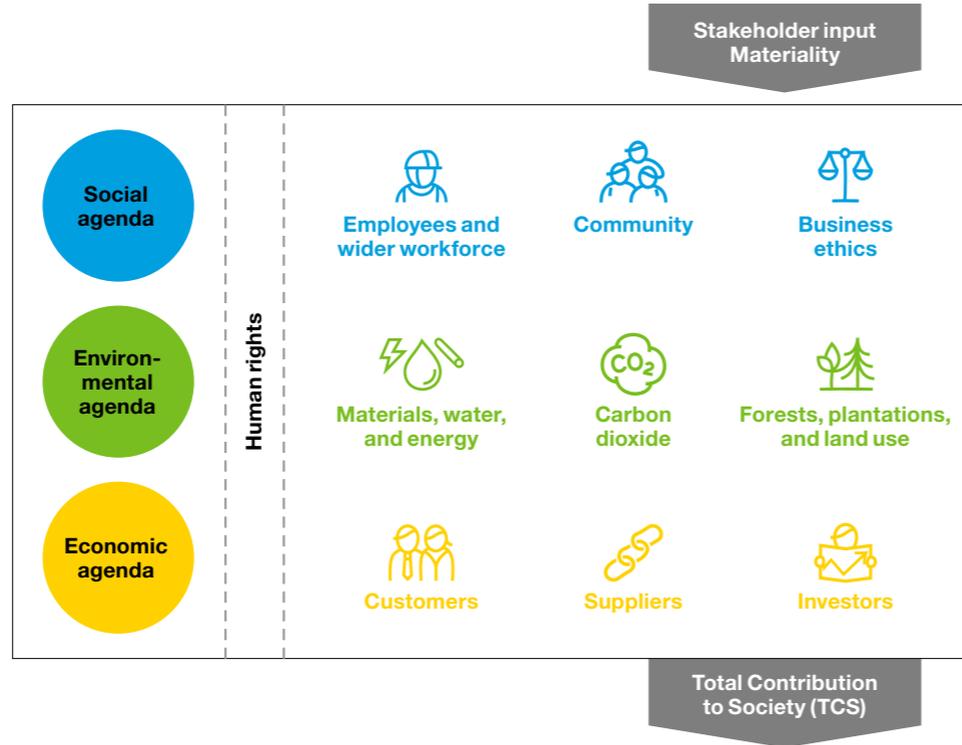
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Our Sustainability Agenda is based on the classic Triple Bottom Line model. It addresses the ten sustainability topics identified as material to Stora Enso.

Sustainability governance

At Stora Enso, sustainability is promoted by the Board of Directors, the President and CEO (CEO), and the Group Leadership Team (GLT). The CEO holds the ultimate responsibility for the successful implementation of our sustainability strategy.

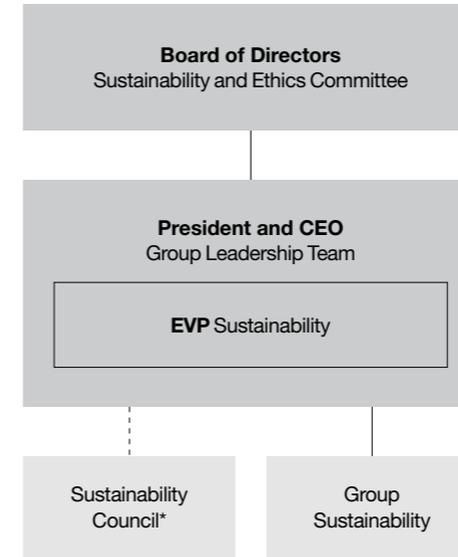
The Board of Directors' Sustainability and Ethics Committee oversees the implementation of our sustainability strategy and the ethics and compliance strategy. The committee met four times in 2020 and has also reviewed the disclosures in this report. The main focus areas of the committee during the year are described in our **Governance report**.

At Stora Enso, sustainability work is led by the Executive Vice President (EVP), Sustainability, who reports directly to the CEO and is part of the Group Leadership Team (GLT). Everyday sustainability topics are managed by our Group

Sustainability team together with our Human Resources, Legal, Wood Supply, Group OHS, and Sourcing and Logistics functions, and our six divisions. Each of our business divisions has its own Head of Sustainability, who reports directly to the EVP of the division. Other key functions, such as Sourcing and Logistics, have sustainability organisations to support their management teams. The everyday implementation of Stora Enso's Sustainability Agenda is the responsibility of line management supported by functional experts at all levels.

Stora Enso's sustainability work is steered by our Sustainability Council, which includes members from our divisions, our Sourcing and Logistics function, and subject matter experts from our Group Sustainability team. Chaired by the EVP, Sustainability, its work involves sharing good practices and identifying longer-term

Sustainability governance at Stora Enso



* Stora Enso's operational sustainability work is steered by our Sustainability Council, which includes members from our divisions, Sourcing and Logistics function, and subject matter experts from our Group Sustainability team.

-- EVP Sustainability chairs the Sustainability Council. Members of the Council report directly to their respective EVP.

opportunities and challenges that may require a Group-wide response. The Sustainability Council met ten times during 2020. The GLT is periodically informed of specific sustainability developments, as is the Board of Directors when appropriate, through its Sustainability and Ethics Committee.

Sustainability is one of the performance metrics in the remuneration of GLT members through Short Term Incentive programmes. Members of the GLT can be assigned appropriate sustainability indicators. For more information on remuneration, see our **Remuneration report**.

Sustainability governance of joint operations

Our joint operations in Brazil ([Veracel](#)) and Uruguay ([Montes del Plata](#)) have their own sustainability teams, and sustainability topics are regularly discussed by their boards, which include representatives from their parent companies. In

addition, Stora Enso is represented on the board of its equity-accounted investments, such as forest company Tornator in Finland.

Structured sustainability processes

Our Sustainability Policy describes our overall approach to sustainability. At the same time, our code of conduct – the **Stora Enso Code** – and other policies and guidelines on specific sustainability topics further elaborate our approach, while also guiding our employees in their everyday work. As an example, based on our Sustainability Agenda, our internal Sustainability Assessment checklist ensures that sustainability and circularity are considered in all research and development initiatives and in the development of new products.

Our policies and guidelines are available at storaenso.com/sustainability.

Stakeholder engagement

Open dialogue with our key stakeholders is crucial if we are to successfully and proactively identify concerns, global trends and market expectations. Our stakeholder engagement work is based on both structured and ad hoc interaction, as well as regular surveys on topics such as customer and employee satisfaction and investor expectations. We also obtain important information through formal grievance channels. Engaging with stakeholders on social media is important for us in understanding their opinions and concerns locally around our units, as well as on a divisional and Group level. We actively monitor social media discussions and respond, where appropriate, to stakeholder queries through suitable channels.

Materiality during the global pandemic

Given the nature of our business, truly material issues do not change annually within our operations, and therefore our Sustainability Agenda and targets are set for the long term.

In 2020, we updated the materiality assessment for our sustainability topics. The baseline for our work was the Group's most recent extensive materiality assessment, supported by an international expert organisation, carried out in 2017. In the assessment for 2020, the Covid-19 pandemic was one of the key external factors analysed. The assessment reconfirmed that all topics in our current Sustainability agenda continue to be material for the company. Although the pandemic highlights the importance of



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our social agenda from the relative materiality perspective, environmental topics remain essential. The assessment identified four sustainability topics as particularly material for Stora Enso in 2020: Climate change, Sustainable forestry and biodiversity, Renewable and circular products, and Occupational Health and Safety with actions to adapt to the pandemic.

This Sustainability report reflects the assessment results. For more information, see the separate [Materiality Assessment 2020](#).

We use investor and other stakeholder feedback to identify new or emerging topics for our annual sustainability reporting. These new or emerging topics are often of high interest to certain stakeholders. Our materiality review complements our Enterprise Risk Management (ERM) process with a broader scope of sustainability topics than those identified as the Group's key financial risks and opportunities. Whereas our statutory [Non-Financial Reporting](#) in the Report of the Board of Directors includes those sustainability topics that relate to the Group's key risks, our longer Sustainability report also covers topics considered important by stakeholders in our broader materiality review process.

We also prepare our reporting in accordance with the GRI Sustainability Reporting Standards. Our reporting covers all the General Disclosures, as well as the topic-specific GRI Standards we deem material. For more information, see our online [GRI Content Index](#). In 2020, we started reporting against the standards of the Sustainability Accounting Standards Board (SASB). For more information, see [Financials 2020](#).

Collaboration with non-governmental organisations

Stora Enso actively cooperates with prioritised non-governmental organisations (NGOs) and industry associations. We are involved in developing industry practices related to climate change, the circular bioeconomy, sustainable forestry, human rights, and business ethics, as well as the development of sustainability reporting and assurance. Examples of our collaboration during 2020 can be found in the relevant sections of this report.

In 2020, Stora Enso's CEO was appointed to the Executive Committee of the World Business Council for Sustainable Development (WBCSD) for the period 2021–2023.

How we create value as the renewable materials company



Stora Enso engages with people and communities all over the world through its operations, sales, and supply chains. We have a range of positive financial, social, and environmental impacts on society, such as direct and indirect employment, taxes and dividends, and products that provide renewable alternatives to non-renewable materials. For more information about how we create value and contribute to society, see [Strategy 2020](#). For details on Stora Enso's annual tax footprint in the countries where we operate, see [Financials 2020](#).

Significant stakeholder groups for Stora Enso include:

- Consumers
- Customers
- Employees
- Forest owners
- Policy makers
- Investors
- Local communities
- Media
- NGOs
- Partners and suppliers
- Trade unions

In 2020, Stora Enso actively collaborated with international organisations including:

- 4evergreen, page [58](#)
- Climate Leadership Coalition, page [46](#)
- Global Business Initiative on Human Rights (GBI), page [14](#)
- Science Based Targets initiative, page [43](#)
- The Ellen MacArthur Foundation, page [35](#)
- The Prince of Wales's A4S Accounting for Sustainability, page [65](#)
- The Prince of Wales's Corporate Leaders Group (CLG), page [45](#)
- The Forest Dialogue (TFD), page [50](#)
- Transparency International, page [29](#)
- UN Global Compact, page [68](#)
- We Mean Business Coalition, page [46](#)
- World Business Council for Sustainable Development (WBCSD), pages [35](#), [46](#), [50](#), and [57](#)
- World Green Building Council, pages [46](#) and [57](#)
- WWF, pages [51](#) and [53](#)

About this report

Stora Enso's Sustainability report 2020 is structured to reflect our Sustainability Agenda, with its ten elements addressed through a common four-tier framework:

Opportunities and challenges

These sections examine the external factors and global trends currently affecting the topics included in our Sustainability Agenda. Please note that our corporate risk management assessment appears in [Financials 2020](#).

Our policies

These sections set out the strategies and policies we use to address key opportunities and challenges.

How we work

These sections describe the processes, procedures, and systems we deploy to realise our strategies and policies.

Progress

These sections report on our performance during 2020.

External assurance

This report has been assured by an independent third-party provider with a level of Limited Assurance. Given our commitment to combatting climate change and related emission data reliability, a level of Reasonable Assurance has been provided for our direct and indirect fossil CO₂e emissions (Scope 1 and 2). For more information on assurance, see page [72](#).

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Our sustainability targets and key performance indicators (KPIs)

Key performance indicator (KPI)			2020	2019	2018	Targets	Progress
	Human rights	Implementation of Human Rights due diligence programme	22 out of 24 development actions finalised in Group function processes	24 development actions mapped in Group function processes	Eight highest priority human rights defined	Actions to address the development findings in Group function processes to be completed by the end of 2020	Not achieved
	Employees and wider workforce	Total Recordable Incident (TRI) rate ¹	6.1	7.0	6.1	4.7 milestone by the end of 2020 New milestone will be communicated in the Interim Report for Q1 2021	Not achieved
		Leadership Index ²	84	83	83	85 by the end of 2022	In progress
	Community	% of working hours and in-kind in community investments (CI) ³	41%	46%	50%	70% by end of 2023 while also increasing the total CI	In progress
	Business ethics	Code of Conduct Index ²	86	84	85	Positive trend	Achieved
	Materials, water, and energy	Number of significant environmental incidents ⁴	8	9	8	Zero significant incidents	Not achieved
		Materials: Process residuals utilisation rate (%) ⁵	98%	98%	98%	Maintain the high utilisation rate of 98%	Achieved
		Water: Total Water Withdrawal per saleable tonne of board, pulp, and paper (m ³ /tonne)	65	61	56	Decreasing trend from a 2016 base-year (57m ³)	Not achieved
		Water: Process water discharge per saleable tonne of board, pulp, and paper (m ³ /tonne)	31	29	26	Decreasing trend from a 2016 base-year (27m ³)	Not achieved
		Energy: Reduction in electricity and heat consumption per saleable tonne of board, pulp, and paper (kWh/tonne)	0.2%	-3.7% ⁶	-3.8% ⁶	-15% by the end of 2020 from a 2010 base-year	Not achieved
	Energy: Projected Energy Savings % (kWh saved/kWh total used, electricity and heat)	-0.9%	-1.4%	-1.3%	-0.8% annual energy saving until 2030	Achieved	
	Carbon dioxide	Reduction in CO ₂ equivalents per saleable tonne of board, pulp, and paper (kg/tonne)	-26%	-26% ⁶	-18%	-31% by the end of 2030 from a 2010 base-year	In progress
	Forests, plantations, and land use	% of the lands owned or managed by Stora Enso that are in wood production and harvesting covered by forest certification schemes	98%	98%	96%	Maintain the high coverage level of 96%	Achieved
	Suppliers	% of supplier spend covered by our Supplier Code of Conduct	96%	96%	95%	Maintain the high coverage level of 95%	Achieved

¹ Number of incidents among our own employees per one million hours worked. Including joint operations Veracel and Montes del Plata.
² Measured in the annual employee survey.

³ Excluding joint operations. Community investments cover cash donations, employee working hours for voluntary community work, and in-kind.
⁴ Environmental incidents involving a non-compliance with environmental legislation or a permit, or a significant stakeholder concern related to environmental performance. For more details, see page 42.

⁵ Utilisation rate for process residuals excluding, for example, tall oil, turpentine, and wood chips.
⁶ Recalculated due to additional data or organisational scope changes after the previous report. Read more about our calculation principles in [Reporting scope](#).

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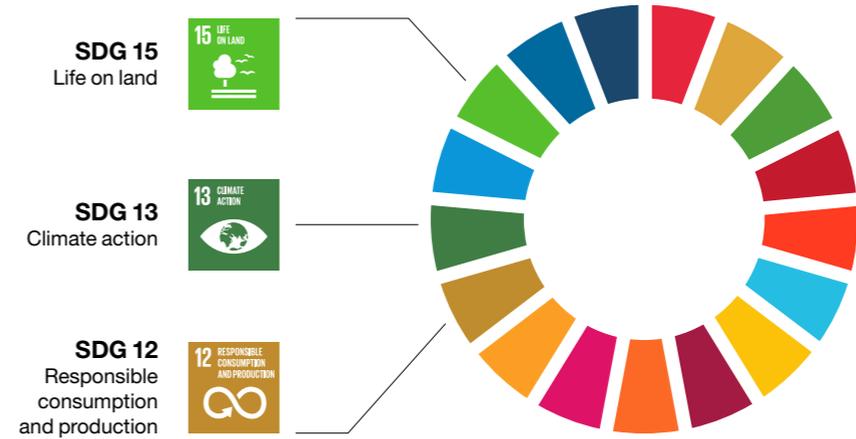
Contributing to the Sustainable Development Goals

The seventeen United Nations Sustainable Development Goals (SDGs) 2030 address social and economic development issues on a global scale. During the year, the Covid-19 pandemic underpinned the importance of our social agenda as an enabler when we contribute to our most strategic SDGs 12, 13, and 15.



Our priority SDGs

Stora Enso supports all seventeen SDGs, and the following three goals are identified as the most relevant to our business:



Driving sustainability for the biggest impact

Sustainable development is at the heart of our business strategy. We create value in the bioeconomy with our renewable products, and by doing so contribute to solving global sustainability challenges.

Stora Enso supports all seventeen SDGs, and the goals 12, 13, and 15 related to our environmental agenda have been identified as most relevant where we have the largest impact through our operations and products. Our earlier prioritisation of the SDGs was included in our 2020 materiality review.

Stora Enso recognises that it has both positive impacts that contribute to the SDGs but also negative impacts that we have the

responsibility to mitigate. Scaling up positive and minimising negative impacts is fundamental to our contribution.

In 2020, we contributed to the preparation of the Forest Sector SDG Roadmap: [Implementation Report](#) as part of our co-chairing of the Forest Solutions Group (FSG) at the World Business Council for Sustainable Development (WBCSD). The report describes the FSG members' progress on eight impact areas, such as Working Forests, Climate, the Bioeconomy or Communities. Alongside qualitative analysis, the progress is reported with a set of KPIs.

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SDG 12 – Responsible consumption and production

Relevant sub-targets for Stora Enso: 12.2 – 12.6, 12.8, 12.a



SDG 13 – Climate action

Relevant sub-targets for Stora Enso: 13.1-13.3

Many of our actions contribute simultaneously to SDG 12 and SDG 13. Our operations are based on renewable raw materials and sustainable forest management, which contribute to responsible consumption and resource use – and climate action. Our products help our customers and society at large to reduce CO₂ emissions by providing low-carbon, renewable, and recyclable alternatives to solutions based on fossil fuels and other non-renewable materials. Stora Enso is collaborating with the Swedish University of Agricultural Sciences (SLU) to develop more

accurate climate impact research. In 2020, SLU published a new report, providing evidence of Stora Enso's positive climate impact, including avoided emissions by product substitution and forest sequestration.

During 2020, we announced new investments as part of our business strategy, with the common aim to offer low-carbon, renewable, and circular products to our customers. Examples can be found throughout the Annual Report:

- Formed fiber helping to replace plastics and more carbon-intensive alternatives, page 58
- Cross-Laminated Timber (CLT) production in Ždirec. As a sustainable, renewable material, CLT shows significant growth potential in construction, [Strategy 2020](#)
- Lignin, which can be used for example in bio-based carbon materials for energy storage, and in biochemicals, [Strategy 2020](#)
- Biofoam for protective packaging and cushioning, page 59.

We apply [circular design principles](#) to maximise the circularity of our products and solutions, thus helping to reduce environmental impacts.

Furthermore, we work with [value chain partners](#) to improve actual recyclability.

In addition to our products, we contribute to SDG 12 and SDG 13 through our operations and supply chains. Within our operations, the process residuals utilisation rate remained high at 98% (98% in 2019). During 2020, we continued to work with chemical safety and the sustainable use of chemicals in our operations. The aim of this work is to minimise any adverse impacts on human health and the environment.

Read more:

- Innovations driving change towards a greener future, [Strategy 2020](#)
- Accelerating circularity along the value chain, page 35 and [Strategy 2020](#)
- Generating value from waste and residuals at our units, page 38
- Using our purchasing power to help global supply chains become more sustainable, page 60



SDG 15 – Life on land

Relevant sub-targets for Stora Enso: 15.1, 15.2, 15.3, and 15.5.

Sustainable forest management safeguards forest health and productivity, helps combat climate change, and protects biodiversity while securing the long-term availability of our renewable resources. Our work with forest, plantations and land-use directly contributes to SDG 15.

All roundwood, chips, sawdust, and externally purchased pulp supplied to our mills come from sustainable sources. We use a range of tools to ensure this, and to guarantee the sustainability of each stage of the forest management cycle. These tools include forest certification and third-party traceability systems.

Stora Enso's current activities focus mainly on improving sustainable forest management practices to enhance positive impacts on biodiversity. Our long-term strategic focus is to measure biodiversity holistically to be able to improve selected aspects with the largest impact.

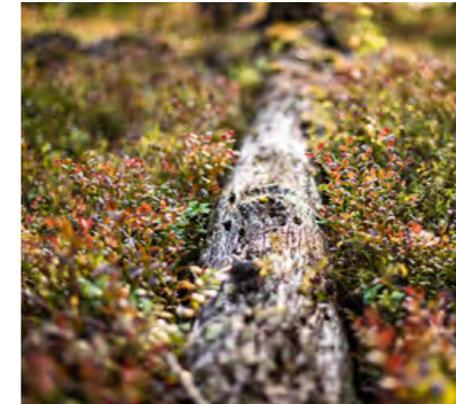
Read more about our co-operation with the Swedish University of Agricultural Sciences (SLU).

Stora Enso invests in conservation efforts by protecting and restoring significant areas of land. For more information, see the [table](#) listing our owned and managed lands.

All sites Stora Enso harvests are regenerated. In 2020, we planted approximately 62 million tree seedlings.

We provide certification training and advisory services for forest smallholders in Sweden and Finland. Our Group Certification programme in Russia covered 1.3 million hectares at the end of 2020. Stora Enso joint operation, Veracel, has pioneered the Forest Stewardship Council (FSC¹) certification in Brazil by establishing and managing FSC certification groups for local tree farmers (Fomento florestal). Subsequently, the management of these group certificates has been moved to the tree farmers' association.

At the end of 2020, the coverage of externally audited forest certification in our owned or managed land for wood production and harvesting remained high at 98% (98% at the end of 2019).



Read more:

- Forest certification, page 52
- Biodiversity, page 51
- Forest regeneration, page 51

¹Stora Enso Communications' FSC[®] trademark license number is FSC-N001919.



Podcast

The Sustainable Development Goals: from rainbow washing to transforming the world

The plan is for the world to achieve the UN Sustainable Development Goals (SDGs) by 2030. In our podcast, our guests discuss how companies can contribute to the goals and if they are being ambitious enough or just "rainbow washing" – using the SDGs superficially.

For example, business can have a critical role in contributing to SDG13 on Climate Action. "Science-based targets help to make sure that the emission reductions that the company is working on are carried out at the necessary pace and scale," says **Anna Kruij**, Manager Environment and Climate at UN Global Compact.

Stora Enso's climate and forestry targets contribute to the SDGs. "We need to keep the forests healthy and growing well to offer solutions that can substitute for fossil-based alternatives," says **Antti Marjokorpi**, Head of Forests, Plantations, and Land use Sustainability at Stora Enso

"The business-as-usual model that we have been sustaining is not viable," says **Filippo Veglio**, Managing Director at World Business Council for Sustainable Development (WBCSD). "2030 is an important milestone and this is a key decade to transform economic systems. But there will be a lot more work coming our way beyond 2030."

Listen to the podcast [▶ storaenso.com](#)



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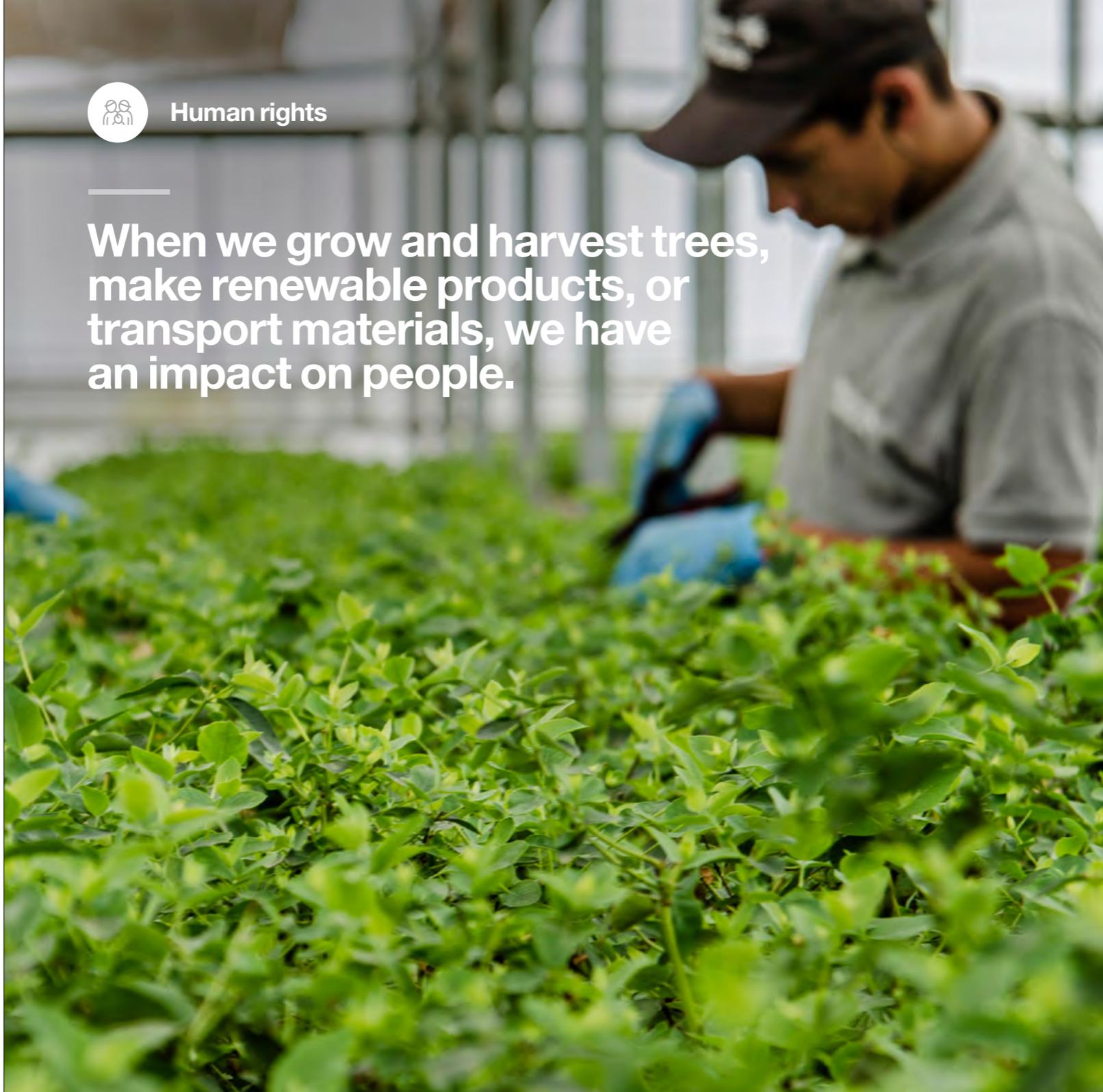
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When we grow and harvest trees, make renewable products, or transport materials, we have an impact on people.



Opportunities and challenges

Developments in human rights regulation

Many of the human rights challenges we face are deeply rooted in local communities and can only be effectively addressed through a long-term commitment and close cooperation with global and local stakeholders.

The UN Guiding Principles on Business and Human Rights (UNGPs) highlight that companies have an ongoing responsibility to respect human rights and to conduct related due diligence, even where government actions and regulatory frameworks are inadequate. In addition, the Covid-19 pandemic has highlighted the importance of protecting people from human and labour rights violations in global supply chains, especially in times of crisis, and has consequently sped up the development of EU-level legislation on human rights due diligence. Stora Enso supports human rights regulation that puts companies on an equal standing and helps to ensure that people are treated with decency and respect.

Our policies

Integrated into our sustainability work

Human rights are integrated into our Sustainability Agenda, which is aligned with the ten principles of the UN Global Compact. We are also committed to the UNGPs, which require companies to conduct due diligence to identify, assess, and remedy the impacts that their activities may have on people.

Relevant Stora Enso policies on human rights include:

- Stora Enso Code – our code of conduct that expresses our respect for human and labour rights.
- Supplier Code of Conduct – imposes strict contractual requirements on our suppliers regarding human rights.
- Human Rights Policy – sets out our commitment to respect human rights throughout our operations and in all relationships involving Stora Enso and expresses our respect for international human rights instruments.
- Human Rights Guidelines – provide more insight into how we work towards our policy objectives and with our highest priority human rights.



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Human rights are also a fundamental part of several internal policies and guidelines such as our Environmental Guidelines, Diversity Policy, and our Minimum Human Resources Requirements for labour conditions.

How we work

Assessing and addressing our human rights impacts

Our commitment to respect human rights covers all our operations, including our employees, contractors, suppliers, and neighbouring communities. We require that human rights risks and impacts are taken into account throughout our operations, including investment decisions related to mergers, acquisitions, and divestments. Our investment guidelines stipulate that environmental and social risks and impacts, including those related to human rights, must be duly identified, assessed, and addressed prior to approval in projects with business-critical risks.

Stora Enso's key tools for human rights due diligence

Continuous or periodic monitoring with:

- Stora Enso Code
- Business Practice Policy
- Minimum Human Resources Requirements for labour conditions
- Supplier Code of Conduct
- Safety standards and tools for all units
- Grievance mechanisms

Project-specific human rights due diligence with:

- Investment guidelines
- Environmental and social due diligence for mergers and acquisitions
- Environmental and Social Impact Assessments (ESIAs)
- Community consultations, including Free, Prior, and Informed Consent (FPIC)
- Sustainability Assessment checklist for innovation projects

Environmental and Social Impact Assessments (ESIAs)

We conduct ESIAs for new projects that could directly or indirectly cause significant adverse

effects in local communities. Such projects include board, pulp, paper, or sawmills built on greenfield sites, industrial scale plantation projects, and any large-scale investments in or expansions of existing facilities.

An important element of any ESIA involves assessing the operational context from a social impact perspective, including human rights, and establishing dialogues with local residents, members of local organisations, experts, and other stakeholders. This is done through interviews, meetings, workshops, and public hearings. ESIA results give us valuable information on how local communities may be affected by changes in their socio-economic situation and any impacts on cultural heritage, while also setting out implications for community health and safety.

Community consultations

Respecting human rights, including Free, Prior, and Informed Consent (FPIC), in land identification, acquisition, and management is one of our highest priorities. These processes are implemented together with local communities and authorities. Community consultations, such as FPIC, are a key element in our human rights due diligence and forestry operations, especially concerning land leasing and indigenous peoples' rights. Together with partners, we have developed various FPIC tools to ensure that communities understand the information that is shared with them, and regularly train our employees in community engagement and consultation. We also continue to enhance gender inclusion in community consultation meetings, which is an important part of FPIC.

The form and frequency of our engagement with local communities is shaped by the local context. In some areas, the interaction is done through community representatives while other communities prefer direct and inclusive contact. Many of our employees live in the communities and have a deeper understanding of the local context.

Stora Enso is a major forest owner in Sweden (see page 53) and a significant forestry operator in both Finland and Sweden. We recognise our responsibilities regarding the rights of indigenous Sámi people living on areas that are located on or neighbouring our lands or where we procure wood, and we maintain good relations with them in Finland and Sweden. In Central Sweden, for



Due to the Covid-19 pandemic, our community consultations in Guangxi, China, were conducted virtually in the beginning of 2020. We were able to continue them in person, with careful safety considerations, later in the spring.

example, we have had special agreements on land use with five Sámi communities since 1992. We have well-established routines for dialogue, including regular discussions on forestry, reindeer herding, and each other's opportunities and challenges. An evaluation meeting is held annually. We always consult the concerned Sámi villages before any forestry operations, and all consultation meetings are documented. For more information about our land use and wood procurement, see pages 49–54.

Our forestry employees in Guangxi, China, work in dialogue with local communities to understand the potential social impacts of our operations. For example, ethnic minorities, formally recognised by the Guangxi government, live in many areas of the province. This was re-confirmed in a community mapping completed by Stora Enso's forestry operations in China during 2020, as part of new forest certification requirements to map all local indigenous communities. Whereas previous mappings by Stora Enso focused on two regions around our plantations where the presence of ethnic minorities was known, the new

mapping included all four neighbouring regions with eight prefecture-level cities. The mapping concluded that 15% of all communities in these regions can be considered ethnic minorities. In two prefecture-level cities, Nanning and Chongzou, the combined share of such communities is 88%. The assessment gives us a more comprehensive understanding of the structure and customs of the communities around our plantations, which will help us further develop our social engagement activities.

Veracel, our 50%-owned joint operation in Brazil, has a team of community liaison officers who are in regular contact with community representatives to agree on actions and next steps.

In southern Laos, in the Saravane and Savannakhet provinces, our trial eucalyptus plantations are located near culturally and ethnically diverse villages. Despite the decision made in 2020 to downsize our Laos operations, we will continue to engage with local communities in a culturally appropriate way, based on informed consultation and participation.

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Many of our units and joint operations strive to improve road safety through road construction, training drivers, and raising awareness in local communities.

For more information about how Stora Enso supports and works with local communities, see pages [23–27](#).

Access to remedy and grievance channels

In accordance with the UN Guiding Principles on Business and Human Rights and our own Human Rights Policy, Stora Enso is committed to remedy situations where our activities have caused or contributed to adverse human rights impacts. Where violations are committed by third parties with links to Stora Enso through our operations, products, or services, we strive to use our influence together with the relevant stakeholders to ensure that those impacts are remedied. For example, our joint operation Veracel in Brazil has worked closely with landless movements and authorities for several years to find and implement solutions to land distribution disputes. Veracel has also helped stakeholders

understand their rights to various services, including access to legal support. For more information, see page [15](#).

Access to grievance mechanisms is one of Stora Enso's highest priority human rights. Our formal grievance mechanism enables any stakeholder to report instances where their rights may have been infringed, or where they have observed potential violations of the Stora Enso Code, including those related to human rights. This service is independently administered by an external service provider. For more information, see page [30](#).

We have also established grievance channels in local languages for communities and other external stakeholders associated with our plantations and mill in Guangxi, China. We encourage anyone with concerns to call our anonymous hotline number, write to us, visit us, or talk to our field personnel. Stora Enso's employees are trained to distribute information about our operations in local villages

and to duly process grievances, also in villages not engaged in any kind of business relationship with the company.

Similar local grievance channels exist for our project in Laos, and our joint operations Veracel in Brazil and Montes del Plata in Uruguay. In Laos, Stora Enso works with communities to raise awareness of villager rights and the channels they can use if concerns arise.

Reporting on our performance

Stora Enso reports on its human rights work annually and strives to align its reporting with the UNGP reporting framework. In addition, our annual Slavery and Human Trafficking Statement is available at storaenso.com/sustainability.

In 2020, Stora Enso's human rights reporting was [top-ranked](#) in a study by the multi-stakeholder SIHTI project. The study assessed the human rights reporting of companies using the Corporate Human Rights Benchmark methodology.

Progress

Continued focus on due diligence

While we respect and consider all human rights to be important, our highest priority human rights remain the primary focus of our work:

- Health and safety
- Fair labour (fair employment conditions, forced labour, freedom of association, non-discrimination and non-harassment)
- Land and natural resource rights acquisition and management
- Grievance mechanisms
- Children's rights (relevant to the forest sector).

We continued to develop our human rights due diligence programme in 2020. By the end of the year, we had finalised 22 out of 24 actions addressing development areas that were identified for Group function processes in 2019. In addition, integrating human rights into Stora Enso's enterprise risk management (ERM) process proceeded during the year. The work focused on ensuring that our highest priority human rights are reflected in the risk register with associated risk factors, impacts, and responses. The goal of this on-going work is to ensure that both financial risk and the risk to people are considered in our ERM process.

In 2020, we joined the Global Business Initiative for Human Rights (GBI) to advance respect for human rights in business through peer learning.

In Finland, we continued to voice our support for human rights due diligence legislation during the year. We also joined a campaign in Sweden calling for similar development in the EU. The campaign is led by a coalition of Swedish civil society organisations.

We updated and published externally our [Human Rights Guidelines](#) to provide our stakeholders with more detailed insight into how we work with human rights.

Actions related to our highest priority human rights in 2020 included:

Health and safety

It is our goal that everyone who works for us, either directly or indirectly, returns home safely from a healthy workplace every day. Despite our strong efforts to ensure this, two fatal accidents occurred in our forestry operations in China in 2020. For more information on fatal and other accidents in 2020 as well as our progress in health and safety, including our response to the Covid-19 pandemic, see pages [18–23](#).

In Brazil, Veracel, our 50/50 joint operation with the Brazilian company Suzano, manages a pulp mill, eucalyptus plantations, and related logistics in southern Bahia State. In 2020, Veracel supported the construction of a field hospital and donated personal protection equipment during the Covid-19 pandemic. For more information, see page [26](#).

In Guangxi province, China, we continued to focus on road safety in rural areas in 2020. For more information, see page [26](#).

Our joint operation Montes del Plata in Uruguay continued to address and raise awareness of road safety. For more information, see page [27](#).

Fair labour

We set strict standards for our operations to ensure fair employment conditions for all employees, on-site contractors, and our suppliers' employees. Our Minimum Human Resources Requirements for labour conditions cover these topics for our own employees, including compensation (see page [22](#)), working hours, forced labour, freedom of association, discrimination, and harassment. Our Supplier Code of Conduct sets similar requirements for our suppliers and contractors.

In 2020, we updated our [Supplier Code of Conduct](#) (SCoC), with additions around fair



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employment conditions, including requirements for recruitment agency use and reasonable remuneration for employees. For more information, see page 62.

For several years, Stora Enso has been monitoring labour rights in its bagasse supply chain in the United States to ensure that working hour schedules do not have adverse impacts on contractor health and safety. For more information, see page 62.

Our commitment to combat forced labour in our operations and supply chains is expressed in our Human Rights Guidelines and the Stora Enso Code. For more information about how we manage potential forced labour and human trafficking, see our annual Slavery and Human Trafficking Statement.

In 2020, approximately 80% of our employees were covered by collective bargaining agreements (read more in the GRI Index). In addition, to further strengthen our commitment to freedom of association, we continued to address areas in the global framework agreement that we have signed with the labour unions IndustriAll, UniGlobal, and BWI.

In 2020, we initiated an internal campaign raising awareness on harassment and discrimination. For more information, see page 31. For more information about diversity, inclusion, and gender equality, see pages 21–22.

During the year, to strengthen its activities around diversity and inclusion, our joint operation Veracel added a Brazilian Sign Language (BSL) reader on its website and Intranet and began using a BSL interpreter for internal meetings and events.

Land and natural resource rights acquisition and management

Sustainable resettlement in Brazil

Illegal land invasions of private property are a long-running challenge in Brazil that has affected various actors that use land, such as mining companies and farming businesses. Some areas of our joint operation Veracel's land have been illegally occupied since 2008. While Veracel is not the root cause of the problems that landless people face, it aims to be part of the local solution without taking on the role of the state.

Veracel strives to maintain continuous dialogue with landless movements and supports land allocations through the Sustainable

Settlements Initiative, launched in 2012. In 2020, the initiative continued to provide farmland and technical and educational support to hundreds of families to improve their incomes. The Sustainable Settlements Initiative is facilitated by the Government of the State of Bahia and is conducted in cooperation with the National Institute of Colonisation and Agrarian Reform (INCRA) and the representatives of six officially recognised landless people's social movements.

The movements have pledged to leave areas occupied since July 2011, while Veracel has agreed not to seek to repossess areas occupied before this date. The initiative relates to a total area of approximately 16 500 hectares of Veracel's lands designated for the settlements to be purchased from the company by INCRA.

Veracel continues to support the transition of families from these settlements to more permanent residencies on the same land, as the legal processes regarding their claim to the land are resolved over time. In 2020, this support included assisting farmers in improving productivity, the construction of food production units, and help with the commercialisation and marketing of the produce. The goal is to gradually transfer full responsibility of the area to the families by 2022. To minimise the impacts of the Covid-19 pandemic on this transition, and to protect the health and safety of the families, Veracel created emergency plans in 2020 that included, for example, ways to secure food production during the pandemic.

In line with a 2018 agreement that complements the earlier Sustainable Settlement Initiative, Veracel has agreed to sell approximately 3 500 hectares of previously occupied land to the movements on which to grow food. In 2020, Veracel began cooperation with the Federal University of Southern Bahia (UFSB) to support these new settlements by conducting socio-environmental profiles of the families, training farmers in, for example, productivity planning, and monitoring results. The total value of the 5-year agreement with UFSB, to be carried out in stages, is over EUR 750 000.

In total, since 2012, Veracel has voluntarily approved the transfer of approximately 20 000 hectares of land to benefit landless people. By the end of 2020, 215 hectares of productive land owned by Veracel remained occupied by movements not involved in the Sustainable

Blog

Ensuring respect for human rights as the world recovers



Every one of us, no matter who we are or where we are born, is entitled to the same basic rights and freedoms. As the world recovers from the Covid-19 pandemic, calls for companies to respect these rights are intensifying, **Yiva Stiller**, Human Rights Director at Stora Enso, writes in her blog post.

The UN Guiding Principles on Business and Human Rights (UNGPs) clarify the roles of states and companies in protecting and respecting human rights. The UNGPs were not intended as law but more to steer companies in the right direction. Creating a level playing field, where all companies must take action, is

one of the reasons why Stora Enso supports human rights regulation on a global and EU level.

The Covid-19 pandemic has brought to light the vulnerability of global supply chains and how unemployment hits people unequally. In addition, climate change cannot be solved without solving social issues. As we are once again rebuilding the world, it needs to come with a transformation that considers both the environmental and social implications of our actions.

Read more > storaenso.com



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We raise awareness of human rights within Stora Enso through training and communications. In 2020, we launched a new human rights e-learning for our employees.

Settlement Initiative or in the new agreement. Veracel will continue to seek repossessions of the remaining occupied areas through legal processes. Stora Enso also reports on the occupied areas in the Group's Interim Reports.

Veracel also maintains good relations with local indigenous villages and supports educational, infrastructure, and cultural programmes for 29 Pataxó and three Tupinambá communities. Within these programmes in 2020, Veracel donated school supplies to approximately 5 000 indigenous elementary and high school students and teachers, supported the construction of classrooms, and supported infrastructure improvements in local indigenous villages.

Some of the indigenous communities are calling for the expansion of the Barra Velha Indian Reserve. The extension would cover hundreds

of land properties, including 3 219 hectares of land acquired by Veracel before the indigenous peoples first made claim to the land. At the end of 2020, this case was still being processed by the regional federal court. Veracel remains committed to fully comply with the court's eventual decision.

Monitoring land recovery in China

Stora Enso leases 81 000 hectares of land in Guangxi province, China, of which 53 600 hectares is leased from state-owned forest farms. The remaining 27 400 hectares, or 34% of the total area, is social land leased from village collectives, individual households, and local forest farms.

Parts of the land leased by Stora Enso have been occupied for up to ten years for the purpose of growing crops and trees on a small scale.

In some cases, the occupiers are claiming rights to the land based on historical land ownership documents that have been superseded by state ownership in successive land reform processes.

At the end of the year, 5 350 hectares of productive land leased by Stora Enso was occupied, including 4 870 hectares of state-owned land and 480 hectares of social land. Approximately 4 000 people were growing crops and trees on the occupied land. In 2020, the Guangxi government's recent efforts to recover occupied land in the province reached areas where Stora Enso leases land from state-owned forest farms. Stora Enso is carefully monitoring the land recovery process and, for example, reserves the right to stop the proceedings at any point. We have also trained our local staff to identify causes for concern, to promote our grievance channel, and to engage with the occupiers to ensure that they are informed and do not feel threatened.

Grievance mechanisms

Our grievance hotline is available to all employees, on-site contractors, suppliers, and any other external stakeholders. In 2020, we took steps to improve external stakeholder access to the hotline. For more information about our grievance channels and reports received through them in 2020, see pages 29–31.

Children's rights (relevant to the forest sector)

Stora Enso's work on children's rights and business is integrated into our implementation of the UN Guiding Principles of Business and Human Rights framework. We support the Children's Rights and Business Principles developed by UNICEF, Save the Children, and the UN Global Compact, and we focus on those principles where we can have the biggest impact.

For several years, Veracel has successfully cooperated with the NGO Childhood Brasil to combat child abuse and exploitation in the nearby municipalities of Belmonte, Porto Seguro, Santa Cruz de Cabralia, and Eunápolis. The goal is to improve the capacity of the municipalities to handle cases of child abuse and adolescent violence through strengthening public policies and providing training to professionals. In 2020, Childhood Brasil and Veracel, together with judiciary, civil society, and municipal representatives, agreed on a ten-year plan to continue this work.

In 2020, Veracel began supporting a three-year extra-curricular programme that aims to strengthen the cultural development of socially vulnerable children and adolescents in the city of Porto Seguro. The programme includes ballet, music, and theatre workshops during after-school hours.

Montes del Plata, our joint venture in Uruguay, together with local educational institutions and other organisations initiated an English learning programme for the students of a local secondary school in 2020. The goal is to motivate the students to continue their studies further through recreational and cultural activities.

Stora Enso continues to support six schools in cooperation with the non-governmental organisation Idara-e-Taleem-o-Aagahi (ITA) in Pakistan as part of a remediation programme targeting 640 children identified as child workers in 2015 in the supply chain of our former 35% minority holding in the equity accounted investment Bulleh Shah Packaging (Private) Ltd. (BSP). The programme will continue until 2023 when the youngest children complete compulsory primary school education. However, most of the children will be young workers by 2023, which is why the programme began to shift its focus to vocational training in 2020 to improve their future employability. In 2020, ITA also created an outreach programme to ensure that education continued during the local Covid-19 lockdown. The programme used low-tech digital learning, such as with mobile phones, and mobilised community members to take an active role in educating the children.

Enhancing human rights training

In 2020, we launched a human rights e-learning that will be rolled out in our divisions and functions during 2021 to build on our existing employee training. The e-learning explains what respecting human rights means for individuals, companies in general, and Stora Enso specifically.

We have included a section on human rights in the e-learning for the Stora Enso Code, which is mandatory for all employees.

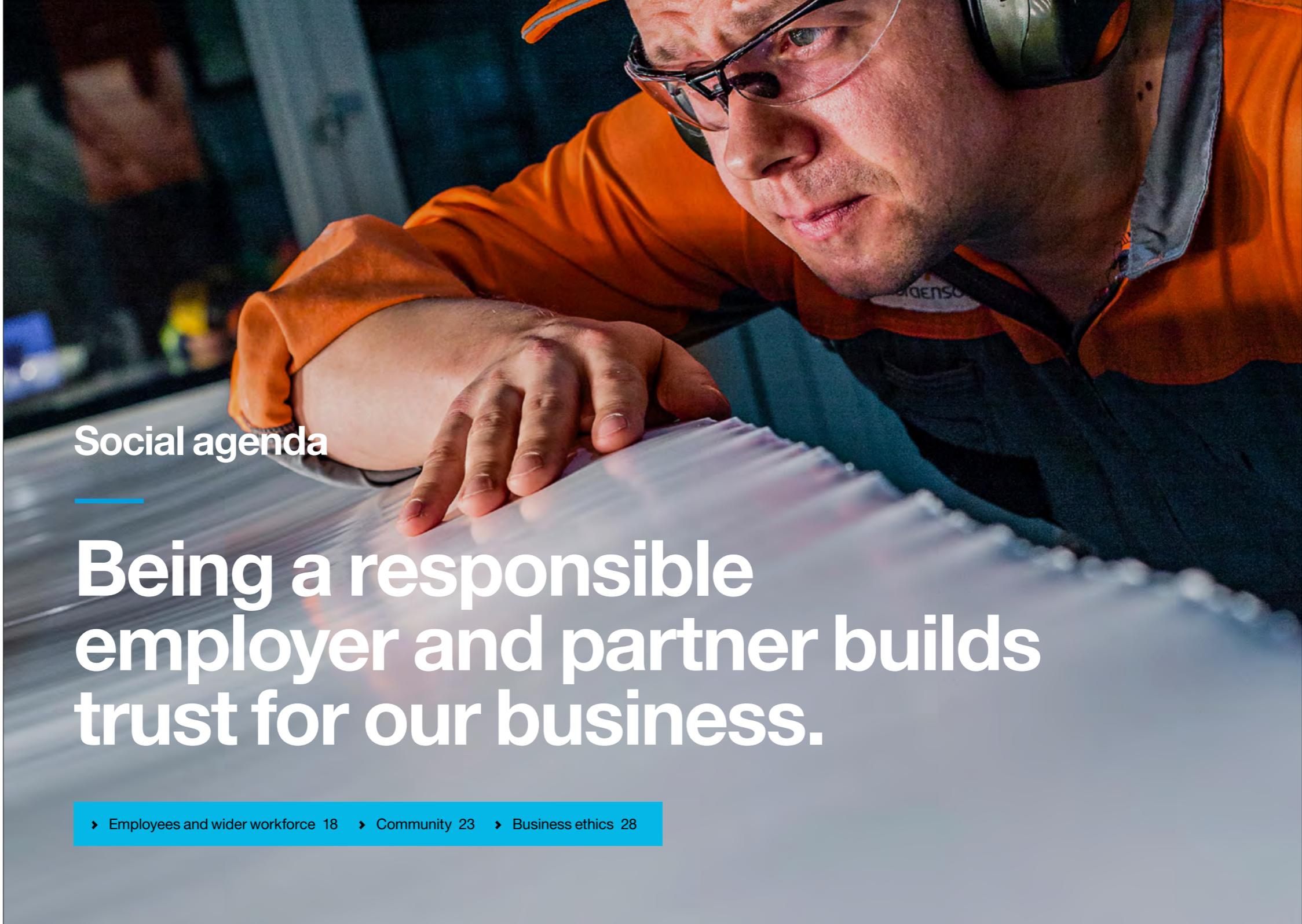
In Brazil, Veracel continues training, auditing, and follow-up procedures related to its supplier code of conduct. Additional human rights training is provided to employees working as guards for Veracel's security service provider, as required by national law, when they begin employment and then every two years.



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Being a responsible employer and partner builds trust for our business.

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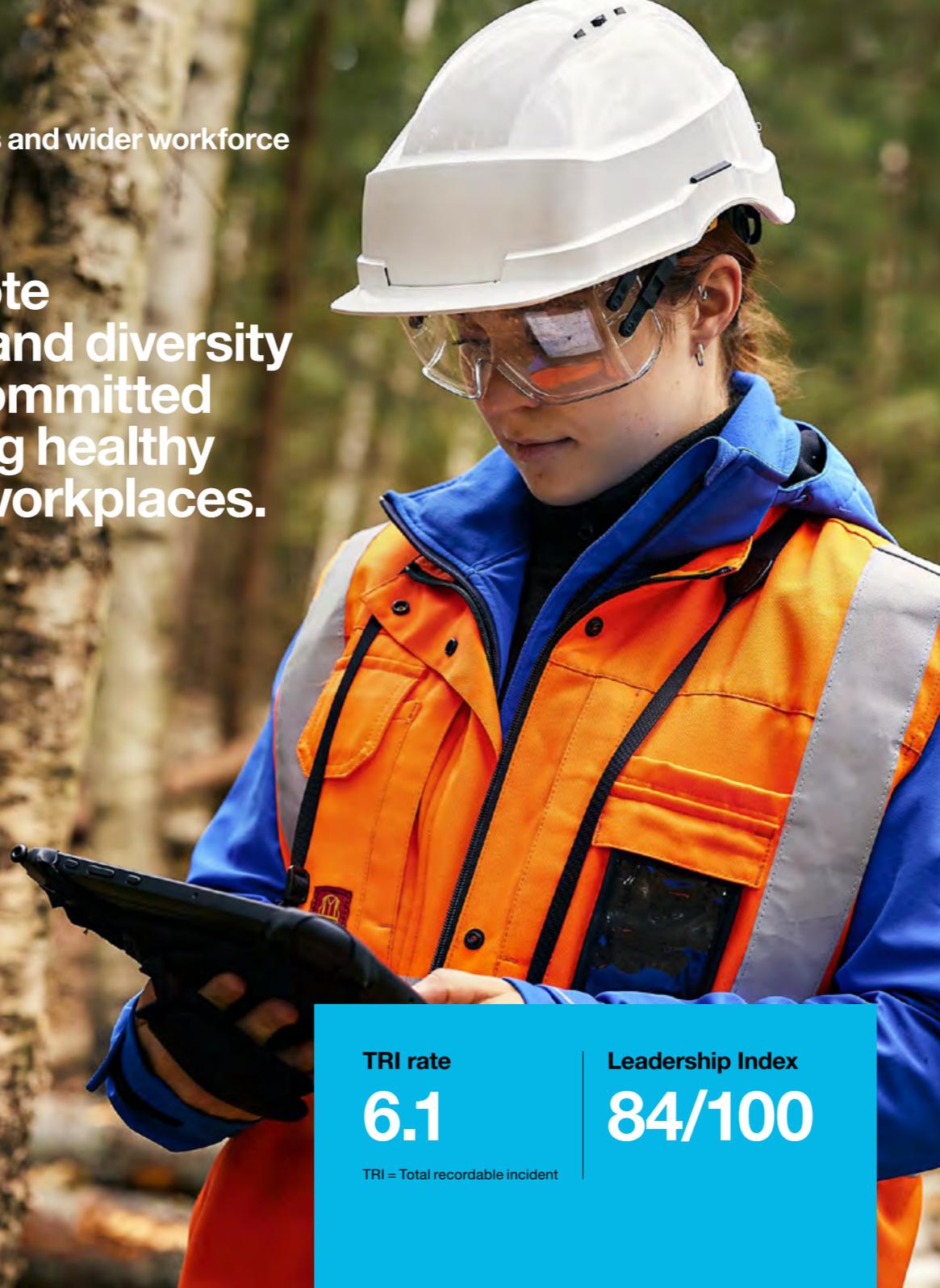
Employees and wider workforce

We promote inclusion and diversity and are committed to ensuring healthy and safe workplaces.

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TRI rate

6.1

TRI = Total recordable incident

Leadership Index

84/100

Opportunities and challenges

Change through people

Despite the Covid-19 pandemic and its unprecedented impact on global health, Stora Enso continues its transformation journey as the renewable materials company. During 2020, we continued to focus on what we can influence during these challenging times, including ensuring the health and safety of our workforce.

Engaged and motivated employees and a capable organisation will enable us to deliver our business strategy. The development of capabilities in customer insight, innovation, and operational efficiency, as well as the ability to utilise new technologies will be critical for our future success. We need to ensure we have competent and engaged employees when managing our employee turnover and the demographic structure of our workforce in various markets. This will require careful workforce planning and responsible leadership. To be successful and to promote a safe working culture, we need to develop our leadership, organisation, competencies and processes. We continuously focus on providing a safe workplace free from harassment and discrimination, and support wellbeing at work.

Our policies

Motivated employees and a capable organisation

Stora Enso's People Agenda guides our efforts in creating engagement and motivation among our employees and in building a capable organisation that can help us realise our business strategy. Key areas in our People Agenda include: strategic workforce planning, talent acquisition, talent management, competence development, leadership development, performance management, people ethics, and health and wellbeing. Read more in **Strategy 2020**.

Stora Enso's Health and Safety Policy defines the objectives for our safety management as well as our governance model for managing health and safety topics in practice and integrating them into annual planning and reporting.

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- Other key documents applied in our people and safety management include our:
- Stora Enso Code – our code of conduct
 - Supplier Code of Conduct
 - Minimum Human Resources Requirements for labour conditions
 - Global Framework Agreement
 - Diversity Policy
 - Human Rights Policy

How we work

Occupational safety

The health and safety of Stora Enso's employees is a key priority. Our goal is to provide an accident-free and inclusive workplace. A company-wide safety culture means that everyone is responsible for making every workday healthy and safe – starting with our top management and throughout the company.

We closely monitor the Covid-19 situation globally and take action to secure the health and safety of our employees and others working on our premises. This work is steered by a Crisis Management team that consists of Group Leadership Team members and is led by the CEO. For more information on how Stora Enso promoted the health and safety of employees during the pandemic in 2020, see page 20.

Safety management at Stora Enso is based on international standards but our processes go beyond these requirements. Our units are transitioning from the OHSAS 18001 to the ISO 45001 occupational health and safety (OHS) management system. In 2020, 85% of our own employees were covered by one of these third-party audited management systems. Responsibility for implementing each safety tool and programme in our units lies with line management, supported by local staff and OHS professionals.

The Board of Directors' Sustainability and Ethics Committee oversees the Group-wide safety work. Safety and industrial hygiene are managed by the Group Safety function and occupational health including wellbeing is managed by our Group Human Resources function. Stora Enso's Safety Steering Group directs strategic long-term planning at Group level and oversees the work of the Safety Management Team, which develops and aligns Group-wide safety programmes. Our country-level OHS networks in Finland, Sweden, Germany, and China also share good practices and organise

Case

Stora Enso's digital safety innovations showcase agility



When times change, so do companies. In these exceptional times, Stora Enso is leading the way in exploring new technologies for maintaining a high level of occupational safety. With Covid-19 challenging the regular safety procedures, an example of new ways of working is replacing physical safety audits with digital ones. Live-stream mill tours make the audits easy to execute, as the only necessary equipment are a 3G internet connection, a selfie-stick, and a headset. The digital safety audits have exceeded expectations and Stora Enso is evaluating if

they could be used in some locations even after the pandemic.

In addition, Stora Enso units have explored live-stream safety walks where participants from different countries virtually walk through a mill and discuss findings. Virtual reality is also being tested for safety training.

"Technology can support us in taking the next steps in occupational safety and will bring a competitive advantage," says **Wolf Willems**, Head of Safety at Stora Enso.

Read the full article at ▶ storaenso.com

training to enhance our safety procedures and competencies.

Local OHS committees and working groups at our units provide forums for raising safety-related topics and suggestions. Safety is also a key item for Stora Enso's Operations Forum that develops the company's operations cross-divisionally. To further integrate safety into our operations, the Group Safety function began reporting to the Chair of Stora Enso's Operations Forum, who reports directly to the CEO, in September 2020.

Our units follow Group-level instructions when reporting on safety performance data,

including incidents, absenteeism statistics, and safety observations. Stora Enso also monitors the number of safety incidents among on-site, logistics, and forestry contractors. We have also introduced consistent visitor inductions, that include safety information, for all our units.

Stora Enso has a formal procedure to increase the sharing of insights from previous accidents within the company and to prevent similar accidents from happening again. The insights are discussed in different forums throughout the company, such as in the Group Leadership Team, Safety Steering Group,

Safety Management team, and division and mill management teams.

Health and wellbeing

We believe that the foundation for physical and mental health and wellbeing in the workplace is based on people management, organisation of work, and an inclusive work environment that promotes both physical and mental health. All these factors impact the health and wellbeing, including stress levels, of our employees and need to be addressed to create wellbeing in the organisation. We follow wellbeing in our annual employee survey with a specific wellbeing index that measures inclusion and organisational factors impacting health and wellbeing in the workplace.

To ensure that our employees are well informed and to support their wellbeing, we set up new actions and channels for internal communications around Covid-19 during the year. These included bi-weekly information calls with the CEO and the Group Leadership Team as well as a special site on our intranet dedicated to wellbeing.

Contractor safety

Stora Enso's comprehensive approach to safety covers everyone working in and visiting our operations, including our own employees, contractors, suppliers, and on-site visitors. We encourage everyone to give feedback and provide ideas on how to further improve safety. Additionally, we promote safety among our contractors and suppliers through a dedicated "Safety Trail" e-learning. We also emphasise the importance of safety by asking suppliers for information on their safety performance in our tendering process. In 2020, extra precautionary measures were taken related to our maintenance stops, to keep our people, our contractors and the surrounding communities safe. For more information about our co-operation with suppliers, see pages 60–63. We also cooperate closely on safety work with our joint operations in Brazil and Uruguay.

Leadership – driving company culture

Leadership is a key enabler of our strategy as it is the strongest driver for performance, wellbeing and company culture. Our culture is based on our values "Lead" and "Do what's right," which we expect our leaders to embrace and demonstrate through their actions and behaviour. We measure

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our progress on leadership by using a Leadership Index, which is based on the responses of our annual employee survey.

Performance management

Managing the performance of our employees is an important part of engaging and motivating our workforce. We set and communicate clear targets for our employees, help them understand how they contribute to our company's success, and provide development opportunities and regular feedback. Our annual employee performance appraisals are an important component of our performance management.

Diversity

We believe diversity strengthens our competitiveness and we aim to reflect the societies in which we operate. Diverse working teams enable us to explore different perspectives and challenge our way of thinking, contributing to better decision-making. To benefit from diverse working teams, we need inclusive work environments that respect and appreciate individual differences and allow us to embrace the diversity of backgrounds and perspectives of our employees. Dimensions such as skills and experiences, gender, age, cultural background,

and personality are important to Stora Enso when we strive for diversity.

Fair working conditions

We care for all our employees and are committed to fully respecting human rights throughout our operations. All Stora Enso units are expected to work systematically to ensure that employees are treated with respect and fairness. Units should also comply with a set of minimum requirements for labour conditions in order to create an environment where employees are both motivated and able to perform their work. These requirements address areas such as working hours, basic employee rights, working conditions, and non-discrimination. Based on a self-assessment conducted in 2019, the vast majority of our production units are in compliance with these requirements, and units with improvement needs have established action plans to become fully compliant with them. The next self-assessment will be conducted in 2021.

We continued to address areas in the Global Framework Agreement that we have signed with the labour unions IndustriAll, UniGlobal, and BWI to strive for a working environment where all our employees are treated with respect and in a fair manner.

Support in restructuring situations

In organisational restructuring situations, it is important that the impacted employees understand the reasons for the change. Our ambition is to support leaving employees in finding work elsewhere. Support initiatives are often developed on a country or local level to best suit the local circumstances and requirements. Every employee is treated with respect and has access to support throughout the restructuring process.

The earlier announced plan concerning the conversion of our Oulu paper mill in Finland into a packaging production unit was completed in January 2021, and the redundancies of 365 employees mainly took place during the year 2020. We also announced the closure of the newsprint paper machine (PM3) and the deinking plant at Hylte Mill in Sweden. These measures will impact up to 140 employees. Our Forest division downsized its plantation operations in Laos and our Packaging Materials division closed the paper sack plant at the Ostrołęka Mill in Poland. Closing the plant resulted in 130 redundancies. Our Wood Products division finalised the divestment of the Pfarrkirchen sawmill. The unit employed 90 employees.

At Oulu Mill, we have offered training to all interested employees to support them in finding new job opportunities. Over 120 employees have participated in this training. Overall, a solution already exists for almost 200 employees before the end of their Stora Enso employment contract. The solutions include new employment, either within Stora Enso or externally, professional training (over 50 employees participating), and some employee retirements.

In connection with the paper sack plant decommission in Ostrołęka, we have cooperated with an external partner to support our employees.

During 2020, our China packaging units started to increasingly outsource needed workforce to further improve operational flexibility in the face of changing market situations. The units' packaging manufacturing operations are relatively labour intensive and the number of employees varies according to seasonality.

Progress

Safety during a global pandemic

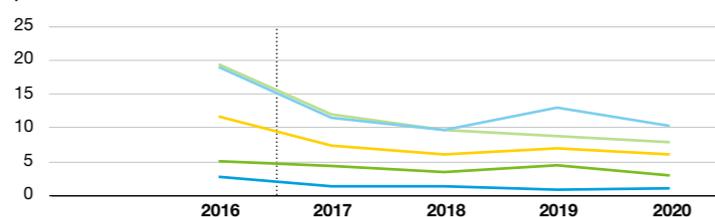
During the global Covid-19 pandemic, we have promoted the health and safety of our employees and others working in our premises through various measures. We took early action by imposing a global travel ban from early February 2020. We also prohibited all physical meetings by strongly advising personnel to work remotely whenever feasible, restricted access to mill sites, and quarantined potentially affected employees. These practices were in place throughout most of the year. Our employees were advised to follow the rules and recommendations of national and local authorities both at work and in their private lives. In the end of November, several Covid-19 infections were detected among contractors working on the Oulu Mill conversion project. Following the infections, Stora Enso further enhanced guidelines to prevent Covid-19 infections, tested the entire personnel including contractors working at the mill, and continued testing as required. We also conducted a third-party supplier audit of selected contractors on how they have prepared for and executed the prevention of Covid-19 while onsite at Oulu Mill. We continue to closely monitor the Covid-19 situation.

Enhancing safety performance

Stora Enso reports incidents and accidents using the international Occupational Health and

Total recordable incident rates (TRI)^{1 2}

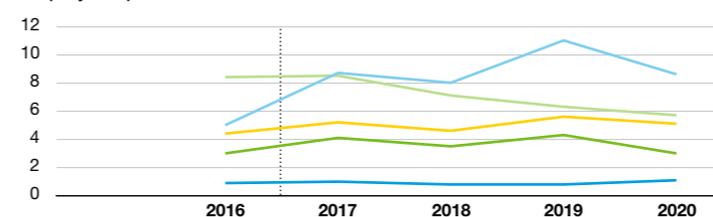
Number of incidents among our own employees per one million hours worked



China	2.8	1.4	1.4	0.9	1.1
Finland	19.0	11.5	9.7	13.0	10.3
Poland	5.1	4.4	3.5	4.5	3.0
Sweden	19.4	12.0	9.7	8.8	7.9
Group	11.7	7.4	6.1	7.0	6.1

Lost-time accident rates (LTA)^{1 2}

Number of lost-time accidents among our own employees per one million hours worked



China	0.9	1.0	0.8	0.8	1.1
Finland	5.0	8.7	8.0	11.0	8.6
Poland	3.0	4.1	3.5	4.3	3.0
Sweden	8.4	8.5	7.1	6.3	5.7
Group	4.4	5.2	4.6	5.6	5.1

¹ For Stora Enso employees, including joint operations. Figures for the four largest countries in terms of the total number of employees.

² Since January 2017, Stora Enso has applied Occupational Safety and Health Administration (OSHA) definitions in the reporting of TRI and LTA rates. Due to this change, the 2016 figures are not comparable with 2017–2020 figures.



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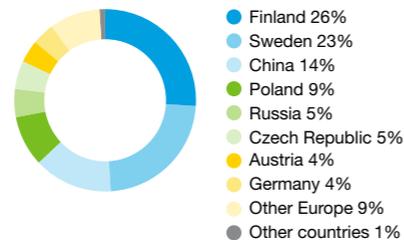
SASB Index

Safety (OHS) definitions when reporting Total Recordable Incident (TRI) and Lost-Time Accident (LTA) rates. This allows the reported rates to be better aligned with international standards and to enable future benchmarking with peers and companies in other sectors. Stora Enso uses the Total Recordable Incident (TRI) rate as its main key performance indicator (KPI) as it provides a comprehensive overview of safety performance by including less severe accidents. Stora Enso also monitors contractor accidents in separate categories for on-site accidents and logistics incidents. For more information, see page 63.

Our milestone for 2020 was to reach the TRI rate of 4.7 by the end of 2020. In 2020, our TRI rate decreased to 6.1 (7.0 in 2019). Despite our ambition to improve our safety performance, the milestone for 2020 was not achieved. Tragically, during the year, two fatalities occurred at our Guangxi forestry operations in China, both involving contractor employees. We have investigated the incidents and their root causes together with the contractor and local authorities. The learnings from these tragic events will be acted upon at Stora Enso to prevent such accidents from recurring.

Regarding occupational health, Stora Enso measures illness related absenteeism with a focus on encouraging units to invest in proactive health management. In 2020, illness-related absenteeism amounted to 3.6% (3.4%¹) of maximum theoretical working hours of our employees.

Employee distribution by country¹



¹ Excluding employees of our 50%-owned joint operations Veracel in Brazil and Montes del Plata in Uruguay.

For Stora Enso, developing trust with employees is critical when it comes to safety issues and discussing safety incidents. In 2020, we continued to introduce the 'Fair and Just' process, which provides a transparent way to manage the outcome of safety investigations. It also serves as a tool to facilitate the review and discussion of safety incidents and other unsafe behaviour. The aim of 'Fair and Just' is to create a blame-free working environment and a learning organisation to ensure that all our employees are treated in a fair and just manner.

Stora Enso also encourages employees and contractors to identify and report unsafe situations or actions. In 2020, the average number of safety observations reported per employee was 12.2 (12.7). To further increase and harmonise safety reporting, Stora Enso is implementing a Group-wide digital tool for submitting safety observations, safety notifications and near-misses in our operations and office locations. The implementation of the new reporting system began in Q4 2020 and will continue in 2021.

In November 2020, Stora Enso arranged a Group-wide Safety Week with the theme 'Caring for each other'. The aim was to engage our management, employees and contractors to accelerate safety and safety culture through local activities. Safety Week resulted in a range of activities across divisions, functions and offices, such as safety webinars and trainings, as well as health and wellbeing activities.

During the year, Stora Enso continued its safety audit programme to verify the implementation of safety standards and tools. The programme promotes a common approach, content, and methodology for safety audits with focus on common areas of concern such as the "Lockout-Tagout" procedure, risk assessments, permits to work, and the operating of heavy machinery. During the year, 2 (43) physical internal safety audits were conducted across Stora Enso units before the programme was put on hold due to Covid-19. By using digital tools, we were able to conduct 30 additional online safety audits despite social distancing.

Leadership and performance management

Stora Enso's KPI for leadership is the Leadership Index, which is calculated based on our annual employee survey. Our target is to achieve an index of 85/100 by 2022. In 2020, the Leadership Index



Our aim is to create a safe and blame-free workplace where all employees are treated in a fair and just manner.

improved to 84 (83). The response rate to our employee survey remained high at 83% (86%).

We continuously invest in the development of our leaders through programmes such as "Lead Through People." The Lead Through People programme targets all managers in the company and supports them in developing their leadership skills to drive performance, wellbeing, and company culture. Since 2015, approximately 3 400 managers have participated in this programme. During 2020, we organised a series of leadership webinars to address challenges related to remote leadership and to support leaders in various other topics. Around 1 700 leaders were invited to these online seminars, and the recordings of the webinars were made available afterwards.

All Stora Enso employees should be involved in at least one formal performance appraisal meeting with their manager each year. In 2020, 90% (90%) of our employee survey respondents stated that they had taken part in a performance review in the past twelve months.

Employee diversity

When asked about diversity in the annual employee survey, 85% (84%) of our employees reported

that their management was able to create diverse teams. As for gender diversity among our senior management, 73% were male and 27% female at the end of 2020 (76% and 24% in 2019). The Group Leadership Team had 6 female and 9 male members at the end of 2020.

Living wages

Every other year, the global non-profit organisation BSR supports us in defining and calculating living wages in relevant locations. We reviewed the situation in our production units in Brazil, China, Estonia, Laos, Latvia, Lithuania, Poland, Russia, and Uruguay in 2019. The results of this study indicate that our units' minimum compensation in these countries is above the living wages defined by BSR. The next study will be conducted in 2021.

¹ As of our 2020 reporting, our joint operations Veracel and Montes del Plata are excluded from the absenteeism rate, which is in line with our other HR reporting. The 2019 rate has been recalculated for comparability. For more information about data boundaries in our sustainability reporting, see [Reporting scope](#).

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Compensation and equal opportunity¹

	Ratio of highest individual compensation to median compensation ²		Female employees' compensation compared to male employees ³	
	2020	2019	2020	2019
China	101	106	90%	91%
Finland	17	13	92%	95%
Poland	17	19	90%	94%
Sweden	26	42	99%	99%

¹ Figures for the four largest countries in terms of the total number of employees. For more information on remuneration, see our Remuneration report 2020.
² The ratio shows how many times larger the highest individual annual total compensation, including paid incentives, is compared to median compensation.
³ Calculated using weighted averages based on gender comparisons within each country's employee categories as applicable.

Share of female employees at Stora Enso

	2020	2019
Total number of employees at year-end ¹	22 320	24 390
Share of women among all employees (%)	24%	26%
Share of women among senior managers (%)	27%	24%
Women in the Group Leadership Team	6 out of 15	5 out of 11
Women in the Board of Directors	2 out of 9	2 out of 9

¹ Excluding employees of our 50%-owned joint operations Montes del Plata and Veracel.

Employee distribution and turnover¹

	China ⁴		Finland		Poland		Sweden		Group total
	Female	Male	Female	Male	Female	Male	Female	Male	
Number of employees	1 420 (45%)	1 720 (55%)	1 180 (20%)	4 600 (80%)	400 (20%)	1 570 (80%)	1 080 (21%)	3 960 (79%)	22 320
Up to 30	340	540	120	490	70	250	140	500	16%
31–50	1 060	1 110	630	2 330	220	880	540	1 510	53%
51 and over	20	70	430	1 780	110	440	400	1 950	31%
Number of hires²	70 (26%)	200 (74%)	60 (22%)	210 (78%)	20 (22%)	70 (78%)	70 (27%)	190 (73%)	1 430
Up to 30	30	110	20	70	10	20	20	80	41%
31–50	40	90	40	110	10	40	50	90	51%
51 and over	0	0	0	30	0	10	0	20	8%
Number of leavings³	660 (55%)	550 (45%)	80 (15%)	460 (85%)	40 (16%)	210 (84%)	70 (21%)	260 (79%)	2 830
Up to 30	220	220	0	20	0	30	10	30	23%
31–50	440	320	40	150	20	100	30	80	50%
51 and over	0	10	40	290	20	80	30	150	27%
Employee turnover	46 %	32 %	7 %	10 %	9 %	13 %	6 %	6 %	13%

¹ Figures for the four largest countries in terms of the total number of employees. Rounded to the nearest 10.
² Hires: numbers of permanent employees joining the company. Excludes hires due to acquisitions.
³ Leavings: numbers of permanent employees leaving voluntarily or due to restructuring, retirement or death. Excludes leavings due to divestments.
⁴ The employee turnover in China is mainly due to Stora Enso China Packaging units where packaging manufacturing operations are relatively labour intensive and the number of employees vary according to seasonality. The employee turnover in China Packaging has a significant impact on the Group employee turnover. The Group employee turnover excluding China Packaging units was 8% in 2020.

Our lowest wages compared to local minimum wages¹

	Ratio of our lowest wage to the local minimum wage	
	2020	2019
Brazil ²	1.2	1.1
China ³	1.3	1.5
Estonia	1.2	1.0
Latvia	1.7	1.6
Lithuania	1.4	1.5
Poland	1.1	1.2
Russia	1.6	1.4
Uruguay ⁴	1.6	1.5

¹ In the most relevant locations based on internal assessment and human rights risks, compared to minimum wage levels set at national, state, or provincial level as applicable. Reporting on Laos discontinued due to the downsizing of the operation. The ratio shows how many times larger our lowest wage is compared to the local minimum wage.
² Including employees of our 50%-owned joint operation Veracel.
³ Due to variations in regional minimum wages, the ratio is calculated as a weighted average for Stora Enso's units in China. The weighting is based on the units' total number of employees.
⁴ Including employees of our 50%-owned joint operation Montes del Plata.



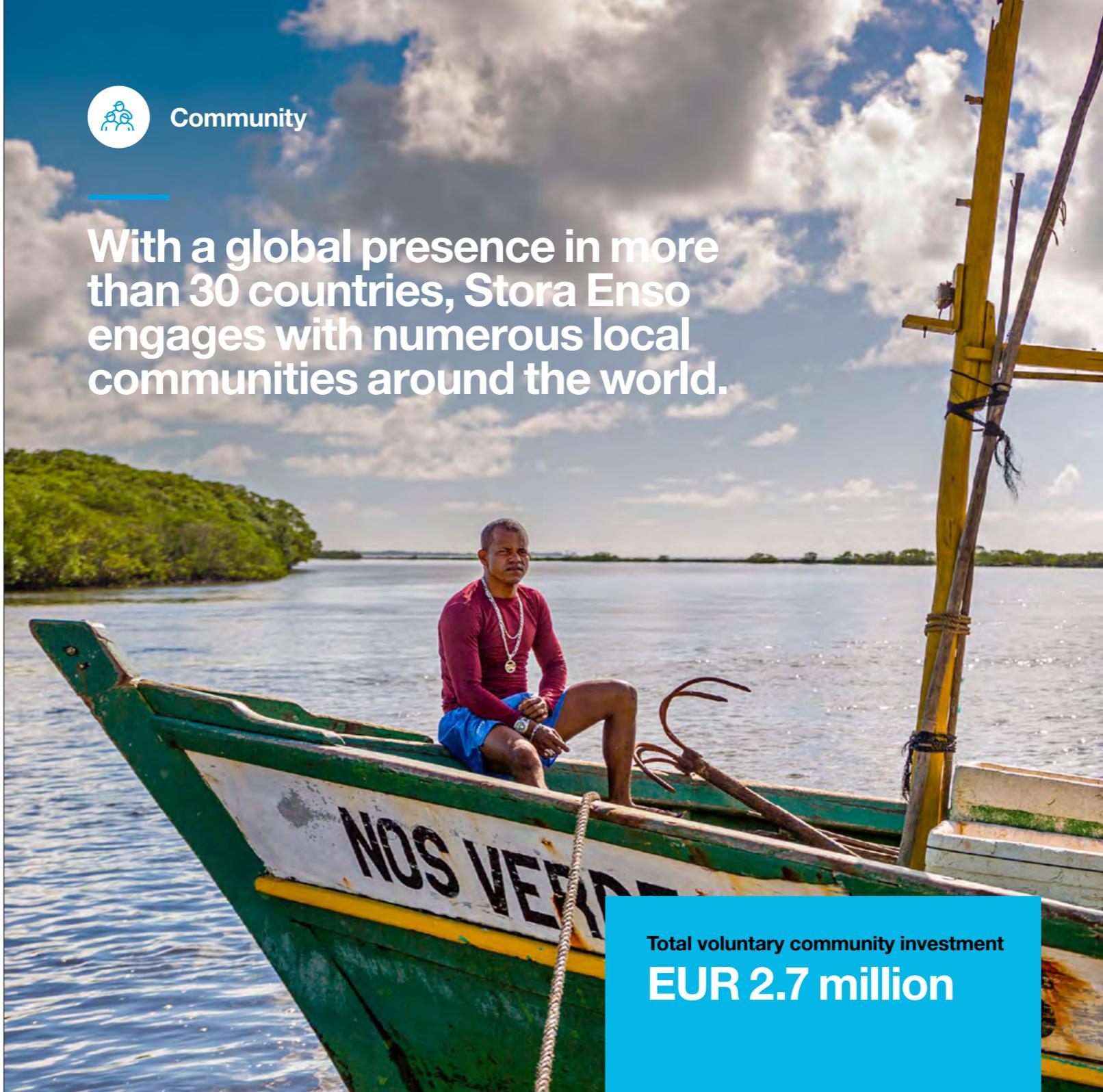
Community

With a global presence in more than 30 countries, Stora Enso engages with numerous local communities around the world.

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Total voluntary community investment
EUR 2.7 million

Opportunities and challenges

Supporting community resilience

Companies can improve the quality of life of local communities through active corporate citizenship. Voluntary investments can also generate long-term community support for the company's operations.

When Stora Enso sources its main raw material – renewable wood – and manufactures its wood-based products, it depends on local communities for workforce and a social license to operate. In our efforts to be a good corporate citizen, we support and work with these communities to help them thrive economically, socially, and environmentally. The Covid-19 pandemic has demonstrated how important, although challenging, community engagement and investment can be in times of crisis. When communities thrive, they are more resilient to changes brought on by phenomena and crises, such as pandemics, climate change, or economic turbulence.

While Stora Enso is a significant employer, taxpayer, and business partner in many communities, our operations also generate emissions and our tree plantations influence land use in ways that may adversely impact the rights of those communities. Our actions must be managed responsibly in order to minimise negative socio-environmental impacts, maximise our positive influence, and maintain a constructive community dialogue that ensures our long-term license to operate.

Our policies

Guidance for our community work

Policies that guide Stora Enso's community relations include our:

- Sponsorship and Donations Policy
- Community Investment Guidelines
- Volunteering Guideline – encourages our employees to volunteer during their working hours to support charitable causes.
- The Stora Enso Code – our code of conduct
- Business Practice Policy
- Human Rights Policy
- Tax Policy

Our joint operations in Brazil and Uruguay have each developed formal procedures for their respective community work to reflect Stora Enso's requirements.

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How we work

Managing our impacts on local communities

We take precautionary actions to mitigate and remedy potential adverse environmental and social impacts on neighbouring communities. These include:

- Due diligence where we evaluate the impacts that our current or potential business operations may have on local communities and the environment. Community consultations are a key element of this work. For more information, see page 13.
- Third-party certified management systems at our production units that apply international standards, such as ISO 14001, ISO 45001, and ISO 50001.
- Third-party forest management certification for our own forestry operations and suppliers, such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC).
- When necessary, restructuring processes and the closure of operations are realised in cooperation with the authorities to support communities through related changes, and to create opportunities for new business initiatives.
- Grievance mechanisms are available to communities close to our operations. For more information, see page 30.

Community investment through local projects

To Stora Enso, voluntary community investment means contributions that involve engaging with local communities beyond our core business and legal responsibility. This is carried out through voluntary donations of cash, working hours, and in-kind for non-profit purposes or non-profit community organisations in accordance with the globally recognised Business for Societal Impact framework (B4SI, formerly LBG).

Stora Enso has a worldwide Community Investment programme where projects are managed and funded locally to ensure that the communities close to our operations are the main beneficiaries. The programme has three strategic focus areas: Education, Environment, and Resilient local communities.

We promote volunteering as a way to strengthen the relationship between our

Voluntary community investment by investment area¹



¹Total community investment including cash, working hours, and in-kind as defined in the B4SI framework. Including 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay. ² Resilient local communities include B4SI framework areas of Economic development, Social welfare, Healthy lifestyle and Arts and Culture.

employees and local communities. All Stora Enso employees can volunteer eight hours of work time per year to charitable causes.

We monitor the impact that our contributions have on local communities. For example, in China, Stora Enso has invested in drinking water projects since 2017. These projects have benefitted nearly 3 500 people and enabled a significant reduction in the instances of water-related illnesses and the consumption of bottled water in the communities.

Progress

Contributions affected by Covid-19 pandemic

Our key performance indicator (KPI) for community investment monitors the proportion of inputs made in working hours and in-kind

compared with cash donations, excluding our joint operations, with continued growth in our community investment over time. Our target is to increase the proportion of working hours and in-kind contributions to 70% by the end of 2023, excluding joint operations. Our progress towards this target was slowed down in 2020, which is largely explained by the restrictions on volunteer work and community projects that we needed to enforce to ensure the safety of our employees and community members during the Covid-19 pandemic. In 2020, this proportion decreased to 41% (46% in 2019). When including our joint operations in Brazil and Uruguay, the proportion was 19% (22%). The difference is explained by the nature of community investment projects in these countries, where programmes tend to be more

long-term and often cover wider societal issues with investment needs.

Due to limitations brought on by the pandemic, the share of community investment projects in the Education category reduced to 14% (18% in 2019). The share of those related to the categories of Environment and Resilient local communities was 5% and 76% respectively (6% and 66% in 2019). During the pandemic, many of our community investment projects consisted of donating materials, such as personal protective equipment (PPE), but also cash donations to charity organisations dedicated to health and social welfare.

In 2020, the number of reported employees involved in community investment activities during working hours increased to 2 684 (1 771), but total volunteered hours decreased



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Case

Supporting local communities during the pandemic



We are living in exceptional times and solidarity is needed more than ever. Authorities, charities, and businesses are working together to reach out to those in need. While Stora Enso continues to provide vital renewable materials to its customers, many of whom serve the medical, hygiene, and food industries, our units are also supporting their communities.

“The resilience of local communities is now more important than ever, and Stora Enso wants to be a partner that can support this goal,” says **Leena Delestre**, Community

Investment Manager at Stora Enso. “Our units support communities in three ways: through cash donations, donations of materials, and volunteering on company time.”

Examples of Stora Enso units supporting their communities include donating to a food programme in Finland, donating packaging for hospital supplies in Poland, producing disinfectant for local needs in Sweden, and donating packaged milk to school children in China.

Read the full article at storaenso.com

to 6 921 (8 372). The total contribution to communities as defined by Business for Societal Impact was EUR 2.7 million (EUR 2.7 million), including 50% of the community investments by our 50/50 joint operations in Brazil and Uruguay. The total number of Stora Enso's voluntary community investment projects was 343 (441 in 2019), including those facilitated by our joint operations.

Community support around the world

During 2020, we engaged with the communities close to our operations in various ways, including agroforestry programmes and educational support. Many of the donations related to Covid-19 support were granted to charity organisations with a local reach in order to ensure that the help went directly to families in need.

Our community engagement work was impacted by the Covid-19 pandemic in different ways. In Europe, our employee volunteering reduced and focused on activities related to pandemic support. In Uruguay and Brazil, where community engagement typically takes place face to face, our employees have mainly relied on phone conversations, emails, and virtual meetings to ensure the safety of everyone involved. In Guangxi, China, our community engagement work was affected by the pandemic in the beginning of the year but we were able to continue the activities somewhat normally later in the spring, when government restrictions on accessing local communities were lifted.

Europe

In Europe, Stora Enso's community investments are mainly targeted to benefit the local communities where we operate to enhance their resilience and attractiveness to existing and potential employees. To grow and support our potential labour pool, we participate in programmes that promote education and youth work training and provide internships and public research opportunities. We also promote diversity and inclusion in the local workforce by participating in programmes that facilitate the employment of disadvantaged people and refugees.

To contribute to the everyday vitality of communities, we also financially support

Our Uimaharju Mills began cooperation with a local school to support studies in natural sciences.

local associations, including sports clubs and cultural activities.

In 2020, many of our units in Europe supported their local communities with challenges related to the Covid-19 pandemic. For example, many of our mills in Finland supported local food aid programmes for families struggling financially, in collaboration with charity organisations. Some of our mills in Finland, Sweden, and Poland also donated protective personal equipment (PPE) to local aid collections. For more examples, read [this article](#).

Our Uimaharju Mills in Finland began a three-year cooperation with a local secondary school to provide students with an opportunity to deepen their studies in natural sciences (STEM). During the programme, the students will spend some of their study time at Uimaharju Mills to learn about water management, wood-based products, and sustainability in a mill environment. We also continued to support the Finnish Forest Foundation (FFF) by matching voluntary donations from forest owners, which are linked to the purchase of wood. These donations contribute to FFF's community investment funds that focus on the economic aspects of the forestry sector. Activities include inspiring young people to pursue a career in forestry and funding relevant research projects. Stora Enso has supported the foundation since 1995.

During the year, Stora Enso's substantial cash donation to Save the Children in Sweden and Finland covered both domestic programmes and international humanitarian assistance

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and helped mitigate negative impacts caused by the pandemic. In Sweden, the target group was newly arrived children and youth from other countries, children and youth in socially and economically deprived areas of Sweden, and children who have experienced abuse. In Finland, our donation contributed to providing books and supporting hobbies for under-privileged children.

As for humanitarian assistance, Stora Enso's donation to Save the Children Sweden was used to enable a strategic partnership between Save the Children and UNHCR, which focused on improving the health of the most marginalised children in five refugee camps and reception centre for Burundian refugees in Rwanda. Our donation to Save the Children Finland's humanitarian assistance programme was directed to Somalia, Kenya, and Ethiopia to respond to severe drought and the consequent critical levels of hunger.

Guangxi, China

In the Guangxi province of China, Stora Enso's field staff and social engagement officers speak regularly with local communities impacted by our plantations and mill, and along our transportation routes, to inform them about our operations and to enable them to express their concerns and suggest ideas for improvement. Our aim is to identify and understand concerns and risks, so that we are prepared to properly mitigate and remedy them when necessary. For more information about our community consultation work, see page 13.

In 2020, Stora Enso employees across our operations in China organised a fundraiser to support the prevention and follow-up measures of the Covid-19 pandemic. Over 1 200 employees raised EUR 22 700, which was matched 1:1 by Stora Enso's units in China. The funds were donated to the China Charity Federation to support national pandemic relief work and to foster economic and social recovery in China.

During the year, our Beihai Mill donated 800 kg of its paperboard to six schools in Guangxi to support Braille education for visually impaired children. The mill also organised two coastal clean-up activities, during which nearly 80 employees collected approximately one tonne of waste from the local beaches.

Our forestry operations in Guangxi run community projects to address challenges in rural



Nearly 80 Beihai Mill employees collected waste from the local beaches in two clean-up activities in 2020.

villages near our plantations. In 2020, Stora Enso supported 16 community projects that benefited over 32 000 people. The projects had three main focus areas: road construction and safety, sports and cultural development, drinking water, and sanitation.

For example, we donated to several road construction and safety projects to improve traffic safety and benefit the local rural economy. One such project included the construction of a road that has enabled more than 800 villagers to transport their crops without having to travel on mud roads. The road also eases our harvesting and transportation operations.

In addition, together with the local government, Stora Enso invested in a drinking water project in a rural community near our

plantations during 2020. We supported the construction of a 2 km long water pipe, which will provide clean drinking water to approximately 780 residents.

Veracel, Brazil

Our 50/50 joint operation Veracel owns 213 000 hectares of land in Bahia, Brazil, of which about half is reserved for rainforest restoration and conservation and about 82 000 hectares are planted with eucalyptus trees. Veracel also leases 11 000 hectares of land. Supporting income generation and employment in local communities are the top priorities of Veracel's sustainability agenda.

For information on Veracel's engagement with indigenous communities, see page 16.

Veracel's community support during the pandemic

To support local health and safety efforts related to the Covid-19 pandemic in 2020, Veracel donated more than 200 000 items of Personal Protective Equipment (PPE) to public health units, social service clinics, and rural workers' associations in Bahia. In partnership with its second owner, Suzano, Veracel also supported the construction of a field hospital in the city of Teixeira de Freitas, run by the Government of the State of Bahia, and donated 20 respirators to the hospital. To support local fishing and indigenous communities, Veracel donated food, cleaning and water purification products, as well as demineralised water for the manufacturing of disinfectant.

Supporting local livelihoods

Veracel supports local livelihoods by making some of its land available to family farmers, and by providing training and technical support. The Agrovida and Roça do Povo farming programmes, for instance, aim to support local farmers, produce food for local communities, and trade surplus production in regional markets. A new cassava processing plant was built within the Roça do Povo programme, and training was provided to improve the productivity of cassava growing. The project will strengthen the local community by generating income and developing new skills. During 2020, the two initiatives assisted a total of 164 (192 in 2019) families cultivating 168 (168) hectares of land in total.

To safeguard biodiversity and help provide additional income to local families, Veracel allows beekeepers to keep hives on company land. It also provides training in beekeeping as well as technical and material support. During 2020, a total of 158 (161) beekeepers, mostly working through local cooperatives, produced 88 (114) tonnes of honey.

Beekeepers on Veracel's land in Brazil produced 88 tonnes of honey in 2020.

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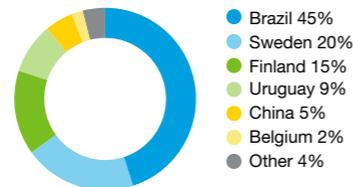
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Our donation to Save the Children contributed to providing books and supporting hobbies for under-privileged children.

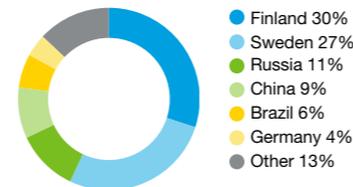
Voluntary community investment¹

EUR 2.7 million



Voluntary community investment projects²

By number of projects (343 projects in total)



¹ Total community investment includes cash, working hours, and in-kind as defined in the B4SI framework. Including 50% of joint operations Veracel in Brazil and Montes del Plata in Uruguay. ² Including joint operations.

In 2020, Veracel also continued to support local fishing communities near Belmonte. The cooperation included support for establishing local fisheries, providing infrastructure for their commercialisation, offering safety training, and donating radios, computers, and printers to local fishing associations and vessels. A shellfish collection programme empowers women by creating a profitable livelihood, developing the women's professional skills, and improving their opportunities to take part in community decision-making. During the year, due to the social distancing restrictions put in place due to the Covid-19 pandemic, the women were not able to work in the production unit built in 2019. To help generate alternative income, Veracel donated materials to the women to produce reusable face masks in their homes. The masks were then sold to Veracel.

To further support the local economy, Veracel gives preference to local businesses when sourcing goods and services.

Montes del Plata, Uruguay

Montes del Plata, our 50/50 joint operation owned together with the Chilean company Arauco, runs a pulp mill in Punta Pereira in southwestern Uruguay, together with associated eucalyptus plantations mainly located in central and north-western parts of the country. Montes del Plata owns 190 000 hectares and leases 79 000 hectares (Alianzas programme) of land. The Alianzas programme provides additional income for local farmers by enabling them to integrate eucalyptus plantations into their farms on suitable lands. At the end of 2020, 524 (475 in 2019) farmers participated in the programme with 59 500 (53 000) hectares planted with eucalyptus. Due to the Covid-19 pandemic, Montes del Plata launched a podcast to ensure communication with the farmers continued despite restrictions on face-to-face meetings. The podcast discussed topics, such as safety, conservation, and social sustainability.

Alianzas also promotes the diverse use of Montes del Plata's lands for purposes such as cattle grazing and honey production. The diverse use of land enhances local livelihoods, reduces the risk of forest fires, and helps to build stronger relationships with the community. During 2020, 194 farmers kept cattle on Montes del Plata's land and 38 farmers produced honey from approximately 5 660 beehives situated on the company's land to supplement their incomes. During the year, Montes del Plata continued its cooperation with NGO Aves

Uruguay to promote the sustainable management of natural grasslands, which are considered a conservation priority in South America. Over 65 000 hectares of grassland coexist with Montes del Plata's plantations. In 2020, the cooperation included defining a conservation index for three plots of Montes del Plata land, developing a plan to manage these ecosystems, and evaluating the new practices together with Alianzas farmers that keep cattle on the plots.

Montes del Plata also seeks to benefit local communities by maximising local hiring and participating in mentoring programmes.

Montes del Plata's Bioparque M'Bopicuá environmental centre celebrated its 20-year anniversary in 2020. The centre, which typically hosts about 2 000 visitors annually, promotes education, and enables visitors to experience native wildlife at first hand.

During the year, Montes del Plata supported the local community in its efforts to combat the Covid-19 pandemic by, for example, donating hospital beds, face shields, and an ambulance to strengthen the response capacity of the department of Colonia.

Raising awareness of road safety

Montes del Plata has a long-term strategy for the safe transportation of wood, including annual action plans involving truck drivers, transport companies, and local communities. The mill's wood supply is operated by approximately 600 truck drivers from different transport companies. Montes del Plata trains all drivers before they start working for the company, organises quarterly workshops for drivers on safety, and follows up on safety indicators. Due to the Covid-19 pandemic, Montes del Plata was not able to carry out its awareness-raising initiative targeted at local schools and communities in 2020. Instead, the company launched a road safety campaign on radio stations along its transport routes.

Laos

In 2020, Stora Enso announced it will downsize its Laos operations. Despite this, our village development fund will continue to support local development and livelihoods in the provinces where we operate. The projects are designed together with local residents based on their needs and are all endorsed by the local authorities. Most of the 2020 funding was directed into projects related to health and sanitation, food security, and income generation.



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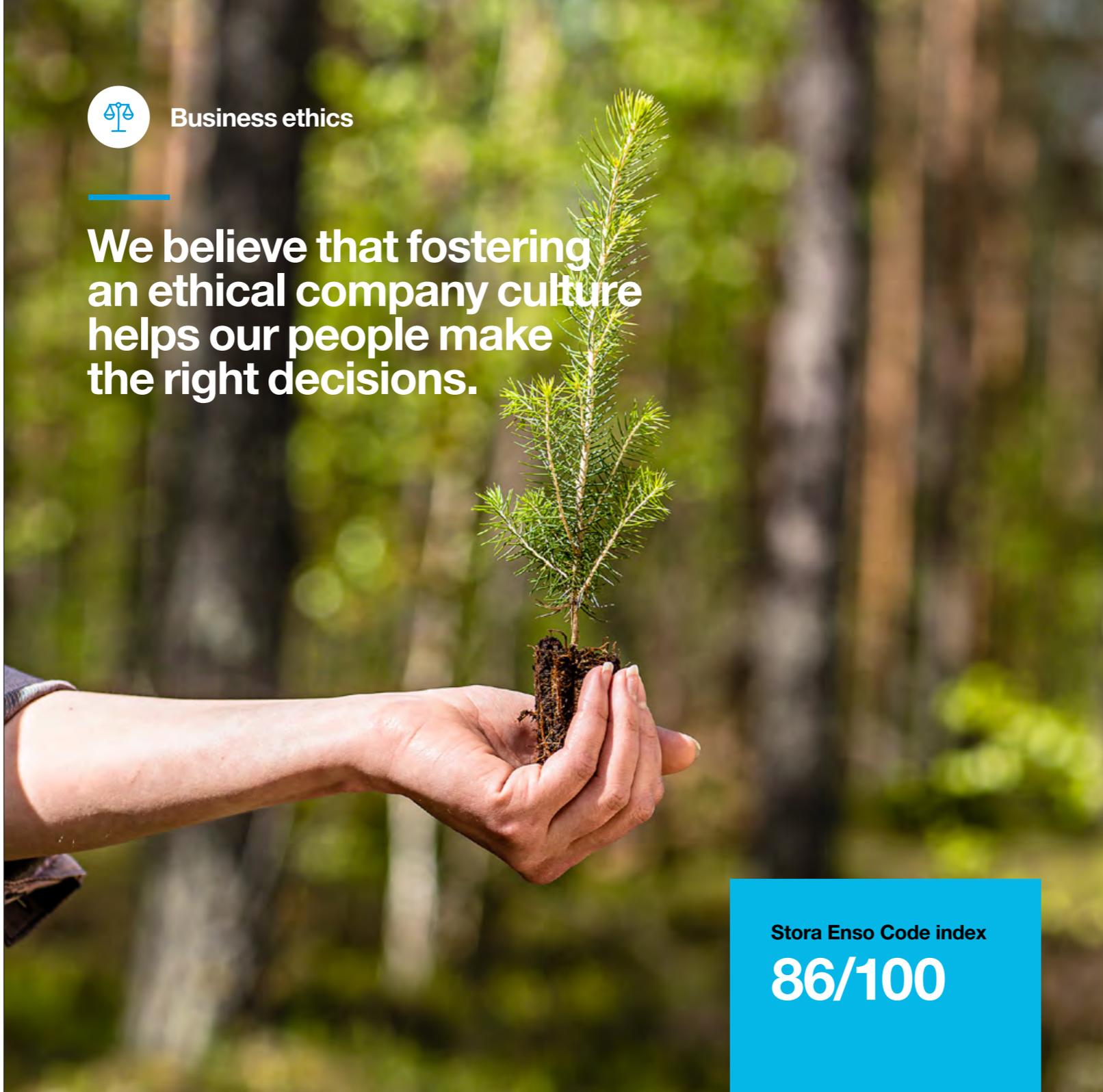
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Business ethics

We believe that fostering an ethical company culture helps our people make the right decisions.



Stora Enso Code index
86/100

Opportunities and challenges

Broad ethical approach beyond compliance

Stora Enso operates in locations including high-risk markets that offer good business opportunities but may also entail exposure to serious risks relating to topics such as corruption and fraud. The US Foreign Corrupt Practices Act, the UK Bribery Act, and the French Loi Sapin II are all examples of effective legislation that governments and authorities have introduced to combat corruption. These laws place high demands on companies' controlling mechanisms, but they also help to build accountability and trust among stakeholders. Competition law is also an area where lawmakers and competition authorities are increasingly active in their efforts to preserve a competitive economy. Complying with international trade sanctions may also require companies to take new measures.

Digitalisation brings great opportunities for organisations, but it also presents challenges regarding cybersecurity and the treatment of stakeholders' personal data. Legislation such as the EU General Data Protection Regulation (GDPR) sets requirements concerning the processing of personal data, with heavy fines imposed for infringements. While compliance with laws and regulations is always the highest priority for us, we believe that adopting a wider ethical approach is also crucial.

Our policies

Comprehensive approach to ethics and compliance

Our code of conduct, the **Stora Enso Code**, is a single set of values for all our employees that explains our approach to ethical business practices, human and labour rights, as well as environmental values. These values are applied wherever we operate.

Other policies relevant to ethics and compliance include our:

- Business Practice Policy
- Data Privacy Policy
- Supplier Code of Conduct



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We ensure that our grievance channels operate effectively and are accessible to all relevant stakeholders.

How we work

Combatting misconduct on all fronts

Stora Enso's Ethics and Compliance function sits within our Legal team, headed by our General Counsel who reports directly to the CEO. Our Ethics and Compliance Management Committee, a governance body appointed by the CEO, monitors Stora Enso's legal compliance and ethical business conduct by following up on our Ethics and Compliance Action List. The Committee met four times during 2020.

Stora Enso's Ethics and Compliance Strategy forms the basis for annual action plans. The strategy has five focus areas:

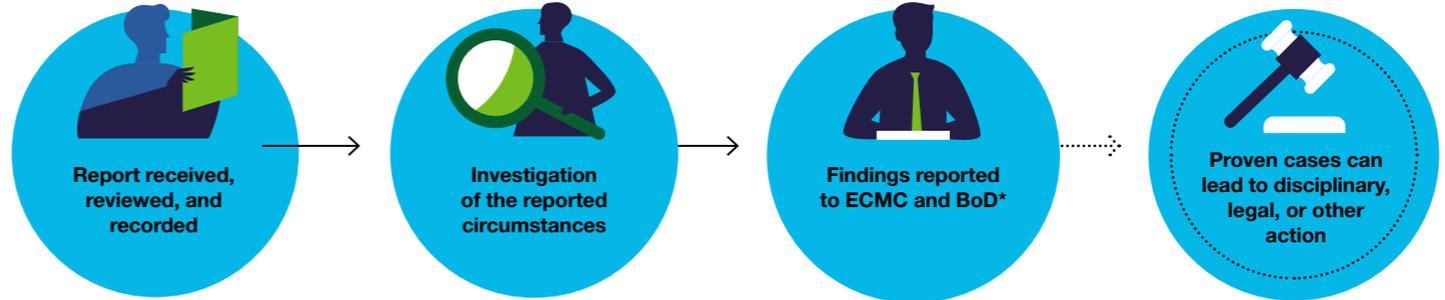
- Top-level commitment
- Improved communication and training
- Intensified efforts in countries with heightened concerns
- Developing our grievance channels
- Ethics and compliance as a competitive edge.

Stora Enso is represented in Transparency International (TI) Sweden's Chapter and has a steering role in TI Sweden's Corporate Supporters' Forum.

Top-level commitment

In our efforts to make Stora Enso a more value-driven organisation, we highlight the importance

How we investigate suspected non-compliance cases



* ECMC = Ethics and Compliance Management Committee
BoD = Board of Directors' Sustainability and Ethics Committee and Board of Directors' Financial and Audit Committee

of top-level commitment. All managers in key positions are required to participate in training and make a personal commitment to the Stora Enso Code and our Business Practice Policy, and to share related information with employees in their respective organisations.

Training our employees

We strive to ensure that Stora Enso's employees and business partners all understand what ethical behaviour is, and how they should respond to any ethical dilemmas that may arise. Communications and training are a crucial part of this work.

Our employees receive Stora Enso Code training, either through an e-learning tool or through face-to-face training for those who do not have direct computer access. We aim to ensure that our new employees receive such training within their first month of employment.

In addition, in-depth training on anti-trust, anti-corruption, and other compliance-related topics is mandatory for all members of our Group Leadership Team, for divisional and mill management teams, and for employees dealing with competitor contacts, purchasing, marketing, and sales. The training has been run since 2013 and a new interactive training was launched in 2020. All relevant employees will be invited to complete the updated training during 2021.

The Stora Enso Data Privacy Policy aims to protect the company against risks related to breaches of data privacy, to let our employees know how Stora Enso collects and uses their personal data, and to ensure that the privacy rights of our employees, business partners, and other stakeholders are protected. All white-collar Stora Enso employees are required to complete our e-learning training on data privacy. By the end of 2020, 92% of white-collar employees had been trained (88% by the end of 2019).

In addition, Stora Enso employees are offered training in dawn raids, trade associations, joint purchasing agreements, gifts and hospitality, and the onboarding of critical business partners.

Comprehensive risk assessments on compliance

Operating in high-risk markets and entering into joint ventures can entail exposure to serious risks. Our risk assessment procedures on compliance cover all our units. The most significant compliance risks in our global operations relate to anti-trust and corruption.

Overall risk assessment at Stora Enso follows the Risk Management Process (ERM) and is outlined in our Enterprise Risk Management instructions. In recent years, ethics and compliance has been considered one of Stora Enso's key risks. In 2020, the ethics and

compliance risk assessment, closely connected with the Ethics and Compliance Self-Assessment Tool (T.E.S.T.), was performed several times.

The results of this assessment have been used in divisional manager discussions to enhance compliance; for strategy planning in the Group Ethics and Compliance function; and in the Group-level ERM process.

The management and employees of our fully and jointly owned operations in China, Brazil, and Uruguay receive training on our Business Practice Policy. Employees in our 50%-owned joint operations in Brazil and Uruguay also receive training on their respective Codes of Conduct and Business Practice Principles, covering topics such as human rights, environmental impacts, safety, and ethical practices.

Breakdown of potential non-compliance cases

	2020	2019
Anti-trust	0	0
Conflict of interest	9	4
Corruption	6	4
Fraud	14	12
Discrimination, harassment and/or bullying	28	26
Health and safety	8	3
Miscellaneous	21	8
Total	86	57



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The Covid-19 pandemic is a stress test for compliance, and leadership is needed more than ever before to ensure ethical business practices.



A culture of ethical behaviour is key to our long-term success.

In recent years, we have reviewed the joint ventures where Stora Enso is a shareholder, implemented competition law guidelines, and arranged training at board level when considered necessary. Guidelines and training have focused on relevant competition law aspects such as information sharing.

During 2019 and 2020, simulations of unannounced inspections (often referred to as “dawn raids”) and online dawn raid trainings were carried out in approximately 20 of Stora Enso’s offices worldwide. The purpose of the dawn raid spot checks was to verify that Stora Enso’s Dawn Raid Instruction Manual and Package have been properly implemented within the company, including but not limited to the obligation to cooperate fully with the authorities.

Grievance channels

Our employees are encouraged to report suspected cases of misconduct or unethical behaviour. Other stakeholders may also want to seek ways to raise concerns over our activities. To ensure that rights to privacy and effective remedy

are respected, we must ensure that our grievance channels operate effectively and are accessible to all relevant stakeholders.

Stora Enso uses an external service through which our employees and external stakeholders can anonymously report potential non-compliance cases by phone, mail, or online. This grievance channel is available 24/7 and is open to all stakeholders globally. In 2020, we worked to identify ways to better inform external stakeholders about the hotline and how to use it.

All potential non-compliance cases involving a Stora Enso employee or a third party working for the company are duly investigated by the Ethics and Compliance function, and reported both to our Ethics and Compliance Management Committee, and to our Board of Directors’ Sustainability and Ethics Committee. Proven cases of non-compliance can lead to disciplinary or legal action.

Our operations in China and Laos offer internal grievance channels in multiple local languages.

Our joint operations Veracel in Brazil and Montes del Plata in Uruguay each have their own local grievance mechanisms.



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In 2020, a total of 86 reports received through Stora Enso's various grievance channels were identified as potential non-compliance cases (57 in 2019).

A total of 76 investigations of potential non-compliance cases were completed in 2020 (40 in 2019), also including open cases from previous years. Proven cases leading to disciplinary action, legal action and/or process improvements were identified in 28 (26) of the investigations.

Based on our assessments, 10 of the proven cases can be considered relating to corruption and/or fraud (9 in 2019). All these cases resulted in employee dismissal or disciplinary process. Two of the cases resulted in the termination of business relationships.

Progress

Comprehensive monitoring

We use an index to monitor and evaluate the employee perception of our work on topics covered by the Stora Enso Code. The index is based on our annual employee survey responses to questions related to the Code, Stora Enso's values, fair and equal treatment of employees, safety, and responsibility. The index is used as a management tool to understand the ethics and compliance culture of our different teams. In 2020, the index increased to 86 (84 in 2019). Our objective is to maintain the positive trend by increasing our efforts in communications and training during 2021.

During 2020, we continued the work of the Divisional Compliance Forums and the Group Function Compliance Forum to bring together the heads of key functions and divisions to assess risks, monitor compliance, and contribute to a value driven organisation.

In 2020, we launched a virtual compliance council.

Our Ethics and Compliance Self-Assessment Tool (T.E.S.T.), introduced in 2015, was run once in 2020. This tool has been designed to give our divisions and functions a better overview of the progress their units are making in implementing our policies and compliance measures, while also identifying, measuring and managing possible gaps and risks related to compliance. In 2020, the tool was further developed to cover data privacy, operational health and safety as well as our minimum HR requirements. The results are addressed through the Compliance Forums with action plans subsequently developed, implemented, and monitored as necessary.

Encouraging employee discussions on ethics

We support our managers in discussing ethics topics in their teams by providing them with ethical dilemmas and related instructions. We also support managers with topic-related communication materials to facilitate the discussions. In 2020, topics included diversity and transparency in decision making, the Covid-19 pandemic, and rules for competitor cooperation.

In 2020, our Ethics Ambassadors, consisting of Stora Enso employees, continued their work to voluntarily support our Ethics and Compliance function by running training sessions, clarifying our rules, and answering questions in their respective units.

The Ethics and Compliance Case Book features compliance cases to serve as reference and training material for our employees. The example cases help to illustrate ethics and compliance issues in practice and facilitate discussions and training on important topics. Two additional cases were added in 2020.

Extensive training materials for a Group-wide campaign addressing harassment and discrimination were prepared in 2020. The campaign will be launched in early 2021.

Digitalisation in focus

A virtual compliance counsel, Amanda, was launched in 2020 to help guide our employees in ethics and compliance-related issues. The chatbot uses modern artificial intelligence (AI) technology and was developed in close collaboration with the company IBM.

Given the many potential opportunities from digitalisation and AI in the legal field, digitalisation

Case

Ethical decision making in times of crisis



It can be quite easy to do the right thing when life is predictable, but when a crisis hits, people may cut corners. Companies with strong business ethics have an open conversational culture where people are not afraid to speak up when they face unethical behaviour or ethical dilemmas.

“The Covid-19 pandemic is an opportunity for companies to see how strong and ethical their company culture truly is, and how

prepared they are to maintain that culture,” says **Anna Romberg**, co-founder of the Nordic Business Ethics initiative. “By creating role models out of leaders and providing a safe space for speaking up – one that also works in these times of remote working – companies can impact the way employees behave during a crisis.”

Read the full article at > storaenso.com

has been added as a strategic core capability of the team's Business Information Officer role.

Enhanced compliance control processes

Making sure that laws, regulations, and company rules are complied with, not only by us but also by our business partners, is an essential part of our business. To ensure better compliance control, a third-party management tool is used

for conducting due diligence and onboarding critical business partners. Information from public sources as well as from the potential business partners themselves is collected in an organised way to enable informed decisions by business managers and compliance professionals.

Similarly, a screening process has been implemented for when recruiting for certain top management positions at Stora Enso to identify potential hiring risks.



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Environmental agenda

We are uniquely positioned to contribute to the circular bioeconomy.

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The world needs materials that are both renewable and recyclable – a circular bioeconomy – to combat climate change and to minimise waste.

Process residuals utilisation rate

98%

Share of biomass in energy generation

82%

Opportunities and challenges

Reduced waste, maximum value

Among the global megatrends impacting societies, markets, and businesses, climate change is the greatest challenge of our time. This means that consumers, legislators, companies, and financial institutes have an increasing focus on raw materials, CO₂ emissions, circularity, and waste reduction. Moreover, governments around the world are increasingly regulating the use of fossil-based materials, such as plastics.

The European Green Deal provides an action plan to boost the efficient use of resources by moving to a clean, circular economy, restore biodiversity, and cut pollution. In 2020, the European Union (EU) proposed a European Climate Law as part of the Green Deal. As an overall ambition level, the EU should achieve net zero greenhouse gas emissions and climate neutrality by 2050. To fulfil the ambition, contributions are also requested from energy intensive industries in terms of further emission reductions and promoting energy efficiency. The European Commission (EC) adopted a new Circular Economy Action Plan in March 2020 – one of the main blocks of the European Green Deal. Stora Enso welcomes the work the European Parliament is doing to ensure society transitions to a circular economy.

We also follow regulatory developments in other parts of the world, such as the Chinese Environmental Protection Laws concerning our operations in China and related laws in the country on water protection, air pollution, solid waste, and noise pollution as well as circular economy regulations relevant to our product range. Stora Enso monitors relevant environmental regulation in Brazil and Uruguay through its joint operations.

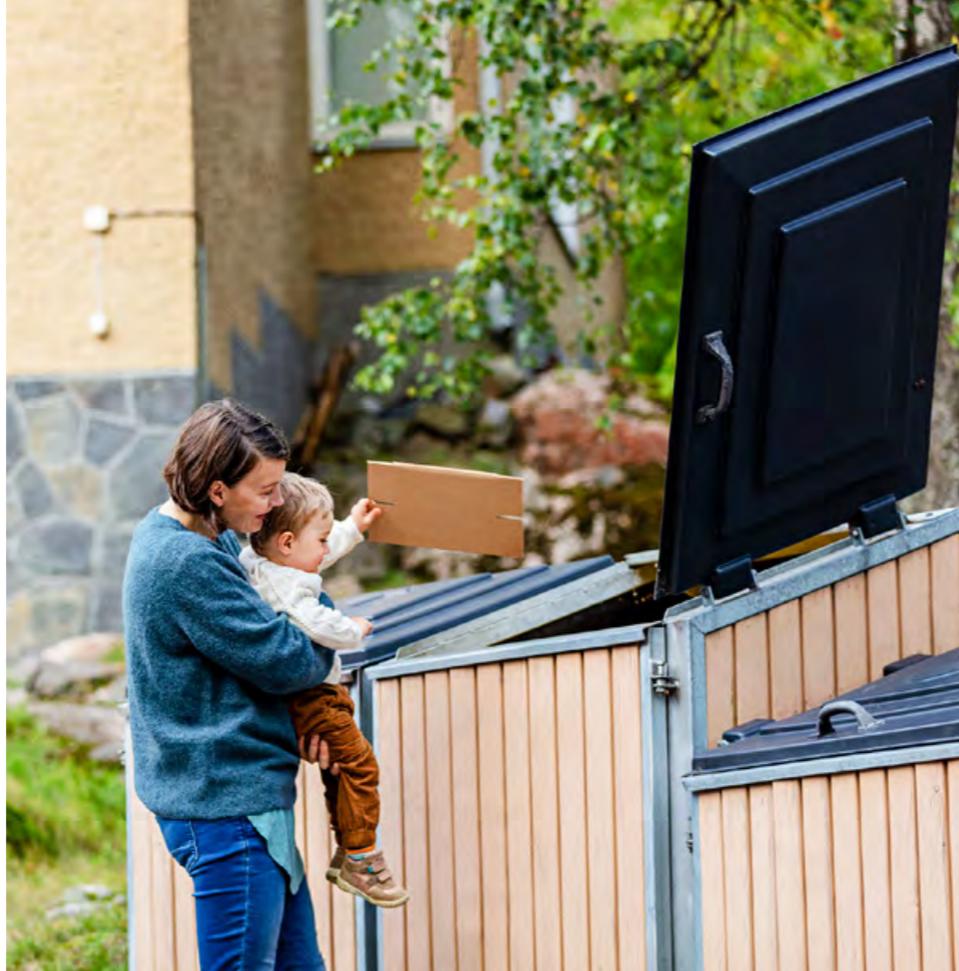
Materials

As a renewable materials company, Stora Enso operates at the heart of the bioeconomy and contributes to a circular economy. In a circular economy, waste is minimised as materials are reused and recycled to maximise their value. The Circular Economy Action Plan aims to promote a cleaner and more competitive Europe. This will drive legislative reviews in the areas of sustainable product policy, circularity, and waste reduction. Another commitment of the European Green Deal is the EC chemicals strategy for



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Wood fibers can be recycled at least 5-7 times, sometimes over 20 times. Once fibers get too degraded to recycle, they can be used to make bioenergy.

sustainability which is part of the EU's zero pollution ambition. The objectives of these ambitions create a need for new innovations and provide business opportunities for Stora Enso.

Water

Water plays a central role in Stora Enso's production, heating, cooling, and cleaning processes, and in generating renewable electricity from the hydropower we purchase. We mainly withdraw our process and cooling water from surface waters and after use, we clean the process water in our treatment plants before discharging it back to the local environment. Sustainably managed forests and plantations

have a key role in maintaining natural water cycles, absorbing CO₂, and therefore increasing resilience to the impacts of climate change. Our forests and plantations need rainwater for growth, and active water management in plantations contributes to positive effects on the total water balance as well as water storage, purity, and quality. We consider water in the planning and management of our forest and plantation operations.

The EU Water Framework Directive sets the objective to protect and enhance water resources to ensure good water quality in lakes, rivers, groundwater, and transitional and coastal waters. Other key directives are the Water

Framework Directive, the Groundwater Directive, and the Environmental Quality Standards Directive. These requirements are implemented in the environmental legislative framework of each member state, with which we must comply via our environmental permits.

While water is relatively abundant in most of our production locations, water scarcity may still impact our operations locally and through our wider supply chains, as controls on pollution, recycling, and water pricing are tightened. Some of our mills are occasionally impacted by water stress in terms of availability or increased water temperature. We therefore consider water stewardship to be an area of increasing importance. At the same time, such challenges give us opportunities to reduce costs by using water and energy more efficiently.

Energy

The EU's Energy Efficiency Directive II includes new targets for 2030 that require annual energy savings of 0.8% of energy consumed. Additionally, the Renewable Energy Directive II sets member states a binding collective target on an EU level to derive 32% of their final energy consumption from renewable sources by 2030. With its high proportion of biomass-based energy, the forest industry can help the EU achieve its targets.

Our policies

Guidance throughout the supply chain

Stora Enso's policies relevant to our use of materials, water, and energy include our:

- Stora Enso Code – our code of conduct guides us on issues related to resource use.
- Policy on Energy and Carbon – a policy stating our ambitions in combatting climate change.
- Environmental Guidelines – a comprehensive overview of our policy objectives and how we work to achieve them.
- Supplier Code of Conduct, Practical Guidance for Stora Enso's Suppliers, Purchasers' Instructions, Sourcing Policy, and Sourcing Guidelines – a guiding framework for the responsible sourcing of materials and energy.
- Policy on Wood and Fiber Sourcing, and Land Management – our commitment to the responsible integration of forestry, land use, sourcing, and water stewardship into our sustainable forest management and land use practices.

By 2020, 94% of our total energy consumption was certified to the ISO 50001 energy management system.

How we work

External initiatives guide our work

We apply precautionary management actions to mitigate and remedy potential adverse impacts on the environment and people. The environmental work at our mills, including water and energy management and resource efficiency, is supported by third-party certified environmental management systems. All our sawmills, corrugated packaging units, and board, pulp, and paper mills are certified to the ISO 14001 environmental management system.

Using materials, water, and energy in our production affects the environment but may also have an impact on people. At Stora Enso, keeping employees and surrounding communities safe and healthy is a top priority. The interests of local communities are respected in our approach to systematic Environmental and Social Impact Assessments for new industrial projects as well as due diligence executed in conjunction with mergers, acquisitions, and divestments (see page 13).

As part of our Supplier Code of Conduct, our suppliers commit to report significant environmental non-compliances and accidents. Our forestry contractors are given on-the-job training in ecological management, including the identification of hydrologically sensitive areas. Through our Wood and Fiber Sourcing, and Land Management policy, we encourage forest owners to apply sustainable forest and land management practices that help conserve water resources. We require our external pulp suppliers to follow similar principles in their wood and fiber procurement.

By the end of 2020, 94% of our total energy consumption was certified to the ISO 50001 energy management system standard (95% in 2019). For unit-specific information on certificates, see pages 69–71.



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Our board, pulp, and paper mills monitor effluent discharges, suspended solids, chemical oxygen demand, total organic carbon, phosphorous, nitrogen, and water quality, including temperature and pH scale. Mills apply both online and offline measurements, such as standard methods for the forest products industry, in order to fulfill permit limit requirements and to protect ecosystems, wildlife, and human health.

Emissions to the atmosphere and effluent discharges to water bodies from our mills are regulated by the relevant authorities, with limits set through environmental permit processes that consider local environmental conditions, including water quality and resources, external stakeholders, and legislation. Our mills in Finland and Sweden work jointly with external stakeholders to steward shared water resources in regional water recipient control programmes. These programmes have been established together with other companies, communities, and regional authorities to monitor physical, chemical, and biological water quality development over the long term.

Compliance with legislation and environmental permit limits are monitored by the mill in question and reported to the environmental authorities. Non-compliances and incidents are reported by mills to Group management on a quarterly basis. Significant incidents are reported immediately. For details of significant environmental incidents and violations of environmental permits in 2020, see page 42.

Environmental improvements and investment needs at our production units are driven by regional and local conditions. The Best Available Techniques (BAT) Reference Document (BREF) for the Production of Pulp, Paper and Board is developed by the European IPPC Bureau. The current version published by the EC contains BAT conclusions that form the reference for setting permit conditions for installations

Our circular design principles aim to maximise the circularity of our products and solutions.

covered by the EU's Industrial Emissions Directive. BAT conclusions cover board, pulp, paper, and sawmills, as well as medium and large combustion plants. Our compliance with the BREF and environmental permits is reviewed quarterly, and investments are proactively planned as part of Group investment processes and fitted into Stora Enso's normal capital expenditure framework and policy.

As a public commitment to water resource management and the development of sustainable water strategies, Stora Enso signed the United Nations Global Compact's CEO Water Mandate in 2009 and the Finnish Water Stewardship Commitment in 2018.

Contributing to the circular bioeconomy

We help our customers to become more circular with our renewable, recyclable and, in many cases, compostable products. We minimise waste and resource use and aim to maintain the value of products and materials for as long as possible through product design, innovation, and recycling. When a material or product has reached its end-of-life, we promote recycling and energy recovery to create further value. Read more about our approach to circularity in **Strategy 2020**.

Stora Enso has a Group Circular Economy roadmap consisting of three focus areas: create value through new circular pilot projects and partnerships, integrate circular economy into design and innovation, and build internal and external awareness and a culture of circular thinking. We apply circular design principles to maximise the circularity of our products and solutions and help reduce environmental impacts. We also work with partners to ensure the development of truly circular value chains for the future.

We are a signatory to the New Plastics Economy Global Commitment led by the Ellen MacArthur Foundation, in collaboration with UN Environment. Our progress was disclosed in the foundation's Global Commitment Progress Report in 2020. We are a founding board member of the World Business Council for Sustainable Development's (WBCSD) circular economy initiative, Factor10. Stora Enso also contributed to WBCSD's Circular Economy Action Plan 2020 – Summary for Business, and worked with the WBCSD on the publication of a new report on the circular bioeconomy, "The business opportunity contributing to a sustainable world".

Case

Residuals from the mill feed the forest



When trees are harvested and forest residues, such as branches and treetops, are left in the forest, some nutrients are returned to the soil, but when both the wood and the forest residues are removed, less nutrition remains in the forest. Our Skoghall Mill in Sweden is part of a research project that investigates the opportunity to use sludge from the mill's wastewater treatment plant and ash from the biofuel boiler to produce a sustainable fertilizer

for the forest. Both the sludge and ash contain the original nutrients from the harvested trees. "This is an important project because the goal is to return residuals from the forest industry back to the forest in an environmentally friendly way," says **Margareta Persson**, Assistant Nursery Manager at Sjögränd nursery.

Read the full article at > storaenso.com

Stora Enso is engaged in several research and innovation consortia to develop common approaches and tools to promote the circular economy. These include the Circular Transformation research collaboration with the KTH Royal Institute of Technology in Stockholm, Sweden, and the FINIX textile circularity ecosystem collaboration led by Aalto University in Finland.

Stora Enso is also contributing to the development of the first global standard for circular economy, under a process led by the International Organization for Standardization (ISO).

In 2020, to be proactive in a topic of growing importance, Stora Enso established an internal

Microplastics Working Group in order to take a systematic approach to defining, mapping, and mitigating microplastics in our value chain. We are also, for example, conducting and participating in studies on the topic and actively follow and participate in related EU discussions. Moreover, we are engaging in more specific microplastics discussions with selected suppliers to gain a better understanding of and performance in minimising microplastics in the value chain.

For information on how we worked with our customers and value chain partners to advance the circular bioeconomy in 2020, see page 58.

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Our goal is to reduce impacts on water use, minimise impacts on quality, and recycle water within mills when possible.

Value from waste and residuals

In addition to our traditional products as well as lignin, tall oil, turpentine, and energy pellets, Stora Enso's production processes generate other residuals and waste, such as ash, sawdust, bark, and wastewater treatment sludge. Many of these materials are used in our internal bioenergy generation or supplied to third parties to be used in applications such as agriculture, cement and concrete products, or land and road construction. We constantly seek ways to improve resource efficiency in order to extract additional economic value from material streams that would otherwise end up as waste.

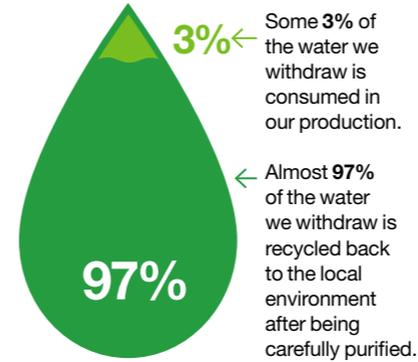
We ensure that hazardous waste is safely processed at suitable facilities, and we report on hazardous waste disposal in accordance with relevant regulations. Our third-party certified ISO 14001 systems comprise of on-site management procedures for handling chemicals and waste at our mills. Expertise and best practices related

to optimising material streams are shared throughout Stora Enso by networks focusing on environmental management, materials, Paper for Recycling, chemical safety, and product safety.

We aim to maximise the value of our material streams and work towards zero process waste. We work to achieve this through circular material flows in our value chain while reducing our own process waste to landfill to as close to zero as legally, technically, and commercially possible. Our Group target is to maintain the high level of a 98% process residuals utilisation rate. The target covers all Stora Enso production units.

Stora Enso continues to partner with the Swedish government agency for innovation, [Vinnova](#), with the aim to recycle our materials containing carbon and calcium in the steel industry. Successful trials have explored the beneficial use of fly ash, lime mud, bio sludge and fiber sludge. Trials will continue in 2021.

Stora Enso's water withdrawal and consumption



In 2020, EUR 7 million was earmarked for energy efficiency investment projects at our mills.

Recycled paper and board

Wood and fiber are the main raw materials in Stora Enso's production processes. Materials made with virgin fiber are used for products with special safety requirements, such as packaging for food and pharmaceuticals. For more information about our wood procurement, see pages 49–54.

While wood-based fibers can typically be recycled 5-7 times, in some cases over 20 times, virgin fiber is also needed in the paper recycling process. After several recycling rounds, paper fibers eventually become too short to be reused but can be burned for bioenergy, which drives the need for new virgin fiber. Stora Enso also uses paper for recycling (PfR) wherever it makes environmental and economic sense. Recycled newspapers and magazines are used to produce certain paper grades at Langerbrugge Mill in Belgium (where they account for 100% of sourced fiber), Sachsen Mill (100%) and Maxau

Mill (75%) in Germany, and Hylte Mill in Sweden (25%). Recovered board is used to make specific containerboard grades at Ostrołęka Mill in Poland (85% of fiber sourced for containerboard production) and at Varkaus Mill in Finland.

Through cooperation with local authorities and waste management companies, and our own collection facilities, we secure sufficient PfR from industrial, commercial and domestic sources. In Poland, we own and manage a network of 18 depots where PfR is collected and baled for transportation to our Ostrołęka Mill.

According to [CEPI](#), Europe's overall PfR recycling rate has been high for many years. In 2019, the rate was 72%, and the collection was 57.5 million tonnes of PfR (-2.5% compared to 2018). This is a noteworthy achievement as not all paper, such as tissue paper, can currently be recycled. While overall collection rates within the EU are relatively high, certain central and southern European countries still have potential to improve. Focusing on EU countries with collection rates below 60%, Stora Enso and the paper industry are actively supporting best practices while these countries establish sustainable collection systems to support the EU goal (74% paper recycling rate by 2020).

In 2020, Stora Enso announced that, together with Tetra Pak, it would initiate a feasibility study to assess the viability of building a large-scale recycling line for Used Beverage Cartons (UBC) at Stora Enso's Ostrołęka Mill in Poland. This would represent a significant increase in recycling capacity for beverage cartons across Europe.

Responsible water use

Production at Stora Enso's mills requires large amounts of water. However, only around 3% is consumed in our production processes while almost 97% is recycled back to the local environment. Process water is purified by our treatment plants and then discharged, whereas cooling and other non-process water can be safely released without treatment.

According to our water reporting, 98.3% of our total water withdrawal was from surface water, 1.6% from municipal sources, and 0.1% from groundwater in 2020. Our strategic approach to water stewardship is built on six pillars: assessing of conditions at mills and in the water basins where we operate; mapping water use at mills to identify saving potential; setting ambition levels and goals; investments; measuring



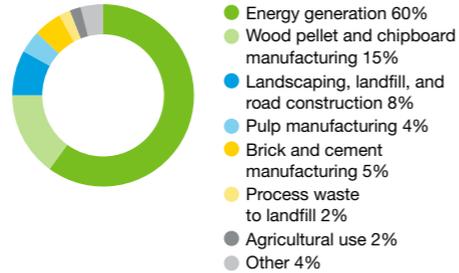
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Utilisation of process waste and residual materials¹

3.5 million tonnes²



¹ Covers all Stora Enso production units, as dry tonnes. Excluding joint operations.

² Internal and external utilisation of process waste and residual materials amounted to 3.5 million tonnes in 2020 (3.4 million tonnes in 2019 and 3.7 million tonnes in 2018).

Process waste to landfill¹

63 thousand tonnes



¹ Covers all Stora Enso production units. Excluding joint operations. In addition to process waste to landfill, Stora Enso's production units created a total of 1 745 tonnes of non-process waste, and 91 312 tonnes of process waste was sent to on-site storage facilities.

We are one of the biggest buyers and users of recycled board and paper in Europe.

performance; and communicating and engaging with stakeholders.

During 2020, we applied the WRI Water Aqueduct Tool to assess water-related risks at our production units. The tool identified that only four of our units with limited water use operate in regions with High Baseline Water Stress: corrugated units Łódź in Poland, Tallin in Estonia, and Jiashan in China, as well as Näpi sawmill in Estonia. During 2020, these units withdrew 38 800 m³ of water which is well below 0.1% of the Group's total water withdrawal. Equally, the process water discharges of these units were 6 000 m³, which is well below 0.1% of the Group's total water discharges.

In 2020, we also continued to implement our Enterprise Risk Management (ERM) procedures geared towards enhanced water stewardship, water stress, and their potential financial impact.

Our strategic water goals are to reduce impacts on water use, minimise impacts on quality, and recycle water within mills when possible to reduce the need for water intake. Our Group targets are to achieve decreasing trends in both total water withdrawal and process water discharges per saleable tonne of board, pulp and paper. In line with Group targets and to drive continuous improvement, our units set their own quantified water targets based on their local context as part of environmental management systems.

During 2020, a water management pilot project was executed at our Sunila Mill in Finland, which resulted in a systematic mapping of water use. Significant water saving potential was identified, and the implementation of saving measures will be verified in 2021. The pilot at Sunila also provides input to our aim to establish a new Group standard for systematic water management work and a Group water efficiency target for board, pulp, and paper mills in 2021.

In 2020, approximately 2% of our intake water was recycled internally by reusing cooling and non-contact water as process water (approximately 2% in 2019). Optimising our use reduces the need for water pumping and heating, which creates energy savings and makes the purification of the remaining wastewater more efficient.

We continue to explore the potential to use refined wastewater residue in new products. For example, our Skoghall Mill in Sweden is working with the University of Karlstad to create bio-based products such as bioplastics and hydrogen gas from biosludge.

Case

Going for the win-win-win



The energy company Gasum and Stora Enso will together turn waste into renewable green energy at Nymölla Mill in Sweden. The liquified biogas (LBG) from Nymölla will improve the overall balance of renewable energy in Sweden considerably.

"Nymölla Mill has long been a leading light in sustainability," says **Jonathan Bakewell**,

VP, Office Papers, Stora Enso Paper Division. "Even though today the paper production process is essentially carbon-neutral, they always want to do more."

Read the full article at > storaenso.com

Long-term energy supply contracts

Board, pulp, and paper production processes are the most energy intensive phases in Stora Enso's value chain, which makes it essential for our mills to have access to a reliable energy supply at a reasonable cost. Stora Enso's energy supply is managed under long-term contracts, direct market access through energy exchanges, efficient combined heat and power production, and shareholdings in power generation companies such as Pohjolan Voima Oyj and Teollisuuden Voima Oyj in Finland. For more information, see **Financials 2020** (Note 14).

Stora Enso is committed to continuous improvement in energy efficiency and energy

self-sufficiency. We evaluate the opportunities to use fuels from biomass residual streams or other low-carbon options when assessing energy investments.

Structured approach to energy management

Stora Enso's Energy Services team is responsible for procuring energy and managing the implementation of our energy strategy. This work involves the hedging of energy prices, managing the trading of emission rights, green certificates, and guarantees of origin, consulting our mills on a wide range of energy topics, and monitoring our carbon dioxide allowance

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balance. The team also monitors and contributes to developments in energy legislation.

A high proportion of biomass is used in the internal energy production at most of our mills. This renewable energy is generated from by-products and residuals from our own production processes, harvested residues, recovered wood, and waste streams.

The harvesting residuals used for energy within Stora Enso's operations are mainly purchased by our wood supply organisation in connection with wood purchases. Mills are individually responsible for the procurement of most other fuels. They are also responsible for optimising energy efficiency using internal tools and certified environmental and energy management systems, supported by our energy efficiency teams.

Progress

Materials

Designing for circularity

In 2020, Stora Enso published its [Circular Design Guidelines](#). The guidelines outline our commitment to contribute to a circular bioeconomy through our products and solutions. These principles will serve as guidance for all our units, functions, and divisions, whether they are planning to create new processes and products or to update existing ones.

Value from waste

During 2020, we continued to monitor our financial value creation from process waste and residuals and the commercialisation of new product applications. Stora Enso's utilisation rate for process residuals and waste across the Group, including internal and external uses, was 98% in 2020 (98% in 2019). During the year, Stora Enso's revenue from residuals, such as bark and fly ash, was EUR 105 million. We improved our procedures for this reporting in 2020, and a comparable figure for previous year is not available.

We continued the commercialisation and product development applications for fly ash from several paper mills, such as Hylte in Sweden and Sachsen in Germany. A prerequisite for launching fly ash as a product is the registration of the product according to the EU regulation for chemicals (REACH). This registration also ensures that the product will be used in a safe and controlled manner according to risk assessments. In 2020, Stora Enso launched a new product [VersaLime™](#), which is

a recycled and circular product marketed for a range of applications. VersaLime™ is a recycled mineral made from fly ash resulting from paper and board production that can replace non-renewable materials to help our customers' become more circular and reduce their carbon footprint.

In Finland, the Anjalankoski Mills are involved in a long-term research project aimed at improving water protection and resource utilisation in the Tuusulanjärvi region. The project reduces the nutrient load from agriculture to surface water and investigates the use of composted sludge from the mills in agricultural land improvement. In 2020, the research showed that the fiber applications may even halve the amount of phosphorus leaching from fields.

Other examples of material efficiency and circularity include the beneficial use of fly ash at our Langerbrugge Mill in Belgium. Together with contractors, Langerbrugge Mill recycled approximately 53 000 tonnes of calcium-rich fly ash for road construction and for the cement manufacturing industry in 2020.

Hazardous waste

During 2020, Stora Enso's production units generated a total of 5 605 tonnes of hazardous waste, up from 4 807 tonnes in 2019. This waste includes oils, solvents, paints, laboratory chemicals, and batteries that are transported and processed by authorised contractors. In addition, 8 720 tonnes (8 575 tonnes in 2019) of sludge classified as hazardous waste was generated at the disused Falun copper mine in Sweden and handled by an authorised contractor.

Paper for Recycling

In 2020, our paper mills used 1.9 million tonnes of recycled paper and board (2.2 million tonnes in 2019). This makes Stora Enso one of the largest Paper for Recycling (PfR) consumers in Europe. The PfR utilisation rate in our paper and board production was 25% (25%).

During 2020, Stora Enso continued to explore the recycling potential of paper cups for magazine paper production on a large scale at its Langerbrugge Mill in Belgium. The paperboard for paper cups are made from high-quality, renewable fibers that can have several lives thanks to recycling. Stora Enso is looking into partnerships for the collection and sorting of used paper cups to ensure that this high-quality fiber material is captured and given a second life.



We use all fractions of biomass, such as lignin and sugars, to develop new solutions.

Chemical safety management

During 2020, Stora Enso introduced digital tools for managing chemical safety information, where they were not already in use. This improved the accessibility and continued roll out of a Group-wide Chemicals Management Guideline, which outlines the minimum requirements for all our units globally, including occupational health and safety and environmental safety. The guideline is a part of the internal management systems at our operational units and auditing will be conducted within their existing structures.

Stora Enso's revenue from residuals, such as bark and fly ash, was EUR 105 million.

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Water

Promoting water efficiency

The objective of our KPIs on total water withdrawal and process water discharges is to drive a downward trend from our 2016 baselines of 57 m³ and 27 m³ per saleable tonne of product, respectively. In 2020, our total water withdrawal was 65 m³ per saleable tonne (61 in 2019) and our process water discharges amounted to 31 m³ per saleable tonne (29 in 2019). The normalised performance as per tonne was partly affected by lower production levels. The water needed at our board, pulp, and paper mills is not in direct relation to production volumes, and wastewater treatment, in particular, requires a regular flow of water to function properly.

We continued to identify mill-specific water-related challenges and opportunities in 2020. Our EUR 25 million investment at Maxau Mill in Germany to install a new steam turbine with a closed-loop cooling system and additional biomass storage was completed during the year. Alongside improved energy efficiency and reduction in our fossil CO₂ emissions, the cooling system will relieve pressure on the Rhine River through a lower thermal output and by withdrawing considerably less water.

Effluents to water

The wastewater treatment facilities that treat process water from our production processes release effluents to water. These effluents include

phosphorus, nitrogen, chemical oxygen demand (COD) substances, and adsorbable organic halogen compounds (AOX). These facilities at our mills ensure that discharged water is ecologically safe.

Discharging process water that has not been properly treated can contribute to local environmental impacts. Excessive concentrations of phosphorus compounds in water, together with nitrogen compounds and organic substances, can lead to increased biological activity in natural watercourses through eutrophication. AOX is a collective term for the amount of chlorine or other halogens bound to organic matter such as wastewater.

The investment of EUR 3.6 million in wastewater treatment improvements at the Anjalankoski Mills was completed in 2020. With the new bio-sludge centrifuges and process control model in place, the amount of water effluents decreased in 2020 compared to 2019: nitrogen by 4%, COD by 6%, and phosphorus by 27%.

Continued focus on legionella management

Legionella is a bacterium that commonly appears in ground and surface waters and is considered potentially dangerous to humans when inhaled as aerosols (water mist). Legionella can cause respiratory infections such as Legionnaires' disease that can lead to pneumonia. Legionella can exist in the pulp and paper industry's biological wastewater treatment facilities, cooling towers, and water ponds. Following the roll out of new Group

instructions for the management of legionella in 2019, over 300 employees were trained as a precautionary action during 2019 and 2020. Following an outbreak of legionnaire's disease close to Ghent in Belgium in 2019, the Flemish Care and Health Agency identified the cooling tower of the power plant at our Langerbrugge Mill as one possible source of the infection. By the end of 2020 investigations were still ongoing.

Energy

Our Group-wide energy efficiency target was to reduce specific energy (electricity and heat) consumption per tonne of pulp, paper, and board production by 15% by 2020, compared with the baseline year of 2010. In 2020, our specific energy

consumption per tonne was 0.2% higher than the 2010 baseline (2.9% lower in 2019). Specific energy consumption has been affected by structural factors such as production line closures in the Paper division, or conversions to new products at our mills, as well as our changing product portfolio.

As most of our production processes are energy intensive, our new energy efficiency target is to achieve at least 0.8% annual energy savings by 2030. The target is followed with a KPI describing the projected fraction of energy savings per total energy use of electricity and heat. In 2020, the projected annual energy savings were -0.9% equivalent to 310 GWh (-1.4% or 521 GWh in 2019). This is estimated to eliminate over 20 000 tonnes of annual direct fossil CO₂ emissions.

Water withdrawal and consumption¹²

Million m ³	2016	2017	2018	2019	2020	Trend 16-20
Process water	296	290	290	298	285	-4 %
Cooling water (net)	300	304	297	297	273	-9 %
Total water withdrawal	596	594	586	595	558	-6 %
m ³ /tonne	58	57	56	61	65	12 %
Water consumption	24	27	24	23	20	-17 %
m ³ /tonne	2.4	2.6	2.4	2.3	2.3	-4 %
Process water discharges	279	270	272	282	266	-5 %
m ³ /tonne	27	26	26	29	31	16 %

¹ Figures from board, pulp, and paper production units. Normalised figures are reported per unit of sales production.

² Historical figures recalculated due to additional data or organisation scope changes after the previous report. For more, see [Reporting scope](#).

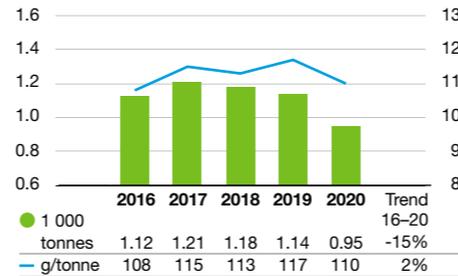
Phosphorus¹²



¹ Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

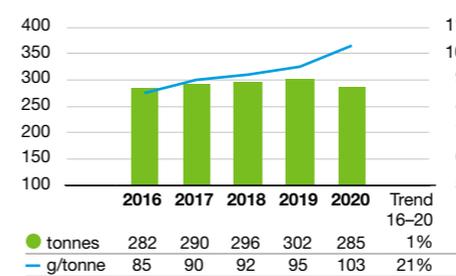
² Historical figures recalculated due to additional data or organisational scope changes after the previous report. Read more about our calculation principles in [Reporting scope](#).

Nitrogen¹²



¹ Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.

Adsorbable organic halogen compounds (AOX)¹²



¹ Figures from bleached chemical pulp production units only. Excluding joint operations. Normalised figures are reported per unit of bleached chemical pulp production.

Chemical oxygen demand (COD)¹²



¹ Figures cover board, pulp, and paper production units. Excluding joint operations. Normalised figures are reported per unit of sales production.



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In 2020, the share of biomass in energy generation at our own mill sites was 82% (82%). Our total energy self-sufficiency rate was 67% (67%) and our electricity self-sufficiency rate was 63% (61%). Electricity from Pohjolan Voima Oy (PVO), where Stora Enso is a minority shareholder, is included as our own generation in these self-sufficiency figures.

Energy efficiency high on the agenda
Stora Enso continued to enhance energy efficiency throughout its operations. During 2020, we started to audit our mills' compressed air networks to further increase energy efficiency.

We are committed to the voluntary Energy Intensive Industries Agreement managed by the Finnish Forest Industries Federation (FFI), which aims for a national 4% energy use reduction among its signatories between 2017 and 2020, and a 3.5% reduction (cumulative, in MWh) between 2021 and 2025.

We also participate in groups that share industry best practice on energy efficiency in Finland and promote energy efficiency at our mills.

Stora Enso's energy and water efficiency fund
Our central energy and water efficiency investment fund is another important part of our work. In 2020, this fund amounted to EUR 7 million (EUR 10 million in 2019) and was earmarked for energy efficiency investment projects at our mills. The fund financed 37 (47) projects in 2020, including one to increase the use of biogas and install high efficiency air

blowers at Ostrolęka Mill in Poland, as well as a project to improve the impregnation of chemo-thermomechanical pulp (CTMP) and the installation of a new energy efficient moisturiser to board machine 8 at Skoghall Mill in Sweden. When fully implemented, all the projects financed in 2020 are estimated to generate annual energy savings of at least 123 GWh (40 GWh electricity and 83 GWh heat). This is equivalent to 0.3% of our annual energy consumption.

To give higher attention to water management, the scope of the energy efficiency fund was expanded and renamed as the "Energy and water efficiency fund" during 2020.

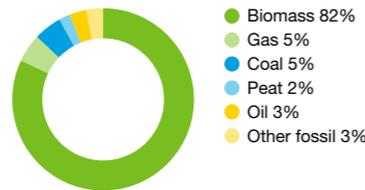
Emissions to air
Our atmospheric emissions primarily result from the combustion of fuels for energy generation. Emissions include carbon dioxide (CO₂), sulphur dioxide (SO₂), nitrogen oxides (NO_x), and fine particles. When not properly managed, CO₂ contributes to climate change while SO₂ and NO_x emissions affect air quality and can cause acid rain and soil acidification. We work to reduce our air emissions by using more renewable energy, improving energy efficiency, and using advanced technologies such as scrubbers and boiler process control systems.

In 2020, Stora Enso's Group-wide SO₂ emissions amounted to 2 410 tonnes (2 890 tonnes in 2019), NO_x emissions totalled 8 990 tonnes (10 360 tonnes), and emissions of fine particles amounted to 1 440 tonnes (1 680 tonnes).



Water plays a central role in our production, heating, cooling, and cleaning processes.

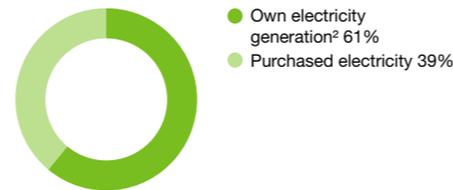
Fuels¹



Our total annual fuel consumption was 38.6 terawatt hours (TWh) in 2020 (41.8 TWh in 2019).

¹ Figures cover board, pulp, and paper production units. Excluding joint operations.

Electricity generation and sourcing¹



During 2020, we generated and purchased 10.9 terawatt hours (TWh) of electricity and consumed 10.5 TWh (12.0 and 11.6 during 2019). 0.4 TWh was sold (0.4).

¹ Figures cover board, pulp, and paper production units. Excluding joint operations.

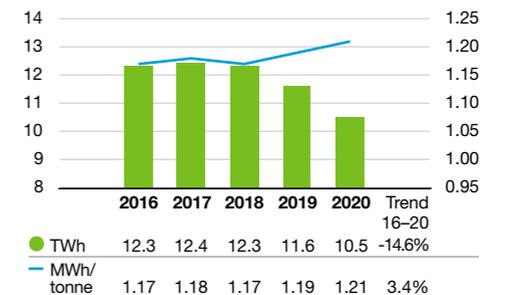
² Including electricity from Pohjolan Voima Oyj (PVO), where Stora Enso is a minority shareholder.

Heat consumption¹



¹ Heat consumed by board, pulp, and paper mills, excluding sold heat and heat used for electricity generation. Excluding joint operations. Normalised figures are reported per unit of sales production.

Electricity consumption¹



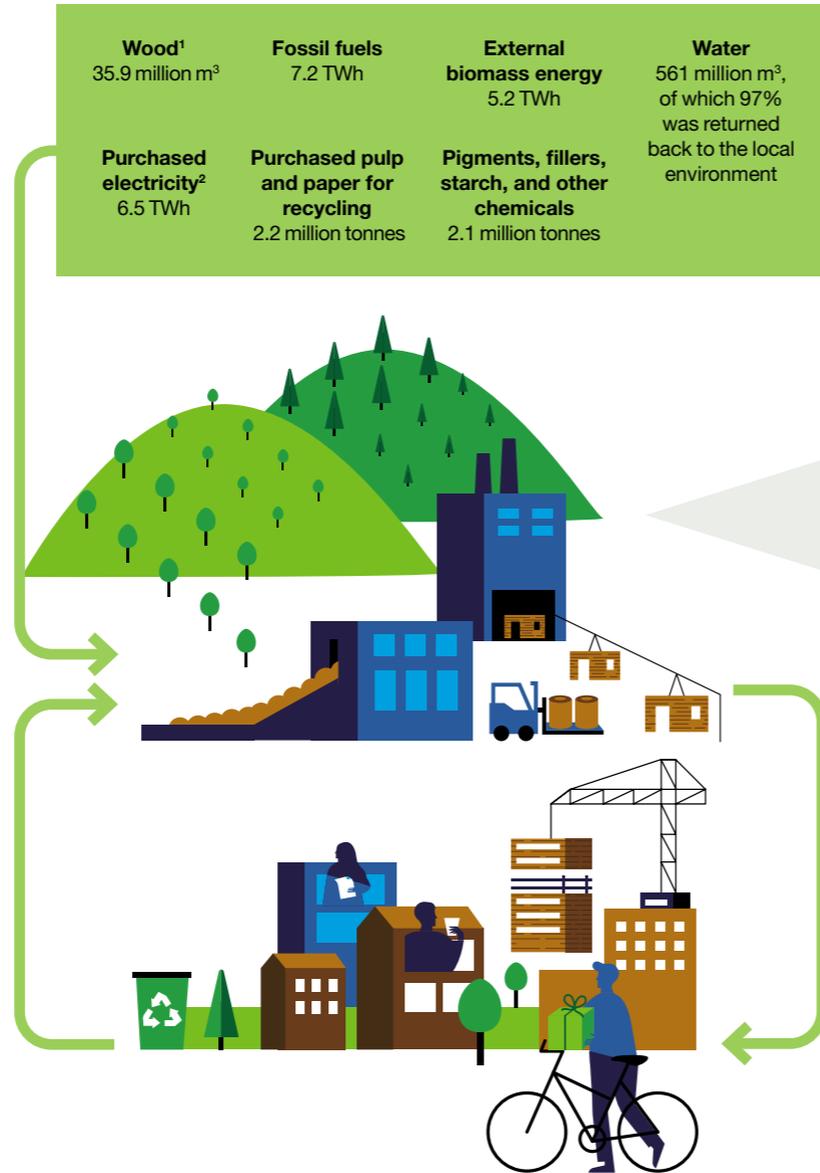
¹ Electricity consumed by board, pulp, and paper mills, excluding sold electricity. Excluding joint operations. Normalised figures are reported per unit of sales production.

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Efficient use of materials in circular bioeconomy¹



¹ Covers all Stora Enso production units. Excluding 50%-owned joint operations Veracel and Montes del Plata, except the Wood use and Market pulp production figures in which 50% of the joint operations are included. The illustration shows the key materials used in our processes, together with our production figures as reported in our environmental reporting system. For a comprehensive illustration on how we create value see our [Strategy 2020](#). ² Electricity from PVO included in purchased electricity. ³ Corrugated packaging production partly based on our own containerboard production. ⁴ Other products include mainly pellets, wood chips, tall oil, and turpentine.



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Environmental incidents in 2020

Our objective is to have no environmental incidents but occasionally, unexpected process events can result in temporary breaches. The table below provides details of environmental incidents involving a non-compliance with environmental legislation or permits, or a significant stakeholder concern related to environmental performance.

Unit	Incident	Corrective actions
Oulu Mill, Finland	The permit limit for phosphorous discharge was exceeded in January due to problems in the biological wastewater treatment plant. This was caused by bacteria growth in the biosludge settling during trials with biogas plant rejects, which lead to an increased level of suspended solids in the treatment plant.	The biogas plant trials were stopped and the amount of biosludge in the aeration basin was lowered to reduce escaping sludge and improve oxygen levels. Potential investments in aeration capacity and sludge handling are under investigation.
Hyite Mill, Sweden	The air emission limits for dioxins and furans were exceeded at periodic monitoring in February.	Actions have been taken with trials of various fuel mixes (DIP sludge, recovered wood and effluent sludge) and frequent monitoring with a sampling device. The trials were successful and the emissions are now kept within the limits.
Maxau Mill, Germany	The permit limit for COD discharge was exceeded during several days in August due to issues with the sludge overflow in the biological wastewater treatment outlet.	Corrective actions were taken through extended shutdowns of PM 8 and DIP plant 3 and the increased addition of nitrogen and sludge removal. Investments were made in increased sludge-dewatering capacity.
	The mill experienced problems with sludge flotation overflow in the wastewater treatment plant in October 2020.	New way of operating sludge treatment was introduced comprising optimisation of buffer capacity, chemical dosing, sludge removal, and improved cooling water treatment.
Lahti Mill, Finland	The environmental permit limit for copper discharges to water was exceeded during April, June, and October. This was due to problems with washing waters at the wastewater line of the converting machines.	Inspections performed of the sewage system, new sampling plan established, and washing water precipitation test done. Root cause for the copper discharges is still pending, including considerations for wastewater treatment investment.
Sunila Mill, Finland	The monthly permit limit for NOx emissions to air from the bark boiler was exceeded in November and December.	Corrective actions taken as part of the bark boiler improvement, including repair of air combustion system, new burners for support fuel, air pre-heaters and secondary air valve adjustments. The installations will be finalised in January 2021.
Anjalankoski Mills, Finland	The annual permit limit value for dioxins and furans was exceeded. This was due to challenges with the existing cleaning equipment and fuel mix in boiler 2.	Different options will be evaluated in 2021 in order to establish stable boiler operating conditions.



Carbon dioxide

We combat climate change with renewable materials, resource efficient production, and sustainable forest management.

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Our CO₂e emissions were
26% lower
 than the 2010 base-year level

Opportunities and challenges

Contributing to a low-carbon economy

Climate change is one of the greatest challenges of our time, impacting the environment and people through natural disasters and the loss of ecosystems and livelihoods. As a leading renewable materials company with access to carbon-neutral biomass, Stora Enso is in a unique position to combat climate change. Trees in sustainably managed forests absorb carbon dioxide (CO₂) from the atmosphere and together with wood-based products act as carbon storage. Our products help our customers and society at large to reduce CO₂ emissions by providing low-carbon alternatives to solutions based on fossil fuels and other non-renewable materials.

The first truly global climate agreement was approved at the Paris Climate Conference (COP21) in 2015 and entered into force in November 2016. Ahead of COP21, Stora Enso signed a pledge to combat global warming with science-based reduction targets for greenhouse gas (GHG) emissions. In December 2017, we became the first forest products company to have its climate targets approved by the Science Based Targets initiative¹.

The EU's Emissions Trading System (ETS) is the world's first and largest mandatory system for trading greenhouse gas emission allowances. Covering 40% of the EU's emissions, it is a major element of the EU's policy to combat climate change. The ETS grants 'carbon leakage' status to industries where it is considered that costs related to climate policies might cause businesses to transfer production to countries outside the EU with less demanding requirements. The forest industry is exposed to a significant risk of carbon leakage and thus it has carbon leakage status for its main end products. This means that the forest industry is eligible to receive free emission allowances. The number of free emission allowances decreases each year and it follows the emission reduction targets set by EU.

¹ The Science Based Targets initiative is a collaboration between CDP, World Resources Institute (WRI), the World Wide Fund for Nature (WWF), and the United Nations Global Compact (UNGC). It is also one of the commitments of the We Mean Business Coalition to drive ambitious corporate climate action.



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The European Commission has recently presented its strategy for a carbon neutral EU by 2050. The strategy relies on the circular economy, natural carbon sinks, and lifestyle changes and suggests emission cuts from all main sectors, including power generation, industry, transport, buildings, construction, and agriculture. As an overall ambition level, it states that by 2050, the EU should achieve net zero greenhouse gas emissions. The role of a competitive EU industry is considered a key enabler in the strategy, and it specifically refers to reaping the full benefits of the bioeconomy. As a result, in 2020, the European Commission proposed a European Green Deal which includes a new European Climate Law and proposes a target to reduce EU emissions by 55% by 2030. Stora Enso welcomes the proposal to make the EU carbon neutral by 2050, and also supports emissions reduction of at least 55% by 2030.

Our policies

A resilient carbon strategy

Agreed in 2016, our carbon strategy states that it is our firm intention to drive down our fossil fuel use, so that we get as close to zero as possible within a decade using technically and commercially feasible means. Relevant policies guiding and steering our efforts to combat climate change include our:

- Policy for Energy and Carbon
- Environmental Guidelines – a more comprehensive overview of our policy objectives and how we work to achieve them.
- Supplier Code of Conduct and Practical Guidance for Stora Enso's Suppliers – guides us on how CO₂ emissions can be reduced in our supply chain.

How we work

Scenario-driven work

We actively aim to reduce the energy intensity of our operations and our dependency on fossil fuels. We measure our progress to reduce greenhouse gas (GHG) emissions as a key performance indicator (KPI). Stora Enso's science-based target (SBT) is to reduce GHG emissions from our operations by 31% per tonne of pulp, paper, and board produced by 2030, compared with the 2010 base year. We report on our progress in our annual Sustainability report and quarterly Interim Reports.

Case

Beyond reducing emissions: science-based evidence for our positive climate impact



The Swedish University of Agricultural Sciences (SLU), Stora Enso's partner in developing climate impact research for forest product companies, published a report in November 2020 that provides evidence of our positive climate impact.

When trees are harvested, the carbon stored in the wood fibers is not released immediately but continues to be stored in products made from that wood for as long as the product stays in use. With wooden buildings, for example, the timespan can be decades and the substitution effect is big. When Stora Enso's

products replace fossil-based or other non-renewable alternatives, it is possible to prevent almost 18 Mt of CO₂e from entering the atmosphere annually.

"Climate impact calculations need to be based on science and the most up-to-date available knowledge," says **Torun Hammar**, PhD and part of the research team. "Hopefully, there will be a commonly agreed method that will make it easier to compare companies. There is always more research to be done."

Read the full article at > storaenso.com

Our substitution of fossil materials prevents nearly 18Mt of CO₂ annually.

The Stora Enso Carbon Neutrality Roadmap is a key tool in our GHG scenario assessment and the establishment of reduction targets. The roadmap guides our long and short-term fossil CO₂ reduction actions. Read more about our actions in the Progress section of this chapter.

Evaluating risks and opportunities

Stora Enso evaluates the financial risks and opportunities related to climate change through its annual Enterprise Risk Management (ERM) process, which forms an integral part of the Group's management approach (for more

information, see **Financials 2020**). We routinely calculate the financial impacts of potential cost increases in relation to emission allowances, including the impacts of possible increases in energy prices.

Our production units systematically work to meet their environmental regulatory requirements and to improve their energy efficiency. Their work is supported by international third-party certified systems such as the ISO 14001 environmental management system and the ISO 50001 energy management system. For unit-specific information on certifications, see pages 69–71.

Detailed carbon reporting

We publicly report on our greenhouse gas emissions in three categories:

- Carbon dioxide equivalent (CO₂e) emissions from operations we directly own or control, including on-site energy generation facilities and our own processes, power boilers, lime kilns, and on-site vehicles (Scope 1).
- CO₂e emissions related to the electricity and heat we purchase externally for use in our operations (Scope 2).
- Estimated CO₂e emissions from other indirect sources along our value chain (Scope 3).

All our units report quarterly on carbon emissions for Scopes 1 and 2. A Group-level estimate for Scope 3 emissions is updated every second year. In 2020, a new assessment was made for Scope 3. Our carbon footprint accounting is based on guidelines provided by the Greenhouse Gas Protocol of the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). In 2020, we continued to have the reporting of our direct and indirect fossil CO₂e emissions (Scopes 1 and 2) externally assured to a Reasonable Level. For more information, see page 72.

Reporting according to TCFD

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate-related risks and opportunities that goes beyond current practices. Stora Enso published its first TCFD-aligned reporting in the Report of Board of Directors in 2019. During 2020, our work focused on a qualitative scenario assessment for physical climate-related risks and opportunities in the Nordic forests. For more information



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Case

Stora Enso's annual estimated climate impact



Our forests remove carbon¹

-1.5
million tonnes of CO₂



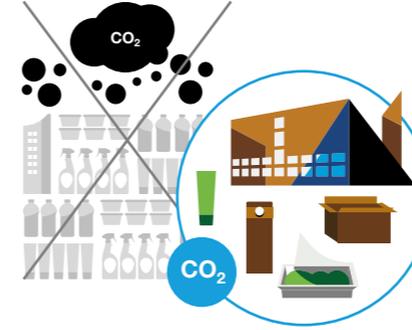
Our products store carbon

-2.6
million tonnes of CO₂e



Our value chain emissions²

+10.5
million tonnes of CO₂e



Our products substitute fossil-based products, saving

-17.9
million tonnes of CO₂e



Climate impact³

= -11.5
million tonnes of CO₂e

¹ Estimated net annual carbon sequestration in own and managed forests and plantations, which provide about 30% of our wood use. Excludes purchased wood. Third-party owned forests that provide Stora Enso's purchased wood are estimated to have an additional net carbon sequestration of -5 million tonnes of CO₂ annually.

² Fossil CO₂e emissions in 2019 including direct emissions from our operations, emissions from purchased energy as well as emissions from other sources along our value chain (Scope 1, 2, and 3). Calculated based on the guidance provided by the Greenhouse Gas Protocol.

³ Negative value indicates a net removal from atmosphere. Calculated by the Swedish University of Agricultural Sciences (SLU) in 2020 based on Stora Enso's production, forest and wood use, and emission figures in 2019: [Climate effects of a forestry company – including biogenic carbon fluxes and substitution effects](#).

on Stora Enso's reporting according to TCFD recommendations, see **Financials 2020**.

Improving our energy efficiency

Greenhouse gases emitted by our operations include carbon dioxide, methane, and nitrous oxide – with carbon dioxide being the most significant by far. The most effective ways to reduce our direct fossil CO₂ emissions are to further improve our energy efficiency, and to continue to increase our use of biomass fuels from residuals. Significant investments in recent years, particularly in multi-fuel boilers, have achieved large reductions in our fossil CO₂ intensity.

Calculating our climate impact

Growing trees absorb carbon dioxide from the atmosphere, and the carbon is stored in renewable, fiber-based products even through recycling.

Our products help our customers and society at large to reduce CO₂ emissions by providing low-carbon solutions to fossil-based alternatives. We cooperate with the Swedish University of Agricultural Sciences (SLU) to further develop the scientific methods for calculating climate impact. The research also takes into account how Stora Enso's products can substitute other greenhouse gas intensive materials and energy, such as plastics or concrete. In 2020, the SLU published a report on the climate impacts of a forest company. Read the SLU report [here](#). We continued to implement methodologies for calculating the quantities of carbon sequestered in forests and plantations owned and managed by Stora Enso and our associate companies. For more information, see page 50.

Stora Enso regularly carries out Life Cycle Assessments (LCAs) to understand and develop

the environmental footprints of products, including carbon footprints. The LCAs show great potential for renewable products in substituting fossil-based alternatives to cut CO₂ emissions. For example, our product-specific LCAs show that wood fiber-based lids made from **formed fiber** have a carbon footprint that is approximately 75% lower than lids made from alternative product materials, such as plastic or bagasse. Read more on page 58.

External recognition and partnerships to combat climate change

In February 2020, Stora Enso was top-ranked in greenhouse gas management for the third time in a row. The Transition Pathway Initiative (TPI) is an asset owner-led initiative supported by the Grantham Research Institute and London School of Economics. It evaluates and tracks the quality of a company's management of greenhouse gas

emissions and of risks and opportunities related to the low-carbon transition. It also evaluates how a company's future carbon performance would compare to the international targets and national pledges made under the Paris Agreement. In its assessment of how 18 of the largest paper producers globally are preparing for the transition to a low-carbon economy, TPI top-ranked Stora Enso in both management quality and carbon performance.

Stora Enso endorses the Corporate Leaders Group (CLG) policy statement on net-zero strategies. The CLG brings together European business leaders to accelerate progress towards a low-carbon, sustainable economy. In 2020, Stora Enso's CEO signed an open letter urging EU heads of state and the European Commission to support an emissions reduction target of at least 55% by 2030.



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Stora Enso collaborated in the WBCSD Food, Agriculture & Forest Products TCFD Preparer Forum publication titled Disclosure in a time of system transformation: Climate-related financial disclosure for food, agriculture and forest products companies.

Stora Enso is a member of the We Mean Business coalition. The coalition brings together non-profit organisations, businesses, and investors that recognise that transitioning to a low-carbon economy is the only way to secure sustainable economic growth.

As a partner of the World Green Building Council's European network, we supported the launch of the 'Bringing Embodied Carbon Upfront' report, with the vision of net zero embodied carbon for the construction industry.

Stora Enso is a member of the Climate Leadership Coalition. In 2020, we participated in the preparation of the pre-engagement study on industrial-scale Power-to-Fuel project.

Progress

Our science-based targets

In 2020, our CO₂e emissions per saleable tonne of board, pulp, and paper were 26% lower than the 2010 benchmark level (26% lower in 2019). The performance remained stable despite the Group's lower production in 2020 compared to 2019. During 2020, our performance was positively affected by the less fossil-intensive electricity purchased for our mills in Finland as well as energy efficiency improvements and further reductions of fossil fuel use at several mills.

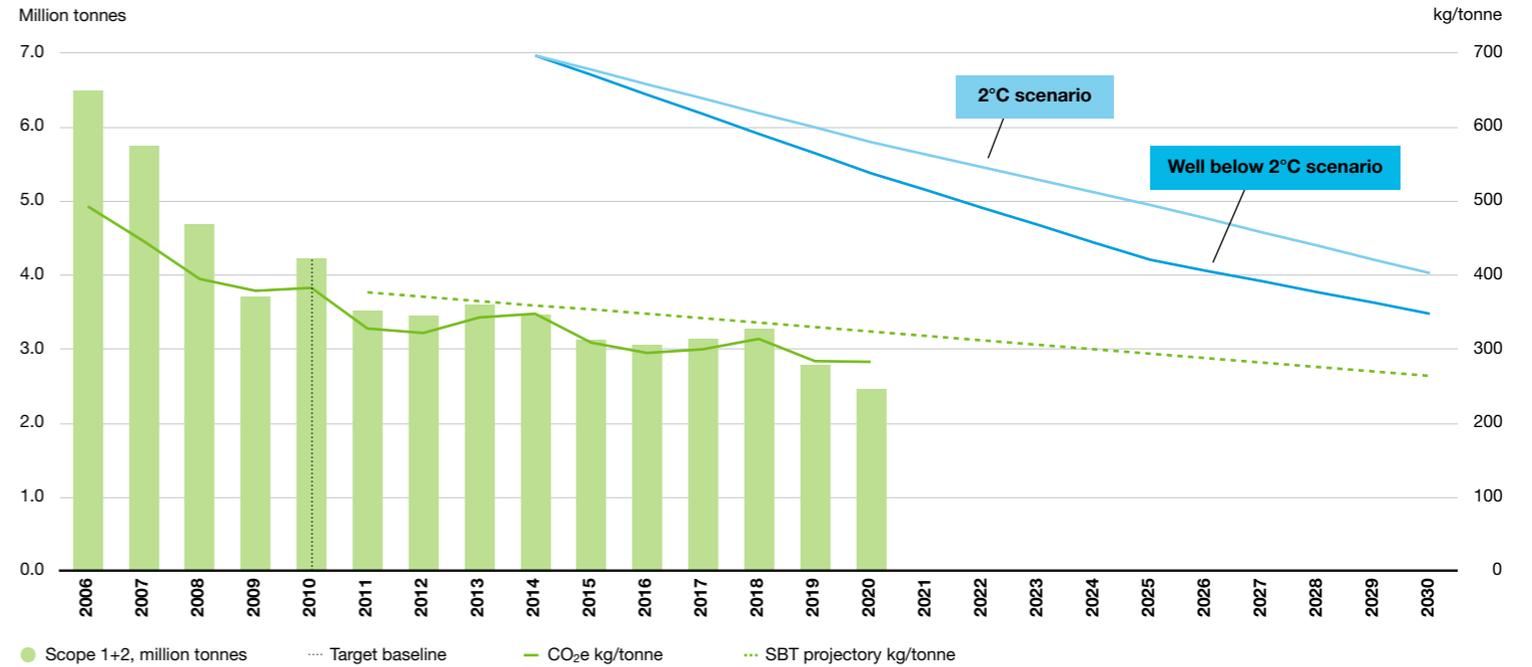
In absolute terms, our direct and indirect CO₂e emissions were 42% lower than in 2010. Direct CO₂e emissions were 23% lower than in 2010. The CO₂e emissions resulting from the generation of purchased electricity and heat during 2020 were 79% lower than in 2010.

The total direct and indirect CO₂e emissions from Stora Enso's board, pulp, and paper mills amounted to 2.45 million tonnes in 2020 (2.77 million tonnes in 2019).

In 2020, our Wood Products division signed a hydroelectric power contract for our units Alytus in Lithuania, Imavere and Nāpi in Estonia, and Launkalne in Latvia that will enable them to deliver products with close to zero carbon emissions from their operations. In addition to the purchase of renewable electricity, the mills produce their own heat based on renewable bioenergy.

Stora Enso's GHG performance^{1,3} and scenarios for the forest industry²

Greenhouse gas emissions (GHG) in relation to production



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 ⁴	2017	2018	2019	2020	Target 2030
Scope 1+2	6.5	5.75	4.69	3.70	4.22	3.53	3.45	3.59	3.46	3.12	3.05	3.14	3.27	2.77	2.45	
kg/tonne	493	446	395	379	383	328	322	343	348	309	295	300	314	284	283	264

¹ Covering direct and indirect emissions as fossil CO₂ equivalents (scope 1 and 2) from board, pulp, paper, and corrugated production units. Excluding joint operations. Normalised figures are reported per unit of sales production. Includes trading of Guarantees of Origin of electricity.

² GHG reduction pathways for 2°C scenario and well below 2°C scenario as CO₂e kg/tonne, based on information from the Transition Pathway Initiative (TPI)* including scenarios data from the Energy Technology Perspectives report by the International Energy Agency.

³ Fossil CO₂e emissions data from our operations (scope 1+2) have been verified at reasonable assurance level since 2015 and calculated according to the GHG protocol. Historical figures recalculated due to additional data or organisation scope changes after the previous report. For more, see Reporting scope.

⁴ Since 2016 our CO₂e performance has been adversely affected by the coal-based energy generation at our Beihai Mill in China.
*Asset owner-led initiative supported by Grantham Research Institute and London School of Economics.
SBT = Science-based target

Stora Enso's carbon footprint 2016–2020¹

	Fossil CO ₂ equivalent (million tonnes) ³					Trend 16–20
	2016	2017	2018	2019	2020	
Scope 1: Direct emissions from our operations. ²	2.39	2.34	2.48	2.38	2.18	–9%
Scope 2: Emissions from purchased energy consumed in our operations. ²	0.77	0.90	0.89	0.49	0.34	–56%
Scope 3: Emissions from other sources along our value chain. ⁴	7.11	7.54	7.47	7.07	6.31	–11%
Total	10.27	10.78	10.85	9.94	8.83	–14%

¹ Covers all Stora Enso production units. Excluding joint operations. Includes the trading of Guarantees of Origin for electricity.

² Historical figures recalculated due to additional data or organisation scope changes after the previous report. For more, see Reporting scope.

³ The CO₂ factors we use for purchased energy (scope 2) largely follow the market-based methodology, which means that almost all our units apply CO₂ factors provided by their energy suppliers. When applying currently available location-based factors our scope 2 emissions for 2020 are 0.82 million tonnes of CO₂ equivalents (0.90 million tonnes in 2019).

⁴ Historical scope 3 emissions recalculated bi-annually against the most recent methodology in order to ensure comparability.



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More than 80% of the fuel used at Maxau Mill is biomass-based. A new steam turbine will further increase the potential of combined heat and power production at the mill.

At the end of 2020, 14 of Stora Enso's mills used harvesting and production process residuals to generate renewable energy and distributed it to local district heating systems (approximately 90%) and industrial partners (approximately 10%). In most cases, the heat supplied from our production units directly reduces the local use of oil and other fossil fuels. In 2020, a total of 0.9 TWh of heat (0.9 TWh in 2019) was sold to these district heating systems serving 12 (13) communities. Using this amount of renewable energy instead of, for example, light fuel oil for heating resulted in estimated emission reduction savings of 0.23 million tonnes of fossil CO₂ (0.23 million tonnes).

Investing in a low-carbon future

We strive to increase the proportion of biomass in our internal energy generation. In line with our policy to give preference to energy from low-

fossil carbon sources, Stora Enso has invested EUR 25 million to boost green energy generation at Maxau Mill in Germany. The project was completed during 2020 and is expected to save 50 000 tonnes of CO₂ emissions annually. In 2020, we announced that the excess heat from the Maxau Mill will also be used to provide renewable, biomass-based district heating for the city of Karlsruhe in south-west Germany.

Our Oulu Mill produces energy for its own use, for other operations located in the plant area and for the district heating network of the City of Oulu. Following the conversion, which was completed in January 2021, the plant will have the technical capability to produce all energy without fossil fuels. The share of peat in the fuel mix will also decrease from the current level. Switching to renewable fuels will significantly reduce the mill's fossil CO₂ emissions.

Case

Fossil-free production through climate-smart choices



Following decades of continuous sustainability work, our Fors Mill in Sweden has been fossil-carbon emission free in its electricity and steam production since 2017. This has been achieved by moving from fossil fuels, such as coal, oil, and gas, to biofuels. Today, the journey continues towards becoming the world's most resource efficient mill.

"We've come a long way, and today, sustainable production is at the core of our operations," says **Gunnar Sjöblom**, acting Mill Director at Fors Mill. "But the journey will not stop here. We must constantly look at what we can do to be part of the solution to climate change."

Read the full article at > storaenso.com



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Another important part of our work is our central energy efficiency investment fund. For more information, see page 40.

Investigating non-fossil fuel alternatives for Beihai Mill

At our Beihai Mill in Guangxi province, China, coal is currently the main energy source as there are inadequate sustainable supply chains for non-fossil fuels in the region at present. The mill has started to gradually move away from coal to biomass and other non-fossil fuels as its power boiler is technically able to use a variety of fuel mixes. In 2020, modest amounts of wastewater sludge, bark, and forest residuals were used in the boiler. Our midterm target is to increase the share of bio and waste-based fuels in the mill's energy generation to 50% of fuel energy.

Carbon neutral emissions

Carbon neutral CO₂ emissions are fossil-free emissions generated during the combustion of biomass-based fuels sourced from sustainably managed forests¹. These emissions are carbon neutral as the forests are regenerated and the new generation of trees absorbs CO₂ as it grows. When forests are sustainably managed, this cycle can continue indefinitely. Stora Enso's operations utilise renewable biomass fuels from forest and process residuals to a large extent, which means that the proportion of carbon neutral CO₂ emissions in our total emissions is high. In 2020, 82% (82%) of the total direct and indirect CO₂ emissions from our own operations were carbon neutral, originating from biomass fuels.

Our carbon footprint

Direct emissions from our operations account for 25% (24% in 2019) of our carbon footprint, while emissions related to the electricity and heat that we purchase for use in our operations account for 4% (5%) of our total carbon emissions.

In 2020, 82% of the total CO₂ emissions from our own operations were carbon neutral.

We estimate that 71% (71%) of the emissions in our carbon footprint are generated elsewhere along our value chain. The majority of our emissions are generated in the sourcing and manufacturing of our raw materials and services (27% of our total carbon footprint); in the further processing of our products by customers (28%); and in the transportation of raw materials to our mills and our final products to our customers (16%). To identify potential for further reducing our emissions in Scopes 1, 2, and 3, we have strengthened our internal steering processes in accordance with the actions agreed in our science-based targets.

Value chain emissions

The CO₂ emissions generated during the transportation of our raw materials and products, which is the most significant environmental impact associated with our logistical operations, are mainly produced by external service providers. Transportation accounts for 23% of all our Scope 3 CO₂ emissions.

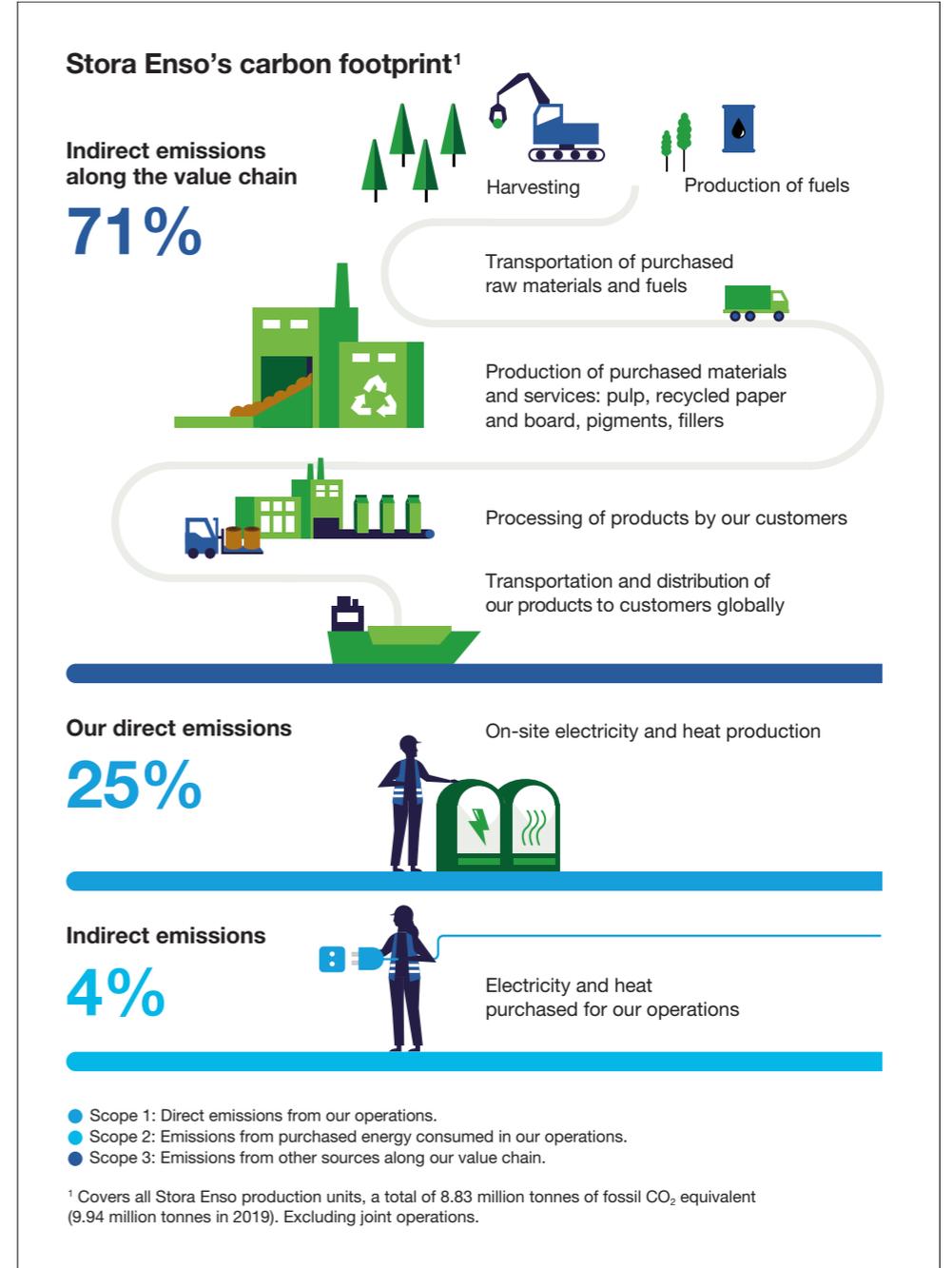
Sea transport accounts for approximately 89% of all our product transportation by weight and distance, while road and rail transportation account for 9% and 2% respectively.

Our commitment to science-based targets includes engagement targets for Scope 3. To reduce emissions in the value chain, Stora Enso commits to having 70% of its non-fiber raw material suppliers and downstream transportation suppliers in terms of spend set their own reduction targets by 2025, towards the aim of adopting science-based GHG reduction targets by 2030.

We use sustainability criteria in the tendering phase of our sourcing process and when collecting data on supplier performance. Since 2018, suppliers have been asked to respond to a set of questions about their CO₂ emissions. These criteria are part of every tender, regardless of previous contracts with the same supplier. For more information on how we work with our suppliers, see pages 60–63.

In addition, our target was to educate 100% of our customer-facing staff on the advantages of setting science-based targets by 2020. By the end of the year, 90% of our employees in the scope had completed the training, which will continue in 2021.

¹ Recommendations on Biomass Carbon Neutrality, WBCSD 2015.





Forests, plantations, and land use

Sustainable forest management safeguards biodiversity and helps combat climate change.

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Forest certification coverage for lands owned or managed by us

98%

Opportunities and challenges

Combatting climate change with forests

Forests and plantations are an increasingly important part of the wider global sustainable development agenda, particularly in relation to combatting climate change. As a renewable natural resource, wood represents a favourable alternative to fossil-based and other non-renewable materials. Growing trees absorb carbon dioxide (CO₂) from the atmosphere, and together with wood-based products act as carbon storage. The carbon remains in the fibers when trees are turned into products, and even through recycling. Sustainable forest management ensures that new generations of trees replace those that are harvested.

The role of forests in combatting climate change has been broadly recognised. The Intergovernmental Panel on Climate Change (IPCC) issued the [Climate Change and Land report](#) in 2019 that emphasised sustainable land management. The role of sustainable forest management is further emphasised in the EU Biodiversity strategy adopted in May 2020. It is also highlighted in the EU Forest Strategy Roadmap consultation from November 2020 that the forthcoming strategy will aim to ensure the sustainable management of all EU forests, maximising the provision of their multiple functions while enhancing their productive capacity. For Stora Enso, it is essential that any regional or national policy fully utilises the potential of sustainable renewable materials and supports the transition towards a circular economy.

Climate change entails physical challenges and opportunities for forests and plantations but also people, which highlights the importance of sustainable forestry as one of the solutions to climate change. Changing patterns of temperature, wind, and rainfall impact our operational environment. Well-managed forests and plantations can make ecosystems more resilient to negative impacts, and even benefit from the positive effects. Growing trees absorb CO₂. Forest health and growth must be ensured by managing forests sustainably throughout the forest life cycle.

Using forests or land for tree plantations may impact the human rights of forestry workers and local communities. Maintaining a good dialogue



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with local communities helps to ensure that their rights to, for example, property, self-determination, and cultural activities, are respected.

Global challenges such as population growth, the increasing demand for agricultural land, and the widening gap between the supply and demand for wood, require us to use natural resources even more efficiently, and to produce more raw materials from less land.

Our policies

Committed to sustainable wood and fiber sourcing

Stora Enso's policy on Wood and Fiber Sourcing, and Land Management covers the entire cycle of forest and tree plantation management. The policy requires sustainable forest management through responsible sourcing and land use – to safeguard the health and ecological functions of ecosystems and to help conserve biodiversity, soil, and water resources. To achieve this, we maintain an open dialogue with our stakeholders.

Other relevant policies that promote sustainable forestry include our:

- Environmental Guidelines – a more comprehensive overview of our policy objectives and how we work to achieve them.
- The Stora Enso Code – our code of conduct.
- Supplier Code of Conduct – our requirements for suppliers.

How we work

Ensuring the sustainability of fiber

Stora Enso's approach to responsible forest and tree plantation management is based on the economic, social, and environmental aspects of sustainability. Compliance with national legislation and regulatory obligations is only the starting point for our work. We actively support and implement voluntary forest conservation and restoration measures on lands owned, leased, and managed by Stora Enso, and in other areas where we purchase wood.

Stora Enso continued its cooperation with the World Wildlife Fund for Nature (WWF) in several countries in 2020. Initiatives included the New Generation Plantations (NGP) platform, which focuses on the institutional and technological aspects of responsible plantation management.

We are active members in numerous local and global forestry associations, networks,



Veracel is the first tree plantation company in Brazil to receive FSC recognition for preserving and responsibly managing ecosystem services.

and programmes. Stora Enso has been a member of the Forest Solutions Group (FSG) of the World Business Council for Sustainable Development (WBCSD) since the late 1990s and has co-chaired it since 2018. During 2020, we actively participated in the preparation of the Forest Sector SDG Roadmap Implementation Impact Report. We also continued to support and participate in The Forests Dialogue (TFD). The TFD is a 20-year-old platform for multi-stakeholder discussion and collaboration that has worked on the most pressing local and global issues facing forests and people for two decades.

In 2020, Stora Enso joined the Business for Nature call to action in the lead-up to the United Nations conference on biodiversity.

Stora Enso and the Forest Stewardship Council (FSC) have an international partnership agreement to establish a long-term strategic collaboration to develop and promote sustainable forestry. During 2020, the focus was on expanding FSC group certification among private forest owners in Finland, where forest owners are

increasingly interested in forest certification. Stora Enso promotes all main forest certification systems and is committed to the responsible sourcing of wood and fiber from only sustainably managed forests and tree plantations.

To strengthen the development of sustainable forestry, Stora Enso has established a long-term cooperation with the Swedish University of Agricultural Sciences (SLU). The main goal of the collaboration is to jointly pursue research projects to develop new knowledge within sustainable forestry. The activities focus on research projects formulated in four integrated collaboration areas: forest management for increased growth, forest management for increased biodiversity, remote sensing technology, and life cycle analysis. The collaboration will further strengthen the information exchange and competence development of Stora Enso and SLU staff.

Strategic approach to forests

To cover all aspects of sustainability in our forest and plantation management, we apply the same

Growing forests sequester CO₂

comprehensive wood procurement process in all our operating regions. Our own forests and long-term lease agreements secure a sustainable and transparent wood supply.

The Forest division's wood supply operations in Finland, Sweden, Baltics, and Russia cover the entire management cycle in forests – from planning to harvesting, logistics, and forest regeneration. The flexible utilisation of different wood sources is key in an efficient and reliable wood supply. We always make sure a new generation of trees replaces those that are harvested.

We use long-term planning to ensure our forest operations are preparing and adapting to the changing climate conditions. Stora Enso evaluates the risks and opportunities related to climate change and forest and land use through the annual Enterprise Risk Management (ERM) process, which forms an integral part of the Group's management approach (for more information, see **Financials 2020**).

Increased ambition for forest sustainability

In 2020, Stora Enso developed a new ambitious Forest Sustainability Strategy, building on the Group sustainability agenda. The strategy focuses on four areas: Carbon, Biodiversity, Land use, and Communities.

In *Carbon*, the strategic focus is on enabling the provision of superior climate benefits for Stora Enso's end-customers. The primary development areas are forest carbon sequestration potential and the reduction of value chain emissions in forestry operations. As growing forests absorb CO₂, our focus is on the positive substitution effect enabled by our products rather than maximising the carbon sink in productive forests. Stora Enso has carried out extensive research with SLU on the carbon balance in the value chain from forest to end-products.

In *Biodiversity*, our long-term strategic focus is to measure biodiversity holistically to be able to optimise wood production and biodiversity in our forests and tree plantations. We collaborate with SLU to develop indicators for measuring and monitoring the biodiversity impacts of our operations and create new methods to enhance



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Precision forestry using drone monitoring and artificial intelligence offers new opportunities to monitor forests and to increase their value for forest owners.

selected aspects of biodiversity in our forest management and wood procurement operations.

In *Land-use*, the strategic focus is on safeguarding ecosystem functions and optimising societal benefits. Stora Enso forest operations have a significant socio-economic contribution to rural communities. We aim to strengthen cooperation with local stakeholders and explore different land use options, such as wind farms and the use of forests for recreation.

In *Communities*, the strategic focus is on maintaining the prosperity and resilience of communities close to Stora Enso's operations – now and for future generations. Read more about our work with communities on pages 23–27.

Responsible forestry

Stora Enso's wood comes from three sources: company-owned forests, company-owned tree plantations, and third-party suppliers. In 2020, 87% (87%) of Stora Enso's wood came from managed semi-natural forests in Europe, most of which are privately owned. We work together with forest owners to identify sensitive forest

areas in need of protection. Our experts are trained to identify such areas and we regularly consult the authorities on these matters. Forest planning involves finding ways to optimise wood production and conservation.

In 2020, 13% of Stora Enso's wood came from tree plantations (13%). When establishing new plantations, we use internationally approved principles and forest certification standards. Our commercial plantations are also certified to ensure that all aspects of sustainability are taken into consideration. Stora Enso never establishes plantations in natural forests, protected areas, or water-sensitive locations. We only use land with low biodiversity value, such as former pastureland. Stora Enso's employees and forestry contractors are given on-the-job training in ecological management, and we regularly monitor the impacts of our operations on biodiversity, soil, and water resources.

As we recognise that our plantations are an integral part of local land use, we evaluate and define sustainable land use practices specifically for each location. After determining the scope

of expected impacts and possible remedies, we decide whether or not to proceed with a proposed project. Stora Enso subsequently remains in constant dialogue with stakeholders and strives to ensure that land contracts are legitimate and fair. For more information about human rights in land acquisition and management, see pages 12–16.

Forest regeneration

Sustainable forest management ensures that a new generation of trees replaces the harvested ones. We ensure that forests are regenerated and remain healthy also in the future. This is normally done through active planting or sowing, although in some areas active regeneration is complemented by natural seed dispersal, leaving seed trees standing in the harvesting area, or coppicing. In 2020, approximately 62 million tree seedlings were planted by Stora Enso.

In Sweden, where Stora Enso owns approximately 1.4 million hectares of forest, seedlings for regeneration sites are delivered from three Stora Enso-owned nurseries in central Sweden.

Protecting biodiversity

Sustainable forest management safeguards forest health and productivity and protects biodiversity – while securing the long-term availability of our renewable resources. This is why we closely monitor the management of the forests and plantations from which we source wood. Wood harvesting is planned to suit the particular characteristics of each harvesting site, making use of appropriate harvesting methods and technologies. Harvesting volumes are aligned with the long-term carrying capacity of particular forests and plantations.

In northern managed semi-natural forests, biodiversity is maintained and enhanced in both wood production and set-aside areas. As trees take many years or decades to mature, long-term forestry planning is essential. This involves ecological landscape plans and biodiversity assessments to identify, conserve, and restore vital ecosystems and ecological features. For examples on how we implement biodiversity management practices in northern forests and tree plantations, see page 54.

Stora Enso also cooperates with WWF Finland to promote the conservation and sustainable use of forests. This work includes promoting

Interview

New standards for biodiversity



Stora Enso wants to be a leader in biodiversity. "We want to set new standards and become thought leaders in this area. That takes time of course, but we want to invest in it. We continuously develop our methodology, increase our efficiency and make everyday considerations through adapted forest management," says **Johan Lindman**, SVP Global Forestry and Sustainability. "This may include setting aside areas of the forest to stimulate biodiversity, and in general, always managing the forest with biodiversity in mind." Learn more about the new forest sustainability strategy in our interview with Johan Lindman.

Read the full article at storaenso.com

alternative harvesting practices among private forest owners.

In fast growing tree plantations, the landscape typically consists of a mosaic of areas for both intensive wood production and biodiversity conservation.

In Brazil, our joint operation Veracel goes beyond regeneration by conserving and restoring areas of natural Atlantic Rainforest. All Veracel's tree plantations were established on degraded pasture lands, and no rainforest has been converted into plantations. When Veracel's

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plantations were established in 1991, less than 7% of the original Atlantic rainforest was left in the region following extensive logging and clearing for cattle ranching between the 1950s and 1980s. Since the plantations were established, Veracel has worked systematically to protect and restore local biodiversity.

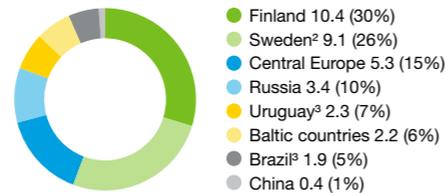
Approximately half of Veracel's 213 000 hectares of land are dedicated to rainforest preservation and restoration. Veracel aims to restore approximately 400 hectares of rainforest habitat every year by planting native species. In total, 7 200 hectares of forest have been restored between 1994 and the end of 2020. This work is part of a regional restoration programme that helps connect the remaining areas of valuable natural habitat to each other with forest corridors that enable wildlife to move more freely from one area to another. Veracel's significant contribution to the conservation of natural Atlantic rainforest and its rich biodiversity has been recognised by both the Brazilian authorities and international stakeholders.

The Veracel Station visitor centre, established in an area of preserved rainforest habitat, conducts research, conserves native and endangered ecosystems, and raises environmental awareness among visitors. Since 2015, the visitor centre has also developed ecotourism, with a special focus on birdwatching. Veracel Station typically hosts 4 000–6 000 visitors annually.

Veracel is the first tree plantation company in Brazil to receive FSC recognition for preserving and responsibly managing ecosystem services.

Wood procurement by region¹

35.0 million m³



¹ Total amounts of wood (roundwood and chips) procured within these regions for delivery to our mills (million m³, solid under bark). Excluding internal wood chip deliveries.

² Including wood procured from Norway.

³ Figures for Brazil and Uruguay include 50% of the wood procurement of our joint operations Veracel and Montes del Plata.

Case

Safeguarding biodiversity in Uruguay



Protecting the environment and biodiversity is a top priority for Montes del Plata, our 50/50 joint operation in Uruguay. Montes del Plata owns 190 000 hectares and leases 79 000 hectares of land, of which approximately 65% is planted with eucalyptus trees. The remaining is reserved for purposes such as cattle grazing and the conservation of native forests and special ecosystems.

Some of the actions taken by Montes del Plata to safeguard biodiversity over the years

include preserving local species, promoting beekeeping on company land, and educating the public at its environmental centre Bioparque M'Bopicuá. Bioparque M'Bopicuá has also released into the wild a population of collared peccaries (Pecari tajacu), a mammal species extinct in the wild in Uruguay.

Read the full article at [› storaenso.com](https://storaenso.com)

In Uruguay, our joint operation Montes del Plata continued its cooperation with NGO Aves Uruguay in 2020. For more information, see page 27.

Promoting sustainable forestry management through forest certification

All roundwood, chips, sawdust, and externally purchased pulp supplied to our mills come from sustainable sources. We use a range of tools to ensure this, and to guarantee the sustainability of each part of the forest management cycle. These tools include forest certification and third-party traceability systems such as the Forest Stewardship Council's (FSC) Chain of Custody/ Controlled Wood scheme, the Chain of Custody/ Due Diligence System of the Programme for the Endorsement of Forest Certification (PEFC),

and the ISO 14001 environmental management system. In addition, our Supplier Code of Conduct complements these tools by imposing strict contractual requirements on our suppliers.

We work actively with our stakeholders to promote sustainable forest management and the wider use of certification systems. As certification programmes cover all three aspects of sustainability (environmental, social, and economic), they are an important indicator of responsible forestry. We often work beyond certification requirements, for example with larger conservation areas, significant community investments, and by promoting societal benefits from land use.

We regularly audit our suppliers and work together with respected local institutions to ensure

everything is done according to the standards set by certification schemes and our own policies.

Improving forest growth

Stora Enso continuously works towards the long-term goal of improving the productivity and quality of company forests and tree plantations to sustainably enhance wood production per unit of land. Improved productivity and high-quality raw material help to maximise climate benefits by substituting fossil-based products. Tree breeding primarily targets increased biomass production (i.e. volume and density) and cellulose yield. Other objectives might include improved rooting or resistance to frost, drought, pests, or diseases, depending on local conditions and the species in question. We test and apply modern scientific tools for tree improvement and the management of genetic diversity in tree plantations. This may involve selecting 'elite trees' or conducting marker-assisted breeding and genetic engineering.

Our genetic engineering activities are in the research phase. As with traditional clone improvements, it will take many years to develop genetically engineered clones for commercial use. During 2020, we continued the process to establish field trials in areas totalling less than five hectares in Brazil. These trials fully comply with relevant national regulations. Stora Enso will not carry out any trials considered by the authorities to be unsafe or otherwise not permitted. We currently have no plans to plant genetically engineered trees in any of our commercial plantations.

Progress

Wood from sustainable sources

At the end of 2020, Stora Enso owned or managed lands covering a total area of 2.34¹ million hectares (2.35 million hectares in 2019). The majority of Stora Enso's owned or managed lands are located in Sweden. For more details, see the tables on page 53. We follow our progress in responsible forestry with a key performance indicator (KPI) that measures the proportion of land in wood production and harvesting owned or managed by Stora Enso that is covered by forest certification schemes. Our target is to maintain the high level of 96%. In 2020, coverage amounted to 98%¹ (98% in 2019).

¹ Including 100% of lands managed by joint operations Veracel and Montes del Plata. Excluding Tornator.



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The proportion of third-party certified wood in our total wood supply was 78% in 2020 (75% in 2019). We know the origin of all the wood we use and 100% comes from sustainable sources.

In 2020, the total amount of wood (including roundwood, wood chips, and sawdust) delivered to our mills was 35.0 million m³ (solid under bark) (36.3 million m³ in 2019).

In Russia, we continued to work with WWF. During the year, with Stora Enso's support, WWF Russia organised training related to the social aspects of forestry. At the end of the year, the total area covered by group forestry certifications in Russia was 1.3 million hectares (1.3 million hectares in 2019). Our Russian subsidiaries have been FSC certified since 2006, and the

lands managed by Stora Enso in Russia through long-term harvesting rights are included in the total certified area. For further details, see the table below. We also continued our support for the Boreal Forest Platform, a stakeholder forum organised by WWF Russia.

In Finland, Stora Enso offers FSC forest certification services to private forest owners. In 2020, the number of members in Stora Enso Wood Supply Finland's FSC group grew to 415 private forest owners (285 in 2019), corresponding to 79 000 hectares (over 54 000 hectares at the end of 2019).

Since 2011, Veracel has promoted group certification among its tree farmers in Brazil. Aspx, an association representing certified tree

farms, manages the certification process by using certificates granted by both FSC and Cerflor (PEFC). By the end of 2020, dual forest certificates had been obtained by 76 farmers (75 at the end of 2019) for areas totalling 38 000 hectares (38 000), including 16 000 hectares (16 000) planted with eucalyptus.

Stakeholder concerns and dialogues

Stora Enso recognises that the areas where we operate are of value to different stakeholders. We have therefore adopted an integrated approach to land use around our plantations. This includes applied innovative land use models in Uruguay and Brazil to benefit local farmers and communities as well as the company. For more information on these integrated land use practices, see pages 26–27.

In 2020, sustainable forestry was a stakeholder interest as environmental NGOs were widely calling for increased forest protection. In our stakeholder communications during the year, we stressed our commitment to sustainable forest management, forest certification, wood traceability, biodiversity conservation, and open stakeholder dialogues, and that we always ensure that all the wood we use comes from sustainably managed sources. We believe that the most sustainable way to protect high conservation value is through national and regional multi-stakeholder processes. During the year, Stora Enso engaged in regular dialogues with NGOs and other stakeholders. We also encouraged our business partners and NGOs to participate in such engagements.

Forests, plantations, and land owned by Stora Enso¹ as of 31 December 2020

Unit	Area	Certification coverage	Details of local landscapes and protected areas
Swedish forest holdings	1 394 000 ha, of which 1 145 000 productive forest land	PEFC and FSC for 1 394 000 ha	Protected areas amount to 416 000 ha and consist of productive or non-productive land which has been set-aside from wood production and infrastructure development either voluntarily or by legal requirements.
Wood Supply, Estonia	140 ha, of which 120 ha productive forest land		No protected areas within this area.
Montes del Plata plantations and lands, Uruguay (joint operation with Arauco)	190 000 ha, of which 109 000 ha planted	PEFC and FSC for 190 000 ha	Protected areas amount to 11 000 ha and consist of remnants of native ecosystems, such as grasslands and riparian forests, within the company's lands. Local landscape consists mainly of pasturelands and agricultural fields.
Veracel plantations and lands, Bahia, Brazil (joint operation with Suzano)	213 000 ha, of which 82 000 ha planted for pulp production	CERFLOR (PEFC) for 189 000 ha; FSC for 189 000 ha	Protected areas amount to 107 000 ha, including a 6 000 ha Private Natural Heritage Reserve, and mostly consist of native forest remnants at different stages of regeneration. Local landscape consists of pasturelands and agricultural fields cleared from Atlantic rainforest between the 1950s and 1980s.

¹ Including operations where Stora Enso's shareholding is at least 50% and size of the area exceeds 100 hectares. In addition to the forest and plantation areas listed above, Stora Enso owns 41% of Tornator, which owns 0.6 million hectares of forestland in Finland, 68 000 hectares in Estonia, and 12 000 hectares in Romania.

Forests and plantations managed by Stora Enso¹ as of 31 December 2020

Unit	Area	Certification coverage	Details of local landscapes and protected areas
Wood Supply, Russia ²	370 000 ha, of which 334 000 ha productive forest land	FSC group certificate 370 000 ha	Protected areas amount to 18 000 ha and consist of productive or non-productive land that has been set aside from wood production and infrastructure development either voluntarily or by legal requirements.
Plantations and lands, Guangxi, China	81 000 ha, of which 74 000 ha planted	Chinese Forest Certification Council certificate (PEFC) for 81 000 ha; FSC for 81 000 ha	Protected areas amount to 3 000 ha and consist of buffer zones and other important areas for the protection of watersheds and native flora and fauna. No pristine ecosystems are found in the leased lands. Local mosaic landscape includes agricultural crop fields, forest plantations, and settlements.
Montes del Plata	79 000 ha, of which 68 000 ha planted	PEFC and FSC for 69 000 ha	No protected areas managed by Stora Enso as they are excluded from lease agreements.
Veracel	11 000 ha, of which 5 000 ha planted	CERFLOR (PEFC) for 9 000 ha; FSC for 9 000 ha	Protected areas amount to 4 000 ha and consist of native forest remnants at different stages of regeneration.
Trial plantations, Laos	4 000 ha, of which 3 000 ha planted	FSC for 4 000 ha	Protected areas amount to 600 ha and mainly consist of traditionally protected remnants of native forests. The plantations are located within a mosaic of intensive shifting cultivation lands and protected areas. One Stora Enso's plantation area is located close to a National Biodiversity Conservation Area. The majority of the total area is covered by agroforestry production schemes.

¹ Areas managed through leasing or long-term harvesting rights. Including operations where Stora Enso's shareholding is at least 50% and the size of the area exceeds 100 hectares.

² Long-term harvesting right.



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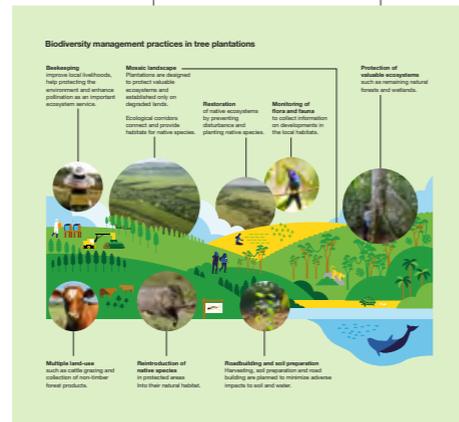
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Protecting biodiversity

We ensure that forests grow more than they are harvested, and that biodiversity is an integral part of everyday forest management.



See the full infographic Biodiversity in tree plantations [here](#).

Read more at ▶ storaenso.com/biodiversity

Biodiversity management practices in Northern forests

Decaying wood

Decaying wood provides an important habitat for a wide variety of forest species.

Retention trees

Provide continuum of decaying wood for forest species, such as birds who need it for nesting.

Forest structure

Variation in forest structure helps to maintain species and habitat diversity.

High stumps

During harvesting, we make artificial snags to increase the amount of deadwood.

Protection of valuable sites

In forest management planning, we identify and protect ecologically and culturally valuable sites.



Controlled burning

Creates suitable habitats for many fire-dependent species and enhances forest regeneration.

Soil and water protection

Harvesting, soil preparation and road building are planned to minimize adverse impacts to soil and water.

Buffer zones

Protect watercourses, connect and provide habitats for forest species and improve visual quality of the managed landscape.



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Economic agenda

Our renewable products meet consumer demand for more eco-friendly, circular solutions.

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Customers

We provide our customers with renewable solutions and innovations to replace non-renewable materials.

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30
of our production units were registered in Sedex

Opportunities and challenges

Increasing demand for sustainable solutions

Among the global megatrends impacting societies, markets, and businesses, climate change is one of our greatest challenges. Consumers, legislators, companies, and financial institutions are increasingly focusing on raw materials, CO₂ emissions, circularity, and waste reduction. Moreover, governments around the world are increasingly regulating the use of fossil-based materials, such as plastics.

The European Commission (EC) has adopted a Circular Economy Action Plan that will drive legislative reviews in the areas of sustainable product policy, circularity, and waste reduction. The EC Circular Economy Package, including the EU directive on single use plastics, creates a need for new innovations and provides business opportunities for Stora Enso.

Substituting fossil based and other non-renewable materials with wood fiber can also make a significant contribution¹ to the EU's targets for greenhouse gas emissions. Our massive wood elements for buildings are examples of solutions that store carbon and have a smaller carbon footprint than non-renewable alternatives.

The global and European policy developments, such as climate policies, emissions reduction targets, and circular economy and healthy living requirements set our pathway to the future. In the long term, we believe societies will increasingly choose to replace fossil-based and other non-renewable materials with renewable solutions, such as those offered by Stora Enso.

Our policies

Driven by our values

The Stora Enso Code constitutes a single set of values for all our employees. It explains our approach to ethical business practices, human and labour rights, and environmental values. These values are applied wherever we operate and in all customer relations.

¹ Material economics

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The pandemic has changed our buying behaviour and e-commerce is growing in specific areas, such as food.

In 2020, Stora Enso published its [Circular Design Guidelines](#). These principles will serve as guidance for all our units, functions, and divisions, whether they are planning to create new processes and products or to update existing ones. During the year, the Packaging Materials division published a [Circular Design Guide for Packaging](#) that focuses on designing for recyclability.

How we work

Value from customer engagement

Our expertise in renewable materials and products with high sustainability performance helps us meet the needs of our current and future customers. Our divisions have specific focus areas and products that cater to a broad range of customers. Their product portfolios include various boards for packaging and printing, several pulp grades, wood products for construction, biocomposites, energy pellets, paper products made from virgin and recycled fiber, lignin, formed fiber, and intelligent packaging. We foresee many possibilities for bio-based chemicals, bio-barriers,

lignin, and biocomposites to meet industry and consumer demands for solutions that can replace fossil-based materials.

Stora Enso promotes and participates in successful recycling schemes, particularly for paper and board. We also sell and reuse a variety of valuable by-products and residuals from our production processes. For more information, see page 36.

We actively work with our customers to improve material efficiency and reduce the environmental impact of our products and related processes through, for example, circular programmes and life cycle analyses.

We work with the World Green Building Council (WorldGBC) to help realise the global vision of achieving 40% less CO₂ emissions from building materials by 2030, and no net CO₂ emissions from building materials by 2050. To make this possible and to enable our customers to assess the impact of their buildings over the full life cycle, we develop Environmental Product Declarations (EPD) for all our building products. Read more about our EPDs on page 58. Furthermore, Stora Enso is co-chair

of the Business Case for Circular Buildings project, which is a collaboration between the WorldGBC and the World Business Council for Sustainable Development (WBCSD). The project aims to quantitatively and, where not possible, qualitatively articulate the business case for circular solutions in buildings.

We also share our sustainability expertise with customers. In 2020, our Paper Division introduced its new [“Sustainability Page and Hub”](#). The website contains information on the division's sustainable offerings and a hub where customers and other stakeholders can log in to download comprehensive information, such as FSC, PEFC, ISO, and Ecolabel certificates, Paper Profiles, Carbon Footprint Fact Sheets, and REACH declarations. In addition, our Wood Products division introduced a new sustainability [webpage](#), including document libraries for certifications and declarations.

We systematically measure customer satisfaction. In 2020, our Net Promoter Score, which measures the willingness of our customers to recommend our products and services to others, was 59% (56% in 2019).

In 2020, Stora Enso published its Circular Design Guidelines.

Safety and sustainability certifications

Ensuring the safety of all our products is essential in everything we do in order to safeguard the environment as well as the health and safety of our employees, customers, and end-users. Our in-house product safety and quality control systems cover product development, raw material sourcing, and the manufacturing and delivery of products. We require that our suppliers comply with our product safety requirements.

Statements from the US Centers for Disease Control and Prevention (CDC) and other medical institution confirm that there is currently no evidence to support the transmission of the Covid-19 virus associated with goods that are shipped over a period of days. Our logistics service providers are following local and national disease prevention and control guidelines in their operations.

Our products covered by specific safety regulations include food contact materials, materials for toys, packaging for pharmaceuticals, personal care and hygiene products, and construction materials. Our units producing these sensitive materials follow Good Manufacturing Practices, which are a set of widely recognised guidelines incorporated into EU regulations. In addition to following Good Manufacturing Practices, most Packaging Solutions Mills and all except two of our Packaging Materials Mills are certified according to recognised hygiene management standards. The remaining two mills in Packaging Material Division, Ostroleka Mill and Oulu Containerboard Mill, will be certified during the first half of 2021. Food safety compliance for essential raw materials is also verified with our suppliers prior to any purchasing decision. We provide our customers with information on product hygiene and safety aspects through compliance declarations.

We also follow legislation designed to protect human health and the environment. These include the EU's regulation for chemicals (REACH), Biocidal Products, the Classification, Labelling, and Packaging Regulation, as well as relevant food contact legislation and demands concerning food safety. When producing food contact materials, we only use chemicals that have been specifically approved for this purpose, after evaluating their safety and legal compliance. Our divisions have Product Safety Networks in place, and all our mills work to ensure that their products meet the relevant safety requirements. The ISO 22000, FSSC 22000, and FDA product safety certificates issued to many of our units further ensure that we apply a systematic approach to food safety issues.

ISO 9001, ISO 14001, ISO 50001, and ISO 45001 certified systems help our units to identify and meet customer requirements and to systematically improve product quality, environmental, energy, and occupational safety management. Many of our wood products are also CE marked to guarantee that they comply with the relevant EU legislation.

Many Stora Enso products are sold as FSC or PEFC certified or with other verification for responsible chain-of-custody and due diligence. These tools validate that the wood used in our products comes from responsibly managed sources, and that the entire journey of the raw material – from forest to end-user – has been

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verified by a third party. In 2020, our Biomaterials division began a collaboration with FSC and PEFC to include lignin in a chain-of-custody certification.

Our DuraSense® Eco PP, a biocomposite product that is based on renewable wood fibers, has numerous sustainability and safety features. Eco PP is available as FSC and PEFC certified and includes polypropylene that is based on bio-based materials that do not compete with food crops and are palm oil free. The product is also certified according to ISCC Plus (International Sustainability and Carbon Certification) and is approved for products that are in contact with food (European food contact approval, US Food and Drug Administration pending).

For more information about our responsible forestry and forest certification work, see pages 49–54. For unit-specific information on certificates, see pages 69–71.

Life cycle assessments and ecolabels

We collect product-specific life cycle inventory (LCI) data, which is typically used in Life Cycle Assessments (LCAs) conducted by our own experts, our customers, or brand owners, often in collaboration with academia, expert organisations, or industry associations.

During the year, the Wood Products division completed a set of EPDs (Environmental Product Declaration), which are publicly available for its entire product range, from classic sawn timber to engineered wood products, such as CLT (Cross Laminated Timber) and LVL (Laminated Veneer Lumber). These EPDs offer transparent, third-party verified information about the environmental performance of a product throughout its life cycle and are in line with relevant ISO and EN standards. EPDs provide important information to our customers when assessing the life cycle impacts of their projects, further processed products, or entire buildings. We are also able to support our customers in their own product LCAs. EPDs provide an important resource for customers that wish to apply for building certification schemes or ecolabels for their products.

In 2020, our Packaging Solutions division published an LCA on formed fiber which is produced at our Hylte Mill in Sweden. The LCA study focused on a coffee cup lid and a food bowl made of formed fiber, comparing them to the same products made from bagasse pulp, polystyrene, and Recycled Polyethylene Terephthalate (RPET). According to the LCA,



We drive the sustainable construction market through CO₂ efficient building solutions.

We are one of the founding companies of 4evergreen, a European circular economy platform.

formed fiber is the most low-carbon material choice on the market. The PureFiber™ product line contains no plastic or per- and polyfluoroalkyl substances (PFAS) and enables an approximately 75% smaller CO₂ footprint compared to alternative packaging materials, such as plastic or bagasse. In 2020, we also announced investments in more formed fiber capacity at Hylte Mill as well as our Qian'an Mill in China.

More than 90% of our Paper division's own brands are covered by one or more recognised ecolabel, including the EU Ecolabel, the Nordic

Ecolabel, and the German Blue Angel (Blauer Engel). Many of our graphical board brands are also available as EU Ecolabel certified. Ecolabel criteria cover the entire life cycle of a product, from the extraction of raw materials to production, product use, and disposal. The Blue Angel ecolabel criteria for graphic and recycled paper were revised in 2020, setting stricter requirements for elements such as discharges to water.

The environmental performance of our paper and board products is in line with the voluntary Paper Profile initiative. Paper Profile declarations have been calculated for all our paper and containerboard products and all main paperboard products.

Progress

Sustainability through co-creation

Customer needs play an important role when we develop products, services, and processes. We identify these needs by exchanging expertise with our customers on various sustainability topics.

We support our customers to meet consumer demand for sustainable products. For example, in 2020, we started a co-branding cooperation with Hakle, a German tissue products producer. Hakle's packaging includes a URL that links to Stora Enso's sustainable pulp website informing consumers about the origin of the pulp in these products as well as on sustainable forest management.

Advancing the circular bioeconomy

As the renewable materials company, Stora Enso operates at the heart of the circular bioeconomy. With our expertise, we can help customers achieve their circularity and renewability ambitions.

Stora Enso has been one of the lead companies behind the 4evergreen alliance – a European circular economy platform launched in 2019 that focuses on fiber-based packaging. The aim is to drive the recycling of fiber-based packaging and collaboration in circular design and materials to enable positive change in the circular economy.

Our Packaging Materials division also works with the Paper Cup Alliance to actively facilitate the recycling of paper cups in the UK, together with many of our customers. We work extensively on communication, advocacy, and recycling with the beverage carton industry through national, regional, and global platforms. These platforms include the Alliance for Beverage Cartons and the Environment (ACE), the EXTR:ACT platform for increasing beverage carton recycling in Europe, and the GRACE alliance for advocating, communicating, and improving the recycling of beverage cartons globally.

Similarly, at European level, in the food service industry, we are founding members of EPPA (European Paper Packaging Association) collaborating on topics such as food safety, LCA, advocacy, and recycling. At national level, we work through networks such as Pro-S-Pack in Germany, Alliance Gobelets Carton in France, and the Paper Cup Alliance and PCRRG (The Paper Cup Recovery and Recycling Group) in the UK.

In 2020, Stora Enso and the Helsinki Olympic Stadium signed a partnership to promote circular economy solutions. The aim is to develop low-carbon, eco-friendly operations at the stadium by promoting the use of renewable materials and circular economy solutions. Stora Enso explores reusing products as well as recycling used materials to give high-quality wood fibers a second life in new products that will be used at the stadium.



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Case

Delivering the necessities in challenging times



In a short time, Covid-19 has forced us to rethink many everyday things we've previously taken for granted. Working, travelling, eating, and shopping are suddenly not what they used to be. But even in the most difficult of times, basic needs must be met.

A key question is: what happens if there are disruptions in supply chains, or if goods cannot be delivered? Some supply chains are complex: a cup of coffee, for example, can require 29 companies to collaborate across 18 countries. But many daily necessities are

produced locally, close to us, requiring much shorter supply chains.

Stora Enso has an important role in delivering these necessities: our renewable material, wood, enables safe and hygiene packaging for food and beverages; delivers your online orders; and becomes the pulp for hygiene products and tissue papers. Importantly, it also grows back in sustainably managed forests and is widely recyclable.

Read the full article at ▶ storaenso.com

In 2020, Stora Enso announced that, together with Tetra Pak, it is initiating a feasibility study to assess the viability of building a large-scale recycling line for Used Beverage Cartons (UBC) at Stora Enso's Ostrołęka Mill in Poland. If realised, the annual capacity of the new recycling line would be 50 000 tonnes of UBC, which would significantly contribute to the recycling capacity for beverage cartons across Europe.

As a part of the business model for biocomposites, we are offering a take-back of products containing materials that can be used in our biocomposites production. The products can then be reprocessed at our Hylte Mill into new biocomposites granules and reused in new products. Compared with most pure recycled plastics, the inclusion of fibers helps the material maintain its qualities and be re-processed over more cycles. From 2021 onwards, the entire recycling process can be carried out in Hylte. In 2021, a waste material platform will be introduced with the ambition to find more waste streams to be used in the production of our biocomposites. The wood fibers used in biocomposites are mostly waste that would otherwise be used for energy generation.

Sustainability at the centre of innovation

In 2020, we continued to innovate to substitute fossil-based materials. In our innovation work, we used an internal checklist to ensure that sustainability and circularity are considered at all stages of every research and development initiative. Stora Enso's expenditure on innovation, research, and development in 2020 was EUR 146 million (EUR 141 million), which was equivalent to 1.7% (1.4%) of sales. Read more about our approach to innovation in **Financials 2020** and in **Strategy 2020**.

In 2020, we signed an agreement with Cordenka to jointly develop bio-based carbon fiber for industrial applications, such as wind energy rotor blades. We also announced a plan to build a pilot facility for producing biofoam which is a lightweight, fiber-based foam material for protective packaging and cushioning for fragile products such as consumer electronics. The pilot plant will be located at Stora Enso's Fors Mill in Sweden.

In 2020, Stora Enso announced its investment in dispersion barrier technology at its Forshaga site in Sweden. The investment enables the

development and production of paperboard with barrier properties that are easier to handle in a recycling process, have a lower carbon footprint, and are compostable in industrial facilities. The new equipment is expected to be taken into use during the second quarter of 2021.

In our Wood Products division, innovation work continued in 2020 with a focus on product and service development. For example, the School Concept was launched for designing and building sustainable schools. In addition, digital services for building designers, engineers and architects, such as BIM (Building Information Modelling) and sensor developments in wood products, were enhanced to develop even more sustainable, low-carbon and healthier wood products and buildings. These solutions can be applied to residential, office, and public buildings, such as schools and kindergartens. The solutions enable the design and maintenance of wooden buildings that draw on the full sustainability potential of low-carbon wooden buildings. This can decrease climate impact, promote healthier living, reduce chemicals in the environment, enhance the long-term durability of buildings, and drive a more circular approach to materials and carbon.

A responsible and trusted supplier

By the end of 2020, 30 (25 in 2019) of 61 Stora Enso's production units were registered in the Supplier Ethical Data Exchange (Sedex). Sedex is a platform where we can share sustainability information with multiple customers in an agreed format and level of detail. By the end of the year, 16 of the 30 units had been audited through Sedex Member Ethical Data Audits (SMETA) at least once since 2011. Due to Covid-19 restrictions, only one SMETA audit was carried out in 2020.

Our containerboard business moved from the Packaging Solutions division to the Packaging Materials division in January 2020. As the integration was still underway in the beginning of 2020, not all Packaging Materials mills were Sedex audited during the year. Containerboard mills will be audited in 2021. All summary audit reports are made visible to customers in Sedex.

Stora Enso is also a member of the ethical supplier rating system Ecovadis. Ecovadis' sustainability scorecards provide detailed insight into environmental, social, and ethical risks in the supply chain. Since 2017, we have been included in the top 1% of industry supplier performers in sustainability.



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We have strict requirements for all our suppliers and support them in becoming more sustainable.



96%
of supplier spend was covered by our Supplier Code of Conduct

Opportunities and challenges

Responding to new opportunities and requirements

As a company with over 20 000 suppliers around the world, Stora Enso can use its purchasing power to help global supply chains become more sustainable. However, reaching a comprehensive understanding of a supplier's sustainability performance, including their potential impacts on human rights, remains a challenge, even with strict sourcing processes and criteria in place.

The Covid-19 pandemic has brought on uncertainty for business and supply chains globally. Stora Enso will continue to proactively monitor and respond to the pandemic to ensure minimal impact on our ability to purchase materials, serve customers, and run operations.

Stora Enso runs sourcing and logistics operations in various regulatory environments. Current developments in national and EU-level legislation on supply chain due diligence, for example, may affect the way we conduct sourcing and logistics activities in the future. In addition, we respond to stakeholder demands concerning topics, such as supply chain transparency and reducing the use of plastic. By passing on these types of requirements to our direct suppliers, we are able to drive positive change further down our supply chains.

As Stora Enso continues to commercialise its renewable innovations, we need new types of machines and materials for the manufacturing of these new products. Sourcing for the production of RFID tags, formed fiber, and lignin for lithium-ion batteries, for example, is gradually expanding our supplier base to cover new product categories.

Our policies

Company-wide commitment to responsible sourcing

The Stora Enso Supplier Code of Conduct (SCoC), which was updated in 2020, is the cornerstone of our approach to responsible sourcing. It is a legally binding document that imposes sustainability requirements on our suppliers concerning human and labour rights, occupational health and safety, the environment, and responsible business practices. The SCoC applies to all our sourcing categories globally.

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Several other Stora Enso policies and documents also support responsible sourcing, including our:

- Stora Enso Code – our code of conduct.
- Sourcing Policy, Logistics Policy – our statements on our sourcing and logistics framework and objectives.
- Sourcing Guideline, Logistics Guideline – define how sourcing and logistics should be executed, managed, and controlled.

Through our Supplier Code of Conduct, we also implement several policies and guidelines, such as our Policy on Wood and Fiber Sourcing, and Land Management, Chemical Management Guideline, and Human Rights Policy.

How we work

A robust process for on-boarding suppliers

Materials and products sourced by Stora Enso include wood and fiber-based materials such as pulp and Paper for Recycling (PFR), chemicals, fillers, energy, fuels, and spare parts, as well as maintenance, logistics, and IT services. In 2020, purchases of materials, goods, and services represented 50% of our total variable cost (49% in 2019) while fiber procurement accounted for 50% (51%).

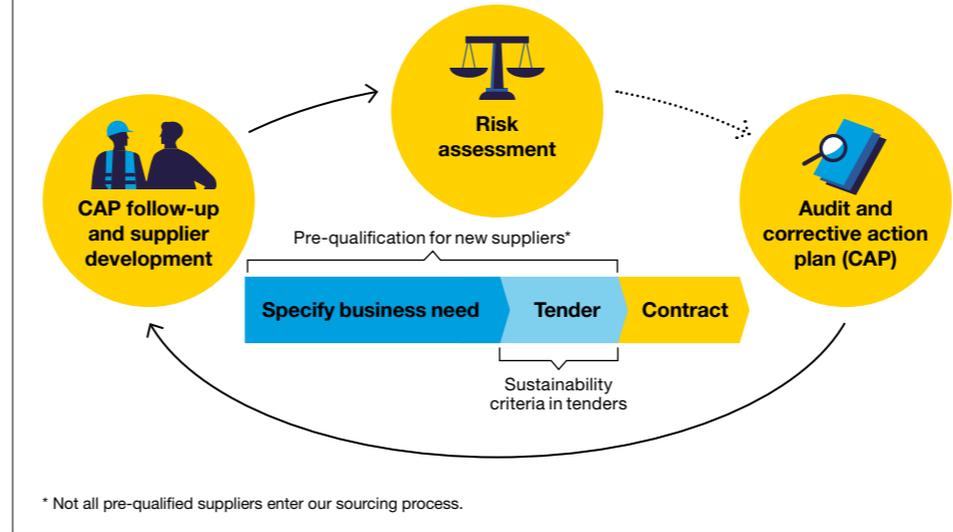
Sourcing is a centrally led function at Stora Enso that provides the entire Group with a systematic approach to purchasing goods and services. Sourcing initiatives are reviewed and resolved by dedicated committees that meet when the sourcing need is specified, during the tendering process, and when a contract is drafted.

All suppliers wishing to do business with Stora Enso must first pre-qualify during tendering or, at the latest, before a contract is drafted. To pre-qualify, suppliers must complete a questionnaire, submit confirmation of their compliance with our SCoC, and complete our safety management online training.

We use sustainability criteria in the tendering phase of all sourcing, regardless of previous contracts with the same supplier. The criteria help us make more balanced sourcing decisions and create incentives for suppliers to invest in sustainability reporting. To fulfil the criteria, suppliers need to respond to a set of questions about their financial stability, occupational accident rates, and carbon dioxide

Our process for responsible sourcing

Risk assessments and audits can be conducted prior to pre-qualification and at any stage of the supplier contract.



(CO₂) emissions. In 2020, we began to more systematically collect the data received through this process (read more in the Progress section of this chapter). Collecting data on our suppliers' CO₂ emissions helps us understand where they are in terms of setting reduction targets for their greenhouse gas emissions. This also contributes to Stora Enso's science-based targets which include a commitment to ensure that 70% of our suppliers set their own reduction targets by 2025.

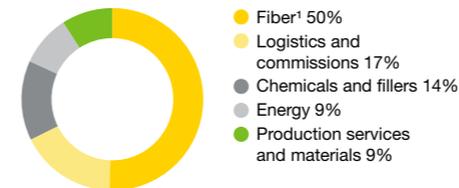
Supporting and monitoring our suppliers

In addition to enforcing our SCoC, we help our suppliers improve their sustainability performance. Our deep dives combine desktop reviews and on-site visits to help us better understand specific supply chains and support suppliers in improving their operations. In addition, when not restricted by external factors such as the Covid-19 pandemic, we conduct on-site visits and commission audits by third-party auditors to monitor and improve supplier performance. Focused audits are done based on risk assessments or concerns raised by internal or external stakeholders.

We have automated our supplier risk assessments by integrating our sustainability risk mapping tool into the company's main sourcing reporting system. Based on a supplier's environmental, social, and governance (ESG) risk profile, they may be selected for a third-party sustainability audit.

Breakdown of raw material and service costs

% of our total variable costs



¹ Wood, Paper for Recycling, and purchased pulp

Any suspected SCoC non-conformances identified during supplier visits or audits, or brought to our attention through our many grievance channels, are duly investigated. The findings are discussed, and a corrective action plan is devised together with the supplier in question. The supplier must commit to the plan, and our purchasers follow up on its implementation. If a supplier does not take the necessary corrective actions, new discussions are held to examine the reasons, and at a higher management level if necessary. In cases where a supplier is not willing to improve their performance, the relationship is terminated.

Contractors

Some of our suppliers are contractors hired for long-term work, such as in forest and plantation management, and others on a shorter-term basis, for example in large-scale investment or mill maintenance projects. Our SCoC and sourcing process applies to all contractors. While contractors are primarily responsible for their own employees, we strive to ensure that everyone working on our premises is treated fairly and receives adequate safety training.

Pulp procurement

Most of the pulp used in Stora Enso's operations is produced internally at our mills. For specific quality and logistical reasons, a small proportion of the pulp is purchased from external suppliers. As with wood, we ensure that all this pulp is sustainably sourced. For more information about our wood procurement, see pages 49–54.

Paper for Recycling

Stora Enso sources paper for recycling (PFR) from local authorities and waste management companies. For more details on our PFR use, see pages 36 and 38.

Progress

New Supplier Code of Conduct

Stora Enso's key performance indicator (KPI) for responsible sourcing measures the proportion of our total supplier spend covered by our SCoC, including all categories and regions. By the end of 2020, 96% of Stora Enso's total spend on materials, goods, and services was covered (96% at the end of 2019), which exceeds our target to maintain the level of 95%. Joint operations,



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intellectual property rights (IPR), leasing fees, financial trading, government fees such as customs, and wood purchases from private individual forest owners are not included in our total supplier spend.

We updated our Supplier Code of Conduct in 2020. During the process, we engaged with our stakeholders through focus group discussions, where we introduced the planned updates and requested feedback from our suppliers, customers, and investors. We organised five focus group sessions with participants from 41 companies. The stakeholder feedback helped us consider more perspectives and validated our updates on topics, such as data privacy, climate change, and reasonable remuneration for employees. The updated code of conduct will be valid from 2021.

Due to travel restrictions related to the Covid-19 pandemic, we were not able to conduct supply chain deep dives in 2020. We did, however, continue to monitor one supply chain in China and one in the USA, which both have been targets of previous deep dives. In China, after switching to a coal supplier with a significantly better sustainability performance than our previous supplier, we continued to look for more sustainable alternatives to coal which is currently the only feasible energy source for an industrial facility as large as Stora Enso's Beihai Mill. In the USA, our demonstration plant in Raceland, Louisiana, converts cellulosic biomass into highly refined xylose sugars. For feedstock, the plant purchases bagasse, a residual from the sugar-making process, from a nearby sugar mill. We continued to monitor labour rights in the bagasse supply chain in 2020 to ensure that working hour schedules do not have adverse impacts on contractor health and safety. Our Biomaterials division announced the permanent closure of its US operations, along with the demonstration plant, in January 2021.

In 2020, we began measuring the share of contracted suppliers, by spend, that have provided the safety and/or CO₂ emission data required by our sustainability criteria during the

We updated our Supplier Code of Conduct in 2020.



Chemicals and fillers represented 14% of our total variable cost in 2020.

tendering phase. During the year, we were able to increase this share from less than 30% (at the end of 2019) to 77% (at the end of 2020).

We also completed a "future proof" study that provides insight into how we can improve the sustainability of the products and services we procure in the long term. The goal was to identify categories where more sustainable solutions may be available now or in the near future. The study provided new inspiration, such as ideas for more sustainable chemical options both in products and processes, but also confirmed that we have been focusing on the right areas.

During the year, we also updated our standard payment terms to suppliers by extending our payment timeframe from 60 to 90 days, recognising legal restrictions in some countries, but excluded small and medium-size suppliers from this change. This exclusion means

that we will continue to pay our smaller suppliers within the previous, shorter payment timeframe to help them remain financially stable.

Steps to decarbonise our sea logistics

As a Clean Cargo Working Group member, Stora Enso has access to supplier-specific CO₂e emissions data on sea logistics. In 2020, we began connecting this data with information about the shipping routes of our cargo, with the goal to identify opportunities to decarbonise the transport of our goods. The resulting real-time hourly updates on supplier CO₂e emissions, and consequent improved visibility, will help us optimise the cost, service, and sustainability aspects of our logistics.

As an example of collaboration to reduce emissions in our supply chain, a carbon pact between Stora Enso and Maersk was brought to

a close in 2020. The agreement, in place 2015-2020, aimed to reduce Stora Enso's CO₂ emissions from ocean transportation with Maersk by 10% per container transported over the period. By the end of the agreement, a reduction of approximately 25% was achieved, well exceeding the target.

Occasionally, people board our chartered sea logistics line from Central Europe to the Nordic countries without permission and undetected. In 2020, our sea logistics suppliers recorded one such case of three people found hiding (three cases and 11 people in 2019). Detailed records show that the people were treated with dignity and respect onboard and ensured a safe and humane return into the custody of local authorities when the vessel returned to Central Europe. In addition, five people entered a truck transporting our goods in Belgium and were found before the truck left the country. All five were released into the custody of

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Case

Renewing our supplier code with radical engagement



While we all want all supply chains to become fully sustainable overnight, it's essential that suppliers can feel that fulfilling requirements is within their reach, **Johanna Pirinen**, SVP Sustainable Sourcing and Logistics at Stora Enso, writes in her blog post.

Stora Enso refreshed its Supplier Code of Conduct, which sets the company's requirements for suppliers, in 2020. From the beginning, it was clear that we wanted to be radically transparent and to hear what

others had to say. We ran several focus groups online, with participants representing some of our biggest suppliers, sustainability-oriented customers, and an investor.

What was considered fully acceptable in business a few decades ago, might be completely out of the question today. To be a leader in doing the right thing, we need to stay alert in a changing world and work together with our suppliers and partners.

Read more > storaenso.com

the local police. For more information about how we manage potential human trafficking, see our annual [Slavery and Human Trafficking Statement](#).

Promoting supplier safety

Stora Enso's commitment to safety also extends to its suppliers and contractors. In 2020, safety was strongly highlighted during our global Supplier Day. In addition, during Stora Enso's Safety Week 2020, we held three webinars for suppliers to further communicate our expectations on sustainability and especially safety. One of the webinars was held in Chinese for the first time to better reach our suppliers in China.

In 2020, our Sourcing function analysed all accidents related to machines, such as reach stackers and telescopic handlers, to identify safety improvement needs and to suggest such improvements to the machine supplier.

Using a Group-wide safety reporting platform, we continuously monitor contractor accidents to recognise patterns and to identify those with an unacceptably high accident performance compared to their peers. When such behaviour is indicated by statistics, we take action to mitigate it by, for example demanding the supplier to conduct root cause analyses and provide corrective action plans. After a decreasing trend in contractor accidents over several years, the number of cases increased slightly in 2020 and tragically, two fatalities occurred in our Guangxi forestry operations in China, both involving contractor employees. For more information, see page 21.

Auditing during the pandemic

Because of travel and safety restrictions implemented due to the Covid-19 pandemic, we were not able to conduct deep dives or on-site sustainability audits of suppliers on our regular scale during 2020. To make up for this, we piloted online audits, where we successfully conducted virtual site tours and document reviews to confirm, for instance, that important training had been given to employees and performed virtual site visits. During 2020, a total of 22 Stora Enso suppliers were audited through third-party sustainability audits (62 in 2019), including five audits (17 through the HSEQ (Health, Safety, Environment, and Quality management) audit cluster in Finland. The numbers include both online and physical third-party audits.

Three of the third-party supplier audits were online audits. Our experience is that with

suppliers that already have a good understanding of sustainability, online audits can provide equally valuable information compared to on-site audits. The challenges of online auditing, on the other hand, include losing the first-hand feel of supplier premises and the opportunity to raise awareness of sustainability topics among those suppliers that are less experienced with them.

The audits continued to focus on suppliers with heightened sustainability risks, as identified by our risk assessment. By the end of 2020, 51% of our identified high-risk suppliers, by spend, were covered by third-party sustainability audits (28% in 2019).

As in previous years, the audits revealed non-conformances particularly related to working hours, basic worker rights, and emergency preparedness. Several non-conformances were also related to missing documentation and policies. We create corrective action plans for all non-conformances and follow up on them.

In addition to the broader supplier sustainability audits, we conducted a third-party supplier audit of selected contractors on how they have prepared for and executed the prevention of Covid-19 while working on the Oulu conversion project. For more information, see page 20.

Suspected violations of our Supplier Code of Conduct are brought to our attention through our many channels. When a Stora Enso employee or a third-party working for us is involved, these cases are included in our investigation of potential non-compliance cases, presented on page 29.

No supplier relationships were terminated in 2020 (none in 2019) based on findings or follow-ups resulting from third-party audits or our dialogue with suppliers. However, one supplier relationship was suspended due to the release of untreated wastewater directly into a nearby sea lagoon. The immediate risk was eliminated quickly by re-directing the wastewater into the municipal system, but we continue our dialogue with the supplier to encourage and help them to find a systematic and long-term sustainable solution. In another case, we transferred some of our order volumes from one supplier to another due to safety misconduct while also supporting the supplier to identify improvement opportunities through an audit and continuous dialogue. In addition, one supplier contract was not renewed due to misconduct related to business ethics.



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We continuously keep investors informed of our sustainability progress and future direction.



EUR 1 506 million
total amount of Stora Enso's
outstanding green bonds

Opportunities and challenges

Growing interest in sustainable investing

Investors are increasingly recognising the importance of corporate sustainability in their investment decision-making by exploring ways to integrate environmental, social, and governance (ESG) performance into their investment strategies. In addition to the growing interest in sustainability aspects and precautions taken against Covid-19, investors perceive sustainability as a valuable competitive advantage for companies. Transparent sustainability reporting is seen as an important tool in identifying investment opportunities that can generate long-term shareholder value. Hence, companies are encouraged to conduct their business more sustainably. Simultaneously, investors expect financial rewards from their investments.

At Stora Enso, we believe that long-term financial success results from truly sustainable business. Stora Enso's Investor Relations work is guided by several laws and regulations, including the EU's Market Abuse Regulation (MAR), the Finnish Securities Markets Act, Nasdaq rules in Helsinki and Stockholm, and the standards of the Finnish Financial Supervisory Authority. More climate-related reporting obligations are expected through the EU Taxonomy in the coming years. Stora Enso monitors the progress of the taxonomy and is prepared to develop its reporting aligned with the new framework.

Our policies

Guiding our Investor Relations

- Company policies and guidelines related to Stora Enso's Investor Relations include our:
- Disclosure Policy – a set of rules covering all our communication with investors and other stakeholders. It encompasses insider guidelines, silent periods, communications governance, and communications procedures.
 - The Stora Enso Code – our code of conduct, applied to all our operations around the world, including Investor Relations.

How we work

Sustainability as a key element

A growing number of investors are committed to integrating ESG factors into their investments.



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Aspects of sustainability, such as combatting climate change and sustainable forest management, are important to Stora Enso's investors. Our main shareholders are long-term investors that place high value on sustainable business practices, and continuously monitor and evaluate our performance. Stora Enso's investors see sustainability as a business opportunity for the company with its renewable solutions. For more information on how we create value through a sustainable business model, see **Strategy 2020**. For details of Stora Enso's ownership distribution, see **Financials 2020**.

Timely and transparent communication with investors is a top priority for Stora Enso. We actively maintain open dialogue with our investors on ESG matters through conference calls, seminars, roadshow meetings, webcasts and face-to-face meetings when possible. Due to Covid-19, all investor meetings were held virtually after mid-March 2020, without compromising our level of activity. We also regularly share updated information on our sustainability performance with investors in our Interim and Annual Reports, web updates, and investor newsletters. Furthermore, we participate in sustainability events of interest to investors. For more information about our investor relations, see storaenso.com/investors.

In 2020 we started reporting against the standards of the Sustainability Accounting Standards Board (SASB). For more information about SASB, see **Financials 2020**. For our climate-related risks and opportunities with reference to the Task Force on Climate-related Financial Disclosures (TCFD), see **Financials 2020**.

During the year Stora Enso also continued to engage with the Prince of Wales' Accounting for Sustainability Project (A4S). The A4S was established by The Prince of Wales in 2004, and it aims to inspire action by finance leaders to drive a fundamental shift towards resilient business models and a sustainable economy. Stora Enso joined the A4S in 2018.

In 2020, we started to report against the SASB standards.

Stora Enso's Sustainable Finance strategy is an integrated part of our overall strategy. Stora Enso aims to have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its targets. In order to accomplish this, our emphasis is on debt capital markets funding. Stora Enso's long-term goal is to secure funding partners that have sustainability as a fundamental part of their agenda. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of investment decisions and credit evaluation.

Stora Enso has an undrawn EUR 600 million Revolving Credit Facility (RCF) loan signed in 2017 where part of the pricing is based on Stora Enso's ability to reduce greenhouse gas emissions per tonne of pulp, paper, and board produced, in accordance with the Science Based Targets initiative.

Stora Enso has a Green Bond Framework as part of its Sustainable Finance strategy. The ongoing ambition is to offer fixed income instruments that support sustainability-focused investors, and to report the direct environmental impacts of specific investments and business activities. The Green Bond framework is based on and aligned with the international Green Bond Principles (GBP) formulated by the International Capital Market Association. The framework lists the possibilities and limitations of the project categories that Stora Enso has defined as eligible for green funding.

Progress

ESG topics embedded into investor relations activities

During the year, we continued our strategy to enhance the availability of ESG information to investors, and to prioritise Stora Enso's participation in questionnaires and assessments for the ESG index and ratings schemes that are most material for our investors. Investors were especially interested in Stora Enso's new Forest division and the change in the valuation method related to our forest assets in the Nordics, as well as in renewable solutions that replace fossil-based materials. In 2020, Stora Enso organised a Capital Markets Day and provided an update on our strategy, including our three focus areas for growth, market growth drivers and a review of all our divisions. Read more at storaenso.com/investors.

Interview

It all starts in the forest



"We create value from our forests by increasing long-term yield, optimising our land base, and securing financial flexibility," says **Jari Suominen**, Head of Stora Enso's Forest Division, in his interview. "Our own forests and long-term wood supply agreements secure a cost-efficient, stable, and secure supply for our mills and stabilise wood market volatility. With sustainable forest management and R&D, both the returns and the value of forest assets can be increased."

Stora Enso has a strong foundation for future climate work because forests and wood-based products have a key role in mitigating climate change. We safeguard forest health and productivity, combat climate change, protect biodiversity, and secure the long-term availability of our renewable resources. The essential thing is that we do all these simultaneously.

Read the full article at > storaenso.com

For more information about our investor activities during the year, see Capital Markets in **Financials 2020**.

Sustainable finance and green bond use of proceeds

Stora Enso issued its first green bonds in February 2019. In April 2020, we issued a new five-year SEK 1.7 billion green bond and a volume increase to the same bond in June 2020, with the total size of SEK 3.4 billion. In November 2020, we issued our first euro green bond with a ten-year maturity and EUR 500 million in size. By the end of 2020, the total amount of Stora Enso's outstanding

green bonds amounted to EUR 1 506 million (EUR 670 million in the end of 2019).

In 2020, the proceeds from green bonds were used to finance sustainable forest acquisition and management in Sweden, reduce greenhouse gas emissions at our Maxau Mill in Germany, and develop a production line for cross-laminated timber (CLT), a high-performance low-carbon building material, at our Gruvön Mill in Sweden and Ždírec sawmill in the Czech Republic. For more information about our outstanding green bonds, impact reporting and the impacts of the proceeds, see storaenso.com/greenbonds.

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ESG indices and other external recognition in 2020



Euronext Vigeo
Stora Enso is listed in the Euronext Vigeo Europe, and Eurozone 120 indices as one of the 120 most advanced companies in terms of environmental, social, and governance (ESG) performance.



STOXX ESG indices
Stora Enso is included in several STOXX ESG indices. These indices rate leading global companies according to ESG criteria.



ReportWatch/Comprend
Stora Enso's Annual report 2019, including the Sustainability report, received the highest A+ ranking among more than 300 reports globally.



MSCI
In 2020, Stora Enso maintained a rating of AA in the MSCI ESG Ratings assessment. Stora Enso is included in several of MSCI's ESG indices.



ISS ESG
Stora Enso rated "Prime" with a rating of B- by the ISS ESG Corporate Rating regarding sustainability performance. Score by the Institutional Shareholder Services (ISS).



WBCSD
Stora Enso's Sustainability Report 2019 was included in the top ten sustainability reports globally according to the 2020 Reporting matters publication by the World Business Council for Sustainable Development (WBCSD).



ECPI Ethical Indices
Stora Enso is included in the ECPI EMU Ethical Equity and ECPI World ESG Equity indices, which covers ESG criteria.



FTSE4Good Index
Stora Enso is included in the FTSE4Good Index Series. These indices measure the performance of companies demonstrating strong ESG practices.



Ecovadis
Stora Enso was included in the top 1% of the Ecovadis ethical supplier rating system, and achieved the highest recognition level (Platinum).



Solactive Europe Corporate Social Responsibility Index
Represents European securities that are screened in the field of Corporate Social Responsibility. This includes the following aspects: human rights, human capital, environmental social impact, market ethics and corporate governance. The index is a successor index of the Ethibel Sustainability Index Excellence Europe.



CDP
Stora Enso is included in CDP's Climate List, which identifies the global companies that are taking leadership in climate action.



Most sustainable company
Stora Enso was ranked the most sustainable listed company in our sector in Sweden by Dagens Industri, Aktuell Hållbarhet, and Lund University School of Economics and Management.

OMX Sustainability Finland index
Stora Enso is included in the NASDAQ OMX Sustainability Finland index.

Transition Pathway Initiative (TPI)
In February 2020, Stora Enso was top-ranked in greenhouse gas management and performance by the TPI. An asset owner-led and asset manager-supported global initiative, the TPI assesses companies' preparedness for transition to a low carbon economy, supporting efforts to address climate change.



Sustainability

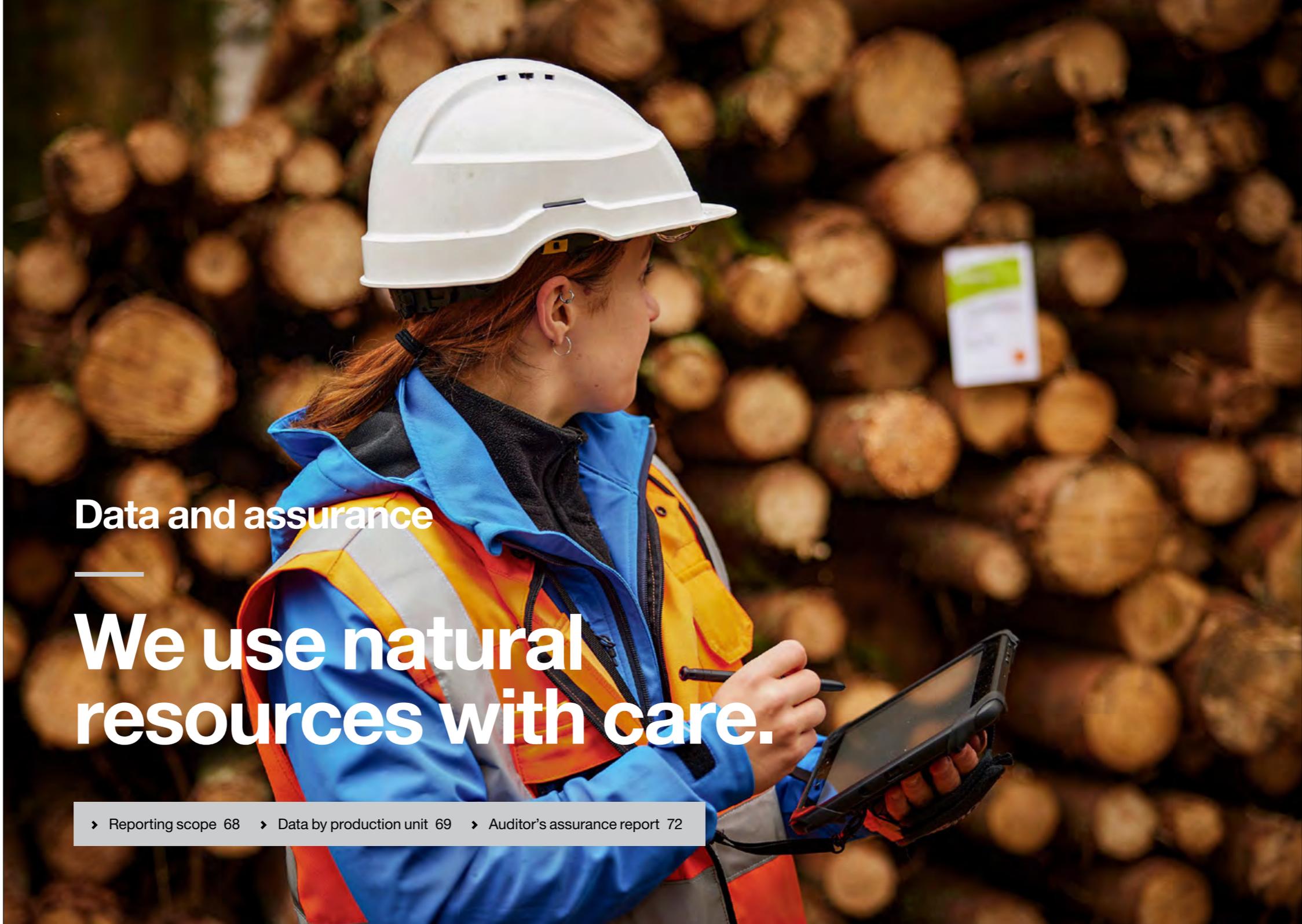
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Data and assurance

We use natural resources with care.

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Reporting scope

At Stora Enso, we regularly review the priorities in our Sustainability Agenda and ensure that our reporting duly addresses them. When defining the materiality of issues impacting our sustainable business model, we consider the expectations of our major internal and external stakeholders. For more information on our approach to materiality, see page 7.

Data boundaries

Unless otherwise stated, the Group's consolidated performance data expressed in this report covers the parent company, Stora Enso Oyj, and all companies in which we hold over 50% of voting rights directly or indirectly. The consolidated figures and our reporting on human rights, safety, community, and forests, plantations, and land use also include the 50% owned joint operations Veracel in Brazil and Montes del Plata in Uruguay, due to their materiality to the Group's sustainability impacts and stakeholder interest.

Consolidated environmental and energy data covers our production units. Stora Enso's sawmills and converting facilities are excluded from water, energy, and certain CO₂ indicators that are normalised per tonne of sales production unless otherwise specified in the respective footnotes. This is due to the lower materiality of sawmills and converting facilities in the Group's related performance and different metrics for sales production (cubic metre and square metre, respectively), compared with board, pulp, and paper mills (tonnes).

In our environmental and energy reporting, divestments and closures are managed according to the international Greenhouse Gas Protocol. This means that when necessary, figures for historical performance are recalculated following the removal of divested units from the baseline. However, closed units are included in the environmental and energy targets and trend

calculation baselines, as per internationally accepted rules.

Human Resources (HR) data is derived from separately collected statistics. Unlike in our financial reporting, consolidated HR data in this Sustainability report excludes employees of our 50% owned joint operations Montes del Plata and Veracel. The HR data presented covers our permanent and temporary employees as of 31 December 2020 and are expressed as a headcount (rounded to the nearest 10). Certain administrative functions and sales offices are not included in the Group's consolidated occupational health and safety (OHS) data due to availability, relatively small headcount, and lower occupational safety risk compared to production units.

For more details, see our [online appendix on area-specific data boundaries](#).

Financial figures in our sustainability reporting are reported in accordance with International Financial Reporting Standards (IFRS) as applicable.

Significant changes during 2020

During the year, Stora Enso divested a sawn construction timber mill at Pfarrkirchen in Germany and closed one standard newsprint paper machine at Hylte, Sweden. A new unit at Hylte started the production of formed fibre food service products, and the Oulu Mill in Finland was converted from paper into packaging production.

During 2020, our China packaging units started to increasingly outsource needed workforce to further improve operational flexibility with changing market situations, having an effect on the Group's reported HR figures.

For more information on the employee impacts of the Group's restructuring during the year, see [Support in restructuring situations](#).

For more information on the Group's acquisitions and disposals, see note 4 in **Financials 2020**.

In accordance with the GRI Standards

We also prepare our reporting in accordance with the GRI Sustainability Reporting Standards: Core option. Our reporting covers all the General Disclosures as well as the topic-specific GRI Standards we deem material. Our [GRI Content Index](#) lists our disclosures with reference to the GRI Standards and refers to the locations where these issues are addressed in our reporting. The location references are complemented in the index with additional information, such as reasons for omission as necessary.

Impacts that make sustainability topics relevant to us may occur outside operations owned by Stora Enso, or they may only be material for some of our operations or locations. When our reporting on a sustainability disclosure only concerns specific units, geographical regions or other data collection boundaries, based on the identified materiality, this is specified in connection with the respective disclosure.



Implementation of SASB Standards

In 2020, Stora Enso also started to report in accordance with the standards of the Sustainability Accounting Standards Board (SASB), primarily targeted for investors. The most relevant SASB standards for Stora Enso are Forest Management and Pulp & Paper Products sector standards. For more background and our SASB content index, see the Capital Markets chapter in **Financials 2020**.

External assurance

This report has been verified by an independent third-party assurance provider in accordance with the voluntary external assurance practices followed in sustainability reporting. The assurance report appears on page 72. PwC has provided a limited level of assurance covering the entire contents of this report, based on an assessment of materiality and risk. For the sixth year running, a level of reasonable assurance has been provided for Stora Enso's reporting on direct and indirect fossil CO₂e emissions (Scopes 1 and 2).

The UN Global Compact

Stora Enso supports the ten principles of the United Nations Global Compact, an initiative set up in 2000 to encourage businesses worldwide to embed responsibility into their operations. We respect and promote these principles throughout our operations and report on our progress in this report. We annually upload our Communication on Progress to the [UN Global Compact website](#) as a public record of our commitment.

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Unit	Number of employees ^{a)}	Production capacity ^{b)} 1 000 t	Products	Recovered fiber ^{c)}	Certificates										Fossil CO ₂ emissions												
					ISO 9001	ISO 14001	ISO 22000	FSSC 22000	FDA	ISO 50001	OHSAS 18001	ISO 45001	FSC® CoC	PEFC™/CFCC CoC	Process waste to landfill	Hazardous waste ^{d)}	SO ₂ ^{e)}	NO _x as NO ₂	Direct CO ₂ ^{f)}	Indirect CO ₂ ^{f)}	CO ₂ on-site transport ^{f)}	Carbon neutral CO ₂ , biomass fuels ^{g)}	COD	AOX	Phosphorus	Nitrogen	Process water discharges
Poland																											
Łódź	284	135*	③		x	x	x			x	x	x	0	0	30	3 108											
Mosina	97	20*	③		x	x	x			x	x	x	0	123		394		40									1
Ostrołęka Corrugated ^{h)}	261	145*	③	x	x	x				x	x	x	0	0				4 981	101								
Ostrołęka Containerboard ^{h)}	933	725	① ④		x	x				x	x	x	0	19	267	355	303 821		1 637	468 554	852	4.1	27.5	10 201			
Tychy	184	135*	③		x	x	x			x	x	x	0	0			3 500		174							10	
Russia																											
Arzamas	161	100*	③		x	x	x					x	20	9	1	6	2 767	2 578	67								26
Balabanovo	330	165*	③		x	x	x					x	0	6	1	2	4 712	4 143	87								23
Lukhovitsy	142	100*	③		x	x	x					x	0	6	2	2 448	2 483	103									15
Sweden																											
Falu Rödfärg	^{k)}		⑥		x	x							0	8 720		407		5.26									
Fors	526	455	①		x	x	x	x	x	x	x	x	0	70	6	90		86	583	208 279	1 776	0.6	1.3	20.1	4 558		
Hylte Paper	407	480	④	x	x	x				x	x	x	12 455	57		118	5 560	95	602	166 282	645	1.0	1.4	24.6	4 456		
Hylte Biocomposite	23	15	③		x	x						x	0					9	4								
Hylte Formed Fiber	11	20	③					x										0									
Jönköping	169	100*	③		x	x	x					x	0	35			298	594	33							11	
Kvarnsveden	449	385	④		x	x				x	x	x	0	75	16	91	9 795	199		158 948	1 791	0.6	1.8	31.6	6 675		
Nymölla	545	485	④ ②		x	x				x	x	x	0	111	457	443	-10 059	73	25 320	690 108	9 602	1.8	3.8	46.1	28 372		
Skene	134	100*	③		x	x						x	0	1				17	7							17	
Skoghall	713	885	①		x	x	x	x	x	x	x	x	6 546	997	164	431	47 151	137	1 586	983 529	9 059	20.3	11.9	78.0	26 876		
Skoghall (Forshaga)	108	120	①		x	x	x	x	x	x	x	x	0	8			876	3	124								
Skutskär	413	540	②		x	x				x	x	x	0	42	69	812	133	33	1 405	1 177 927	4 281	32.1	12.7	81.1	19 027		
Vikingstad	63	75*	③		x	x						x	0	1			1 026	60	1							18	
Total board, pulp, paper, converted products		^{l)}											58 603	12 586	2 386	8 536	2 001 394	298 136	41 418	11 350 390	83 420	289	98	951	266 096		
Total, wood products		^{m)}																									
Wood products units ⁿ⁾					n)	n)	n)	n)	n)	n)	n)	n)	n)	4 427	1 739	23	452	4 827	40 326	16 105	457 068						
Grand total																											
All units														63 029	14 324	2 408	8 988	2 006 222	338 463	57 523	11 807 459	83 420	289	98	951	266 096	

a) Yearly average as full-time equivalents.
 b) Production capacities of integrated pulp, paper, and board mills only include paper and board production capacities.
 c) Mills using recovered fiber as raw material (fully or partly).
 d) Reported on the basis of country-specific definitions applied in national regulations.
 e) Total sulphur is reported as sulphur dioxide (SO₂) equivalent, but includes all sulphurous compounds.
 f) All CO₂ figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.
 g) FSSC 22000 for board production at Ingerois.

h) Paper and bleached pulp production in Oulu stopped in September 2020 for conversion to unbleached pulp and virgin kraftliner production starting at the beginning of 2021.
 i) ISO 22000 certified only PM5.
 j) Water discharges reported together from both Ostrołęka units.
 k) Does not have its own personnel but hires personnel from Stora Enso AB.
 l) Excluding total corrugated board capacity 1 368 million m².
 m) Production capacities for sawn timber 5 830 000 m³ and for wood pellets 495 000 t.
 n) See separate table for Wood Products units.

Products:
 ① board and packaging paper
 ② market pulp
 ③ converted products (e.g. cores, corrugated board, formed fiber)
 ④ paper
 ⑤ lignin
 ⑥ red paint pigment

The figure 0 (zero) in the table signifies that such discharges, emissions, or waste did not occur or they were below the Group's reporting threshold. Where cells are left blank, this signifies that the parameter is considered as not relevant for that unit.

Certificate documents can be found at storaenso.com/certificates.

* million m²



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Unit	Capacities						Certificates							Fossil CO ₂ emissions								
	Number of employees ^{a)}	Sawn products	Further processed	CLT	Wood pellets	LVL	ISO 9001	ISO 14001	ISO 50001	OHSAS 18001	FSC [®] CoC	PEFC [™] CoC	SBP	Process waste to landfill	Hazardous waste ^{b)}	SO ₂	NO _x as NO ₂	Direct CO ₂ ^{c)}	Indirect CO ₂ ^{c)}	CO ₂ , on-site transportation ^{c)}	Carbon neutral CO ₂ biomass fuels ^{c)}	
	1 000 m ³	1 000 m ³	1 000 m ³	1 000 m ³	1 000 t	1 000 m ³								t	t	t	t	t	t	t	t	
Wood products units																						
Austria																						
Bad St. Leonhard	259	360	105	80			x	x	x	x	x	x		0	53		3			3		
Brand	213	440	295				x	x	x	x	x	x		0	59		5			3		
Ybbs	409	700	450	110			x	x	x	x	x	x		0	103		9			3		
Czech Republic																						
Planá	237	390	220				x	x	x	x	x	x		332	78	1.0	36			1 714	24 466	
Ždírec	264	580	220		80		x	x	x	x	x	x		3 888	27	3.3	96			2 284	129 799	
Estonia																						
Imavere	307	340	160		100		x	x	x	x	x	x	x	7	53	3.7	37		11 419	1 625	51 882	
Näpi	97	50	180		25		x	x	x	x	x	x		13	31	0.5	5	20	3 253	288	5 697	
Finland																						
Honkalahti	117	310	70				x	x	x	x	x	x		0	37	0.6	25		815	876	34 006	
Uimaharju ^{d)}	69	240					x	x	x	x	x	x		0	26		4		2 188	416	1 809	
Varkaus	127	210	35			75	x	x	x	x	x	x		0	50				3 132	906		
Veitsiluoto ^{e)}	56	200					x	x	x	x	x	x		0	0	7.5	18		463	473		
Latvia																						
Launkalne ^{f)}	173	250	60		30		x	x	x	x	x	x			29		32	404		1 305	33 335	
Lithuania																						
Alytus	253	210	115				x	x	x	x	x	x		0	25	1.6	13			1 071	26 277	
The Netherlands																						
Amsterdam	50		80				x	x	x	x	x	x		0	1			14	1 059	3		
Poland																						
Murow	274	300	210				x	x	x	x	x	x		0	1 052	2.8	17			1 351	18 768	
Russia																						
Impilahti	140	160	10		25		x	x	x	x	x	x		0	0		11		5 697	1 364	26 456	
Nebolchi	179	180	45		40		x	x	x	x	x	x	x	187	0	0.5	44		8 252	1 153	28 503	
Sweden																						
Ala	134	400	50		100		x	x	x	x	x	x		0	68	0.1	7	4389	4 037	1 270		
Gruvön ^{g)}	201	370	150	50	100		x	x	x	x	x	x		0	49	1.0	90		11		76 071	
Wood products units total	5 690	2 455	240	500	75									4 427	1 739	23	452	4 827	40 326	16 105	457 068	

a) Yearly average as full-time equivalents.
 b) Reporting is based on country-specific definitions applied in national regulations.
 c) All CO₂ figures are calculated using the WRI/WBCSD Greenhouse Gas Protocol and Scope 2 Guidance.
 d) Uimaharju sawmill belongs to division Biomaterials
 e) Veitsiluoto sawmill belongs to division Paper.
 f) Launkalne pellet production ramping up.
 g) Gruvön CLT production ramping up.

Certificate documents can be found at storaenso.com/certificates.

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Auditor's Assurance Report

To the Board of Directors and Management of Stora Enso Oyj

We have been engaged by the Board of Directors and the Group Leadership Team of Stora Enso Oyj (hereafter Stora Enso) to provide limited assurance on Stora Enso's Sustainability report 2020 as a whole, and reasonable assurance on Stora Enso's direct and indirect (scopes 1+2) fossil CO₂ emissions as disclosed in the Sustainability report.

Responsibilities of the Board and Management

The Board of Directors and Group Leadership Team of Stora Enso are responsible for preparing the Sustainability report in accordance with the Reporting Criteria as set out in the Company's reporting instructions, including the Sustainability Reporting Standards of the Global Reporting Initiative (GRI) and the Greenhouse Gas Protocol for CO₂ emissions. This responsibility includes the internal control relevant to the preparation of a Sustainability report that is free from material misstatements, whether due to fraud or error.

Responsibilities of the Auditor

Our responsibility is to express a conclusion on the Sustainability report based on the procedures we have performed and the evidence we have obtained. Our assignment is limited to the historical information that is presented and thus does not include future-oriented information. We do not accept, or assume responsibility to anyone else, except to Stora Enso for our work, for this report, or for the conclusions that we have reached.

We conducted the assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 revised, "Assurance Engagements Other than Audits or Reviews of Historical Financial Information", to provide limited assurance on the Sustainability report as a whole, and in accordance with ISAE 3410, "Assurance Engagements on Greenhouse Gas Statements", to provide reasonable assurance on direct and indirect (scopes 1+2) fossil CO₂ emissions as disclosed in the Sustainability report. These standards require that we plan and perform the engagement to obtain the appropriate level of assurance that the information examined is free from material misstatement.

A reasonable assurance engagement includes examining, on a test basis, evidence supporting the selected information in the Sustainability report. We have evaluated the effectiveness of internal controls and the processes for collecting and consolidating CO₂ emissions data, and performed testing on a sample basis to evaluate whether the CO₂ emissions are reported according to the Reporting Criteria.

A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the Sustainability report, reviewing documentation, and applying analytical and other limited assurance procedures based on the auditor's judgement. In addition, we have performed remote site visits

to Anjala (Finland), Skoghall (Sweden) and Veracel (joint operation, Brazil) to review compliance with reporting policies, assess the reliability of local reporting process, and test data collected for sustainability reporting purposes on a sample basis.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusions below. The conclusion based on our limited assurance procedures does not comprise the same level of assurance as the conclusion of our reasonable assurance procedures. Since this assurance engagement is combined, our conclusions regarding the reasonable assurance and the limited assurance procedures are presented separately below.

Our independence and quality control

We have complied with the independence and other ethical requirements of the "Code of Ethics for Professional Accountants" issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

PricewaterhouseCoopers applies International Standard on Quality Control (ISQC) 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Conclusions

Based on the limited assurance procedures we have performed, nothing has come to our attention that causes us to believe that the Sustainability report is not prepared, in all material respects, in accordance with the Reporting Criteria.

In our opinion, Stora Enso's direct and indirect (scopes 1+2) fossil CO₂ emissions which have been subject to our reasonable assurance procedures have, in all material respects, been prepared in accordance with the Reporting Criteria.

Helsinki, 9 February 2021
PricewaterhouseCoopers

Samuli Perälä
Authorized Public Accountant

Karin Juslin
Sustainability Reporting Specialist



Financials includes the report of the Board of Directors and the financial statements, as well as Stora Enso in capital markets and our tax footprint.

Financials

Part of Stora Enso's Annual Report 2020



THE RENEWABLE MATERIALS COMPANY



Stora Enso in 2020

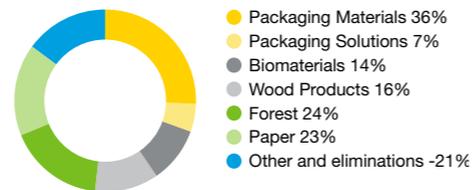
Why to invest in Stora Enso

Part of the bioeconomy, Stora Enso is a leading global provider of renewable solutions in packaging, biomaterials, wooden construction and paper. Our fiber-based materials are renewable, recyclable and fossil free. Our solutions offer low-carbon alternatives to products based on finite resources and solve global sustainability challenges. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow. This is also the foundation of our entire innovation agenda.

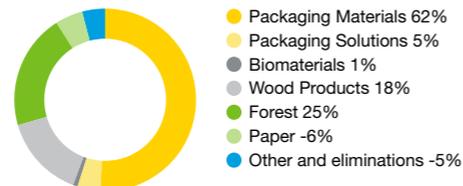
Stora Enso has three strategic focus areas for growth: 1) Packaging Materials and Packaging Solutions driven by high demand for plastic free and eco-friendly circular packaging, 2) Building Solutions driven by a growing wooden buildings market, and 3) Biomaterials innovations where we focus on carbon for energy storage, bio-binders and carbon fibers, and target strong growth in new applications and markets. Substantial forest assets, sawmills in the Wood Products division and our pulp mills are the foundation for our value creation and support these three key focus areas. Paper is the cash flow generator to fund our growth. Stora Enso's financial targets support the Group's focus on growth and value creation.

Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R). In addition, the shares are traded in the USA as ADRs (SEOAY).

Sales 2020



Operational EBIT 2020

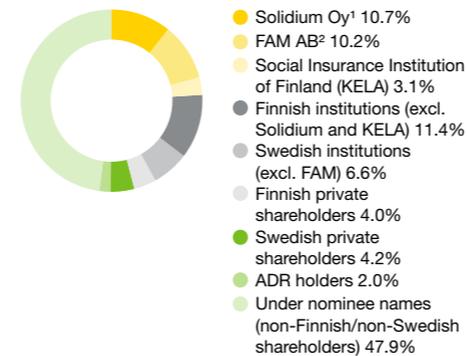


Key figures

	2020	2019	Change	Target
Sales, EUR million	8 553	10 055	-14.9%	
Operational EBITDA, EUR million	1 270	1 614	-21.3%	
Operational EBIT, EUR million	650	1 003	-35.2%	
Operational EBIT margin	7.6%	10.0%		
Operating profit (IFRS), EUR million	922	1 305	-29.3%	
Net profit for the period, EUR million	617	856	-27.9%	
Net interest-bearing liabilities, EUR million	2 921	3 209	-9.0%	
Operational ROCE, %	5.8%	10.3%		>13%
Operational ROCE excl. Forest division	7.0%	12.8%		
EPS (basic), EUR	0.79	1.12	-28.9%	
Net debt/last 12 months' operational EBITDA ratio	2.3	2.0		<2.0
Net debt/equity ratio	0.33	0.43		<0.60
Fixed costs to sales, %	26.7%	24.3%		<20%

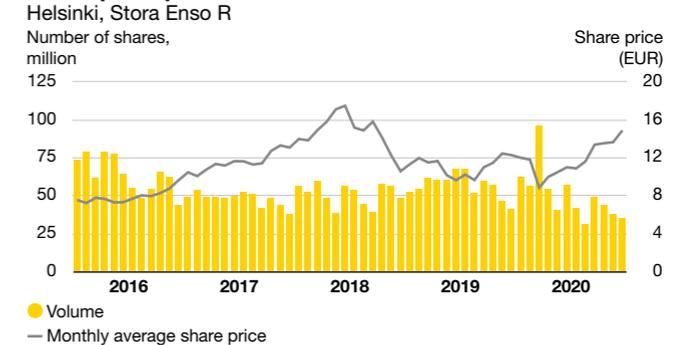
In 2020, Stora Enso revised its long-term financial targets. There are new Group level targets for growth (to grow >5% per annum excluding Paper), and return on capital employed (the target of >13% remains, but now it is excluding the Forest division). Also, the dividend policy was updated to distribute 50% of EPS excluding fair valuation over the cycle. Other Group-level targets remain unchanged.

Ownership distribution, % of shares held



¹ Entirely owned by Finnish state.
² As confirmed to Stora Enso.

Share price performance and volumes



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Report of the Board of Directors

Stora Enso introduction

Part of the bioeconomy, Stora Enso (the Group or the Company) is a leading global provider of renewable solutions in packaging, biomaterials, wooden construction and paper. Our customers include packaging manufacturers, brand owners, paper and board producers, publishers, retailers, printing houses, converters, and joinery and construction companies.

Our fiber-based materials are renewable and recyclable. Our solutions offer low-carbon alternatives to products based on finite resources. We believe that everything that is made from fossil-based materials today can be made from a tree tomorrow.

Stora Enso had 24 455 employees on average during 2020. Our sales in 2020 were EUR 8.6 billion, with an operational EBIT of EUR 650 million. Stora Enso shares are listed on Nasdaq Helsinki Oy (STEAV, STERV) and Nasdaq Stockholm AB (STE A, STE R).

Markets and deliveries

The global demand for cartonboard remained largely stable over the year. The pandemic presented challenges for a certain number of our end use segments but boosted demand in essential goods such as pharma and food. Demand in the Asian region was stronger than the more mature European and North American markets.

Global containerboard demand increased slightly despite the decline in industrial production caused by the pandemic. The shift in spending from services to goods and strong e-commerce growth compensated the losses in manufacturing. Containerboard consumption was stable in Europe, while it increased in the Americas and China but declined in other parts of Asia.

European corrugated packaging demand in our main markets saw a slight decrease (-2%) due to the pandemic. The strong decline in industrial production in the first half of the year was partly offset by strong traction in e-commerce, food

and retail sales. There was a fast recovery in the manufacturing sector in second half of the year.

Global demand for chemical market pulp demand rose by 2.6% during 2020. Softwood pulp deliveries decreased by -3.4% while hardwood pulp deliveries increased by 8.5% compared to 2019. Global market pulp demand increased in Asia, especially in China, and North America while it reduced in Europe. The global chemical market pulp capacity increased by 0.9% in 2020, the softwood capacity decreased by -1.1% while hardwood capacity saw a 1.8% increase. The overall shipment-capacity balance stood at 89%, 2 percent points down from 2019.

By the end of 2020, global pulp inventories came close to a balanced level after being elevated since 2018. During 2020, global pulp markets experienced low pulp prices, generally high inventories and a sharp demand decline from the Printing & Writing segment due to lockdowns and recession caused by the pandemic. Increased demand from tissue and packaging grades supported market pulp demand.

The global sawnwood consumption level declined during 2020 from the 2019 level by some -2% according to market estimates. Due to Covid-19 suppliers cut production especially in the second quarter. In Europe, the market decline was estimated at -2.8% and in North America -3.1%. Low inventory levels led to positive price development in the latter part of the year. Building activity and DIY markets kept the demand at a high level in most countries during 2020 regardless of lockdowns. In the US, restricted supply led to heavy price increases in the second half of 2020. In Australia, the demand was relatively stable during the year and the market in balance meaning price fluctuations were modest. The Japanese housing market contracted -10% in 2020, but reduced supplies from Europe and North America led to product shortages and an improved market balance by the year end.

The year 2020 was difficult for paper markets. Paper demand was hit hard by the pandemic in addition to continuing structural demand erosion. European paper demand was -18% weaker in

Production and external deliveries

	2020	2019	Change % 2020-2019
Consumer board deliveries, 1 000 tonnes	2 742	2 811	-2.4%
Consumer board production, 1 000 tonnes	2 759	2 775	-0.6%
Containerboard deliveries, 1 000 tonnes	970	943	2.9%
Containerboard production, 1 000 tonnes	1 304	1 303	0.1%
Corrugated packaging European deliveries, million m ²	902	925	-2.5%
Corrugated packaging European production, million m ²	1 004	1 033	-2.8%
Market pulp deliveries, 1 000 tonnes	2 443	2 362	3.4%
Wood product deliveries, 1 000 m ³	4 692	4 918	-4.6%
Wood deliveries, 1 000 m ³	11 469	11 717	-2.1%
Paper deliveries, 1 000 tonnes	3 106	4 130	-24.8%
Paper production, 1 000 tonnes	3 034	4 065	-25.4%

Estimated consumption of board, pulp, sawn softwood, and paper in 2020

Tonnes, million	Europe	North America	Asia and Oceania
Consumer board	10.8	9.2	24.5
Containerboard	33.7	31.9	82.9
Corrugated board (billion m ²) ¹	10.6	n/a	n/a
Chemical market pulp	16.0	7.7	36.5
Sawn softwood (million m ³)	94.4	93.7	n/a
Newsprint	4.0	1.7	6.7
Uncoated magazine paper	2.4	0.8	0.1
Coated magazine paper	3.1	1.4	2.1
Coated fine paper	3.2	2.4	9.0
Uncoated fine paper	6.1	5.8	18.4

¹ European focus markets (Baltics, FI, PL, RU, SE)
Source: Afry Smart, ICCA, RISI, Numera, Euro-Graph, PPPC, EPIS, Hawkings Wright, Stora Enso, UNECE

2020 compared to the previous year. As a result of an unforeseen decline in demand in European paper markets, the supply and demand balance turned unfavourable for paper producers. This resulted in declining paper prices. In North America, the demand declined by -22% and in Asia by -13% compared to 2019. Global paper consumption was -17% lower in 2020 than in 2019. However, the variation between paper grades was wide. The decline in the global demand for uncoated was -14%, whereas the demand for standard newsprint and coated mechanical declined by -25%.

The Group's external consumer board deliveries totalled 2 742 000 tonnes, which was 69 000 tonnes, or -2.4% lower compared to a year ago. This was due to lower volumes in Europe. External containerboard deliveries increased by 27 000 tonnes, or 2.9%, from 943 000 tonnes to 970 000 tonnes, mainly due to higher recycled containerboard deliveries. External corrugated board deliveries in Europe decreased slightly to 902 million m². Market pulp deliveries increased by 81 000 tonnes, or 3.4%, to record high 2 443 000 tonnes, mainly due to higher market pulp deliveries in the Packaging Materials division.

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External wood product deliveries decreased by 226 000 m³ or -4.6% to 4 692 000 m³, negatively impacted by the closure and divestment of Kitee and Pfarrkirchen sawmills in Finland and Germany. External paper deliveries totalled 3 106 000 tonnes, down 1 024 000 tonnes, or -24.8%, from 2019, due to lower deliveries in all paper grades and disposal and closures of Dawang Mill in China, and paper production at Oulu Mill in Finland.

Operational key figures, items affecting comparability and other non-IFRS measures

The list of Stora Enso's non-IFRS measures and the calculation of our key figures are presented at the end of the Report of the Board of Directors. See also the chapter Non-IFRS measures at the end of this report.

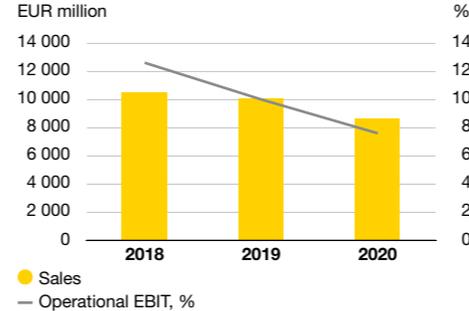
Financial results – Group

Sales, at EUR 8 553 (10 055) million, were 14.9% lower than a year earlier. Deliveries reduced in all divisions and the largest drop was in paper volumes. Sales prices were lower in all divisions, with the biggest negative price impacts coming from pulp and paper. The impact of the foreign exchange rate movements on sales was EUR 19 million positive. Structural changes reduced sales by EUR 226 million, the biggest ones being the Oulu Mill conversion in Finland, the divestment of the Dawang paper mill in China in October 2019, the closure of the paper machine 6 at Imatra Mills in Finland in December 2019, the divestment of the Pfarrkirchen Mill in Austria in during the first quarter of 2020, and the closure of the Kitee sawmill in Finland during the second quarter of 2020. Sales excluding the paper business decreased by 8.7%.

Operational EBIT, at EUR 650 (1 003) million, decreased by 35.2% or EUR 353 million and represents a margin of 7.6% (10.0%). Operational EBIT decreased due to lower sales prices and lower volumes in all divisions. The biggest negative impact came from the lower paper volumes and prices and the significantly lower pulp prices.

Variable costs were EUR 340 million lower, mainly fiber costs including wood, pulp and recycled paper. Fixed costs decreased EUR 117 million due to Covid-19 and profit protection

Sales and operational EBIT



programme actions. The net foreign exchange impact increased operational EBIT by EUR 123 million. The operational result from equity accounted investments was EUR 16 million lower, mainly due to the Bergvik Skog transaction in 2019.

The IFRS operating profit includes a positive net effect of EUR 469 (positive 493) million from IAS 41 forest valuation from subsidiaries and joint operations. The positive impact comes mainly from the increase in fair valuation in Stora Enso owned forests in Sweden. There is also a negative net effect of EUR 52 (positive 32) million from Stora Enso's share of net financial items, taxes and IAS 41 forest valuations of equity accounted investments.

Tangible and intangible asset impairments amounted to EUR 57 (78) million and impairment reversals amounted to EUR 0 (21) million.

The Group recorded items affecting comparability (IAC) with a negative impact of EUR 90 (negative 192) million on its IFRS operating profit and a positive impact of EUR 19 (positive 13) million on income taxes. The IACs relate mainly to asset restructurings in Biomaterials division, the Oulu Mill conversion in Finland and the Hylte Mill restructuring in Sweden.

The IFRS operating profit was EUR 922 (1 305) million.

Segment share of operational EBIT, IAC, fair valuations and non-operational items and operating profit/loss

EUR million	Year Ended 31 December					
	Operational EBIT		IAC, Fair Valuations and Non-Operational items		Operating Profit/Loss	
	2020	2019	2020	2019	2020	2019
Packaging Materials	403	339	-12	13	391	352
Packaging Solutions	34	46	-6	-10	28	36
Biomaterials	9	233	-40	-54	-31	180
Wood Products	114	105	-3	-13	111	92
Forest	164	99	360	448	524	547
Paper	-38	213	-20	-59	-58	154
Other	-35	-32	-7	-23	-42	-56
Total	650	1 003	271	302	922	1 305
Net financial items					-150	-168
Profit before Tax					773	1 137
Income tax expense					-156	-281
Net Profit					617	856

Operational EBIT comprises the operating profit excluding items affecting comparability (IAC) and fair valuations from the segments and Stora Enso's share of the operating profit of equity accounted investments (EAI), also excluding items affecting comparability and fair valuations. IAC = items affecting comparability are exceptional transactions that are not related to recurring business operations. The most common IAC are capital gains and losses, impairments or impairment reversals, disposal gains and losses relating to Group companies, provisions for planned restructurings, environmental provisions, changes in depreciation due to restructuring and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.

Fair valuations and non-operational items include CO₂ emission rights, non-operational fair valuation changes of biological assets, adjustments for differences between fair value and acquisition cost of forest assets upon disposal and the Group's share of income tax and net financial items of EAI. From 1 January 2020 onwards, the changes in the fair valuation of biological assets are categorized in non-operational and operational fair value changes. Non-operational fair value changes of biological assets reflect changes made to valuation assumptions and parameters, usually during the annual valuation process. Operational fair value changes of biological assets are included in Operational EBITDA and contain all other fair value changes, mainly due to inflation and differences in actual harvesting levels compared to the harvesting plan. The previous periods have been restated.

Items affecting comparability, fair valuations and non-operational items

EUR million	Year Ended 31 December	
	2020	2019
Impairments and impairment reversals	-72	-62
Restructuring costs excluding impairments	-23	-52
Acquisitions and disposals	6	-59
Other	0	-19
Items affecting comparability	-90	-192
Fair valuations and non-operational items	362	494
Total	271	302

Segment share of operative assets, operative liabilities and operating capital

EUR million	Year Ended 31 December					
	Operative Assets		Operative Liabilities		Operating Capital	
	2020	2019	2020	2019	2020	2019
Packaging Materials	3 675	3 516	721	692	2 954	2 824
Packaging Solutions	372	372	132	131	240	241
Biomaterials	2 459	2 748	214	252	2 245	2 496
Wood Products	766	868	218	221	548	647
Forest	6 566	4 436	372	298	6 194	4 138
Paper	1 193	1 484	700	827	493	657
Other and eliminations	433	554	115	94	318	460
Total	15 464	13 978	2 471	2 516	12 993	11 462



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Key figures

	2020	2019	2018
Sales, EUR million	8 553	10 055	10 486
Operational EBIT, EUR million	650	1 003	1 352
Operational EBIT margin	7.6%	10.0%	12.9%
Operating profit (IFRS), EUR million	922	1 305	1 390
Operating margin (IFRS)	10.8%	13.0%	13.3%
Return on equity (ROE)	7.6%	12.1%	15.5%
Operational ROCE	5.8%	10.3%	15.8%
Operational ROCE excl. Forest division	7.0%	12.8%	18.9%
Debt/equity ratio	0.33	0.43	0.31
EPS (basic), EUR	0.79	1.12	1.28
EPS excluding FV ² , EUR	0.45	0.61	1.26
Dividend and distribution per share ¹ , EUR	0.30	0.30	0.50
Payout ratio, excluding FV ²	66.7%	49.2%	39.7%
Payout ratio (IFRS)	38.0%	26.8%	39.1%
Dividend and distribution yield, (R share)	1.9%	2.3%	5.0%
Price/earnings (R share), excluding FV ²	34.78	21.23	8.01
Equity per share, EUR	11.17	9.42	8.51
Market capitalisation 31 Dec, EUR million	12 383	10 328	8 123
Closing price 31 Dec, A/R share, EUR	15.90/15.65	13.55/12.97	11.05/10.09
Average price, A/R share, EUR	12.06/11.52	12.88/11.05	16.36/14.61
Number of shares 31 Dec (thousands)	788 620	788 620	788 620
Trading volume A shares (thousands)	4 662	1 299	3 068
% of total number of A shares	2.6%	0.7%	1.7%
Trading volume R shares (thousands)	605 233	679 475	610 300
% of total number of R shares	98.8%	111.0%	99.7%
Average number of shares, basic (thousands)	788 620	788 620	788 620
Average number of shares, diluted (thousands)	789 182	789 533	789 883

Comparative figures for 2018 and 2019 have been restated

¹ See the Board of Directors' proposal for dividend distribution.

² Earnings per share (EPS) excl. FV, Payout ratio, excluding FV and Price/earnings (R share), excluding FV were added to the list of non-IFRS measures during 2020 replacing the key figures of EPS excl. IAC, Payout ratio, excluding IAC and Price/earnings (R share), excluding IAC. Comparatives are recalculated.

Net financial expenses at EUR 150 (168) million were EUR 18 million lower than a year ago. Net interest expenses, at EUR 132 million, decreased by EUR 15 million, mainly as a result of the lower average interest expense rate on borrowings. Other net financial expenses, at EUR 10 million, were EUR 5 million lower than a year ago. The net foreign exchange impact in respect of cash equivalents, interest-bearing assets and liabilities and related foreign-currency hedges amounted to a loss of EUR 8 (loss of EUR 6) million, mainly due to revaluation of foreign currency net debt in subsidiaries and joint operations located in China, Brazil, Poland and Russia.

The net tax charge totalled EUR 156 (281) million, equivalent to an effective tax rate of

20.1% (24.7%), as described in more detail in Note 9 Income taxes, of the Consolidated Financial Statements.

The loss attributable to non-controlling interests was EUR 9 (24) million, leaving a profit of EUR 626 (880) million attributable to Company shareholders.

Earnings per share excluding fair valuations were EUR 0.45 (0.61). Operational return on capital employed was 5.8% (10.3%).

The Group capital employed was EUR 11 714 million on 31 December 2020, an increase of EUR 1 082, mainly due to the increase of fair valuation of forest assets in Sweden resulting from valuation and accounting principles changes.

Breakdown of Capital Employed change

EUR million	Capital Employed
31 December 2019	10 632
Capital expenditure excluding investments in biological assets less depreciation	60
Investments in biological assets less depletion of capitalised silviculture costs	19
Impairments and reversal of impairments	-57
Fair valuation of forest assets	1 973
Unlisted securities (mainly PVO)	-125
Equity accounted investments	-22
Net liabilities in defined benefit plans	-11
Operative working capital and other interest-free items, net	-172
Net tax liabilities	-411
Translation difference	-171
Other changes	-1
31 December 2020	11 714

Financing

Cash flow from operations was EUR 1 344 (1 991) million and cash flow after investing activities was EUR 680 (1 386) million. Working capital decreased by EUR 195 (240) million, inventories decreased by EUR 179 million and short-term receivables by EUR 178 million having a positive impact on working capital. Payments related to the previously announced provisions were EUR 24 million.

Operative cash flow

EUR million	2020	2019
Operational EBITDA	1 270	1 614
IAC on operational EBITDA	-25	-128
Other adjustments	-97	265
Change in working capital	195	240
Cash Flow from Operations	1 344	1 991
Cash spent on fixed and biological assets	-661	-598
Acquisitions of equity accounted investments	-2	-7
Cash Flow after Investing Activities	680	1 386

Comparative 2019 figures have been restated.

At the end of the year, Group net interest-bearing liabilities were EUR 2921 (3 209) million. The

decrease in net interest-bearing liabilities was mainly driven by a solid cash flow from operations after investments and dividend payments. Cash and cash equivalents net of bank overdrafts increased to EUR 1 655 (863) million mainly as a result of the new Green bond financing issued during the year and solid cash flow from operations after investments and dividend payments. The Group increased cash liquidity and available committed credit lines during the year due to the increased uncertainty caused by Covid-19. The net debt/equity ratio at 31 December 2020 decreased to 0.33 (0.43) mainly as a result of the market transaction based forest assets fair valuation change implemented during the fourth quarter. The ratio of net debt to the last 12 months' operational EBITDA increased to 2.3, compared to the ratio of 2.0 at the end of the previous year. The average interest rate on borrowings for the full year 2020 decreased to 3.2% (3.5%) with a run-rate of 3.0% as per the end of the fourth quarter.

In April 2020 Stora Enso successfully issued a SEK 1 700 million green bond under its EMTN (Euro Medium Term Note) programme and Stora Enso's Green Bond Framework. The bond matures in April 2025. In June 2020, Stora Enso successfully tapped the above mentioned 2025 SEK Green Bond issued in April 2020 with an additional nominal of SEK 1 400 million. The bond consist of fixed and floating tranches and pays a floating coupon of STIBOR +2.20% and a fixed coupon of 2.375%.

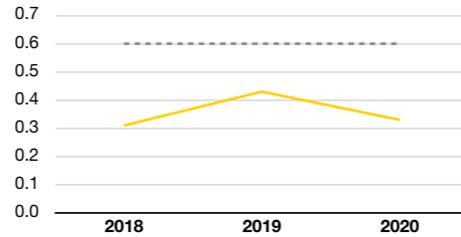
In November 2020 Stora Enso successfully issued a new EUR 500 million green bond under its EMTN programme and Stora Enso's Green Bond framework. The bond matures in December 2030 and pays a fixed coupon of 0.625%.

Stora Enso has a EUR 600 million committed revolving credit facility that was fully undrawn at the year-end. In addition, Stora Enso has undrawn committed bilateral credit facility arrangements with commercial banks up to EUR 250 million. The original tenor of these bilateral arrangements varies from 18 to 24 months and they mature in 2021 and 2022. Stora Enso also has an undrawn committed EUR 150 million loan signed with European Investment Bank during the fourth quarter that can be drawn latest in 2022 for a five-year maturity. Additionally, Stora Enso has access to statutory pension premium loans in Finland up to EUR 950 (950) million.

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Debt/equity ratio



● Debt/equity ratio
— Target <math>< 0.6</math>

The market transaction based forest assets fair valuation change implemented during the fourth-quarter increased the Group's other comprehensive income in equity by EUR 1 195 million. Conversely, the fair valuation of cash flow hedges and equity investments fair valued through other comprehensive income in accordance with IFRS 9 decreased equity by EUR 91 (increased by EUR 95) million mainly due to lower fair valuation of the Group's shareholding in Pohjolan Voima Oy (PVO) partly offset by net fair valuation gains from outstanding cash flow hedge derivatives recorded in other comprehensive income.

At the end of the year, the ratings for Stora Enso's rated bonds were as follows:

Rating agency	Long/short-term rating	Valid from
Fitch Ratings	BBB- (stable)	8 August 2018
Moody's	Baa3 (stable) / P-3	1 November 2018

Financial results – Segments

As of 1 January 2020, Stora Enso merged its containerboard business with the Consumer Board division, creating a new Packaging Materials division. The remaining business in Packaging Solutions, together with the recently created Formed Fiber unit, constitute a more focused Packaging Solutions division. The Group also established a new Forest division as of 1 January. Certain historical figures for Packaging Materials, Packaging Solutions, Forest, Segment Other and the Group have been restated as described in the release from 19 March 2020.

Packaging Materials division

The Packaging Materials division is a global leader in the circular economy with our premium renewable and recyclable packaging materials based on both virgin and recycled fiber. Addressing the needs of today's eco-conscious consumers, we help customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food and drink, pharmaceutical or transport packaging. A wide selection of barrier coatings enables design optimisation for various demanding packaging end-uses.

EUR million	2020	2019
Sales	3 115	3 254
Sales (Consumer board)	2 523	2 564
Sales (Containerboard)	602	690
Operational EBITDA	641	574
Operational EBITDA (Consumer board)	578	434
Operational EBITDA (Containerboard)	63	139
Operational EBITDA margin	20.6%	17.6%
Operational EBIT	403	339
Operational EBIT margin	12.9%	10.4%
Operational ROOC	13.9%	12.4%
Cash flow from operations	694	632
Cash flow after investing activities	301	401
Board deliveries, 1 000 tonnes	4 043	4 111
Deliveries (Consumer board)	2 752	2 812
Deliveries (Containerboard)	1 291	1 299
Board production, 1 000 tonnes	4 063	4 078
Production (Consumer board)	2 759	2 775
Production (Containerboard)	1 304	1 303

Comparative 2019 figures have been restated.

Packaging Materials division sales at EUR 3 115 (3 254) million decreased by 4.3% mainly due to lower prices and volumes for containerboards. The closure of paper machine 6 closure at Imatra Mills in Finland in December 2019 impacted consumer board sales.

Operational EBIT at EUR 403 (339) million increased by 18.8%, mainly due to lower variable costs. Lower pulp prices had the biggest positive impact on variable costs. The Oulu Mill conversion costs had a negative impact of EUR 29 million.

Packaging Solutions division

The Packaging Solutions division develops and sells premium fiber-based packaging

products and services. Our high-end eco-friendly packaging products are used by leading brands across multiple market sectors, including store retail, e-commerce and industrials. The portfolio includes corrugated and other converting, design services, automation solutions, and scalable innovations such as formed fiber and biocomposites.

EUR million	2020	2019
Sales	594	698
Operational EBITDA	61	71
Operational EBITDA margin	10.3%	10.2%
Operational EBIT	34	46
Operational EBIT margin	5.7%	6.6%
Operational ROOC	14.1%	18.9%
Cash flow from operations	51	93
Cash flow after investing activities	28	58
Corrugated packaging European deliveries, million m ²	999	1 026
Corrugated packaging European production, million m ²	1 004	1 033

Comparative 2019 figures have been restated.

Packaging Solutions division sales were EUR 594 (698) million, down 15% due to lower volumes and sales prices. Foreign exchange had a EUR 20 million negative impact on sales.

Operational EBIT at EUR 34 (46) million decreased 27% mainly due to lower volumes and investments into new businesses like formed fiber and biocomposites. Variable costs were lower mainly due to lower containerboard prices. Fixed costs were lower due to Covid-19 and profit protection programme actions.

Biomaterials division

The Biomaterials division meets the growing demand for the replacement of products made from fossil-based and hazardous materials with bio-based solutions. We use all fractions of biomass, like lignin and sugars, to develop new solutions. We work to replace fossil-based materials with new applications such as carbon for energy storage, bio-based binders, and bio-based carbon fiber. The division's offering includes a wide variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers as well as materials from side streams of our processes, such as tall oil and turpentine from biomass.

EUR million	2020	2019
Sales	1 193	1 464
Operational EBITDA	128	356
Operational EBITDA margin	10.7%	24.3%
Operational EBIT	9	233
Operational EBIT margin	0.8%	15.9%
Operational ROOC	0.4%	9.4%
Cash flow from operations	96	423
Cash flow after investing activities	0	266
Pulp deliveries, 1 000 tonnes	2 427	2 520

Biomaterials division sales were EUR 1 193 (1 464) million, down 19% due to significantly lower pulp sales prices in all grades. Delivery volumes were also lower.

Operational EBIT, at EUR 9 (233) million decreased 96%, due to significantly lower sales prices in all grades and to some extent higher maintenance costs. Operational EBIT was positively impacted by lower variable costs, mainly logistics. Foreign exchange rates had a positive impact on operational EBIT.

Wood Products division

The Wood Products division is the largest sawn wood producer in Europe and a leading provider of sustainable wood-based solutions for the construction industry. Our growing Building Solutions business offers building concepts to support low-carbon construction and eco-friendly designs. We develop digital tools to simplify the designing of building projects with wood. We also offer applications for windows, doors and for packaging industries, and our pellets provide a sustainable heating solution.

EUR million	2020	2019
Sales	1 386	1 569
Operational EBITDA	160	153
Operational EBITDA margin	11.6%	9.8%
Operational EBIT	114	105
Operational EBIT margin	8.3%	6.7%
Operational ROOC	19.1%	16.6%
Cash flow from operations	211	183
Cash flow after investing activities	181	135
Wood products deliveries, 1 000 m ³	4 407	4 753

Wood Products division sales were EUR 1 386 (1 569) million, down 11.7%, due to structural changes, lower sales prices mainly in classic sawn and lower volumes. Pfarrkirchen mill in Germany

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was divested in Q1 2020, Uimaharju sawmill in Finland was transferred to Biomaterials division in the beginning of 2020, Kitee sawmill in Finland was closed and production was stopped in Q4 2019, Biocomposites business was transferred to Packaging Solutions division in Q3 2020. Structural changes decreased sales by EUR 80 million.

Operational EBIT at EUR 114 (105) million increased by 9% due to lower raw material and fixed costs.

Forest division

The Forest division creates value with sustainable forest management, competitive wood supply and innovation, which are the foundation for Stora Enso's renewable offerings. The division manages Stora Enso's forest assets in Sweden and the 41% share of Tornator, the majority of whose forest assets are located in Finland. The division is also responsible for wood sourcing for Stora Enso's Nordic, Baltic and Russian operations and B2B customers. Stora Enso is one of the biggest private forest owners in the world.

EUR million	2020	2019
Sales	2 046	2 321
Operational EBITDA	217	145
Operational EBITDA margin	10.6%	6.2%
Operational EBIT	164	99
Operational EBIT margin	8.0%	4.3%
Operational ROCE	3.9%	3.7%
Cash flow from operations	203	370
Cash flow after investing activities	166	333
Wood deliveries, 1 000 m ³	37 369	38 775
Operational fair value change of biological assets	70	50

Comparative 2019 figures have been restated.

Forest division sales were EUR 2 046 (2 321) million, down 12% due to lower prices and volumes.

Operational EBIT at EUR 164 (99) million increased by 65% due to improved operational efficiency in Wood supply units including Group's own forest holdings in Sweden.

Paper division

Stora Enso is the second largest paper producer in Europe, with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of paper products made from recycled and virgin fiber, our technical expertise and our

sustainability know-how as well as our mill and customer service centre network.

EUR million	2020	2019
Sales	1 979	2 856
Operational EBITDA	66	318
Operational EBITDA margin	3.3%	11.1%
Operational EBIT	-38	213
Operational EBIT margin	-1.9%	7.4%
Operational ROOC	-6.7%	29.3%
Cash flow from operations	105	344
Cash flow after investing activities	31	264
Cash flow after investing activities to sales	1.6%	9.3%
Paper deliveries, 1 000 tonnes	3 106	4 130
Paper production, 1 000 tonnes	3 034	4 065

Paper division sales were EUR 1 979 (2 856) million, down 30.7% due to significantly lower volumes resulted from accelerated market demand decrease due to Covid-19. There is overcapacity in the market and sales price decreases had a negative impact to sales as well. Oulu paper mill Covid-19 and conversion impact to sales was negative EUR 281 million.

Operational EBIT at EUR -38 (213) million declined by 118.1% due to lower volumes and prices. Cost savings had a positive EBIT impact. Oulu paper mill Covid-19 and conversion impact was negative EUR 46 million.

Full year cash flow was positive EUR 30 million due to excellent working capital management.

Other

The segment Other includes Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), and the Group's shared services and administration.

EUR million	2020	2019
Sales	928	1 076
Operational EBITDA	-3	-4
Operational EBITDA margin	-0.3%	-0.3%
Operational EBIT	-35	-32
Operational EBIT margin	-3.8%	-3.0%
Cash flow from operations	-17	-55
Cash flow after investing activities	-27	-71

Sales of the segment Other at EUR 928 (1 076) million reduced from previous year mainly due to lower internal sales of energy and logistics services.

Investments and capital expenditure

Additions to fixed and biological assets including internal costs capitalised in 2020 totalled EUR 687 (656) million. The total amount includes additions in biological assets of EUR 79 (88) million.

During the second quarter of 2020, the formed fiber production line commissioning was completed at Hylte Mill. The brand PureFiber™ by Stora Enso was launched and production started. The EUR 22 million investment at Skoghall Mill in Sweden in an expansion of the existing water treatment plant was taken in operation in April.

During the third quarter of 2020, the investment of EUR 25 million in the steam turbine in Maxau Mill, Germany was taken in operation. The investment improves the cost-competitiveness of the mill and reduces CO₂ emissions.

In August 2020, Stora Enso announced investment in building a pilot facility for producing a lightweight, fiber-based foam material, for protective packaging and cushioning. The pilot plant is built at Stora Enso's Fors Mill in Sweden. It is estimated that the plant will be ready in the fourth quarter of 2021. Decisions about commercialisation will follow, after evaluating the results of the pilot-scale production.

In September 2020, Stora Enso announced an investment of approximately EUR 79 million in a new production line for cross laminated timber (CLT) at its Ždírec sawmill in the Czech Republic. The investment will further enhance Stora Enso's position as a global provider of high-quality engineered wooden elements and as a market leader in CLT. Production is scheduled to begin during the third quarter of 2022. The estimated annual production capacity will be approximately 120 000 m³ after ramp-up. Also in September, Stora Enso announced an investment in dispersion barrier technology at its Forshaga site in Sweden as a step in its innovation agenda. The investment of approximately EUR 10 million enables the development and production of paperboard with barrier properties that are easier to handle in a recycling process, have a lower carbon footprint and can be compostable in industrial facilities. The new equipment is expected to come into use during the second quarter of 2021.

In November 2020, Stora Enso commenced a feasibility study and environmental permit application process on enhancing and expanding

the pulp- and board-making capabilities at its Skoghall Mill in Sweden. The feasibility study evaluates a possible upgrade and expansion of existing integrated pulp capacity from 370 000 tonnes to 780 000 tonnes annually and a possible increase of 120 000 tonnes in board capacity. After the investment, the mill would be integrated close to 100%, with an additional 220 000 tonnes of softwood market pulp. If the investment is approved following the feasibility study and environmental permit application process, the capital expenditure for the upgrade and expansion is estimated to be approximately EUR 800-850 million. The feasibility study is expected to be completed by the end of 2021. Production would start earliest during the fourth quarter of 2023.

In December 2020, Stora Enso announced an investment of EUR 14 million to build a granulation and packing plant for lignin. According to Stora Enso's strategy, lignin is one of the key innovation areas for delivering growth on new applications, such as energy storage, binders and carbon fiber. The granulation plant will be located at Stora Enso's Sunila Mill in Finland. Also in December, Stora Enso announced an investment in centralising and modernising the wood handling capacity at its Imatra Mills in Finland. The investment of EUR 80 million will enhance Stora Enso's production capabilities for premium packaging board. The investment is planned to start in Q1 2021 and to be completed in Q3 2022.

The other main projects ongoing at the end of 2020 were the EUR 350 million conversion of the Oulu paper mill into kraftliner production in Finland and the EUR 10 million pilot facility at Sunila Mill in Finland for producing bio-based carbon materials from lignin.

Innovation, research and development

Stora Enso's expenditure on innovation, research and development in 2020 was EUR 146 (141) million, which was equivalent to 1.7% (1.4%) of sales.

Stora Enso is recognised as the renewable materials company. We believe that everything made with fossil-based materials today can be made from a tree tomorrow. Work for replacing fossil-based products with new bio-based applications continues.

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Scale-up of DuraSense™ by Stora Enso biocomposites production at Hylte Mill, and PureFiber™ by Stora Enso formed fiber products, both in the Packaging Solutions division, lignin for phenol replacement at Sunila Mill, Lineo™ by Stora Enso in the Biomaterials division and ECO TAG™, as well as the New Retail Solution in Intelligent Packaging all continued in 2020. The speed of commercialisation varies but gradually more real customer applications are brought into use.

The Packaging Materials division continued to develop the generation 1 micro-fibrillated cellulose (MFC) films at Imatra Mills. Some adjustments will still be required to the paper machine 7 at Imatra Mills to enable Proof of Concept #2. The first trial orders were shipped during the year. The generation 2 dewatering development continues with collaboration partners.

The formed fiber project, the implementation of which started in February 2019, has developed very quickly and smoothly. The installation of the first two presses, related pulp handling and infrastructure were commissioned and products qualified with customers. Following the good success an expansion investment was launched in the autumn adding more capacity to the operations at Hylte Mill and establishing a first plant in China for the food service customers.

The Group focuses on the development of sustainable packaging applications to replace plastics, bio-based barriers solutions for packaging and biomaterial innovations around the lignin platform. Additionally, focus on digitalisation has increased with focus areas Robotic Process Automation (RPA), machine learning, smart operations, transparent supply chain, digital customer experience, and Intelligent Packaging.

Strong consumer demand to replace fossil-based plastics has positively impacted the attractiveness of new fiber-based solutions to our customers. These applications include materials for new packaging board grades, especially those aiming to replace single-use plastics and plastic packaging. For long-term success, Stora Enso collaborates with academia and research institutes; for fast results, we work together with startups. During the year, the cooperation with the Combient Foundry Venture Client Program has expanded. A first cycle was run in China in spring 2020 and in the autumn the first materials cycle was launched targeting innovative food packaging

and new wood products. Stora Enso was once again recognised as the most start-up friendly corporation in Finland in 2020, as also in 2018.

To trigger innovation processes, we are more active in searching for collaborations with customers, suppliers, institutes and academia. We have a high activity in ideation by our own employees. WeNovate, our group-wide tool for collecting and evaluating ideas from the divisions and functions, has supported the internal innovation culture development. In 2020, we ran 19 campaigns and had 16 open idea channels operating. In total almost 508 ideas were collected, compared to 1 200 in 2019. The most suitable ideas enter a state-gate based innovation process.

Stora Enso has established funds to be used in an agile manner for capital expenditure in novel projects, which have potential business cases. The Innovation Fund is an allocation for new pilot scale opportunities and new business models. The Digitalisation Fund is an allocation for piloting new digital tools and models. Applications for these resources are approved in the company's Investment Working Group. We have allocated an agility reserve to cover operational expenses related to cross-divisional projects in 2020.

Stora Enso defines innovation as the process of translating ideas into new value. Research and development work is a basic element in the process. The company employed about to 400 people in the following R&D centres:

- Research Centre and Pulp Competence Centre in Imatra (Finland)
- Research Centre and Pulp Competence Centre in Karlstad (Sweden)
- The Innovation Centre for biomaterials in Sickla, Stockholm (Sweden)
- The Innovation Centre for packaging in Helsinki (Finland)
- Biocomposite Competence Centre in Hylte (Sweden)
- Intelligent Packaging Centre in Tampere (Finland)
- Viridia demonstration plant in Louisiana and Research Centre in Virginia (United States)

Supporting Stora Enso's innovation strategy, we have several co-operation projects with research organisations and academic institutions. The aim is to build a clearer understanding of how our needs and the universities' capabilities can meet, first and foremost in the research sphere

surrounding Stora Enso research priorities and the long-term scientific challenges for R&D in the divisions. The second target is to widen the contact network. Thirdly, we aim to identify topics where we have special interest regarding the universities' bachelor, master and PhD programmes, also for recruiting talents to mills and research/innovation centres.

Our collaboration partners include Aalto University in Finland, Chalmers University of Technology and the Royal Institute of Technology in Sweden, VTT Technical Research Centre of Finland, SweTree Technologies Ltd., Swedish University of Agricultural Science, Tresearch and Wallenberg Wood Science Center. Stora Enso is a member of national, European and trade associations focused on the bioeconomy and forest agendas including Confederation of European Paper Industries (CEPI), Forest Technology Platform (FTP), and the Swedish and Finnish Forest Industry Federations. Stora Enso is also a member in the EU's Biobased Industries Consortium (BIC) and the Bio-Based Industries Initiative Joint Undertaking, a partnership within the EU Horizon 2020 research programme.

Intellectual property (IP) is an increasingly important tool to support Stora Enso's transformation. In this context, IP rights relate to areas such as patents, utility models, designs, trademarks, domain names, know-how and trade secrets. IP landscape as well as FTO (Freedom to Operate) investigations are of equally high importance. During 2020, Stora Enso continued to strengthen its patent portfolio, with priority founding patent applications filed. Over 440 patents were granted worldwide during the year. The Group Intellectual Property (IP) has the responsibility for handling IP matters. The Group IP strategy has been approved by the CEO supported by the Group IP Steering Team.

Non-financial information

Requirements of non-financial information reporting according to the Finnish Accounting Act are reported below. The scope of the reporting includes those non-financial topics that relate to the Group's key risks.

Risks and policy principles related to these topics are additionally described on pages 10–16, including Stora Enso's reporting according to Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

Business model

Replacing the use of fossil-based resources with renewable raw materials is the foundation for a sustainable bioeconomy. Stora Enso's products contribute to a low-carbon circular economy, in which materials are reused and recycled, while waste is minimised, to maximise environmental, social, and financial added value. As a leading renewable materials company with access to carbon-neutral biomass, Stora Enso is in a unique position to combat climate change. Stora Enso's business model description is in the beginning of the Report of Board of Directors and value creation model is presented in **Strategy 2020 on page 12**.

Stora Enso acknowledges the importance of the United Nations Sustainable Development Goals as part of a commonly agreed global ambition to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. Read more on **pages 10–11 in Sustainability 2020**.

Sustainability

Sustainability is a key element of Stora Enso's corporate governance, promoted by the Board of Directors, the CEO, and the Group Leadership Team (GLT). The CEO carries the ultimate responsibility for the successful implementation of the sustainability strategy. Work on sustainability is led by the Executive Vice President, Sustainability, who reports directly to the CEO. The Board of Directors' Sustainability and Ethics Committee oversees the implementation of Stora Enso's Sustainability Strategy and Ethics and Compliance Strategy. The Committee met four times in 2020.

Stora Enso's Sustainability Policy describes our overall approach and governance model. At the same time, our Code of Conduct and other policies, guidelines, and statements on specific sustainability topics all further elaborate our approach, while also guiding our employees in their everyday work. These documents are available at storaenso.com/sustainability.

More information on Stora Enso's approach to sustainability is published in **Sustainability 2020**.

Covid-19 pandemic

The global pandemic has underscored the importance of our work on the social agenda. During the year, we promoted the health and safety of our employees and others working in our premises through various measures. We took

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early action by imposing a global travel ban from early February. We also prohibited all physical meetings, strongly advising personnel to work remotely whenever feasible, restricting access to mill sites, and quarantined any affected employees. These practices were in place throughout most of the year. Our employees were advised to follow the rules and recommendations of national and local authorities both at work and in their private lives. We continue to closely monitor the Covid-19 situation. Read more on our adaption to the global pandemic and work on social agenda on [pages 18–31](#) and [60–63](#) in **Sustainability 2020**.

Environmental matters

Forests, plantations, and land use

Key policy: Wood and fiber sourcing, and land management policy

Progress on responsible forestry is followed with a key performance indicator (KPI) measuring the proportion of land in wood production and harvesting owned and managed by Stora Enso that is covered by forest certification schemes. Our target is to maintain the high level of 96%. In 2020, coverage amounted to 98% (98% in 2019). At year-end Stora Enso owned or managed lands with a total area of 2.34 million hectares.

In 2020, the total amount of wood (including roundwood and wood chips) delivered to our mills was 35.0 million m³ (solid under bark) (36.3 million m³ in 2019). The proportion of third-party certified wood in the Group's total wood supply was 78% (75%).

Carbon dioxide

Key policy: Energy and carbon policy
Stora Enso's science-based target (KPI) is to reduce greenhouse gas emissions from our operations by 31% per tonne of pulp, paper and board produced by 2030 compared with the 2010 base-year. In 2020, our CO₂e emissions per saleable tonne of board, pulp, and paper were 26% lower than the 2010 benchmark level (26%¹ lower in 2019). The performance remained stable despite the Group's lower production in 2020 compared to 2019. During 2020, our performance was positively affected by the less fossil-intensive electricity purchased for our mills in Finland as well as energy efficiency improvements and further reductions of fossil fuel use at several mills.

¹ Recalculated due to additional data or organisational scope changes after previous report.

Water use

Key policy: Stora Enso's Environmental Guidelines

The objective of the Group's KPIs on total water withdrawal and process water discharges is to drive a downward trend from our 2016 baselines of 57 m³ and 27 m³ per saleable tonne of product, respectively. In 2020, our total water withdrawal was 65 m³ per saleable tonne (61 m³ in 2019) and our process water discharges amounted to 31 m³ per saleable tonne (29 m³ in 2019). The normalised performance as per tonne was partly affected by lower production levels. The water needed at our board, pulp and paper mills is not in direct relation to production volumes, and especially waste-water treatment at our mills require a regular flow of water to function properly.

Social and employee matters

Employees and wider workforce

Key policies: Minimum HR requirements, Health and Safety policy

On 31 December 2020, there were 23 189 (25 141) employees in the Group. The average number of employees in 2020 was 24 455, which is 1 640 less than the average number in 2019. The numbers include 50% of the employees at Veracel in Brazil and Montes del Plata in Uruguay.

Personnel expenses totalled EUR 1 270 (1 331) million or 14.8% of sales. Wages and salaries were EUR 966 (1 004) million, pension costs EUR 152 (166) million and other employer costs amounted to EUR 151 (157) million.

At the end of 2020, the Group's top four countries in respect to the number of employees were Finland, Sweden, China, and Poland. 24% (26%) of employees were women.

Personnel turnover in 2020 was 12.7% (16.3%, restated). Illness-related absenteeism amounted to 3.6% (3.4%, restated) of total theoretical working hours.

In 2020, our Total Recordable Incident (TRI) rate decreased to 6.1 (7.0). The milestone for 2020 was 4.7. Tragically, during the year, two fatalities occurred at our Guangxi forestry operations in China, both involving contractor employees. We have investigated the incidents and their root causes together with the contractor and local authorities. The learnings from these tragic events will be acted upon at Stora Enso to prevent such accidents from recurring.

Stora Enso's KPI for leadership, the Leadership Index, measures employee perceptions of their managers. The index is calculated based on our annual employee survey. Our target is to achieve an index of 85/100 by 2022. In 2020, the Leadership Index improved to 84 (83).

Remuneration to the Board of Directors and key management is described in [Note 7](#) of the Consolidated financial statements.

Suppliers

Key policy: Supplier Code of Conduct (SCoC)

Stora Enso's key performance indicator (KPI) for responsible sourcing measures the proportion of our total supplier spend covered by our SCoC, including all categories and regions. By the end of 2020, 96% of Stora Enso's total spend on materials, goods, and services was duly covered (96% at the end of 2019), which exceeds our target to maintain the high level of 95%.

Community

Key policies: Human Rights Policy, Guidelines for Social Responsibility

Guangxi, China

Stora Enso leases 81 000 hectares of land in Guangxi province China, of which 53 600 hectares is leased from state-owned forest farms. The remaining 27 400 hectares, or 34% of the total area, is social land leased from village collectives, individual households, and local forest farms.

Parts of the land leased by Stora Enso have been occupied for up to ten years for the purpose of growing crops and trees on a small scale. In some cases, the occupiers are claiming rights to the land based historical land ownership documents that have been superseded by state ownership in successive land reform processes.

At the end of the year, 5 350 hectares of productive land leased by Stora Enso was occupied, including 4 870 hectares of state-owned land and 480 hectares of social land. Approximately 4 000 people were growing crops and trees on the occupied land. In 2020, the Guangxi government's recent efforts to recover occupied land in the province reached areas where Stora Enso leases land from state-owned forest farms. Stora Enso is carefully monitoring the land recovery process and, for example, reserves the right to stop the proceedings at any point. We have also trained our local staff

to identify causes for concern, to promote our grievance channel, and to engage with the occupiers to ensure that they are informed and do not feel threatened.

Bahia, Brazil

In Bahia, Brazil, work continued on a Sustainable Settlement Initiative launched in 2012 to provide farming land and educational support for local families in the landless people's social movements. In 2018, Veracel signed a new agreement with the social landless movements to complement the earlier agreed Sustainable Settlement Initiative.

Since 2012, Veracel has voluntarily approved the transfer of approximately 20 000 hectares of land to benefit landless people. By the end of 2020, 215 hectares or 0.3% of productive land owned by Veracel remained occupied by movements not involved in the agreements. Veracel will continue to seek repossessions of the remaining occupied areas through legal processes.

At the end of 2020, the total land area owned by Veracel was 213 000 hectares, of which 82 000 hectares are planted with eucalyptus for pulp production.

Respect for human rights

Key policy: Human Rights policy

Stora Enso's commitment to respect human rights covers all our operations, including our employees, contractors, suppliers, and neighbouring communities. In addition to our commitment to the UN Guiding Principles on Business and Human Rights, Stora Enso's annual Slavery and Human Trafficking Statement is available at storaenso.com/sustainability. Human rights are integrated into our Sustainability Agenda, which is aligned with the ten principles of the UN Global Compact.

While we respect and consider all human rights important, our highest priority human rights remain the primary focus of our work:

- Health and safety
- Fair labour (fair employment conditions, forced labour, freedom of association, non-discrimination and non-harassment)
- Land and natural resource rights acquisition and management
- Grievance mechanisms
- Children's rights (relevant to the forest sector).

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We continued to develop our human rights due diligence programme in 2020. By the end of the year, we had finalised 22 out of 24 actions addressing development areas that were identified in 2019.

Anti-corruption and bribery matters

Key policies: Business practice policy, the Stora Enso Code (Code of Conduct) As to Business Ethics, in 2020, a total of 86 reports received through Stora Enso's various grievance channels were identified as potential non-compliance cases (57 in 2019). A total of 76 investigations of potential non-compliance cases were completed in 2020 (40 in 2019), also including open cases from previous years. Proven cases leading to disciplinary action, legal action and/or process improvements were identified in 28 (26) of the investigations. Based on our assessments, 10 of the proven cases can be considered to relate to corruption and/or fraud (9 in 2019). All these cases resulted in employee dismissal or disciplinary process. Two of the cases resulted in the termination of business relationships.

The company's code of conduct index monitors and evaluates employees' perceptions of Stora Enso's work on topics covered by the Stora Enso Code and it is based on the annual employee survey results. In 2020, the index increased to 86 in 2020 (84 in 2019). Our objective is to maintain the positive trend by increasing our efforts in communications and training during 2021.

Environmental investments and liabilities

In 2020 Stora Enso's environmental investments amounted to EUR 91 (54) million. These investments were mainly to improve the quality of air and water, to enhance resource efficiency and energy self-sufficiency, and to minimise the risk of accidental spills.

Stora Enso's environmental costs in 2020 excluding interest and including depreciation totalled EUR 195 (172) million. These costs include taxes, fees, refunds, permit-related costs, and repair and maintenance costs, as well as waste water treatment chemicals and certain other materials.

Provisions for environmental remediation amounted to EUR 91 (97) million at 31 December

2020, details of which are in [Note 22](#), Other Provisions, of the Consolidated financial statements. There are currently no active or pending legal claims concerning environmental issues that could have a material adverse effect on Stora Enso's financial position. Payments related to environmental remediation measures amounted to EUR 18 (12) million.

Risks and risk management

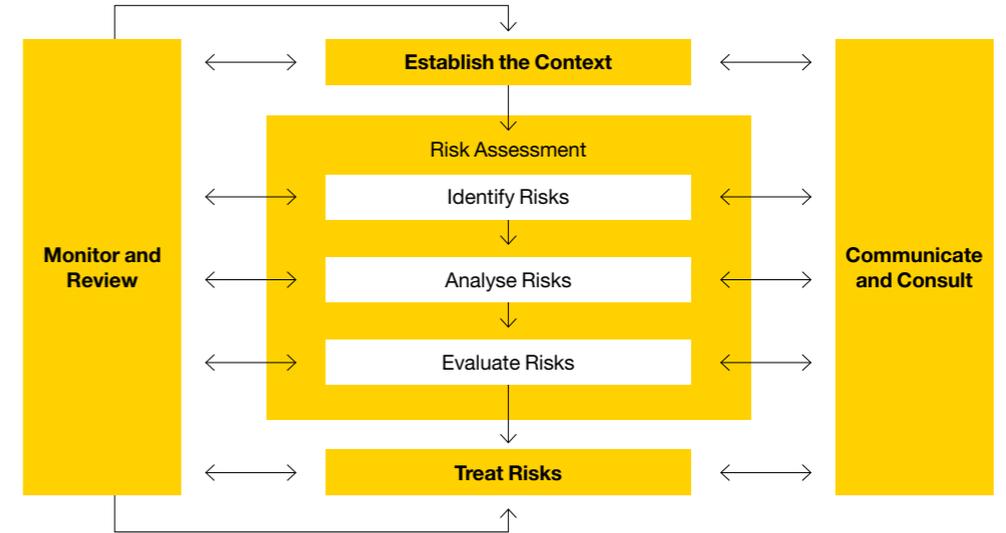
Our approach to risk management

Risk is an integral element of business and corporate governance, and it is characterised by both threats and opportunities, which may have an impact on future performance and the financial results of Stora Enso, as well as on its ability to meet certain social and environmental objectives. Stora Enso is committed to ensuring that systematic, holistic and proactive management of risks and opportunities is among its organisational core capabilities, and that a culture is fostered where both are carefully considered in all business decisions. Through consistent application of dynamic risk analysis and scenario planning, we enhance opportunities and manage risk in order to reduce threats which may prevent us from reaching our business goals.

Risk governance

Stora Enso defines risk as the effect of uncertainty on our ability to meet organisational values, objectives and goals. The Group Risk and Internal Control Policy, which is approved by the Board of Directors, sets out the overall approach to governance and the management of risks in accordance with the COSO (Committee of Sponsoring Organizations) framework and in line with the ISO 31000 standard. The Board retains the ultimate responsibility for the overall risk management process and for determining predominantly through Group policies the appropriate and acceptable level of risk. The Board has established a Financial and Audit Committee to provide support to the Board in monitoring the adequacy of the risk management process within Stora Enso, and specifically regarding the management and reporting of financial risks. This oversight scope includes also monitoring of the cybersecurity risk. The Sustainability and Ethics Committee is responsible for overseeing the company's sustainability and ethical business conduct, its

Risk management process



strive to be a responsible corporate citizen, and its contribution to sustainable development.

The head of Enterprise Risk Management, reporting to the CFO, is responsible for the design, development and monitoring of the top-down implementation of the Group risk management framework. Each division and Group function head, together with their respective management teams, are responsible for process execution and cascading the framework and guidelines further down in the organisation. The Internal Audit unit evaluates the effectiveness and efficiency of the Stora Enso risk management process.

During 2020, the dedicated Group level coordination team continued its' work related to the implementation of the TCFD (Task Force on Climate-related Financial Disclosures) recommendations. Also, collaboration between different risk and assurance functions was strengthened with more systematic cross-functional cooperation.

Risk management process

Risk management is embedded in all decision-making processes, with holistic risk assessments conducted also as part of all significant investment decisions. In connection with the annual strategy process, business divisions and

group service and support functions conduct a holistic baseline risk assessment, linked to their key objectives. Specific guidance regarding the risk management process is outlined in the enterprise risk management instructions.

Business entities and functions identify the sources of risk events including changes in circumstances and their causes and potential consequences. Stora Enso's risk model outlines the overall risk universe which is used to support holistic risk identification and risk consolidation, while also providing taxonomy as well as consistency in risk terminology.

Risk analysis involves developing an understanding of the risk to provide an input for risk evaluation. The purpose of risk evaluation is to determine the risk priorities and to support decision making to determine which risks require treatment/actions. Risks are assessed in terms of their impact and likelihood of occurrence, often based on specific risk scenarios. The effectiveness of existing risk reduction is factored in to define the residual risk level. Pre-defined impact scales consider financial, safety and reputational impacts, on both a quantitative and qualitative basis.

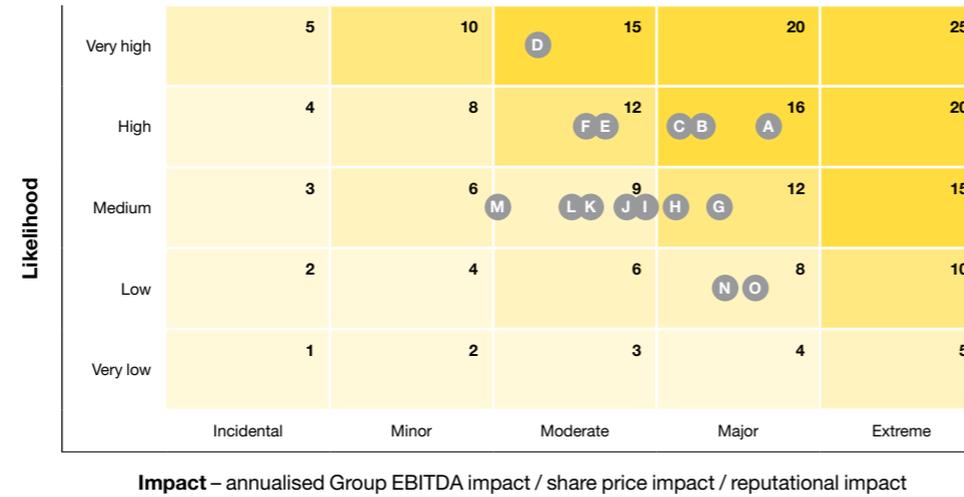
Risk treatment involves selecting one or more risk management option, such as avoidance,

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Main risk factors

Risk map



Key risks in 2020

Risk	Risk classification	Time span*	Change vs 2019	Level of possible management influence
Major impact – high likelihood				
A	Macroeconomy, geopolitics, and currency rates	S/F	ST ↑	High
B	Global warming – physical impacts	S	LT ↑	High
C	Regulatory changes	S/C	MT ↑	High
Moderate impact – very high likelihood				
D	Personal safety – employees and wider workforce	O	ST →	Medium
Moderate impact – high likelihood				
E	Information technology, security and digitalisation	O	MT →	Medium
F	Sourcing	S/O	MT →	Medium
Major impact – medium likelihood				
G	Ethics and compliance	C	MT →	Medium
H	People and capabilities	O	MT →	Medium
Moderate impact – medium likelihood				
I	Competition and market demand	S	MT →	Medium
J	Physical assets	O	ST/LT ↑	Medium
K	Product safety and compliance	O/C	MT →	Medium
L	Strategic investments	C	MT ↓	Medium
M	Communities and human rights	O/C	MT →	Medium
Minor impact – low likelihood				
N	Forest and land use	O/C	MT →	Low
O	Mergers, acquisitions and divestments	O/C	MT →	Low

* The most relevant timeframe when underlying risk factors are expected to manifest themselves

Symbols

- S = Strategic
- O = Operational
- C = Compliance
- F = Financial market and reporting
- ST = Short-term (next 12 months)
- MT = Medium term (1–5 years)
- LT = Long-term (upto 25–30 years)

Change vs 2019

- Increased ↑
- Decreased ↓
- Stable →

Level of possible management influence



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reduction, sharing or retention. Additional risk mitigation actions are determined for risks which exceed the perceived risk tolerance incorporating the assignment of responsibility, schedule and timetable of the risk response actions.

Following the annual baseline assessment, prioritised and emerging risks, as well as the corresponding risk mitigation and business continuity plans related to those risks, are reviewed in divisional business review meetings on a semi-annual basis.

Despite the measures taken to manage risks and mitigate the impact of risks, and while some of the risks remain beyond the direct control of the management, there can be no absolute assurance that risks, if they occur, will not have a materially adverse effect on Stora Enso's business, financial condition, operating profit or ability to meet financial obligations.

Strategic risks

Macroeconomy, geopolitics, and currency rates

Stora Enso operates in more than 30 countries and is affected by the global economy. Changes in broad economic conditions, sharp market corrections, increasing volatility in foreign exchange rates and chronic fiscal imbalances could have negative and material impact on the Group's profit, cash flows and financial position. A prolonged global recession may materially and adversely affect Stora Enso's performance and financial condition. A recession may also materially affect the Group's customers, suppliers and other parties with whom it does business. Exchange rate fluctuations may have a material impact on the reported results through transaction and translation risk impact.

A significant and sustained economic downturn or economic shock, such as the one triggered by Covid-19 during 2020, may involve materially adverse impact on the Group's operational performance and financial condition. While the global economic outlook has brightened towards the end of 2020, our baseline assumptions show a weaker rebound in 2021 than anticipated earlier. Recent positive vaccine news have shifted the balance of risks substantially and opened the door to a more rapid relaxation of restrictions. However, further downside risks, including rising risk aversion among households, businesses and investors, fragility of systemic

resilience, and subdued growth over the medium term are still notable. Consequently, the overall macroeconomic risk is considered to have increased on relative basis, compared to the conditions at end of 2019.

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to achieve cost-effective funding in Group companies and manage financial risks using financial instruments to reduce earnings volatility. The main exposures for the Group besides currency risk are interest rate risk, funding risk, commodity price risk and credit risk.

Financial risks are discussed in detail in [Note 24](#), Financial risk management, of the Consolidated financial statements.

Policy principles and mitigation measures

The Group has a diversified portfolio of businesses which mitigates exposure to any one country or product segment. We monitor the external environment continuously and our planning assumptions and dynamic scenario modelling take account of important near- to medium-term and long-term drivers and risks related to key macro-economic factors. We closely monitor the Board-approved risk appetite compliance for specific financial metrics and actively manage cash flow and liquidity. We hedge 50% of the highly probable 12-month net foreign exchange flows in main currency pairs. Currency translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset. The divisions regularly monitor their order flows and other leading indicators, where available, so that they may respond quickly to deterioration in trading conditions. In the event of a significant deterioration in general economic condition and in main leading economic indicators, the Group identifies and implements cost reduction measures to offset the impact on margins from deterioration in sales.

Related opportunities

- A diverse business portfolio and geographical presence, competitive strength and resilient balance sheet reduce the Group's risk exposures
- Strategic opportunities in changing currency and macroeconomic environment.

Global warming – physical impacts

Physical risks related to climate change are assessed based on stress scenario on long-term (25-30 years) basis. Changes in precipitation patterns, periods of drought, typhoons and severe frost periods in the subtropics could cause damage to operations and tree plantations. Increases in average temperatures could lead to changes in the tree species composition of forests. Drought periods together with high temperatures increase the risk of forest fires and insect outbreaks, potentially affecting forests and regional wood prices. Milder winters will impact harvesting and transport of wood in northern regions and the related costs. Water stress to our production units is not seen as a material risk given geographical location. The increase in risk level vs 2019 is driven by the lack of political decisions and multilateral coordination to mitigate the climate change, increasing the probability of physical impacts. See also "[Competition and market demand](#)", "[Regulatory changes](#)" and "[Sourcing](#)".

Policy principles and mitigation measures

Physical risks are to great extent subject to risk transfer and thereby within the cover of our property and business interruption insurance programs. With regards to forest and plantation assets, making roughly 35% of the Group's balance sheet, Stora Enso benefits from strong strategic resilience through geographical diversification within the asset portfolio. Moreover, risks related to insect damages such as bark beetle infestation in Nordic forest assets is limited by better inherent endurance of Nordic forest compared for instance to Central-European forests. Diligent plantation planning is ensured to avoid frost sensitive areas and non-controversial tree breeding and R&D programmes are applied to increase tolerance of extreme temperatures. Stora Enso maintains a diversity of forest types and structures and enforces diversification in wood sourcing. Wood harvesting in soft soils involves the implementation of best practices guidelines.

Related opportunities

Nordic forests in Finland and Sweden benefit from increased heat summation and longer growing seasons, leading to acceleration in forest growth with direct positive impact on the value of own forest asset and indirect impact related to market wood availability and cost.

Competition and market demand

Continued competition and supply and demand imbalances in the raw material, energy and products market, driven by megatrends such as eco-awareness and climate change, may have an impact on profitability. The paper, pulp, packaging and wood products industries are mature, capital intensive and highly competitive. Stora Enso's principal competitors include a number of large international forest products companies and numerous regional and more specialised competitors. Customer demand for products is influenced by the general economic conditions and inventory levels and affects product price levels. Product prices, which tend to be cyclical in this industry, are affected by capacity utilisation, which decreases in times of economic slowdowns. Changes in prices differ between products and geographic regions.

The following table shows the operating profit sensitivity to a +/- 10% change in either price or volume for different segments based on figures for 2020.

Operating profit: Impact of changes +/- 10%, EUR million

Segments	Price	Volume
Packaging Materials	296	118
Packaging Solutions	58	20
Biomaterials	109	32
Wood Products	135	44
Forest	201	15
Paper	180	50

Furthermore, as a global warming-related risk, extreme weather events may disrupt the operations of our customers, and consequently result in increased volatility on product demand.

Policy principles and mitigation measures

The ability to respond to changes in product demand and consumer preferences and to develop new products on a competitive and economic basis calls for innovation, continuous capacity management and structural development. The risks related to factors such as demand, price, competition and customers are regularly monitored by each division and unit as a routine part of business management. These risks are also continuously monitored and evaluated on a Group level to gain a perspective of the Group's total asset portfolio and overall long-term profitability potential.

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Related opportunities

Stora Enso, as one of the biggest private forest owners in the world, benefits from a strategic renewable resource base. Our expertise in wood and wood based renewable materials is focused on responding to changing customer and consumer preferences, driven by the climate change. Products based on renewable materials with a low carbon footprint help customers and society at large to reduce CO₂ emissions by providing an alternative to solutions based on fossil fuels or other non-renewable materials.

Operational risks

Personal safety – employees and wider workforce

Failure to maintain high levels of safety management can result in harm to the Group's employees and contractors, and also to communities near our operations and the environment. Impacts in addition to physical injury, health effects and environmental damage could include liability to employees or third parties, impairment of the Group's reputation, or inability to attract and retain skilled employees. Government authorities could additionally enforce the closure of our operations on a temporary basis.

Personnel safety and security can never be compromised and thus Stora Enso must be aware of potential safety risks and provide adequate guidelines to people for managing risks related to, for example, travelling, working and living in countries with security or crime concerns. Focusing on the security of key personnel is also important from a business continuity perspective.

Policy principles and mitigation measures

Stora Enso's goal is to provide an accident-free workplace. Encouraging a company-wide safety culture means that everyone is responsible for making every workday healthy and safe - from our top management and throughout the company. Safety management at Stora Enso is based on international standards such as OHSAS 18001 and ISO 45001, but our processes go beyond these requirements.

Stora Enso's approach to safety extends to contractors, suppliers, and on-site visitors. We encourage everyone to give feedback and provide ideas on how to further improve safety. Additionally, we promote safety among our contractors and suppliers through a dedicated e-learning - Safety

Trail. We also emphasise the importance of safety by asking suppliers for information on their safety performance in our tendering process.

Stora Enso's Health and Safety Policy defines the objectives for our safety management as well as our governance model on how we manage health and safety topics in practice and how we integrate them into annual planning and reporting.

Other key documents applied in our people and safety management include our:

- Stora Enso Code - our code of conduct
- Supplier Code of Conduct
- Minimum Human Resources Requirements - Labour Conditions
- Global Framework Agreement
- Diversity Policy

For more information please see **Sustainability 2020: Employees and wider workforce.**

Related opportunities

- Leading health and safety performance strengthens the brand as an employer.
- Improved engagement, efficiency and productivity.

Information technology, security, and digitalisation

The Group is dependent on IT systems for both internal and external communications and for the day-to-day management of its operations. The Group's information systems, personnel and facilities are subject to cyber security risk. Other operational IT related risks relate to the potential unavailability of IT services due to human error in operations, damaged hardware in data rooms and data centres, network connection issues and the failure of suppliers to follow service level agreements.

Accidental disclosure of confidential information due to a failure to follow information handling guidelines or due to an accident or criminal act may result in financial damage, penalties, disrupted or delayed launch of new lines of business or ventures, loss of customer and market confidence, loss of research secrets and other business critical information. Further risks involve the loss of backup media and violation of data privacy regulations.

The digital transformation of businesses continues to alter the ways in which organisations operate. Digital capabilities penetrate all aspects of business and operating models, reshaping how

companies and functions generate value. Therefore, digitalisation also involves potentially disruptive forces. Moreover, customers, regulators and other stakeholders expect companies to understand what data they have or could have, what risks it poses, and to have plans to manage it well.

Business process erosion, failure to take advantage of the upside that technology offers or inability to harvest related synergies could significantly impair Stora Enso's competitiveness in the market place.

Policy principles and mitigation measures

The management of risks is actively pursued in the Information Risk Management System and best practice change management and project methodologies are applied. A number of security controls have been implemented to strengthen the protection of confidential information and to facilitate compliance with international regulations. Specific measures include a thorough RfP process in supplier selection for business-critical services, supplier audits, annual controls and audit, data centres located in low-risk areas, backup connections for critical services, disaster recovery plans, targeted scanning and investigation activities, encryption of communication, information and devices, remote management of security on devices and information security awareness training.

Stora Enso has an extensive digitalisation programme with the aim to develop a competitive advantage by making full use of the opportunities to drive revenue growth and internal efficiency. Moreover, Stora Enso has established a programme with external partners to search for technological development initiatives with a clear business purpose. With experimental and fast prototyping, these projects will help to identify and further develop initiatives that will speed up Stora Enso's digital agenda by exploring new technologies and capabilities.

Related opportunities

- Efficient operations, performance optimisation, innovative product offerings, and new customer services through digitisation and sophisticated IT systems.
- New technologies offer significant potential for higher level of process optimisation and automatization, generating new business and enhanced value propositions for customers and consumers.

Sourcing

Violation of Supplier Code of Conduct could result in contractual, financial and reputational damages and loss of sales, if Stora Enso were to be blacklisted by customers. Similarly, poor occupational safety performance of subcontractors can be a risk to our reputation. Increasing input costs or availability of materials, goods and services may adversely affect Stora Enso's profitability. Securing access to reliable low-cost supplies and proactively managing costs and productivity are of key importance. Reliance on outside suppliers for natural gas, oil and coal, and nearly half of the electricity consumed, leaves the Group susceptible to changes in energy market prices and disturbances in the supply chain. As a global warming-related physical risk, potential acute availability shocks or chronic shortage of water may in the long term impact the Group's operations through our supply chains. There is also an increased risk for disturbances in the supply chain due to cyber incidents, pandemic related lockdown measures, political instability and other drivers related to global trade.

The following table shows Stora Enso's major cost items.

Composition of costs in 2020

Operative costs	% of costs	% of sales
Logistics and commissions	11%	10%
Manufacturing costs		
Fiber	32%	30%
Chemicals and fillers	9%	9%
Energy	6%	5%
Material	6%	5%
Personnel	16%	15%
Other	13%	12%
Depreciation	7%	7%
Total costs and sales	100%	93%
Total operative costs and sales in EUR million	7 954	8 553
Equity accounted investments (EAI), operational		51
Operational EBIT (EUR million)		650

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In many areas Stora Enso is dependent on suppliers and their ability to deliver a product or a service at the right time and of the right quality. The most important products are fiber, chemicals and energy, and machinery and equipment in capital investment projects. Increased demand for carbon neutral primary and secondary biomass fuels may increase energy costs. Drought periods and changing precipitation patterns may affect hydropower generation and electricity prices for units in Europe. Sea level rise will in long term impact the accessibility to ports and salt water intrusion may cause disruption in inbound and outbound supply chain operations. The most important services are transport and various outsourced business support services. For some of these inputs, the limited number of suppliers is a risk.

Policy principles and mitigation measures
Input cost volatility is closely monitored on the business unit, divisional and Group level. The Group applies consistent long-term energy risk management. The price and supply risks are mitigated through increased own generation, shareholding in competitive power assets such as PVO/TVO, physical long-term contracts and financial derivatives. The Group hedges price risks in raw material and end-product markets and supports the development of financial hedging markets. The Group uses a wide range of suppliers and monitors them to avoid situations that might jeopardise continued production, business transactions or development projects.

Suppliers and subcontractors must also comply with Stora Enso's sustainability requirements as they are part of Stora Enso's value chain, and their weak sustainability performance could harm Stora Enso and its reputation. Stora Enso's sustainability requirements for suppliers and audit schemes cover its raw materials, and other goods and services procured. Suppliers are assessed for risks related to their environmental, social and business practices through self-assessment questionnaires and supplier audits. Findings from such assessments are continuously followed up and progressive blacklisting procedures are applied as necessary.

Related opportunities

- Add value and bring innovation to our business globally by building strong and measurable relationships with the best suppliers.

- Enforce harmonised sourcing processes to increase capabilities, increase tender quality to reduce cost, and develop sustainable suppliers to reduce risk.

People and capabilities
Recruiting, retaining and developing a competent workforce and managing key talent throughout Stora Enso's global organisation are crucial to success. Competition for personnel is intense and the Group may not be successful in attracting or retaining qualified personnel. A significant portion of Stora Enso employees are members of labour unions and there is a risk that the Group may face labour market disruptions especially in times of restructuring and redundancies due to divestments and mill closures or during labour market negotiations. Moreover, in Finland, the Forest Industry Association has imposed fundamental changes to central agreements and hence Stora Enso will move into a collective bargaining model gradually from 2022. This change and the implementation of adopted process involves increased uncertainty related to labour relations. The loss of key employees, the Group's inability to attract new or adequately trained employees, or a delay in hiring key personnel could seriously harm the Group's business and impede the Group and its business divisions from reaching their strategic objectives. Labour market disruptions and strikes could have adverse material effects on the business, financial conditions and profitability.

Policy principles and mitigation measures
Stora Enso manages the risks and loss of key talents through a combination of different actions. Some of the activities aim at providing a better overview of the workforce of the whole Group, making the Stora Enso employer brand better known both internally and externally, globalising some of the remuneration practices and intensifying the efforts to identify and develop talents. Finally, the Group actively focuses on talent and management assessments, including succession planning for key positions. The majority of employees are represented by labour unions under several collective agreements in different countries where Stora Enso operates, thus relations with unions are of high importance to manage labour disruption risks.

Related opportunities

- Skilled and dedicated employees are essential for success.
- Engaged high performing people enable the implementation of transformation strategy and commercial success.

Physical assets
The physical assets that comprise the installed capacity of the production facilities have inherent risks or the potential for failure, and also involve risks for off-specification operation that could result in poor product quality, unplanned production downtime and lower output or increased production costs. In addition to the inherent risks of material process failure, the management must also consider the relative importance, e.g. criticality, of each asset on the plant's ability to meet delivery commitments and the business plan. In some instances, the risks are the result of inherent design deficiencies, failures in mode of operation or operating practices. In Stora Enso the significant asset risks lie predominantly in integrated (but also non-integrated) pulp and related energy production. The risks related to physical assets have slightly increased compared to end of 2019, driven by some delays in maintenance debt reduction, partly because of Covid-19 restrictions.

Policy principles and mitigation measures
Protecting production assets and business results is a high priority for Stora Enso to achieve the target of avoiding any unplanned production stoppages. This is achieved through structured methods of identifying, measuring and controlling different types of process risk and exposure. Divisional risk specialists manage this process together with insurance companies and other loss prevention specialists. Each year a number of technical risk inspections are carried out at production units. Risk improvement programmes and cost-benefit analyses of proposed investments are managed via internal reporting and risk assessment tools. Internal and external property loss prevention guidelines, fire loss control assessments, key machinery risk assessments and specific loss prevention programmes are also utilised. Planned stoppages for maintenance and other work are important to keep machinery in good order. Preventive maintenance programmes and spare part criticality analyses are utilized to secure the high availability and efficiency of key machinery.

Related opportunities

- Optimised maintenance and well controlled loss prevention programmes.
- Potential for competitive advantage through improved productivity and overall efficiency.

Product safety and compliance
Some of our products are used for package liquids and food consumer products, so any defects could affect health or packaging functions and result in costly product recalls. Wood products are incorporated into buildings, and this may involve product liability resulting from failures in structural design, product selection or installation. Failure to ensure product safety could result in product recalls involving significant costs including compensation for indirect costs of customers, and reputational damage.

Policy principles and mitigation measures
The mills producing food and drink contact products have established certified hygiene management systems based on risk and hazard analysis. To ensure the safety of its products, Stora Enso actively participates in CEPI (Confederation of European Paper Industry) working groups on chemical and product safety. In addition, all Stora Enso mills have certified ISO quality management systems. Furthermore, contractual liability limitation and insurance protection are used to limit the risk exposure to Stora Enso.

Related opportunities

- Differentiation and value creation through superior product quality and the highest level of product conformity.

Forest and land use
Wood is our most important raw material. Failure to meet stakeholder expectations or to ensure the chain of custody and economically, socially and environmentally sustainable forest and land management practices throughout our wood procurement and plantation operations could also result in significant reputational and financial loss to Stora Enso. Unpredicted changes in forest certification schemes could limit the availability of certified raw materials. Furthermore, global challenges such as population growth, global warming, increasing demand for agricultural land and bioenergy, and the widening gap between the supply and demand for wood, all require us to use

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natural resources even more efficiently. See also "Global warming - physical impacts", "Regulatory changes", and "Communities and human rights".

Policy principles and mitigation measures

Our Policy for Wood and Fiber Sourcing, and Land Management, robust traceability systems and our active promotion of forest certification all help to ensure that no wood or fiber from unacceptable sources enters our supply chain. In addition, when sourcing logging residues and other forest biomass for energy use, we follow the specific guidelines developed for the harvesting of forest energy, which include strict environmental considerations.

Related opportunities

As trees absorb carbon dioxide (CO₂) from the atmosphere and – together with wood-based products – act as carbon sinks, wood from sustainably managed forests represents a carbon neutral, renewable alternative to many non-renewable materials. If forests and plantations are managed sustainably, new generations of trees will replace those that are logged, sequestering more CO₂ from the atmosphere. Well-managed forests can make entire ecosystems more resilient to negative impacts, and benefit from positive ones.

Mergers, acquisitions, and divestments

Failure to achieve the expected benefits from an acquisition or value from assets or businesses sold can have serious financial impacts. The Group could find itself liable for past acts or omissions of the acquired business, without any adequate right of redress. Failure to achieve expected values from the sales of assets or deliveries beyond the expected receipt of funds may also impact the Group's financial position. In connection with an acquisition, past practices with targets related to e.g. pollution, competition law compliance or corruption could result in additional costs for Stora Enso and cause reputational damage. Divestments may involve additional costs due to historical and unaccounted liabilities. Business restructuring may also involve reputational impacts.

Policy principles and mitigation measures

Rigorous M&A guidelines, including due diligence procedures are applied to the evaluation and execution of all acquisitions that require the

approval of the Board of Directors. Structured governance and policies such as the policy for responsible right-sizing, are followed when making restructuring decisions.

Related opportunities

A strong balance sheet and cash flow enable value enhancing M&A, when the timing and opportunity are right.

Compliance risks

Regulatory changes

The Group's businesses may be affected by political or regulatory developments in any of the countries and jurisdictions in which the Group operates, including changes to fiscal, tax, environmental or other regulatory regimes. Potential impacts include higher costs and capital expenditure to meet new environmental requirements, expropriation of assets, imposition of royalties or other taxes targeted at our industry, and requirements for local ownership or beneficitation.

The EU Green Deal and its climate targets for 2030 and 2050 have resulted in proliferation of future legislation which will impact Stora Enso. The policy initiatives from European commission will include policies and legislation on areas such as EU Forest Strategy, EU ETS, Carbon Border Adjustment mechanism, Sustainable products initiative, Packaging and Packaging waste revision as well as EU taxonomy.

In particular, the EU energy and carbon policies may impact the availability and price of wood fiber. Concerning the EU Emissions Trading Scheme (ETS) 4th trading period, carbon leakage will remain, but the allocation of free allowances is expected to decline. A stress scenario over the next ten years and with a carbon allowance price at 50 EUR/t, assuming the current proposal for the 4th ETS trading period, implies an annual financial impact below Group materiality threshold, even when factoring in increased costs from purchased electricity.

Increased demand for carbon neutral primary and secondary biomass fuels may increase energy costs. General opinion and political consensus to limit wood harvesting, arising from the view to further increase forests' function as carbon sinks while ignoring the net-positive climate impact of forest products, could limit the availability of wood, increase costs and reduce investment

opportunities. Additionally, political instability may result in civil unrest, nullification of existing agreements, harvesting permits or land leases.

Regulation as part of the EU's Action Plan on sustainable finance brings new climate related obligations on both investors and corporates, in particular through the EU Taxonomy on sustainable activities and integration of ESG risks in investment processes. There is uncertainty as to how Stora Enso's share will be classified as an investment object in light of this emerging regulation, but good management of financial climate and other sustainability related risks and opportunities, as well as disclosure thereof, will improve the likelihood of a favourable perception by the capital markets and thus the cost of capital.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in different countries e.g. Finland, China and Sweden. If committed planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso, and the outcome of such a process could result in a negative financial impact on Stora Enso.

The risks related to regulatory changes have increased during 2020 driven by more protectionist policies amongst key economies and due to potential downside impacts related to key transition risks, such as the EU Green Deal programme.

Policy principles and mitigation measures

- Active monitoring of regulatory and political developments in the countries where the Group operates
- Participation in policy development mainly through industry associations and other partnership programmes

Related opportunities

- Regulatory changes involve market growth potential for sustainable products. Resource efficiency, the low-carbon circular economy and renewability are increasingly important sources of competitive advantage.

Ethics and compliance

Stora Enso operates in a highly regulated business area and is thereby exposed to risks related to breach of applicable laws and regulations (e.g. capital markets regulation,

company and tax laws, customs regulation and safety regulation) and breaches of group policies such as the Stora Enso Code, Supplier Code of Conduct and Business Practice Policy regarding fraud, anti-trust, corruption, conflict of interests and other misconduct. Stora Enso may face high compliance and remediation costs under environmental laws and regulations. See also Information systems, security, and digitalisation. Potential impacts include prosecution, fines, penalties, and contractual, financial and reputational damage.

Policy principles and mitigation measures

Stora Enso's Ethics and Compliance Programme, including policy setting, value promotion, training and knowledge sharing and grievance mechanisms are kept continuously up to date and developed. Other compliance mechanisms include Stora Enso Group's internal control system and Internal Audit assurance, the Supplier Code of Conduct in supplier contracts, supplier risk assessments, supplier trainings, supplier audits and black-listing procedures. In response to capital markets regulations, Stora Enso's Disclosure Policy emphasises the importance of transparency, credibility, responsibility, proactivity and interaction.

Environmental risks are minimised through environmental management systems and environmental due diligence for acquisitions and divestments, and indemnification agreements where effective and appropriate remediation projects are required. Special remediation projects related to discontinued activities and mill closures are executed based on risk assessments.

Related opportunities

- Focusing on wider ethical topics rather than mere compliance with regulations will lead to successful business, foster accountability and enhance corporate reputation.

Strategic investments

Stora Enso's business strategy is to transform itself from a traditional paper and board producer to a customer-focused renewable materials growth company. The success of this transformation depends on the Group's ability to understand the needs of the customer and find the best way to serve them with the right offering and with the right production asset portfolio. Failure to complete strategic projects in

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accordance with the agreed schedule, budget or specifications can have serious impacts on our financial performance. Significant, unforeseen changes in costs or an inability to sell the envisaged volumes or achieve planned price levels may prevent us from achieving our business goals. The lower risk level compared to last year is due to lower committed strategic capital expenditure and the good progress in the Oulu Mill conversion project. Hence the risk associated with the implementation is lower.

Policy principles and mitigation measures

Risks are mitigated through profound and detailed pre-feasibility and feasibility studies which are prepared for each large investment. The Group's investment guidelines stipulate the process, governance, risk assessment, management and monitoring procedures for strategic projects, including climate related risk factors. The guidelines also require the calculation of potential cost and income for CO₂ emissions as part of the investment proposal.

Environmental and Social Impact Assessments (ESIAs) are conducted for all new projects that could cause significant adverse effects in local communities. Post completion audits are carried out for all significant investments.

Related opportunities

- Replacing fossil-based materials by innovating and developing new products and services based on wood and other renewable materials.

Communities and human rights

Social risks may harm existing operations and the execution of investments, especially in growth markets. Failure to successfully manage relationships with local communities and non-governmental organisations (NGOs) could disrupt our operations and adversely affect the Group's reputation. The Group operates in certain countries, where land and resource ownership rights remain unclear and where related disputes may arise.

In order to transform to a renewable materials company, business restructuring may be required which in some cases can lead to site closures and hence have a significant impact on local communities.

Potential impacts include reputational impacts and negative media coverage, harm to communities and rights holders, disruption of operations, and loss of the licence to operate.

Policy principles and mitigation measures

Stora Enso strives to identify and minimise risks related to social issues in good time, in order to guide decision-making in its investment processes, restructuring planning as well as in its ongoing operations. Tools such as sustainability risk assessment, human rights due diligence and Environmental and Social Impact Assessments (ESIA) help ensure that no unsustainable projects are initiated, and all related risks and opportunities are fully understood in all operations. These tools also enable project plans and operating practices to be adapted to suit local circumstances. Furthermore, dialogue with NGOs is a part of the Group's stakeholder engagement. More information on community engagement is presented in Stora Enso's [Sustainability Report](#).

Related opportunities

- Ensuring that the communities around our operations thrive economically, socially, and environmentally is crucial for the success and sustainability of Stora Enso.
- Clear business benefits to Stora Enso through a strong focus on social responsibility, as customers, business partners, investors and potential employees become more and more attracted to socially responsible companies.

For more information, please see Sustainability 2020: Human rights.

Climate-related financial disclosures (TCFD)

The Financial Stability Board's (FSB) Task Force on Climate-related Financial Disclosures (TCFD) recommends a framework for disclosing climate-related risks and opportunities that goes beyond current practices. In the online index table, we list our disclosures with reference to TCFD recommendations, and refer to those locations where these issues are addressed in our annual reporting. The location references are complemented in the index with additional information, as necessary.

Scenario analysis in 2020

The TCFD recommendations encourage companies to use scenario analysis to help ensure that their strategies are resilient to climate change in a range of possible future states. Leading practice shows that this is best approached by

breaking down the full scope of scenario analysis into a set of smaller scopes considering asset type and geography, and to apply prioritisation in conducting the full scenario analysis.

Stora Enso is one of the largest private forest owners in the world with forest assets valued at more than EUR 7 billion (land and biological assets, including Stora Enso's share of Tornator) in 2020, including the biological assets of EUR 6.4 billion in Sweden and Finland. Furthermore, 65% of Stora Enso's wood was sourced from Finland, Sweden, Norway and Northwestern part of Russia. Effects of climate change such as milder winters have already shown to have material impact on the harvesting and transport of wood in northern regions and related costs. To support our annual Enterprise Risk Assessment (ERM), in 2020 Stora Enso developed a scenario analysis with the qualitative assessment of the physical climate impacts on the Nordic forests and our business until 2050. This work was based on the Business-As-Usual scenario by the International Panel for Climate Change (RCP 8.5 scenario) that would deliver a temperature increase of 4–5 degrees. The climate change attributes considered are pests, diseases, droughts, wildfires, floods, periods of frost, water scarcity, changes to precipitation patterns, sea level rise and changing temperatures.

The results show that whilst under the right circumstances a higher temperature increases the growth rate of the forest and hence positively affects wood availability and forest valuation, the other attributes assessed primarily decrease wood availability and increase wood prices. In 2021, we will continue analysing our strategic resilience using different climate-scenarios as part of our annual risk assessment. We will advance the work on physical impacts as well as assess the business impact from a global transition required to limit the temperature increase in line with the Paris agreement.

For more information about our disclosures with reference to the TCFD recommendations and the locations where these issues are addressed in our annual reporting, see the [TCFD index table](#) on our website.

Opportunities from substituting non-renewable materials

In 2020, Stora Enso worked with the Swedish University of Agricultural Sciences (SLU) to further develop the scientific methodologies for calculating climate impact for forest product companies, including the contribution achieved

from substituting fossil based and other non-renewable materials – for example plastics or concrete. According to the SLU report Stora Enso is estimated to have a positive impact on the climate equivalent to a reduction of 11.5 million tonnes of CO₂e from the atmosphere (2019 data). Throughout 2020, Stora Enso also worked with the World Business Council for Sustainable Development on the publication of a new report on the circular bioeconomy, titled "The business opportunity contributing to a sustainable world" to help articulate the business case for low-carbon and circular products from the circular bioeconomy.

Corporate governance in Stora Enso

Stora Enso complies with the Finnish Corporate Governance Code issued by the Securities Market Association (the "Code"). The Code is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of the Corporate Governance Report. The deviations are due to differences between the Swedish and Finnish legislation, governance code rules and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

Legal proceedings

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

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Legal proceedings in Latin America Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of, at the time of the decision, BRL 20 (EUR 3) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

Changes in organisational structure

Stora Enso established a new Forest division and started reporting it separately at the beginning of 2020. The new division includes the Group's Swedish forest assets and its 41% share of the equity accounted investment Tornator with the majority of its forest assets located in Finland. The Forest division also includes wood supply operations in Finland, Sweden, Russia and the Baltic countries.

Stora Enso merged its containerboard business previously under the Packaging Solutions division with the Consumer Board division, creating a new Packaging Materials division. The remaining business in Packaging Solutions together with the formed fiber and biocomposite businesses unit, constitutes a more focused Packaging Solutions division. The change was effective as of 1 January 2020.

Changes in Group management

Jari Suominen was appointed EVP, Head of Forest division as of 1 January 2020. He remained a member of the Group Leadership Team.

David Ekberg was appointed as EVP, Head of Packaging Solutions division and member of the Group Leadership Team as of 1 April 2020.

Lars Völkel was appointed EVP, Head of Wood Products division, and member of the Group Leadership Team as of 1 July 2020.

Katariina Kravi was appointed EVP, Head of Human Resources, and member of the Group Leadership Team as of 1 September 2020. The previous Head of HR, **Malin Bendz**, left her position at Stora Enso in January 2020.

Annette Stube was appointed EVP, Head of Sustainability, and member of the Group Leadership Team as of 1 September 2020. She succeeded **Noel Morrin**, who retired at the end of 2020.

Tobias Bäärnman, Chief Strategy and Innovation Officer, and **Teemu Salmi**, CIO and Head of IT & Digitalisation, were appointed as members of the Group Leadership Team as of 1 November 2020.

Share capital

Stora Enso Oyj's shares are divided into A and R shares. The A and R shares entitle holders to the same dividend but different voting rights. Each A share and each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

During 2020, a total of 2 419 A shares converted into R shares were recorded in the Finnish Trade Register. On 31 December 2020, Stora Enso had 176 254 415 A shares and 612 365 572 R shares in issue. The company did not hold its own shares. The total number of Stora Enso shares in issue was 788 619 987 and the total number votes at least 237 490 972.

Board of Directors is authorised to decide on the repurchase and on the issuance of Stora Enso R shares. The amount of shares to be issued or repurchased shall not exceed a total of 2 000 000 R shares, corresponding to approximately 0.25% of all shares and 0.33% of all R shares.

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Major shareholders as of 31 December 2020

By voting power	A shares	R shares	% of shares	% of votes
1 Solidium Oy ¹	62 655 036	21 792 540	10.7%	27.3%
2 FAM AB ²	63 123 386	17 000 000	10.2%	27.3%
3 Social Insurance Institution of Finland	23 825 086	973 982	3.1%	10.1%
4 Ilmarinen Mutual Pension Insurance Company	4 312 762	16 593 924	2.7%	2.5%
5 Varma Mutual Pension Insurance Company	5 163 018	1 140 874	0.8%	2.2%
6 MP-Bolagen i Vetlanda AB	4 828 000	1 000 000	0.7%	2.1%
7 Elo Mutual Pension Insurance Company	2 000 000	8 111 225	1.3%	1.2%
8 Erik Johan Ljungberg's Education Foundation	1 780 540	2 336 224	0.5%	0.8%
9 SEB Investment Management	—	12 162 195	1.5%	0.5%
10 Bergslaget's Healthcare Foundation	626 269	1 609 483	0.3%	0.3%
11 The State Pension Fund	—	5 713 755	0.7%	0.2%
12 Unionen (Swedish trade union)	—	3 782 750	0.5%	0.2%
13 Lannebo Funds	—	3 690 000	0.5%	0.2%
14 The Society of Swedish Literature in Finland	—	3 000 000	0.4%	0.1%
15 OP-Suomi Investment Fund	—	2 914 494	0.4%	0.1%
Total	168 314 097	101 821 446	34.3%	75.2%
Nominee-registered shares ³	74 882 644	480 357 046	70.4%	51.8%

¹ Entirely owned by the Finnish State.

² As confirmed to Stora Enso.

³ According to Euroclear Finland.

The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A (Citi). This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts cannot be included. The list is therefore incomplete.

Share distribution as at 31 December 2020

By size of holding, A share	Shareholders	% of shareholders	Shares	% of shares
1-100	5 507	54.50%	234 386	0.10%
101-1 000	3 996	39.60%	1 431 560	0.80%
1 001-10 000	551	5.50%	1 271 602	0.70%
10 001-100 000	28	0.30%	601 791	0.30%
100 001-1 000 000	—	—%	—	—%
1 000 001-	7	0.10%	172 715 076	98.00%
Total	10 089	100.00%	176 254 415	100.00%

By size of holding, R share	Shareholders	% of shareholders	Shares	% of shares
1-100	12 641	31.70%	665 866	0.10%
101-1 000	20 727	51.90%	8 568 192	1.40%
1 001-10 000	5 924	14.90%	15 802 281	2.60%
10 001-100 000	478	1.20%	12 712 655	2.10%
100 001-1 000 000	78	0.20%	22 356 613	3.70%
1 000 001-	21	0.10%	552 259 965	90.10%
Total	39 869	100.00%	612 365 572	100.00%

According to Euroclear Finland.

This list includes only directly registered shares in Euroclear Finland. E.g. Stora Enso's Swedish shareholders are listed under their nominee bank in this list.

Ownership distribution as at 31 December 2020

	% of shares	% of votes
Solidium Oy ¹	10.7%	27.3%
FAM AB ²	10.2%	27.3%
Social Insurance Institution of Finland (KELA)	3.1%	10.1%
Finnish institutions (excl. Solidium and KELA)	11.4%	8.3%
Swedish institutions (excl. FAM)	6.6%	5.2%
Finnish private shareholders	4.0%	2.4%
Swedish private shareholders	4.2%	2.7%
ADR holders	2.0%	0.7%
Under nominee names (non-Finnish/non-Swedish shareholders)	47.9%	16.1%

¹ Entirely owned by the Finnish State.

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Outlook

Stora Enso resumes an annual outlook even though the uncertainties due to the ongoing pandemic in the global economy are expected to remain in 2021. Provided that the vaccination programmes progress as planned and the virus is contained, there are expectations of economic recovery. Until then, demand for our products remains mixed.

Operational EBIT in 2021 is expected to be higher than the 2020 operational EBIT.

Stora Enso will conclude its EUR 400 million profit protection programme by the end of 2021. The expected fixed and variable cost savings for the year are approximately EUR 80 million. The Group will continue to focus on customer service and cash flow generation in 2021.

Short-term risks and uncertainties

The global outlook has brightened. While we expect a weaker rebound in 2021 than anticipated in the end of Q3/2020, recent vaccine progress has shifted the balance of risks substantially and opened the door to a more rapid relaxation of restrictions. The global output is constrained by social distancing in the near term, before large-scale and permanent reductions in restrictions might begin around mid-2021. Nevertheless, and despite a strong initial recovery, high unemployment, stagnant investments, business insolvencies and surging corporate and sovereign debt, as well as dramatic market corrections triggered by unconventional monetary policy measures may limit the revival in 2021. In addition, Stora Enso continues to face uncertainty in the short and medium term. However, compared with previous recessions, both the industry in general and Stora Enso in particular with its diversified business portfolio and relatively strong balance sheet, are considered more resilient to economic shock and morbid business conditions.

Stora Enso maintains a Covid-19 risk assessment process to determine the potential near- and medium-term implications of the direct and indirect impacts on Stora Enso's business operations. The process builds on several alternative scenarios, involving the identification and planning of business contingency and cash preservation measures to limit the potential impacts across Stora Enso's business divisions

and to ensure sufficient liquidity in all conditions. The contemplated worst-case scenarios, which assume faltering vaccine progress and delayed W-shaped recovery, would not, in Stora Enso's view, lead to circumstances that would compromise Stora Enso's ability to continue as a going concern.

The trend towards nationalist anti-globalist policies may grow following the Covid-19 pandemic, with border checks on goods and people becoming more stringent and national interests being promoted. There is also a risk that even open economies, such as those in Western Europe and Asian business hubs, enact policies in direct opposition to globalisation. The tail risk related to the UK's exit from the EU, subsequent to the trade deal between the two, is mainly limited to near-term congestion in logistics, while the UK market demand is not expected to suffer notable impacts.

Sensitivity analysis

Energy sensitivity analysis: the direct effect of a 10% increase in electricity and fossil fuel market prices would have a negative impact of approximately EUR 11 million on operational EBIT for the next 12 months.

Wood sensitivity analysis: the direct effect of a 10% increase in wood prices would have a negative impact of approximately EUR 177 million on operational EBIT for the next 12 months.

Pulp sensitivity analysis: the direct effect of a 10% increase in pulp market prices would have a positive impact of approximately EUR 105 million on operational EBIT for the next 12 months.

Chemical and filler sensitivity analysis: the direct effect of a 10% increase in chemical and filler prices would have a negative impact of approximately EUR 32 million on operational EBIT for the next 12 months.

A decrease of energy, wood, pulp or chemical and filler prices would have the opposite impact.

Foreign exchange rates transaction risk sensitivity analysis for the next twelve months: the direct effect on operational EBIT of a 10% strengthening in the value of the US dollar, Swedish krona and British pound would be approximately positive EUR 133 million, negative EUR 20 million and positive EUR 22 million annual impact, respectively. Weakening of the currencies would have the opposite impact. These numbers are before the effect of hedges and assuming

no changes occur other than a single currency exchange rate movement in an exposure currency.

The Group's consolidated income statement on operational EBIT level is exposed to a foreign-currency translation risk worth approximately EUR 120 million cost exposure in Brazilian real (BRL) and approximately EUR 28 million income exposure in Chinese Renminbi (CNY). These exposures are arising from the foreign subsidiaries and joint-operations located in Brazil and China, respectively. For these exposures a 10% strengthening in the value of a foreign currency would have a negative EUR 12 million and a positive EUR 3 million impact on operational EBIT, respectively.

Events after the balance sheet date

On the 20 January 2021, the Court of Justice of the European Union has given a preliminary ruling (Lexel AB -case, C-484/19) which might have an impact on Stora Enso's pending disputes concerning the deduction of interest expenses in Sweden.

Proposal for the distribution of dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.30 per share be distributed on the basis of the balance sheet adopted for the year 2020. The Board of Directors has assessed the Company's financial situation and liquidity before making the proposal. There have been no material changes in the parent company's financial position since 31 December 2020, the liquidity of the parent company remains good and the proposed dividend does not risk the solvency of the company. Stora Enso's policy is to distribute 50% of earnings per share (EPS) excluding fair valuation over the cycle. In 2020, EPS excluding fair valuation was EUR 0.45.

The Parent Company distributable shareholders' equity on 31 December 2020 amounted to EUR 1 582 387 493.42, including the profit for the period of EUR 505 709 365.15. The Board of Directors proposes to the Annual General Meeting of the Company that the distributable funds be used as follows:

A dividend of EUR 0.30 per share from the distributable shareholders' equity to be

distributed on 788 619 987 shares, not to exceed EUR 236 585 996.10, which would leave EUR 1 345 801 497.32 in distributable shareholders' equity.

The dividend would be paid to shareholders who on the record date of the dividend payment, 23 March 2021, are recorded in the shareholders' register maintained by Euroclear Finland Oy or in the separate register of shareholders maintained by Euroclear Sweden AB for Euroclear Sweden registered shares. Dividends payable to Euroclear Sweden registered shares will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. Dividends payable to ADR holders will be forwarded by Citibank N.A. and paid in US dollars.

The Board of Directors proposes to the AGM that the dividend be paid on or about 30 March 2021.

Annual General Meeting

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Friday 19 March 2021. The Annual General Meeting 2021 will be held with exceptional procedures based on the temporary legislative act to limit the spread of the Covid-19 pandemic approved by the Finnish Parliament. This means that the shareholders of the Company and their proxy representatives may participate in the meeting and exercise their rights as shareholders only through voting in advance as well as by making counterproposals and presenting questions in advance. More information is available at storaenso.com/aggm

Non-IFRS measures

The Group's key non-IFRS performance metric is operational EBIT, which is used to evaluate the performance of its operating segments and to steer allocation of resources to them. Operational EBIT comprises the operating profit excluding items affecting comparability (IAC) and fair valuations from the segments and Stora Enso's share of the operating profit of equity accounted investments (EAI), also excluding items affecting comparability and fair valuations.

Items affecting comparability are exceptional transactions that are not related to recurring business operations. The most common IAC are capital gains and losses, impairments or impairment reversals, disposal gains and losses relating to Group companies, provisions for

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planned restructurings, environmental provisions, changes in depreciation due to restructuring and penalties. Items affecting comparability are normally disclosed individually if they exceed one cent per share.

Fair valuations and non-operational items include CO₂ emission rights, non-operational fair valuation changes of biological assets, adjustments for differences between fair value and acquisition cost of forest assets upon disposal and the Group's share of income tax and net financial items of EAI. From 1 January 2020 onwards, the changes in the fair valuation of biological assets are categorized in non-operational and operational fair value changes. Non-operational fair value changes of biological assets reflect changes made to valuation assumptions and parameters, usually during the annual valuation process. Operational fair value changes of biological assets are included in Operational EBITDA and contain all other fair value changes, mainly due to inflation and differences in actual harvesting levels compared to the harvesting plan. The previous periods have been restated.

Cash flow from operations (non-IFRS) is a Group specific way to present operative cash flow starting from operational EBITDA instead of operating profit.

Cash flow after investing activities (non-IFRS) is calculated as follows: cash flow from operations (non-IFRS) excluding cash spent on intangible assets, property, plant and equipment, and biological assets and acquisitions of EAls.

The full list of the non-IFRS measures is presented at the end of this report.

Calculation of key figures

Operational return on capital employed, operational ROCE (%)	$100 \times \frac{\text{Annualised operational EBIT}}{\text{Capital employed}^{1,2}}$
Operational return on operating capital, operational ROOC (%)	$100 \times \frac{\text{Annualised operational EBIT}}{\text{Operating capital}^2}$
Return on equity, ROE (%)	$100 \times \frac{\text{Net profit/loss for the period}}{\text{Total equity}^2}$
Net interest-bearing liabilities	Interest-bearing liabilities – interest-bearing assets
Net debt/equity ratio	$\frac{\text{Net interest-bearing liabilities}}{\text{Equity}^3}$
Earnings per share (EPS)	$\frac{\text{Net profit/loss for the period}^3}{\text{Average number of shares}}$
Payout ratio, excl. FV, %	$100 \times \frac{\text{Dividend distribution / share}}{\text{EPS excl. FV}}$
Dividend and distribution yield, %	$100 \times \frac{\text{Dividend distribution / share}}{\text{Closing price of share}}$
Price/earnings ratio (P/E), excl. FV	$\frac{\text{Closing price of share}}{\text{EPS excl. FV}}$
Operational EBIT	Operating profit/loss excluding items affecting comparability (IAC) and fair valuations (FV) of the segments and Stora Enso's share of operating profit/loss excluding IAC and fair valuations of its equity accounted investments (EAI)
Operational EBITDA	Operating profit/loss excluding silviculture costs and damage to forests, fixed asset depreciation and impairment, IACs and fair valuations. The definition includes the respective items of subsidiaries, joint arrangements and equity accounted investments.
Net debt/last 12 months' operational EBITDA ratio	$\frac{\text{Net interest-bearing liabilities}}{\text{LTM operational EBITDA}}$
Fixed costs	Maintenance, personnel and other administrative type of costs, excluding IAC and fair valuations
Last 12 months (LTM)	12 months prior to the end of reporting period
TRI rate	Total recordable incident rate = number of incidents per one million hours worked

¹ Capital employed = Operating capital – Net tax liabilities

² Average for the financial period

³ Attributable to owners of the Parent

List of non-IFRS measures

Operational EBITDA
 Operational EBITDA margin
 Operational EBIT
 Operational EBIT margin
 Profit before tax excl. IAC and FV
 Capital expenditure
 Capital expenditure excl. investments in biological assets
 Capital employed
 Depreciation and impairment charges excl. IAC
 Operational ROCE
 Earnings per share (EPS), excl. FV
 Fixed costs to sales
 Operational ROOC
 Net debt/last 12 months' operational EBITDA ratio
 Cash flow from operations
 Cash flow after investing activities

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Consolidated financial statements

Consolidated income statement

EUR million	Note	Year ended 31 December	
		2020	2019
Sales	3	8 553	10 055
Other operating income	5	147	165
Changes in inventories of finished goods and work in progress		-84	-102
Materials and services		-5 043	-5 964
Freight and sales commissions		-806	-904
Personnel expenses	6	-1 270	-1 331
Other operating expenses	5	-394	-686
Share of results of equity accounted investments	13	-1	229
Change in net value of biological assets	12	428	442
Depreciation, amortisation and impairment charges	10	-609	-597
Operating profit	3	922	1 305
Financial income	8	19	8
Financial expense	8	-168	-176
Profit before Tax		773	1 137
Income tax	9	-156	-281
Net profit for the year		617	856
Attributable to			
Owners of the Parent	18	626	880
Non-controlling Interests	19	-9	-24
Net profit for the year		617	856
Earnings per share			
Basic and diluted earnings per share, EUR	32	0.79	1.12

Consolidated statement of comprehensive income

EUR million	Note	Year ended 31 December	
		2020	2019
Net profit for the year		617	856
Other Comprehensive Income (OCI)			
Items that will not be reclassified to profit and loss			
Equity instruments at fair value through OCI	14	-136	109
Actuarial gains and losses on defined benefit plans	20	20	-78
Revaluation of forest land	12	1 504	0
Share of OCI of equity accounted investments (EAI)	13	12	0
Income tax relating to items that will not be reclassified	9	-315	6
		1 086	37
Items that may be reclassified subsequently to profit and loss			
Cumulative translation adjustment (CTA)	28	-143	206
Net investment hedges and loans	28	16	-9
Cash flow hedges and cost of hedging	27	54	-14
Share of OCI of non-controlling interests (NCI)	19	1	0
Share of OCI of equity accounted investments (EAI)	13	0	11
Income tax relating to items that may be reclassified	9	-15	2
		-87	196
Total comprehensive income		1 616	1 089
Attributable to			
Owners of the Parent		1 625	1 113
Non-controlling interests	19	-9	-24
Total comprehensive income		1 616	1 089

The accompanying Notes are an integral part of these Consolidated financial statements.

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Consolidated statement of financial position

EUR million	Note	As at 31 December	
		2020	2019
Assets			
Goodwill	O 11	281	302
Other intangible assets	O 11	134	169
Property, plant and equipment	O 11	5 007	5 101
Right-of-use assets	O 11	452	508
		5 874	6 080
Forest assets	O 12	6 256	4 136
Biological assets	O 12	4 250	3 627
Forest land	O 12	2 005	509
Emission rights	O	36	37
Equity accounted investments	O 13	456	483
Listed securities	I 14	16	12
Unlisted securities	O 14	401	526
Non-current interest-bearing receivables	I 25	93	72
Deferred tax assets	T 9	117	81
Other non-current assets	O 15	28	37
Non-current assets		13 276	11 463
Inventories	O 16	1 270	1 391
Tax receivables	T	14	11
Operative receivables	O 17	1 145	1 289
Interest-bearing receivables	I 25	66	23
Cash and cash equivalents	I	1 661	876
Current assets		4 155	3 590
Total assets		17 431	15 053

EUR million	Note	As at 31 December	
		2020	2019
Equity and liabilities			
Share capital	18	1 342	1 342
Share premium		77	77
Fair value reserve		1 506	397
Cumulative translation adjustment	28	-267	-136
Invested non-restricted equity fund		633	633
Retained earnings		4 891	4 236
Net profit for the year		626	880
Equity attributable to owners of the Parent		8 809	7 429
Non-controlling Interests	19	-16	-7
Total equity		8 793	7 423
Post-employment benefit obligations	O 20	473	458
Provisions	O 22	102	110
Deferred tax liabilities	T 9	1 332	875
Non-current interest-bearing liabilities	I 26	3 822	3 232
Other non-current operative liabilities	O 23	13	40
Non-current liabilities		5 743	4 713
Current portion of non-current debt	I 26	472	376
Interest-bearing liabilities	I 26	456	572
Bank overdrafts	I 26	6	13
Provisions	O 22	46	55
Other operative liabilities	O 23	1 837	1 854
Tax liabilities	T 9	78	48
Current liabilities		2 895	2 917
Total liabilities		8 637	7 630
Total equity and liabilities		17 431	15 053

Items designated "O" comprise Operating Capital, items designated "I" comprise Interest-bearing Net Liabilities, items designated "T" comprise Net Tax Liabilities.
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Consolidated cash flow statement

EUR million	Note	Year ended 31 December	
		2020	2019
Cash flow from operating activities			
Net profit for the year		617	856
Adjustments and reversal of non-cash items:			
Taxes	9	156	281
Depreciation and impairment charges	10	609	597
Change in value of biological assets	12	-428	-442
Change in fair value of share awards and total return swaps		-4	0
Share of results of equity accounted investments	13	1	-229
CTA and profits and losses on sale of fixed assets and investments ¹	5	-2	172
Net financial items	8	150	168
Other adjustments		15	5
Dividends received from equity accounted investments	13	36	343
Interest received		2	7
Interest paid		-122	-150
Other financial items, net		-13	-10
Income taxes paid	9	-82	-178
Change in net working capital, net of businesses acquired or sold		195	240
Net cash provided by operating activities		1 128	1 660
Cash flow from investing activities			
Acquisition of subsidiary shares and business operations, net of acquired cash	4	0	-464
Acquisition of shares in equity accounted investments	13	-2	-7
Acquisition of unlisted securities	14	-14	0
Cash flow on disposal of subsidiary shares and business operations, net of disposed cash	4	-3	-19
Cash flow on disposal of unlisted securities	14	1	6
Cash flow on disposal of intangible assets and property, plant and equipment	11	17	12
Capital expenditure	3, 11	-582	-510
Investment in biological assets	12	-79	-88
Proceeds from/payment of non-current receivables, net		-18	-18
Net cash used in investing activities		-681	-1 089

EUR million	Note	Year ended 31 December	
		2020	2019
Cash flow from financing activities			
Proceeds from issue of new long-term debt	26	1 081	870
Repayment of long-term debt and lease liabilities	26	-399	-1 284
Change in short-term borrowings	26	-99	-33
Dividends paid		-223	-394
Buy-out of interest in subsidiaries from non-controlling interests	19	0	-8
Equity injections from, less dividends to, non-controlling interests	19	0	-4
Purchase of own shares		-6	-3
Net cash used in financing activities		354	-856
Net change in cash and cash equivalents			
Translation adjustment		-9	19
Net cash and cash equivalents at beginning of year		863	1 128
Net cash and cash equivalents at year end		1 655	863
Cash and cash equivalents at year end²			
		1 661	876
Bank overdrafts at year end		-6	-13
Net cash and cash equivalents at year end		1 655	863

¹ CTA = Cumulative Translation Adjustment

² Cash and cash equivalents comprise cash-in-hand, deposits held at call with banks and other liquid investments with original maturity of less than three months. Bank overdrafts are included in current liabilities.

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Consolidated cash flow statement

Supplemental cash flow information

EUR million	Note	Year ended 31 December	
		2020	2019
Change in net working capital consists of:			
Change in inventories		101	161
Change in interest-free receivables:			
Current		118	205
Non-current		0	13
Change in interest-free liabilities:			
Current		-25	-127
Non-current		0	-12
Change in net working capital, net of businesses acquired or sold		195	240
Cash and cash equivalents consist of:			
Cash on hand and at banks		828	676
Cash equivalents		833	199
Cash and cash equivalents		1 661	876
Non-cash investing activities			
Total capital expenditure excluding right-of-use assets		589	550
Amounts paid		-582	-510
Non-cash part of additions to intangible assets and property, plant and equipment		8	40
Cash flow on acquisitions of subsidiaries and business operations			
Purchase consideration on acquisitions, cash part	4	0	-527
Cash and cash equivalents in acquired companies, net of bank overdraft	4	0	64
Net cash flow on acquisition		0	-464
Cash flow on disposals of subsidiaries and business operations			
Cash part of the consideration	4	-1	-15
Cash and cash equivalents in divested companies	4	-2	-4
Net cash flow from disposal		-3	-19

The accompanying Notes are an integral part of these Consolidated financial statements.

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Statement of changes in equity

EUR million	Share Capital	Share Premium and Reserve Fund	Invested Non-Restricted Equity Fund	Treasury Shares	Fair Value Reserve				OCI of Equity Accounted Investments	CTA and Net Investment Hedges and Loans	Retained Earnings	Attributable to Owners of the Parent	Non-controlling Interests	Total
					Step Acquisition Revaluation Surplus	Equity instruments through OCI	Cash flow hedges	Revaluation reserve						
Balance at 1 January 2019	1 342	77	633	—	4	304	-7	—	-11	-335	4 706	6 714	18	6 732
Net profit for the year	—	—	—	—	—	—	—	—	—	—	880	880	-24	856
OCI before tax	—	—	—	—	—	109	-14	—	11	197	-78	225	—	225
Income tax relating to OCI	—	—	—	—	—	—	1	—	—	1	6	9	—	9
Total Comprehensive Income	—	—	—	—	—	109	-13	—	11	198	808	1 113	-24	1 089
Dividend	—	—	—	—	—	—	—	—	—	—	-394	-394	-1	-395
Acquisitions and disposals	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Purchase of treasury shares	—	—	—	-4	—	—	—	—	—	—	—	-4	—	-4
Share-based payments	—	—	—	4	—	—	—	—	—	—	-3	—	—	—
Balance at 31 December 2019	1 342	77	633	—	4	413	-20	—	—	-136	5 116	7 429	-7	7 423
Net profit for the year	—	—	—	—	—	—	—	—	—	—	626	626	-9	617
OCI before tax	—	—	—	—	—	-136	54	1 504	12	-127	20	1 328	1	1 329
Income tax relating to OCI	—	—	—	—	—	-1	-11	-310	—	-4	-5	-330	—	-330
Total Comprehensive Income	—	—	—	—	—	-137	43	1 195	12	-131	642	1 625	-9	1 616
Dividend	—	—	—	—	—	—	—	—	—	—	-237	-237	—	-237
Acquisitions and disposals	—	—	—	—	-4	—	—	—	—	—	4	—	—	—
Purchase of treasury shares	—	—	—	-6	—	—	—	—	—	—	—	-6	—	-6
Share-based payments	—	—	—	6	—	—	—	—	—	—	-8	-3	—	-3
Balance at 31 December 2020	1 342	77	633	—	—	277	23	1 195	12	-267	5 518	8 809	-16	8 793

CTA = Cumulative Translation Adjustment, NCI = Non-controlling Interests, OCI = Other Comprehensive Income, EAI = Equity Accounted Investments

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Note 1 Accounting principles

Principal activities

Stora Enso Oyj ("the Company") is a Finnish public limited liability company organised under the laws of the Republic of Finland and with its registered address at Kanavaranta 1, 00160 Helsinki. Its shares are currently listed on Nasdaq Helsinki and Stockholm. The operations of Stora Enso Oyj and its subsidiaries (together "Stora Enso" or "the Group") are organised into the following reportable segments: Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest, Paper and segment Other. The Group's main market is Europe, with an expanding presence in Asia and South America.

The Financial Statements were authorised for issue by the Board of Directors on 28 January 2021.

Basis of preparation

The Consolidated Financial Statements of Stora Enso Oyj have been prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the European Union, including International Accounting Standards (IAS) and interpretations issued by the IFRS Interpretations Committee (IFRIC). The Consolidated Financial Statements of Stora Enso Oyj have been prepared according to the historical cost convention, except as disclosed in the accounting policies. The detailed accounting principles are explained in the related notes with a few exceptions where the accounting principles are presented in this note. The Consolidated financial statements are presented in euros, which is the parent company's functional currency.

All figures in this Annual Report have been rounded to the nearest million, unless otherwise stated. Therefore, figures in this report may not add up precisely to the totals presented and may vary from previously published financial information.

New and amended standards and interpretations adopted in 2020

The Group has applied the following new and amended standards and interpretations which are effective from 1 January 2020:

- Amendments to IAS 1 and IAS 8: Definition of Material. Amendments will clarify the definition of material and align the definition used in the Conceptual Framework and the standards themselves. The effective date for these amendments is 1 January 2020. The Group is considering an amended materiality definition in the Group's consolidated financial statements and disclosures.
- Amendments to References to the Conceptual Framework in the IFRS Standards. The revised Conceptual Framework includes: a new chapter on measurement; guidance on reporting financial performance; improved definitions and guidance - in particular the definition of a liability; and clarifications in important areas, such as the roles of stewardship, prudence, and measurement uncertainty in financial reporting. The effective date for these amendments is 1 January 2020. The amendments do not have a significant effect on the Group.
- Amendments to IFRS 3 Business combinations. The amendments will help companies determine whether an acquisition made is of a business or a group of assets. The amended definition emphasises that the output of a business is to provide goods and services to customers, whereas the previous definition focused on returns in the form of dividends, lower costs, or other economic benefits to investors and others. The effective date for these amendments is 1 January 2020. The amendments do not have significant effect on the Group.
- Amendments to IFRS 9, IAS 39 and IFRS 7. The amendments are related to the Interest Rate Benchmark Reform and require qualitative and quantitative disclosures to enable users of financial statements to understand how an entity's hedging relationships are affected by the uncertainty arising from the interest rate benchmark reform. The effective date for these amendments is 1 January 2020. The amendments do not have a significant effect on the Group.

- Other standards, standard amendments and interpretations do not have a material effect on the Group's consolidated financial statements or disclosures.

Changes in accounting principles

Valuation of Nordic forest assets

Stora Enso changed the valuation method for its forest assets and the accounting principle for forest land in the Nordics at the end of 2020. Forest assets are defined as biological assets (standing growing trees) and the related forest land. As a result of the valuation method change, the forest assets in Sweden are valued using a market approach. Due to the change in accounting principle, the forest land in Sweden and Finland are accounted for under the revaluation method instead of cost method.

Forest assets in Sweden are valued by using a market approach method based on the forest market transactions in those areas where Stora Enso's forests are located. In Sweden reliable market transaction data is available and provides a more transparent and observable valuation basis. The total forest assets net cash flows consist of cash flows related to standing trees (biological assets) and separate cash flows regarding forest land. The standing trees valuation is computed based on a discounted cash flow (DCF) method and using a discount rate implied by the market transactions in accordance with the IAS 41 Agriculture standard. The discount rate is determined as the rate at which the market transaction prices match the total forest assets cash flows. For forest land, previously accounted at cost, the revaluation method is applied as defined in the IAS 16 Property, plant and equipment standard. Forest land is revalued using a DCF method based on future net cash flow streams related to trees to-be-planted in the future as well as other land related income, such as hunting rights, wind power leases and soil material sales. The discount rate is the same for biological assets and forest land.

For the other Nordic forest assets, owned mainly in Finland through the Group's 41%

shareholding in the equity accounted investment Tornator, the market approach is not considered to be an accurate valuation method as the reliable market data is not available with enough details. The discounted cash flow method will continue to be used for valuation of biological assets, where the discount rate applied is determined using the weighted average cost of capital method. The forest land, previously accounted at cost, is revalued by using a DCF method based on its future net cash flow streams related to trees to-be-planted in the future as well as other related income.

For the plantation forests, there is no changes in accounting principles or in the valuation method as there is no reliable market transaction data available. Therefore in plantations, biological assets are continued to be valued using DCF method and related forest land is continued to be accounted at cost. Plantation forest assets are classified as a separate asset class as compared to Nordic forest land to reflect the different nature, usage and characteristics. The main difference is the short-term growing cycle of 6–12 years in plantations versus the long-term growing cycle of 60–100 years in Nordic forests. There are also differences in regeneration methods, forest management and use of the assets for other purposes.

Changes in accounting principles to Swedish forest assets increased the carrying amount of forest land from EUR 324 million to EUR 1 829 million, resulting in EUR 1 504 million increase in forest land, EUR 1 195 increase in Other Comprehensive Income (OCI, revaluation reserve) and EUR 310 million increase in the deferred tax liability. Accounting principle change related to other Nordic forest assets, owned mainly in Finland, is not considered to be material. The increase in forest land assets is recognised in OCI net of deferred taxes and accumulated in revaluation reserve in equity and does not have impact on the income statement. The fair value changes in biological assets continue to be recognised in the income statement. The comparative periods have not been restated and in the comparative periods forest land is

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measured at cost. See [Note 12](#) Forest assets for more details.

The Group has also changed its forest land presentation principles. Previously, forest land assets were included in the statement of financial position on the line Property, plant and equipment, and as part of the Land and water asset class, as specified in [Note 11](#). In accordance with new presentation principles, forest land assets and corresponding comparative figures are presented on a separate line in the statement of financial position.

Changes in segment reporting

As of 1 January 2020, Stora Enso merged its containerboard business in Packaging Solutions division with the Consumer Board division, creating a new Packaging Materials reportable segment. The remaining business in Packaging Solutions, together with the recently created Formed Fiber unit, constitute Packaging Solutions division.

As of 1 January 2020, Stora Enso established new Forest division as a separately reported segment. Forest division includes Stora Enso's Swedish forest assets and the 41% share of Tornator with the majority of its forest assets located in Finland. The segment also includes wood supply operations in Finland, Sweden, Russia and the Baltic countries. These were previously reported as part of the segment Other. The division's key focus areas are sustainable forest management, competitive wood supply to Stora Enso's mills and innovation. Plantations in Latin America and China, linked to local mills, continue to be reported as before under the Biomaterials and Packaging Materials divisions. After establishing the new Forest division, the remaining segment Other reporting includes Group functions, logistics, other operations and Stora Enso's shareholding in the energy company Pohjolan Voima (PVO).

Comparative figures have been restated accordingly. As of 1 January 2020, the reportable segments are Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest, Paper, and the segment Other.

Consolidation principles

The Consolidated financial statements include the parent company, Stora Enso Oyj, and all companies controlled by the Group. Control is defined as when the Group:

- has power over the investee,
- is exposed, or has rights, to variable returns from its involvement with the investee; and
- has the ability to use its power to affect its returns.

If facts and circumstances indicate that there are changes to the three elements of control listed above the Group reassess whether or not it controls an investee. Acquired companies are accounted for under the acquisition method whereby they are included in the consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, disposed companies are included up to the date when the control is lost. The principal subsidiaries and joint operations are listed in [Note 30](#) Group companies.

All intercompany transactions, receivables, liabilities and unrealised profits, as well as intragroup profit distributions, are eliminated. Accounting policies for subsidiaries, joint arrangements and all equity accounted investments are adjusted where necessary to ensure consistency with the policies adopted by Stora Enso. Non-controlling interests are presented as a separate component of equity.

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year less any impaired goodwill in the consolidated income statement. These companies are undertakings in which the Group has significant influence, but which it does not control. Significant influence means the power to participate in the financial and operating policy decisions of the company without control or joint control over those policies. The most significant of such companies are listed in [Note 13](#) Equity accounted investments.

The Group's interest in an associated company is carried in the consolidated statement of financial position at an amount that reflects its share of the net assets of the associate together with any remaining goodwill upon acquisition. When the Group share of losses exceeds the carrying amount of an investment, the carrying amount is reduced to zero and any recognition of further losses ceases unless the Group is obliged to satisfy obligations of the investee that it has guaranteed or which it is otherwise committed to.

Joint control is the contractually agreed sharing of control of the joint arrangement, which exists only when decisions on relevant activities require the unanimous consent of the parties sharing control.

Joint operations are joint arrangements whereby the partners who have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. A joint venture is a joint arrangement whereby the partners who have joint control of the arrangement have rights to the net assets of the joint arrangement.

The Group has two joint operations: Veracel and Montes del Plata. In relation to its interest in joint operations, as a joint operator, the Group recognises its share of assets, liabilities, revenues and expenses of the joint operation. The share is determined based on rights to the assets and obligations for the liabilities of each joint operator.

- Veracel is a joint owned (50%/50%) company of Stora Enso and Suzano located in Brazil. The pulp mill produces 1.2 million tonnes of bleached eucalyptus hard wood pulp per year and both owners are entitled to half of the mill's output. The eucalyptus is sourced mostly from the company's own forestry plantations. The mill commenced production in May 2005.
- Montes del Plata is a joint owned (50%/50%) company of Stora Enso and Arauco located in Uruguay. The Montes del Plata Pulp Mill's annual capacity is 1.4 million tonnes of bleached eucalyptus hard wood pulp and Stora Enso's part, 0.7 million tonnes, is sold entirely as market pulp. The eucalyptus is sourced mostly from the company's own forestry plantations. The mill commenced production in June 2014.

Revenue recognition

Sales comprise products, raw materials and services less indirect sales tax and discounts, and are adjusted for exchange differences on sales in foreign currencies. Sales are recognised after Stora Enso has transferred the control of goods and services to a customer and the Group retains neither a continuing right to dispose of the goods, nor effective control of those goods; usually, this means that sales are recorded upon the delivery of goods to customers in accordance with the agreed terms of delivery.

Stora Enso's terms of delivery are based on Incoterms 2020, which are the official rules for

the interpretation of trade terms as issued by the International Chamber of Commerce (ICC). The main categories of the terms covering Group sales are:

- "D" terms, under which the group is obliged to deliver the goods to the buyer at the agreed place in the manner specified in the chosen rule, in which case the Point of Sale is the moment of delivery to the buyer.
- "C" terms, whereby the Group arranges and pays for the external carriage and certain other costs, though the Group ceases to be responsible for the goods once they have been handed over to the carrier in accordance with the relevant term. The Point of Sale is thus the handing over of the goods to the carrier contracted by the seller for the carriage to the agreed destination.
- "F" terms, being where the buyer arranges and pays for the carriage, thus the Point of Sale is the handing over of the goods to the carrier contracted by the buyer at the agreed point.

Where local rules may result in invoices being raised in advance of the above, the effect of this revenue advancement is quantified, and an adjustment is made accordingly. Stora Enso's sales mainly comprise sales of products and the revenue is typically recognised at a point in time when Stora Enso transfers control of these products to a customer. Revenues from services are recognised over time once the service has been performed. More detailed information regarding Stora Enso's principal activities from which the Group generates its revenue and disaggregation of revenue is presented in [Note 3](#) Segment information.

Foreign currency transactions

Transactions in foreign currencies are recorded at the rate of exchange prevailing at the transaction date, but at the end of the month foreign-currency-denominated receivables and liabilities are translated using the month-end exchange rate. Foreign exchange differences for operating items are recorded in the appropriate income statement account in the operating profit, and, for financial assets and liabilities, they are entered in the financial items of the consolidated income statement, except when deferred in equity as qualifying cash flow hedges, net investment hedges or net investment loans. Translation differences on non-monetary financial assets,

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such as equities classified at fair value through other comprehensive income (FVTOCI), are included in equity.

Foreign currency translations

The Income Statements of Group companies with functional and presentational currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of the financial position of these companies are translated using the exchange rates at the reporting date. The Group is exposed to currency risks arising from exchange rate fluctuations on the value of its net investment in non-euro area foreign entities. Exchange differences arising from the retranslation of net investments in foreign entities that are non-euro foreign subsidiaries, joint operations or equity accounted investments, and of financial instruments that are designated to hedge such investments, are recorded directly in equity as cumulative translation adjustment (CTA). See [Note 28](#) Cumulative translation adjustments and equity hedging for more details.

Future standard changes endorsed by the EU but not yet effective in 2020

- Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16 Interest Rate Benchmark Reform – Phase 2. The amendments relate to the modification of financial assets, financial liabilities and lease liabilities, specific hedge accounting requirements, and disclosure requirements applying IFRS 7 to accompany the amendments regarding modifications and hedge accounting. The effective date is 1 January 2021. The amendments do not have a significant effect on the Group.
- No other published standards, standard amendments or interpretations which would be expected to have a significant effect on the Group's consolidated financial statements or disclosures.

Future standard changes not yet effective and not yet endorsed by the EU in 2020

- Amendments to IAS 1 Presentation of Financial Statements: Classification of Liabilities as current or non-current. The amendments clarify how to classify debt and other liabilities as current or non-current. The

effective date is 1 January 2023. The Group is assessing the impact of these amendments.

- Amendments to IFRS 3 Business Combinations, IAS 16 Property, Plant and Equipment, IAS 37 Provisions, Contingent Liabilities and Contingent Assets and Annual Improvements 2018–2020. The amendments to IFRS 3 are including minor updates to the standard. The amendments to IAS 16 prohibits an entity from deducting from the cost of an item of PPE any proceeds received from selling items produced while the entity is preparing the asset for its intended use. The amendment to IAS 37 clarifies that the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling contracts. Annual Improvements to IFRS Standards 2018–2020 is including minor amendments to IFRS 9, IFRS 16 and IAS 41 standards. The effective date is 1 January 2022. The Group is assessing the impact of these amendments.
- IFRS 17 Insurance Contracts: This standard replaces IFRS 4, which currently permits a wide variety of practices in accounting for insurance contracts. The effective date is 1 January 2023. The standard is not relevant to the Group.
- Other published standards, standard amendments or interpretations are not expected to have a significant effect on the Group's consolidated financial statements or disclosures.

Note 2 Critical accounting estimates and judgements

Use of estimates

The preparation of consolidated financial statements conforming to IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, as well as the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenues and expenses during the period. The estimates are based on historical experience and various other assumptions that are believed to be reasonable, though actual results and timing could differ from the estimates. Management believes that the accounting policies below represent those matters requiring the exercise of

judgement where a different opinion could result in changes to reported results.

Property, plant and equipment, intangible assets and right-of-use assets

The carrying amounts of property, plant and equipment and intangible assets and right-of-use assets are assessed at each reporting date to determine whether there is any indication that an asset may be impaired. If an indicator of impairment exists, the asset's recoverable amount is determined and compared with its carrying amount. The recoverable amount of an asset is estimated as the higher of fair value less the cost of disposal and the value in use, with an impairment charge recognised whenever the carrying amount exceeds the recoverable amount. The value in use is calculated using a discounted cash flow method which is most sensitive to the discount rate as well as the expected future cash flows. The key assumptions used in the impairment testing, are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

Management believes that the assigned values and useful lives, as well as the underlying assumptions, are reasonable, though different assumptions and assigned lives could have a significant impact on the reported amounts. For material intangible assets and property, plant and equipment in an acquisition, an external advisor makes a fair valuation of the acquired intangible assets and property, plant and equipment and assists in determining their remaining useful life.

Goodwill

Goodwill is tested per Cash Generating Unit (CGU) or by a group of CGUs at least on an annual basis and recoverable amount is calculated using the discounted cash flow valuation method (value in use). Impairment charge is recognised if the carrying amount exceeds the recoverable amount. The discounted cash flow method uses future projections of cash flows from each of the reporting units in a CGU or a group of CGUs and includes, among other estimates, projections of future product pricing, production levels, product costs, market supply and demand, projected capital expenditures and an assumption of the weighted average cost of capital. The discount rates used for the net present value calculation of

projected cash flows reflect the best estimate of the weighted average cost of capital.

The Group has evaluated the most sensitive estimates which when changed could have a material effect on the fair value of the assets or goodwill and therefore could lead to an impairment. These estimates are expected sales prices, expected operating costs and discount rate. The key assumptions used in the impairment testing are explained further in [Note 10](#) Depreciation, amortisation and impairment charges.

Biological assets

The Group has biological assets in subsidiaries, joint operations and associated companies. Biological assets, in the form of standing trees, are accounted for under the IAS 41 Agriculture standard, which requires that the assets are measured at fair value less the costs to sell. Fair value is determined using discounted cash flows from continuous operations based on sustainable forest management plans taking into account the growth potential of one cycle. These discounted cash flows require estimates of growth, harvest, sales price, costs and discount rate. In determining the value of biological assets the management of subsidiaries, joint operations and associated companies need to make appropriate estimates of future price levels and trends for sales and costs, and to undertake regular surveys of the forest to establish the volumes of wood available for cutting and their current growth rates.

See next chapter for estimates and judgement applied in valuation of Swedish forest assets and [Note 12](#) Forest assets for more detailed information about Nordic and plantation forest assets.

Swedish forest assets

The Group has changed the accounting principles and valuation method for Nordic forests at the end of 2020. In accordance with the new valuation method, the fair value of forest assets in Sweden is determined using a market approach method, which is based on the forest market transactions in the areas where Stora Enso's forests are located. Market prices between areas vary significantly and judgement is applied to define relevant areas for market transactions used in valuation. The valuation of the forest assets is based on detailed transaction data

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and price statistics as provided by different market data suppliers. Market transaction data is adjusted to consider characteristics and nature of Stora Enso's forest assets and to exclude certain non-forest assets and transactions considered as outliers compared to other transactions. The valuation takes into account where the forest land is located, price levels and volume of standing stock. The value of the forest assets will be affected by changes in transaction prices and by how the volume of standing stock develops. Stora Enso is applying weighted three-year average market transaction prices considered to include a sufficient amount of transactions and estimated to represent market conditions at reporting date.

The value of the forest assets is allocated to biological assets (standing trees) and forest land. Allocation of the combined fair value of forest assets is based on the income approach where separate present values of expected net cash flows are calculated for both biological assets and forest land. The discount rate is determined as the rate at which the valuation based on market transaction prices matches the total forest assets combined cash flows for standing trees and forest land. The total net cash flows for each of the components include estimates in respect of future harvesting volumes, sales price levels, and cost development. See [Note 12](#) Forest assets for more information.

Control assessment of joint operations and associates

[Note 1](#) Accounting principles describe Veracel and Montes del Plata as joint operations. In both companies Stora Enso's ownership is 50%. The interpretations as joint operations are based on shareholders' agreements which give Stora Enso rights to a share of returns and make the Group liable indirectly for the liabilities, as our ability to pay for the pulp is used to finance debts. The Group recognises its share of assets, liabilities, revenues and expenses of the joint operation, based on rights and obligations.

Associate companies are accounted for using the equity method. Stora Enso does not control the companies alone or jointly with other parties, but has significant influence and thus retains its significant non-controlling interest as equity accounted investments. These companies are presented in [Note 13](#) Equity accounted investments.

Fair value of financial instruments

Where the fair value of financial assets and liabilities cannot be derived directly from publicly quoted market prices, other valuation techniques, such as discounted cash flow models, transaction multiples, the Black and Scholes model and the Gordon model, are employed. The key judgements include future cash flows, credit risk, volatility and changes in assumptions about these factors which could affect the reported fair value of the financial instruments. Investments in debt and equity instruments of unlisted entities, such as Pohjolan Voima Oy (PVO), represent a significant portion of the Group's assets and require significant management judgement, as explained in more detail in [Notes 14](#) Equity instruments and [24](#) Financial risk management.

Income taxes

Tax assets and liabilities are reviewed on a periodic basis and balances are adjusted appropriately. The deferred tax assets, whether arising from temporary differences or from tax losses, are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. Management considers that adequate provision has been made for future tax consequences based on the current facts, circumstances and tax law. However, should any tax positions be challenged and not prevail, different outcomes could result and have a significant impact on the amounts reported in the consolidated financial statements. See [Note 9](#) Income taxes for more detailed information.

Post-retirement benefits

The determination of the Group pension obligation and expense is subject to the selection of certain assumptions used by actuaries in calculating such amounts, including, among others, the discount rate, the annual rate of increase in future compensation levels and estimated lifespans. Amounts charged in the Income statement are determined by independent actuaries; however, where actual results differ from the initial estimates, together with the effect of any change in assumptions or other factors, these differences are recorded directly in equity, as disclosed in the statement of comprehensive income. See [Note 20](#) Post-employment benefits for detailed information on the assumptions used in the pension obligation calculations.

Environmental provisions

The Group has made provisions for known environmental liabilities where legal or constructive obligation exist, based on the management's best estimate of the remediation costs. There is some uncertainty regarding the timing and amount of these costs and therefore the final liability could differ significantly from the original estimate. See [Note 22](#) Provisions for more detailed information.

Accounting implications of the effects of Covid-19

The Group has assessed the potential accounting implications of decreased economic activity as a result of Covid-19 pandemic. The Group has also assessed impact on significant accounting estimates and management judgement and identified certain items, which have been evaluated in more detail. The review of significant estimates and judgement did not result in any material adjustments to the carrying amounts of assets and liabilities or amounts recognised in income statement.

The IAS 36 Impairment of Assets standard requires non-financial assets to be tested for impairment whenever there is an indication that those assets might be impaired. The uncertainty in the economic environment may decrease the reliability of long-term forecasts used in the impairment testing models. See [Note 10](#) Depreciation, amortisation and impairment charges for more details about impairment testing.

The Group has reviewed and updated its expected credit loss model for trade receivables to take into account the macro-economic developments. Change did not result in a significant increase of credit loss allowances for trade receivables, but the credit risk may increase if the current trading conditions deteriorate further. See [Note 17](#) Operative Receivables for more details There has been minor increase in the valuation allowance made for old, slow moving and obsolete finished goods and spare parts. See [Note 16](#) Inventories for more details.

The Group's units in certain countries have received various forms of assistance from the authorities intended to support employment or temporarily improve cash flows. The savings in income statement or cash flow improvements from the obtained relief measures were not significant for the Group in 2020.

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Note 3 Segment information

Accounting principles

Stora Enso's reportable segments are Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest, and Paper and the segment Other. Operating segments reflect the Group's management structure and the way financial information is regularly reviewed by Stora Enso's President and CEO who is responsible for allocating resources and assessing the performance of the operating segments. Costs, revenues, assets and liabilities are allocated to business segments on a consistent basis. Transactions between operating segments are based on arm's length terms, and they are eliminated on consolidation. See Note 1 Accounting principles for details related to changes in segment reporting. The activities of the reportable segments are:

Packaging Materials

The Packaging Materials division is a global leader in the circular economy with our premium renewable and recyclable packaging materials based on both virgin and recycled fiber. Addressing the needs of today's eco-conscious consumers, we help customers replace fossil-based materials with low-carbon, renewable and recyclable alternatives for their food and drink, pharmaceutical or transport packaging. A wide selection of barrier coatings enables design optimisation for various demanding packaging end-uses.

Packaging Solutions

The Packaging Solutions division develops and sells premium fiber-based packaging products and services. Our high-end eco-friendly packaging products are used by leading brands across multiple market sectors, including store retail, e-commerce and industrials. The portfolio includes corrugated and other converting, design services, automation solutions, and scalable innovations such as formed fiber and biocomposites.

Biomaterials

The Biomaterials division meets the growing demand for the replacement of products made from fossil-based and hazardous materials with bio-based solutions. We use all fractions of biomass, like lignin and sugars, to develop new solutions. We work to replace fossil-based materials with new applications such as carbon for energy storage, bio-based binders, and bio-based carbon fiber. The division's offering includes a wide variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers as well as materials from side streams of our processes, such as tall oil and turpentine from biomass.

Wood Products

The Wood Products division is the largest sawn wood producer in Europe and a leading provider of sustainable wood-based solutions for the construction industry. Our growing Building Solutions business offers building concepts to support low-carbon construction and eco-friendly designs. We develop digital tools to simplify the designing of building projects with wood. We also offer applications for windows, doors and for packaging industries, and our pellets provide a sustainable heating solution.

Forest

The Forest division creates value with sustainable forest management, competitive wood supply and innovation, which are the foundation for Stora Enso's renewable offerings. The division manages Stora Enso's forest assets in Sweden and the 41% share of Tornator, the majority of whose forest assets are located in Finland. The division is also responsible for wood sourcing for Stora Enso's Nordic, Baltic and Russian operations and B2B customers. Stora Enso is one of the biggest private forest owners in the world.

Paper

Stora Enso is the second largest paper producer in Europe, with an established customer base and a wide product portfolio for print and office use. Customers benefit from Stora Enso's broad selection of paper products made from recycled and virgin fiber, our technical expertise and our sustainability know-how as well as our mill and customer service centre network.

Segment Other

The segment Other includes Stora Enso's shareholding in the energy company Pohjolan Voima (PVO), and the Group's shared services and administration.

Sales by segment

EUR million	External	Internal	Total	External	Internal	Total
	2020			2019		
Packaging Materials	2 999	116	3 115	3 091	163	3 254
Packaging Solutions	578	16	594	680	18	698
Biomaterials	1 025	168	1 193	1 193	271	1 464
Wood Products	1 295	91	1 386	1 457	112	1 569
Forest	698	1 348	2 046	790	1 531	2 321
Paper	1 931	48	1 979	2 800	56	2 856
Other	27	901	928	45	1 031	1 076
Elimination of internal sales		-2 687	-2 687		-3 184	-3 184
Total	8 553	0	8 553	10 055	0	10 055

Disaggregation of revenue

EUR million	2020	2019
Product sales	8 460	9 935
Service sales	93	120
Total	8 553	10 055

Product and service sales by segment

EUR million	2020	2019	
Packaging Materials	Product sales	3 103	3 240
	Service sales	11	14
Packaging Solutions	Product sales	593	696
	Service sales	1	2
Biomaterials	Product sales	1 164	1 436
	Service sales	29	27
Wood Products	Product sales	1 362	1 550
	Service sales	24	19
Forest	Product sales	2 019	2 276
	Service sales	27	45
Paper	Product sales	1 971	2 842
	Service sales	8	14
Other	Product sales	139	183
	Service sales	789	892
Inter-segment sales	Product sales	-1 893	-2 288
	Service sales	-795	-895
Total	8 553	10 055	

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Segment share of operating profit/loss

EUR million	Year Ended 31 December	
	Operating Profit/Loss	
	2020	2019
Packaging Materials	391	352
Packaging Solutions	28	36
Biomaterials	-31	180
Wood Products	111	92
Forest	524	547
Paper	-58	154
Other	-42	-56
Total	922	1 305
Net financial items	-150	-168
Profit before Tax	773	1 137
Income tax expense	-156	-281
Net Profit	617	856

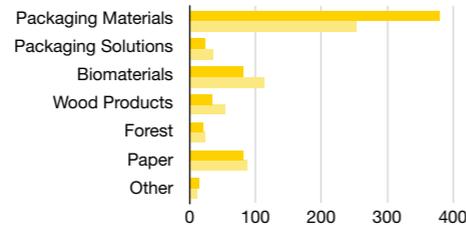
Operating Capital, depreciation, impairments and impairment reversals, disposal gains and losses, and capital expenditure by segment

EUR million	Year Ended 31 December					
	Operating Capital		Depreciation/Impairments/ Impairment reversals/ Disposal gains and losses		Capital Expenditure	
	2020	2019	2020	2019	2020	2019
Packaging Materials	2 954	2 824	205	193	378	253
Packaging Solutions	240	241	30	30	23	35
Biomaterials	2 245	2 496	145	144	80	114
Wood Products	548	647	46	55	34	54
Forest	6 194	4 138	21	18	20	24
Paper	493	657	122	125	80	87
Other	318	460	40	31	13	12
Total	12 993	11 462	609	597	628	579

Operating capital ("O" items) is designated thus in the Balance Sheet and represents the sum of Intangible Asset and Property, Plant and Equipment, right-of-use assets, forest assets, emission rights, unlisted shares, other non-current assets, inventories, current operative receivables and liabilities, provisions and other non-current operative liabilities.

Capital expenditure by segment

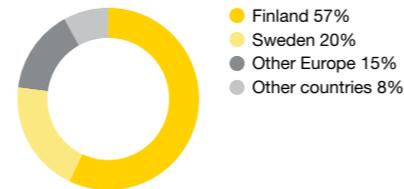
EUR million



● 2020
● 2019

*excluding bioasset capex

Capital expenditure by location*



*excluding bioasset capex

Goodwill by segment

EUR million	Year Ended 31 December	
	Goodwill	
	2020	2019
Packaging Materials	26	31
Packaging Solutions	6	6
Biomaterials	43	49
Wood Products	112	117
Forest	0	0
Paper	95	100
Other	0	0
Total	281	302

In 2020 or 2019, the goodwill testing did not result in any impairment. See Note 10 Depreciation, amortisation and impairment charges for more details related to impairment testing.

Average personnel

Segment	Year Ended 31 December	
	2020	2019
Packaging Materials	5 557	5 631
Packaging Solutions	5 094	6 115
Biomaterials	1 822	1 752
Wood Products	4 026	4 106
Forest	1 520	1 565
Paper	4 356	4 861
Other	2 080	2 066
Total	24 455	26 096

Location	Year Ended 31 December	
	2020	2019
Austria	1 014	999
Baltic States	1 410	1 362
Belgium	527	529
Czech Republic	992	941
Finland	6 317	6 615
Germany	882	975
Poland	2 074	2 136
Russia	1 130	1 125
Sweden	5 139	5 215
Other Europe	262	277
Total Europe	19 747	20 175
Brazil	423	418
China (incl. Hong Kong)	3 729	4 890
USA	94	95
Uruguay	313	314
Other countries	148	204
Total	24 455	26 096

Year-End Personnel	As at 31 December	
	2020	2019
	23 189	25 141

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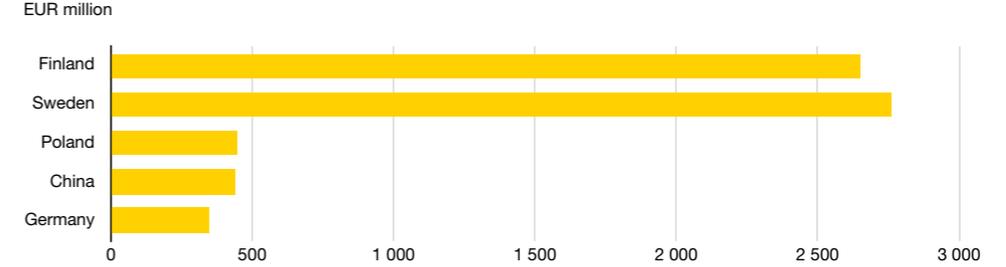
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External sales by destination and origin

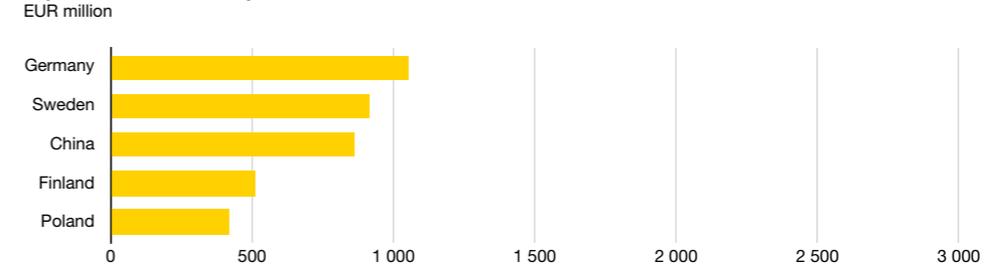
EUR million	Sales by Destination		Sales by Origin		Balance of Trade	
	2020	2019	2020	2019	2020	2019
Austria	292	276	348	393	56	117
Baltic States	232	256	262	274	30	18
Belgium	87	120	201	256	114	136
Czech Republic	153	159	231	241	78	82
Denmark	90	105	15	19	-75	-86
Finland	510	580	2 650	3 357	2 140	2 776
France	357	460	30	15	-327	-445
Germany	1 053	1 317	298	439	-755	-878
Italy	339	418	0	0	-339	-418
Netherlands	210	276	0	0	-210	-276
Poland	419	504	444	510	25	6
Russia	248	305	211	230	-37	-75
Spain	195	239	0	0	-195	-239
Sweden	912	956	2 763	2 987	1 851	2 030
UK	331	458	-16	16	-347	-442
Other Europe	738	876	88	99	-650	-777
Total Europe	6 166	7 308	7 525	8 835	1 359	1 527
Australia / New Zealand	129	168	25	36	-104	-132
Brazil	53	70	223	300	170	230
China (incl. Hong Kong)	860	904	441	483	-419	-421
Japan	242	290	0	0	-242	-290
Middle East	220	241	0	0	-220	-241
Uruguay	27	25	304	371	277	346
USA	252	281	34	27	-218	-254
Other countries	606	768	1	3	-605	-765
Total	8 553	10 055	8 553	10 055	0	0

Major markets

Top 5 countries, sales by origin 2020



Top 5 countries, sales by destination 2020



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Total assets and capital employed by location

EUR million	As at 31 December			
	Total Assets		Capital Employed	
	2020	2019	2020	2019
Austria	170	174	108	102
Baltic States	139	136	109	113
Belgium	203	223	117	130
Czech Republic	148	151	115	126
Finland	5 176	4 378	2 708	2 715
Germany	322	337	1	-15
Poland	491	573	392	436
Russia	159	192	91	126
Sweden	7 225	5 129	5 116	3 546
Other Europe	168	98	69	51
Total Europe	14 201	11 390	8 827	7 330
Brazil	280	387	260	357
China (incl. Hong Kong)	1 265	1 359	1 107	1 212
Uruguay	1 550	1 735	1 464	1 624
USA	89	109	39	62
Other countries	46	73	17	48
Total	17 431	15 053	11 714	10 632

Total capital employed represents operating capital less net tax liabilities.

Reconciliation of operating capital to total asset

EUR million	As at 31 December	
	2020	2019
Operating Capital	12 993	11 462
Operative liabilities	2 471	2 516
Interest-bearing receivables	1 834	982
Tax receivables	131	92
Total Assets	17 431	15 053

Operating Capital, depreciation, impairments and impairment reversals, disposal gains and losses, and capital expenditure by location

EUR million	Year Ended 31 December					
	Operating Capital		Depreciation/Impairments/ Impairment reversals/ Disposal gains and losses		Capital Expenditure	
	2020	2019	2020	2019	2020	2019
Austria	111	106	8	8	7	9
Baltic States	110	113	9	7	15	24
Belgium	133	150	27	27	15	8
Czech Republic	120	130	5	6	8	4
Finland	2 647	2 658	205	179	360	278
Germany	4	-12	22	27	22	25
Poland	404	450	23	31	20	25
Russia	89	123	7	8	10	13
Sweden	6 447	4 378	130	120	124	136
Other Europe	66	52	3	0	0	0
Total Europe	10 130	8 147	440	414	580	523
Brazil	254	359	15	19	15	11
China (incl. Hong Kong)	1 104	1 210	60	70	10	15
Uruguay	1 485	1 638	43	44	19	27
USA	3	62	49	47	3	3
Other countries	16	47	3	3	1	0
Total	12 993	11 462	609	597	628	579

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Note 4 Acquisitions and disposals



Accounting principles

Acquired companies are accounted for under the acquisition method whereby they are included in the Consolidated financial statements from the date the control over the subsidiary is obtained, whereas, conversely, disposals are included up to the date when the control is lost.

Acquisition of Group companies

EUR million	2020	2019
Net assets acquired		
Cash and cash equivalents	0	64
Property, plant and equipment and Intangible assets	3	332
Biological assets	22	2 598
Working capital	0	-28
Tax assets and liabilities	-5	-598
Interest-bearing assets and liabilities	0	-793
Fair value of net assets acquired	20	1 575
Purchase consideration, cash part	0	527
Purchase consideration, non-cash	0	1 106
Total purchase consideration	0	1 633
Fair value of net assets acquired	-20	-1 575
Goodwill	-20	57
Cash outflow with purchase consideration on acquisitions	0	-527
Cash and cash equivalents of acquired subsidiaries	0	64
Cash flow on acquisition, net of acquired cash	0	-464

Stora Enso has not acquired any companies or business operations in 2020. Amounts presented in 2020 are related to Bergvik Skog AB restructuring measurement period adjustments in 2020.

Acquisitions – Bergvik Skog AB restructuring in 2019

On 31 May 2019, Bergvik Väst AB, a subsidiary of Bergvik Skog AB, was distributed as dividends to the shareholders of Bergvik Skog AB. On the same date the Group acquired an additional 20% of shares in Bergvik Väst AB from other shareholders resulting in a total holding in Bergvik Väst AB of 69.8%. Simultaneously, Bergvik Väst AB was demerged and Stora Enso became the 100% owner of a new subsidiary holding around 69.8% of the former Bergvik Väst AB assets and liabilities. The acquisition date of the new subsidiary was 31 May 2019. As a result of the transaction, Stora Enso's direct forest holdings in Sweden are 1.4 million hectares, of which 1.15 million hectares is productive forest land. Acquired entity is part of the Forest division.

The fair values of the identifiable assets and liabilities based on final acquisition accounting (including measurement period adjustments) are presented in the following table:

EUR million	Acquisition of 69.8% of Bergvik Väst AB
Cash and cash equivalents	64
Land	308
Other property, plant and equipment	8
Biological assets	2 620
Working capital	-35
Tax liabilities	-603
Interest-bearing liabilities	-793
Fair value of net assets acquired	1 569
Purchase consideration on acquisition, cash part	500
Fair value of 49.8% of shares in Bergvik Väst AB, non-cash	1 106
Total purchase consideration	1 605
Fair value of net assets acquired	-1 569
Goodwill	36
Cash out flow with purchase consideration on acquisitions	-500
Cash and cash equivalents of acquired subsidiaries	64
Cash flow on acquisition, net of acquired cash	-436

The fair value of the shares received as dividends was determined based on the acquired net assets value of Bergvik Väst AB, whereby the fair values of the biological assets and land were estimated through a discounted cash flow model. A deferred tax liability was also included in the acquisition balances.

The post combination review was completed during the first of half of 2020 and therefore acquisition accounting is considered to be final. The fair values of the acquired assets, liabilities and goodwill in the table above are representing final acquisition accounting. Measurement period adjustments in 2020 included biological assets increase of EUR 22 million, land increase of EUR 3 million and goodwill decrease of EUR 20 million. Also deferred tax liabilities increased EUR 5 million. Measurement period adjustments in 2019 included increase of EUR 75 million in biological assets, increase of EUR 8 million in tax liabilities, decrease of EUR 21 million in goodwill, increase of EUR 48 million in non-cash consideration and decrease of EUR 1 million in cash consideration. The measurement period adjustments were mainly related to updates in biological asset valuation to better reflect the conditions existing at acquisition date.

The goodwill represents the value of securing a competitive raw material supply for the long term in Sweden. With direct ownership, Stora Enso will have better visibility of its wood supply and the acquisition provides better opportunities to further develop sustainable forest management and strengthening of the Group's competitiveness. The goodwill has been allocated to those Divisions benefiting from the acquisition.

Almost all the revenues of the acquired entity are internal from Stora Enso Group point of view. The acquired entity's net profit has been reported for the first five months of 2019 in the Group result as part of the Share of results of the equity accounted investments. Therefore, even if the acquisition had taken place from 1 January 2019, it would not have had a significant impact on the Group sales and net profit for 2019. Related transaction costs during 2019 amounted to EUR 3 million and were recorded to Other operating expenses. In 2019 and in connection to the restructuring, a cumulative translation adjustment (CTA) of EUR -171 million was released from equity through profit and loss. In addition, a net gain of EUR 129 million on the transaction was presented in Share of results of equity accounted investments.

The Group owns 49.8% of shares in Bergvik Skog AB which continue to be reported as an equity accounted investment. See [Note 13](#) Equity accounted investments for more details.

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Acquisitions - Other in 2019

In September 2019, Stora Enso bought out non-controlling interests in Stora Enso China Packaging. Stora Enso previously owned 90% of the parent company of the China Packaging Group and with the purchase, the Group's ownership increased to 100%. China Packaging is included in the Packaging Solutions division. The transaction did not have a material impact on the Group.

In May 2019, and separately from Bergvik Skog AB restructuring, Stora Enso also acquired 100% of the nursery business Bergvik Skog Plantor AB from Bergvik Skog AB, three wind turbine projects, and a real estate company. These acquired entities are included in the Forest division. These transactions did not have a material impact on the Group.

Disposal of Group companies

EUR million	Year Ended 31 December	
	2020	2019
Net Assets Sold		
Cash and cash equivalents	2	4
Property, plant and equipment and Intangible assets	3	8
Working capital	2	3
Interest-bearing assets and liabilities	-5	-43
Non-controlling interest	0	11
Net assets in disposed companies	1	-16
Total disposal consideration	-1	-15
CTA release	0	3
Transaction costs	0	0
Total net gain/loss	-2	4
Attributable to the owners of the parent	-2	4
Attributable to the non-controlling interest	0	0

In March 2020, Stora Enso divested 100% of shares of its subsidiary consisting of sawn construction timber mill at Pfarrkirchen in Germany, to the fund LEO II. – VV1 GmbH. The sold company was part of the Wood Products division. The transaction did not have a material impact on the Group.

On 25 July 2019, Stora Enso signed an agreement to divest its 60% shareholding in the Dawang Mill in China, to its joint venture partner, Shandong Huatai Paper. Stora Enso Huatai (Shandong) Paper Co Ltd operated the Dawang paper mill in China and started operation in 2008. The disposal was completed in October 2019. During the third quarter of 2019 the Group recorded an impairment in fixed assets amounting to EUR 5 million in order to reduce the value of the net assets disposed to the recoverable value. The final consideration paid by Stora Enso for the divestment of the shares was EUR 17 million. In addition, a cumulative translation adjustment (CTA) gain of EUR 3 million was released from equity through profit and loss at closing. Stora Enso Huatai Paper was part of the Paper division.

In October 2019, Stora Enso divested 100% of shares of its Swedish subsidiary Skaftåsen Vindkraft AB. The company was acquired in May 2019 in connection to Bergvik Skog AB restructuring. Skaftåsen Vindkraft AB was part of the Forest division. The transaction did not have a material impact on the Group.

Note 5 Other operating income and expense

Accounting principles

Research and development

Research costs are expensed as incurred in other operating expenses in the consolidated income statement. Development costs are also expensed as incurred unless they meet the criteria to be recognised as intangible assets in accordance with IAS 38, in which case they are capitalised as intangible assets and depreciated over their expected useful lives.

Government grants

Government grants relating to the purchase of property, plant and equipment are deducted from the carrying value of the asset, while the net cost is capitalised. Other government grants are recognised as income on a systematic basis over the periods necessary to match them with the related costs which they were intended to compensate.

Emission rights and trading

The Group's participation in the European Emissions Trading Scheme, in which it has been allocated allowances to emit a fixed tonnage of carbon dioxide over a fixed period of time, gives rise to an intangible asset for allowances, a government grant and a liability for the obligation to deliver allowances equal to those emissions that have been made during the compliance period. Emission allowances recorded as intangible assets are recognised when the Group is able to exercise control and are measured at level 1 fair value at the date of initial recognition. If the market value for the emission allowances falls significantly below the carrying amount, the decrease is considered permanent and impaired to market price. At that point an impairment charge is booked for allowances which the Group will not use internally. The liability to deliver allowances is recognised based on actual emissions. This liability will be settled using allowances on hand and measured at the carrying amount of those allowances, with any excess emissions measured at the market value of the allowances at the period end.

In the consolidated income statement, the Group will expense emissions made at the fair value of the rights at their grant date, under materials and services, together with purchased emission rights at their purchase price. Such costs will be offset under other operating income by the income from the original grant of the rights used at their fair value at the grant date, together with income from the release or sale of surplus rights. The consolidated income statement will thus be neutral in respect of all the rights consumed that were within the original grant. Any net effect represents the costs of purchasing additional rights to cover excess emissions, or the sale of unused rights in case that the realised emissions are below the allowances received free of charge or the impairment of allowances that are not required for internal use.

Green certificates

Stora Enso is part of the local green energy production system which entitles selected mills in Sweden, Belgium and Poland to receive green certificates based on megawatt hours of green energy produced. Green certificates represent the environmental value of renewable energy generated. The certificates can be traded separately from the energy produced. Several countries use green certificates as a means to bring green electricity generation closer to a market economy instead of more bureaucratic investment support and feed-in tariffs. The certificates are typically received free of charge and they can be traded in the local market to offset part of the production costs. Green certificates are often sold to electricity distributors which have a quota obligation to buy a certain percentage of their electricity from renewable sources. Green certificates validate that the electricity has been produced from renewable sources.

All certificates received are recognized at grant date market value only in the Balance Sheet. Certificates are posted to prepaid costs and accrued income, and a corresponding liability is entered into accrued liabilities and deferred income. As such, fluctuation in market prices does not have an impact on the Income statement. The income is recognised only when the certificate is sold.

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Other operating income and expense

EUR million	Year Ended 31 December	
	2020	2019
Other operating income		
Emission rights granted and disposal gains	49	50
Sale of green certificates	24	26
Capital gains on sale of intangible assets and property, plant and equipment	3	2
Dividend and gain on sale of unlisted shares	1	2
Insurance compensation	5	7
Rent and other	42	68
Government grants	22	9
Total	147	165
Other operating expenses include		
Lease expenses	39	34
Research and development	100	100
Credit losses, net of reversals	4	9
CTA release	0	185
Materials and services include		
Emissions rights to be delivered and disposal losses	31	33

The Group has recorded an other operating income of EUR 49 (EUR 50) million related to emissions. Under materials and services an expense of EUR 31 (EUR 33) million has been booked related to the cost of CO₂ emissions from production. Actual realised profits amounted to EUR 16 (EUR 17) million on the disposal of surplus rights and EUR 5 (EUR 4) million is the value of excess emission rights held at the year end.

The Group also generates income from its renewable power generation in Belgium, Sweden and Poland. Based on this, the Group is entitled to green certificates related to our investments in green energy production in these countries. Green certificates are sold onwards to electricity retailers for fulfilling their renewable quota obligations. The income from the sale of green certificates amounted to EUR 24 (EUR 26) million.

Lease expenses include expenses relating to short-term leases of EUR 10 (EUR 13) million, low-value assets of EUR 22 (EUR 19) million and variable lease payments not included in the measurement of lease liabilities of EUR 3 (EUR 3) million. Lease expenses also include service payments included in lease contracts, which are not included in the measurement of lease liabilities. More details regarding CTA are presented in [Note 4](#) Acquisition and disposals.

Auditor's fees and services

EUR million	Year Ended 31 December	
	2020	2019
Audit fees	4	4
Audit-related	0	0
Tax fees	0	0
Other fees	0	0
Total	4	4

Aggregate fees for professional services rendered to the Group principal auditor PwC amounted to EUR 4 (EUR 4) million. Audit fees relate to the auditing of the annual financial statements or ancillary services normally provided in connection with statutory and regulatory filings. Audit-related fees are incurred for assurance and associated services that are reasonably related to the performance of the audit or for the review of financial statements.

Note 6 Personnel expenses

Personnel expenses

EUR million	Year Ended 31 December	
	2020	2019
Wages and salaries	966	1 004
Pensions (see below)	152	166
Share-based remuneration (Note 21)	1	3
Other statutory employer costs	134	136
Other voluntary costs	17	21
Total	1 270	1 331

Pensions

EUR million	Year Ended 31 December	
	2020	2019
Defined benefit plans	16	10
Defined contribution plans	136	156
Total	152	166

The average number of employees in 2020 amounted to 24 455 compared with 26 096 in 2019. Pension costs are discussed further in [Note 20](#) Post-employment benefits.

In 2020, the expense of the share-based remuneration was EUR 1 (EUR 3) million. Share-based remuneration comprising of share awards and related hedges are described in more detail in [Note 21](#) Employee variable compensation and equity incentive schemes. Remuneration of the Group Leadership Team and Board are described in [Note 7](#) Board and executive remuneration.

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Note 7 Board and executive remuneration

Board and committee remuneration

EUR thousand (before taxes)	Year Ended 31 December				Committee memberships
	2020		2019		
	Cash	Value of shares ¹	Total ⁴	Total	
Board members at 31 December 2020					
Jorma Eloranta, Chair	144	79	222	217	Remuneration, Nomination ^{2,3} , Financial and Audit
Hans Stråberg, Vice Chair	74	45	118	115	Remuneration, Nomination ^{2,3}
Håkan Buskhe	52	30	82		Sustainability and Ethics
Elisabeth Fleuriot	60	30	91	88	Financial and Audit
Hock Goh	60	30	91	80	Financial and Audit
Mikko Helander	52	30	82	74	Sustainability and Ethics
Christiane Kuehne	56	30	87	84	Sustainability and Ethics
Antti Mäkinen	52	30	82	80	Remuneration
Richard Nilsson	67	30	97	95	Financial and Audit
Former Board members					
Göran Sandberg (until 4 June, 2020)	0	0	0	80	
Total remuneration as Directors¹	617	336	953	913	

¹ 40% of the Board remuneration, excluding Committee remuneration, in 2020 was paid in Stora Enso R shares purchased from the market and distributed as follows: to Chair 7 209 R shares, Vice Chair 4 098 R shares, and members 2 781 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

² Stora Enso's Shareholders' Nomination Board has been appointed by the AGM in 2016 to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chair and Vice Chair of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year. No separate remuneration is paid to members of the Nomination Board.

³ Marcus Wallenberg, appointed by FAM AB, is Chair of the Nomination Board. Harri Sailas is the member of the Shareholders' Nomination Board appointed by Solidium Oy. Jorma Eloranta and Hans Stråberg were appointed as members of the Shareholders' Nomination Board in their roles as Chair and Vice Chair of the Board of Directors.

⁴ The Company additionally pays the transfer tax for share purchases for each member, in line with AGM decision, which amount is considered also taxable income for each member.

Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided and to annually prepare proposals for the AGM's approval concerning the number of members of the Board of Directors, the Chair, Vice Chair and other members of the Board, as well as the remuneration for the Chair, Vice Chair and members of the Board and its committees.

Board share interests at 31 December 2020

	Shares held ¹	
	A	R
Board members at 31 December 2020		
Jorma Eloranta, Chair	1 150	34 285
Hans Stråberg, Vice Chair		45 389
Håkan Buskhe		2 781
Elisabeth Fleuriot		26 512
Hock Goh		31 265
Mikko Helander		7 079
Christiane Kuehne		11 073
Antti Mäkinen		7 498
Richard Nilsson		23 615
Total shares held	1 150	189 497

¹ Board members' related persons hold no Stora Enso shares.

The following Board members also served in 2020

	Shares held when Board membership ended	Effective date of Board membership ending
Göran Sandberg	6 792	4 June 2020

Group Leadership Team (GLT) remuneration and share interests

The table below includes the remuneration earned by GLT members during the year, including those shares with performance conditions that have ended and are due to vest in the coming year. The company recommends and expects the CEO and GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.

The aggregate cost of earned remuneration for GLT in 2020 amounted to EUR 9.0 (EUR 11.4) million. The total number of GLT members was fifteen (eleven) at the year end in 2020.

In accordance with their respective pension arrangements, GLT members may retire at sixty-five years of age with pensions consistent with local practices in their respective home countries. Contracts of employment provide for six months' notice prior to termination with severance compensation of twelve months basic salary if the termination is at the Company's request.

The outcome of the financial targets relating to the Short term incentive programmes for the performance year 2020, and Long term incentive programmes for the performance years 2018 to 2020 were reviewed and confirmed by the Remuneration Committee, and approved by the Board of Directors in January 2021.

Note 21 Employee variable compensation and equity incentive schemes includes details of incentive schemes and share opportunity programmes for the management and staff of Stora Enso.

Group Leadership Team remuneration

EUR thousand	Year Ended 31 December							
	2020				2019 ¹			
	CEO	Others ³	GLT	Total	Former CEO ²	Others	GLT	Total
Remuneration^{1,7}								
Annual salary	894	3 667	4 561		75	887	3 756	4 717
Local housing (actual costs)	0	0	0		0	0	0	0
Other benefits	29	393	422		2	19	373	394
Termination benefits	0	0	0		0	0	0	0
Short term incentive programme ⁶	171	710	881		14	86	428	529
Long term incentive programme ⁶	189	1 212	1 401		363	0	2 948	3 311
	1 283	5 982	7 265		454	992	7 505	8 951
Pension Costs								
Mandatory plans	284	904	1 188		23	62	1 396	1 481
Stora Enso voluntary plans ⁵	0	590	590		0	464	539	1 003
	284	1 494	1 778		23	526	1 935	2 484
Total Compensation	1 567	7 476	9 043		477	1 518	9 440	11 435

¹ Due to changes in the Finnish Corporate Governance code requiring companies to report remuneration that is paid or due, the 2019 amounts have been restated from amounts paid in 2019 to amounts earned in 2019. The figures are in accordance with the Remuneration report disclosed separately. Due to this the figures presented in the above table do not directly reconcile with the amounts recognised as personnel expenses in the Income statement as presented in the below table Group Leadership Team remuneration in Income statement.

² For the CEO, short term incentives for the financial year 2019 have been prorated for time as CEO.

³ Amounts include earnings related to the new GLT members David Ekberg from 1 April, Lars Völkel from 1 July, Annette Stube and Katarina Kravi from 1 September, Tobias Bäärman and Teemu Salmi from 1 November. Amounts include earnings related to Malin Bendz until January 15 and Noel Morrin until August 31.

⁴ For the former CEO, short term incentives for the financial year 2019 have been prorated for time as GLT. The former CEO did not receive any other termination benefits such as severance pay.

⁵ The former CEO participates in the Swedish Executive Pension Plan where pension accruals are unfunded for all participants, the liability is calculated and insured in accordance with Swedish legislation. The liability for the former CEO amounts to EUR 3 052 thousand.

⁶ Amounts relate to amounts due at year end, which will be paid in 2021. LTI value is calculated using the December 30, 2020 closing price of EUR 15.65. The final value of the vested shares will depend on the share price on vesting date March 1, 2021.

⁷ Remuneration for executives is disclosed only for the period during which they were GLT members.

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Group Leadership Team remuneration in Income statement

EUR thousand	Year ended 31 December							
	2020			2019				
	CEO	Others	GLT Total	CEO	Former CEO	Others	GLT Total	
Salaries and other short-term employee benefits	1 094	4 770	5 864	91	992	4 557	5 640	
Long Term Incentive programme ¹	58	237	294	164	-259	455	360	
Post-employment benefits	284	1 494	1 778	23	526	1 935	2 484	
Total recognised in Income statement	1 436	6 501	7 936	278	1 259	6 947	8 484	

¹ The costs of long-term incentive (LTI) programmes are recognised as costs over the three year vesting period based on the share price at grant date and estimate of equity instruments that will eventually vest.

Executives other than CEO

Short term incentive (STI) programmes for management

In 2020, GLT members have STI programmes with up to a maximum of 50% or 60% of their annual fixed salary, payable the year after the performance period. 70% of the STI for 2020 was based on financial measures and 30% Group Cash Flow and safety targets.

Long term incentive (LTI) programmes for management

Since 2018, the LTI programmes have had three-year targets and vest in one portion only after three years, and the absolute maximum vesting level is 100% of the number of shares granted. The opportunity under the programmes is in Performance Shares, where the shares are vested in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors.

During the year the 2020 programme was launched, in which the GLT members (in GLT at year end) can potentially receive a value corresponding to 294 390 shares before taxes, assuming the maximum vesting level during the three-year vesting period (2020–2022) is achieved. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

The fair value of employee services received in exchange for share-based compensation payments is accounted for in a manner that is consistent with the method of settlement and is either cash or equity settled as described in more detail in Note 21. For the equity settled part, it is possible that the actual cash cost does not agree with the accounting charges because the share price is not updated at the time of the vesting. The figures in the Group Leadership Team Remuneration table refer to individuals who were executives at year end.

At the end of the year, the performance period for the 2018 programme ended, and will vest in one portion after three years in March 2021, dependent on Economic Value Added (EVA) for the Stora Enso Group and Earnings Per Share (EPS) for the Stora Enso Group. The number of shares due for executives (GLT members at year end) from Performance Share programmes that ended during 2020 amounted to 77 484 with a cash value of EUR 1 212 237 before taxes, based on the share close price of EUR 15.65 on 30 December 2020. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

President & Chief Executive Officer – Annica Bresky

The CEO has been employed by Stora Enso since 1 May 2017 and assumed the position as CEO on 1 December 2019. She has a notice period of six months with a severance payment of twelve months salary on termination by the company but with no contractual payments on any change of control. The CEO's benefits include pension provisions. The CEO's pension plan has contributions equal to the collectively agreed pension plan in Sweden (ITP1), with a pensionable salary consisting of annual base salary, vacation pay, and actual paid STI. The retirement age is sixty-five years.

Short term incentive (STI) programme for CEO

In 2020, the CEO is entitled to an STI programme decided by the Board each year giving a maximum of 75% of the annual fixed salary. The STI for 2020 was 70% based on financial measures, and 30% based on Group Cash Flow and safety targets.

Long term incentive (LTI) programmes for CEO

The CEO participates in 2018, 2019 and 2020 share based LTI programmes. The programmes have three-year targets and vest in only one portion after three years. The 2018 programme is related to performance periods 2018–2020, the 2019 programme is related to performance periods 2019–2021 and the 2020 programme is related to performance periods 2020–2022. The opportunity in the programmes is in performance shares, where shares vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors.

During the year the 2020 LTI programme was launched in which the CEO has the potential to receive a value corresponding to a maximum of 75 080 shares before taxes. The grant value of EUR 861 430 is based on the share price at the grant date, assuming a maximum vesting level during the three-year vesting period (2020–2022) is achieved. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

At the end of the year, the performance period for the 2018 programme ended and will vest in one portion after three years in March 2021, dependent on Economic Value Added (EVA) and Earnings Per Share (EPS) for the Stora Enso Group. The number of shares due for the CEO from Performance Share programmes that ended during 2020 amounted to 12 066 with a cash value of EUR 188 773 before taxes, based on the share close price of EUR 15.65 on 30 December 2020. The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

Group Leadership Team share interests

Executives in office at the year end	R shares held ¹	Shares due 2021 ²	Performance share opportunity 2022–2023 ⁵	Restricted share opportunity 2022–2023 ⁵
Annica Bresky	14 511	12 066	102 240	—
Seppo Parvi	46 401	9 936	49 190	—
Tobias Bäärnman	—	2 807	9 158	3 052
David Ekberg	625	—	21 968	1 442
Johanna Hagelberg	24 795	7 794	34 690	—
Kati ter Horst	56 467	12 146	67 040	—
Hannu Kasurinen	35 486	3 742	37 043	2 467
Katariina Kravi	—	—	21 500	—
Ulrika Lilja	20 067	6 778	30 760	—
Per Lyrvall ³	69 199	9 731	43 740	—
Markus Mannström	25 251	9 783	43 540	—
Teemu Salmi	6 620	5 614	14 798	4 932
Annette Stube	—	—	20 000	—
Jari Suominen	49 002	9 153	48 910	—
Lars Völkel	—	—	28 000	—
Total, serving officers⁴	348 424	89 550	572 577	11 893

¹ None of the GLT members holds A shares.

² Shares due to GLT member are gross of taxes for the LTI programmes with performance periods that ended in 2020 and are due to be paid 2021.

³ Spouse holds 1 257 of the shares.

⁴ The Company recommends and expects GLT members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.

⁵ Potential shares to GLT members are gross of taxes for LTI programmes with performance periods that end in 2021–2022 and are due to be paid 2023–2024.

The following Executive Officers also served in 2020	R shares held when GLT membership ended	Performance Share Awards when GLT Membership Ended	Restricted Share Awards When GLT Membership Ended	Effective date of GLT membership ending
Malin Bendz	19 162	31 159 ¹	—	15 January 2020
Noel Morrin	45 165	33 110 ²	—	31 August 2020

¹ These shares are forfeited at end of employment.

² These shares are forfeited at end of employment, except for the LTI 2018 shares which have been earned at the time employment ended and vest at the normal vesting date in March 2021.

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Note 8 Net financial items

Accounting principles

Net financial items comprise net interest expenses, foreign exchange gains and losses and other financial income and expenses mainly arising from interest-bearing assets and liabilities.

Financial income and expense

EUR million	Year Ended 31 December	
	2020	2019
Net financial expense in the income statement		
Financial income	19	8
Financial expense	-168	-176
Total	-150	-168
Represented by		
Interest expense		
Interest expense from borrowings measured at amortised cost	-106	-121
Net interest from interest rate derivatives measured at fair value through OCI	-14	-13
Interest expense on leases	-19	-20
Interest capitalised	5	0
Interest income on loans and receivables measured at amortised cost	2	7
Net interest expense	-132	-147
Foreign exchange gains and losses		
Currency derivatives	14	0
Borrowings, cash equivalents and lease liabilities	-22	-6
Net foreign exchange gains and losses	-8	-6
Other financial income	3	0
Other financial expense	-8	-8
Net interest on net defined benefit liabilities	-5	-7
Net other financial expense	-10	-15
Total	-150	-168

Gains and losses on derivative financial instruments are shown in [Note 27](#) Derivatives.

In 2020, the net interest expense decreased mainly as a result of lower average interest expense rate on borrowings. The amount of interest costs capitalised during the year amounted to EUR 5 million (EUR 0), which were related to Oulu mill conversion project in Finland. The average interest rate used for capitalisation was 3.3% (-). Costs on long-term debt issues capitalised as part of non-current debt amounted to EUR 11 (EUR 12) million in the statement of financial position. During the year, EUR 4 (EUR 5) million was amortised through interest expense by using the effective interest rate method.

Exchange gains and losses for currency derivatives mainly relate to non-hedge accounted instruments fair valued in the income statement. The amount reported as other financial income mainly consists of fair valuation gains, while other financial expense in the table above mainly relates to net financial fees for unused committed credit facilities, guarantees and rating agencies.

Note 9 Income taxes

Accounting principles

The Group income tax expense/benefit includes taxes of group companies based on taxable profit/loss for the period, together with tax adjustments for previous periods and the change in deferred income taxes. Tax assets and liabilities reflect uncertainty related to income taxes, if any.

Deferred income taxes are provided using the liability method, as measured with enacted, or substantially enacted, tax rates, to reflect the net tax effects of all temporary differences between the tax bases and the accounting bases of assets and liabilities. No deferred tax is recognised for the initial recognition of goodwill and the initial recognition of an asset or liability in a transaction which is not a business combination, and at the time of the transaction this affects neither accounting profit nor taxable profit. Deferred tax assets reduce income taxes payable on taxable income in future years. The deferred tax assets, whether arising from temporary differences or from tax losses, are recognised only to the extent that it is probable that future taxable profits will be available against which the assets can be utilised.

Tax expense

EUR million	Year Ended 31 December	
	2020	2019
Current Tax	-109	-132
Deferred Tax	-46	-149
Total Income Tax	-156	-281

Income tax rate reconciliation

EUR million	Year Ended 31 December	
	2020	2019
Profit before tax	773	1 137
Tax at statutory rates applicable to profits in the country concerned ¹	-165	-235
Non-deductible expenses and tax exempt income ²	0	-41
Valuation of deferred tax assets	10	-53
Taxes from prior years	-4	2
Changes in tax rates and tax laws	4	-2
Profits from equity accounted investments	0	48
Other	1	0
Total income taxes	-156	-281
Effective tax rate	20.1%	24.7%
Statutory tax rate (blended)	21.4%	20.7%

¹ Includes a EUR 0 million impact from countries with tax holidays and tax benefits in 2020 and a EUR 17 million impact from tax holidays and other tax benefits in 2019.

² The tax value of non-deductible expenses of EUR 12 million has been netted against tax exempt income of EUR 12 million in 2020, and tax value of non-deductible expenses of EUR 50 million has been netted against tax exempt income of EUR 9 million in 2019.

The statutory tax rate is a weighted average of the statutory tax rates prevailing in jurisdictions where Stora Enso operates.

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Change in deferred taxes in 2020

EUR million	Value at 1 Jan 2020	Income Statement	OCI	Acquisitions/ disposals	Translation difference	Value at 31 Dec 2020
Forest assets ¹	-722	-105	-310	-5	-33	-1 175
Fixed assets	-195	26	0	0	-4	-173
Financial instruments	1	0	-12	0	0	-11
Untaxed reserves	-24	-12	0	0	-3	-39
Pensions and provisions	69	-8	-3	0	-2	56
Tax losses and tax credits carried forward	84	22	0	0	-2	104
Other deferred taxes	-7	28	0	0	2	23
Total	-794	-49	-325	-5	-42	-1 215
Equity hedges (CTA)		5	-5			
Net investment loans		-1	1			
Change in deferred tax		-45	-329	-5	-42	
Assets ²	81					117
Liabilities ²	-875					-1 332

¹ Previously forest assets presented on same line as other property, plant and equipment items and to minor extent within untaxed reserves. Opening balances restated.

² Deferred tax assets and liabilities have been offset in accordance with IAS 12. OCI = Other Comprehensive income, CTA = Cumulative Translation Adjustment

Change in deferred taxes in 2019

EUR million	Value at 1 Jan 2019	Income Statement	OCI	Acquisitions/ disposals	Translation difference	Value at 31 Dec 2019
Forest assets ¹	-2	-114		-605	-1	-722
Fixed assets	-173	-22	0	0	0	-195
Financial instruments	-1	0	2	0	0	1
Untaxed reserves	-19	-6	0	-1	2	-24
Pensions and provisions	62	2	6	0	-1	69
Tax losses and tax credits carried forward	90	-5	0	0	-1	84
Other deferred taxes	-5	-2	0	0	0	-7
Total	-48	-147	8	-606	-1	-794
Equity hedges (CTA)		-1	1			
Change in deferred tax		-148	9	-606	-1	
Assets ²	120					81
Liabilities ²	-168					-875

¹ Previously forest assets presented on same line as other property, plant and equipment items and to minor extent within untaxed reserves. Opening balances restated.

² Deferred tax assets and liabilities have been offset in accordance with IAS 12.

The recognition of deferred tax assets is based on the Group's estimations of future taxable profits available against which the group can utilise the benefits.

Tax losses

EUR million	As at 31 December					
	Tax losses carried forward		Recognised tax values		Unrecognised tax values	
	2020	2019	2020	2019	2020	2019
Expiry within five years	607	786	35	63	88	79
Expiry after five years	239	20	52	4	0	0
No expiry	1 131	1 212	15	11	221	242
Total	1 977	2 018	102	78	309	321

Tax losses of EUR 329 (EUR 328) million relate to Finland. A deferred tax asset of EUR 66 (EUR 66) million has been recognized relating to these tax losses, as it is evident considering the recent history of profit in Finland, the outlook and tax planning opportunities that the full amount of tax losses in Finland will be utilized before its expiration.

Non-recognised deferred tax assets on deductible temporary differences amounted to EUR 25 (EUR 50) million. There is no expiry date for these differences. Taxable temporary differences in respect of investments in subsidiaries, branches and associates and interests in joint ventures, for which deferred tax liabilities have not been recognised amounted to EUR 323 (EUR 330) million.

Uncertain tax positions

At balance sheet date there were on-going tax audits in several jurisdictions. It is not expected that any significant additional taxes in excess of those already recorded for will arise as a result of these audits.

The tax liabilities of EUR 78 (EUR 48) million include an amount of EUR 37 (EUR 33) million for an uncertain tax position in Sweden due to disputes concerning the deduction of interest expense. On the 20 of January 2021, the Court of Justice of the European Union has given a preliminary ruling (Lexel AB -case, C484/19) which might have an impact on Stora Enso's pending disputes concerning the deduction of interest expenses in Sweden.

Note 10 Depreciation, amortisation and impairment charges

Accounting principles

Depreciation, amortisation and impairment charges

Depreciation or amortisation of an asset begins when it is available for use in the location and condition necessary for it to be operated in the manner intended by management. Depreciation or amortisation ceases when the asset is derecognised or classified as held for sale in accordance with IFRS 5.

Depreciation or amortisation does not cease when the asset becomes idle. Tangible and intangible assets are depreciated and amortised on a straight-line basis during their useful lives. Useful lives are reviewed periodically. If an asset is disposed of, proceeds exceeding the carrying value of the asset up to its historical cost are netted against depreciation, amortisation and impairment charges. Only disposal proceeds exceeding the historical cost of an asset are presented as other operating income (Note 5). If the asset's book value is higher than the disposal proceeds, the difference is recognised as an impairment in the period when reliable estimate of disposal loss is available, at the latest when a binding sales contract is signed. Right-of-use (ROU) assets are depreciated using the straight line method from the commencement date of the contract to the earlier of the end of the lease term or the end of the useful life of the ROU assets.

The carrying amounts of intangible assets, property, plant and equipment and ROU assets are reviewed at each reporting date to determine whether there is any indication of impairment, whereas goodwill is tested annually. If any such indication exists, the recoverable amount is estimated as the higher of the fair value less costs of disposal and the value in use, with an impairment loss being recognised whenever the carrying amount exceeds the recoverable amount.

A previously recognised impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount, however, not to an extent higher than the carrying amount that would have existed had no impairment loss been recognised in prior years. For goodwill, however, a recognised impairment loss is not reversed.

Whilst intangible assets, property, plant and equipment and ROU assets are subject to impairment testing at the cash generating unit (CGU) level, goodwill is subject to impairment testing at the CGU level for groups of CGUs, which represents the lowest level within the Group at which goodwill is monitored for internal management purposes.



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Depreciation, amortisation and impairment charges

EUR million	Year ended 31 December	
	2020	2019
Depreciation and amortisation		
Intangible assets	30	27
Buildings and structures	84	83
Plant and equipment	370	356
Right-of-use assets	66	70
Other tangible assets	9	10
Total	559	546
Impairment		
Intangible assets	19	4
Buildings and structures	13	5
Plant and equipment	21	66
Right-of-use assets	2	3
Other tangible assets	2	0
Total	57	78
Reversal of impairment		
Buildings and structures	0	-21
Total	0	-21
Disposal gains/losses		
Gain on sale of assets	-10	-7
Loss on sale of assets	3	2
Total	-7	-5
Depreciation, amortisation and impairment charges	609	597

Depreciation and amortisation

The total depreciation and amortisation charge amounted to EUR 559 million and was EUR 13 million more than in 2019, mainly due to depreciation of Plant and equipment assets. A breakdown of depreciation, amortisation and impairment charges by divisions is set out in [Note 3](#) Segment information.

Disposal gains and losses

There were no material disposal gains or losses relating to fixed assets in 2020 or 2019.

Impairment testing

The recoverable amount for the cash generating units (CGUs) has been determined based on a value in use calculation using cash flow projections from financial estimates approved by the Board of Directors and management. The pre-tax discount rates are calculated for each CGU taking into account the business environment of the CGU and the tax and risk profile of the country in which the cash flow is generated. The table in the goodwill impairment testing section below sets out the pre-tax discount rates used for goodwill impairment testing, which are similar to those used in the impairment testing of other intangible assets, property, plant and equipment, and ROU assets.

Impairments were tested using a value in use method for each CGU based on the following main assumptions:

- Sales price estimates in accordance with internal and external specialist analysis
- Cash flows and discount rates were prepared in nominal terms (2019 in real terms)
- Current cost structure to remain unchanged
- For goodwill testing, a five-year future period was used, after which the perpetuity value was determined using inflation based growth rates, whereas for intangible assets, property, plant and equipment, and ROU assets, testing the period was the remaining expected economic life of the assets.

Property, plant and equipment, other intangible assets and ROU assets impairments

The total impairment charges on property, plant and equipment, other intangible assets and ROU assets in 2020 amounted to EUR 57 (EUR 78) million and resulted from business restructuring, Group company disposals and impairment testing. Impairment reversals amounted to EUR 0 (EUR 21) million. In 2020, certain assets in Nordic and Innovation CGU in the Biomaterials division were tested for fixed asset impairment and an impairment charge of EUR 42 (EUR 43) million was recognised.

Goodwill impairment testing

In 2020 or 2019, the Goodwill testing did not result in any impairment.

The most material groups of cash generating units containing goodwill

EUR million	Year ended 31 December			
	2020		2019	
	Goodwill at year end	Pre-tax discount rate	Goodwill at year end	Pre-tax discount rate ¹
Wood Products - Central Europe	106	6.8%	108	5.4%
Paper - Newsprint and Book Paper	49	8.2%	52	5.7%
Paper - Uncoated Magazine Paper	40	6.8%	40	5.7%
Biomaterials - Nordic and Innovation	43	6.8%	49	5.9%
Other CGUs ²	43		54	
Total	281		302	

¹ 2019 discount rates are prepared in real terms.

² Other CGUs line is including Packaging Solutions - Europe, Packaging Materials operations in Sweden, Wood Products - Northern Europe and Office Paper cash generating units.

The calculation of value-in-use is highly sensitive to discount rates, sales prices, and costs. The Sensitivity analysis table below summarises amounts by which the value assigned to the key assumption must change in order for the unit's recoverable amount to be equal to its carrying amount for the CGU for which a reasonably possible change in an assumption could result in an impairment. The recoverable amount for the CGU Biomaterials - Nordic and Innovation amounted to EUR 498 million in 2020 compared with the carrying amount of EUR 385 million.

Goodwill testing sensitivity analysis

EUR million	Biomaterials - Nordic and Innovation
Increase in the discount rate (percentage points)	0.9%
Annual decrease in the sales prices	-0.5%
Annual increase in the costs	0.6%

Summary of impairment and impairment reversals per division

EUR million	Year ended 31 December	
	2020	2019
Packaging Materials	0	-14
Packaging Solutions	3	5
Biomaterials	42	43
Wood Products	0	8
Forest	0	0
Paper	3	11
Other	9	4
Total (impairment +) / (impairment reversal -)	57	56

Comparative 2019 figures have been restated according to the current division structure.

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Note 11 Intangible assets, property, plant and equipment and right-of-use assets



Accounting principles

Computer software development costs

The cost of development or acquisition of new software clearly associated with an identifiable and unique product that will be controlled by the Group and has a probable benefit exceeding its cost beyond one year is recognised as an intangible asset and will be amortised over the expected useful life of the software between 3 to 10 years. Website costs are expensed as incurred.

Goodwill

Goodwill represents future economic benefits arising from assets that are not capable of being individually identified and separately recognised by the Group on an acquisition. Goodwill is computed as the excess of the cost of an acquisition over the fair value of the Group's share of the fair value of net assets of the acquired subsidiary at the acquisition date, and is allocated to those groups of cash generating units expected to benefit from the acquisition for the purpose of impairment testing. In compliance with IFRS 3, the cost of an acquisition is equal to the sum of the consideration transferred, the value of the non-controlling interest in the acquisition, and the fair value of the previously held interest in the acquired subsidiary. Goodwill arising on the acquisition of non-euro foreign entities is treated as an asset of the foreign entity denominated in the local currency and translated at the closing rate.

Goodwill is not amortised but tested for impairment on an annual basis, or more frequently if there is an indication of impairment. Gains and losses on the disposal of a Group entity include any goodwill relating to the entity sold.

Goodwill arising from the acquisition of an equity accounted investment or joint arrangement is included in the carrying amount of the investment and is assessed for impairment as part of that investment. Any excess of the Group's share of the net fair value over the cost of the acquisition, after reassessment, is recognised immediately in the income statement.

Intangible assets

Intangible assets are stated at their historical cost and amortised on a straight-line basis over their expected useful lives, which usually varies from 3 to 10 years and up to 20 years for patents. An adjustment is made for any impairment. Intangible items acquired must be recognised as assets separately from goodwill if they meet the definition of an asset, are either separable or arise from contractual or other legal rights, and their fair value can be measured reliably.

Intangible assets recognised separately from goodwill in acquisitions consist of marketing and customer-related or contract and technology-based intangible assets. Typical marketing and customer-related assets include trademarks, trade names, service marks, collective marks, certification marks, customer lists, order or production backlogs, customer contracts and the related customer relationships. Contract and technology-based intangible assets are normally licensing and royalty agreements or patented technology and trade secrets, such as confidential formulas, processes or recipes. The fair value determination of customer contracts and related relationships is derived from expected retention rates and cash flow over the customers' remaining estimated lifetime. The value of trademarks is derived from a discounted cash flow analysis using the relief from royalty method.

Property, plant and equipment

Property, plant and equipment acquired by Group companies are stated at their historical cost, which are augmented where appropriate by asset retirement costs. Assets arising on the acquisition of a new subsidiary are stated at fair value at the date of acquisition. Depreciation is computed on a straight-line basis, and adjusted for any impairment and disposal charges. The Consolidated statement of financial position value represents the cost deducted by received grants and subsidies and less the accumulated

depreciation and any impairment charges. Interest costs on borrowings to finance the construction of these assets are capitalised as part of the cost during the construction period when the requirements are fulfilled.

Land and water areas are not depreciated, as these are deemed to have an indefinite life, but otherwise depreciation is based on the following expected useful lives:

Asset class	Depreciation years
Buildings, industrial	10–50
Buildings, office & residential	20–50
Groundwood mills	15–20
Hydroelectric power	40
Paper, board and pulp mills, main machines	20–30
Heavy machinery	10–20
Converting factories	10–15
Sawmills	10–15
Computers	3–5
Vehicles	5
Office equipment	3–5
Railway, harbours	20–25
Forest roads	10–15
Roads, fields, bridges	15–20

Ordinary maintenance and repair charges are written as expensed when incurred, but the costs of significant renewals and improvements are capitalised and depreciated over the remaining useful lives of the related assets. Retirements, sales and disposals of property, plant and equipment are recorded by deducting the cost and accumulated depreciation from the accounting records with any resulting terminal depreciation adjustments reflected in impairment charges in the Consolidated income statement. Capital gains are shown in other operating income.

Spare parts are accounted for as property, plant and equipment if they are major and used over more than one period, or if they are used only in connection with an item of property, plant and equipment. In all other cases, spare parts are carried as part of the inventory and recognised in profit or loss as consumed items.

Right-of-use (ROU) assets

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. ROU assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted mainly for lease payments made at or before the commencement date. The Group allocates the consideration in the contract to each lease component and will separate non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The ROU assets are subsequently depreciated using the straight line method from the commencement date to the earlier of the end of the lease term or the end of the useful life of the ROU asset. In addition, the ROU asset is adjusted for certain remeasurements of the lease liability. ROU assets are tested for impairment in accordance with IAS 36.

The Group has elected not to recognise ROU assets for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term (Note 5).

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Intangible assets

EUR million	Year ended 31 December				
	Computer software	Other intangible assets	Assets in progress	Goodwill	Total
Acquisition cost					
At 1 January 2019	225	177	27	1 194	1 623
Translation difference	0	4	0	3	7
Reclassifications	6	-75	-10	0	-78
Additions ²	8	3	11	57	78
Disposals ¹	-4	-6	0	0	-10
At 31 December 2019	236	102	29	1 253	1 620
Translation difference	-2	-3	-1	-4	-9
Reclassifications	17	5	-19	0	2
Additions ²	3	1	9	-20	-7
Disposals ¹	-20	-8	0	-535	-562
At 31 December 2020	233	98	17	695	1 044
Accumulated amortisation and impairment					
At 1 January 2019	158	17	0	951	1 126
Translation difference	0	0	0	0	1
Disposals ¹	-4	-6	0	0	-10
Amortisation	16	12	0	0	27
Impairment	0	4	0	0	4
At 31 December 2019	170	27	0	951	1 148
Translation difference	-2	-3	0	-2	-6
Disposals ¹	-20	-8	0	-535	-562
Amortisation	18	12	0	0	30
Impairment	9	9	0	0	19
At 31 December 2020	176	38	0	414	629
Net Book Value at 31 December 2020	57	60	17	281	415
Net Book Value at 31 December 2019	65	75	29	302	471

¹ Company disposals are included in Disposals line. Company disposals are discussed in more detail in Note 4 Acquisitions and disposals.

² Company acquisitions are included in the Additions line. Company acquisitions are discussed in more detail in Note 4 Acquisitions and disposals.

Property, plant and equipment

EUR million	Year ended 31 December					
	Land and water	Buildings and structures	Plant and equipment	Other tangible assets	Assets in progress	Total
Acquisition cost						
At 1 January 2019	131	3 335	13 413	420	440	17 739
Translation difference	0	11	-49	1	9	-28
Reclassifications	-1	61	322	17	-403	-3
Reclassifications to biological assets	0	-1	-2	0	0	-2
Additions ²	1	42	228	28	299	598
Disposals ¹	-1	-73	-476	-6	-1	-557
At 31 December 2019	129	3 376	13 438	459	345	17 746
Translation difference	-1	-84	-79	-1	-2	-167
Reclassifications	0	19	166	4	-192	-2
Reclassifications to biological assets	0	-2	-1	0	0	-4
Additions ²	0	16	157	4	399	576
Disposals ¹	0	-23	-424	-11	-1	-460
At 31 December 2020	128	3 301	13 256	455	549	17 690
Accumulated depreciation and impairment						
At 1 January 2019	4	2 044	10 285	361	9	12 703
Translation difference	0	-3	-54	0	2	-55
Additions ²	0	7	17	19	0	43
Disposals ¹	-1	-68	-469	-6	0	-543
Depreciation	0	81	356	11	0	448
Impairments and reversals	0	-16	66	0	0	50
At 31 December 2019	4	2 044	10 201	386	11	12 645
Translation difference	0	-21	12	0	0	-9
Disposals ¹	0	-22	-419	-11	-1	-453
Depreciation	0	82	370	11	0	464
Impairments and reversals	0	13	21	0	2	36
At 31 December 2020	3	2 096	10 186	386	11	12 683
Net Book Value at 31 December 2020	124	1 205	3 071	69	538	5 007
Net Book Value at 31 December 2019	125	1 332	3 237	73	334	5 101

¹ Company disposals are included in the Disposals line. Company disposals are discussed in more detail in Note 4 Acquisitions and disposals.

² Company acquisitions are included in the Additions line. Company acquisitions are discussed in more detail in Note 4 Acquisitions and disposals.

In accordance with the new presentation, the Group has changed its forest asset and forest land presentation principles. Previously forest land assets were presented as part of the Land and water asset class and included in the balance sheet line Property, plant and equipment. In accordance with new presentation principles, forest land is presented as a separate balance sheet line and considered as part of forest assets, which are specified in more detail in Note 12. Comparative periods have been restated.



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Right-of-use assets

EUR million	Year ended 31 December				Total
	Land and water	Forest land	Buildings and structures	Plant and equipment and other	
Acquisition cost					
At 1 January 2019	23	269	80	158	530
Translation difference	1	2	2	0	5
Reclassifications	80	0	2	0	82
Reclassifications to biological assets	0	-12	0	0	-12
Additions	0	7	6	15	29
Disposals	0	0	0	-2	-2
Other changes	-1	-19	0	-34	-53
At 31 December 2019	104	249	89	138	579
Translation difference	-2	-9	0	-2	-14
Reclassifications	0	0	-1	0	0
Reclassifications to biological assets	0	-12	0	0	-12
Additions	3	6	9	21	39
Disposals	-5	0	-3	-7	-15
Other changes	0	0	2	-1	1
At 31 December 2020	99	233	97	148	577
Accumulated depreciation and impairment					
At 1 January 2019	0	0	0	0	0
Disposals	0	0	0	-2	-2
Depreciation	3	7	20	40	70
Impairment	3	0	0	0	3
Other changes	0	0	0	0	1
At 31 December 2019	6	7	20	38	71
Disposals	-3	0	-2	-7	-13
Depreciation	3	5	21	37	66
Impairment	1	0	0	1	2
Other changes	0	0	0	0	-1
At 31 December 2020	6	12	38	70	125
Net Book Value at 31 December 2020	93	221	59	79	452
Net Book Value at 31 December 2019	98	242	69	99	508

Stora Enso's most material right-of-use assets capitalised consist of land areas used in forestry and industrial operations, various machinery and equipment leases including operative machinery, vessels and other logistic equipment and properties including offices, warehouses and other operative properties. Some of the leases contain renewal options and extension options that are considered in the lease term if the Group is reasonably certain to exercise the option.

The Group has changed its forest asset and forest land presentation principles. Previously, forest land right-of-use assets were presented as part of the Land and water asset class. In accordance to the new presentation principles, leased forest land is presented as its own right-of-use asset class, and comparative figures for leased land and water areas have been restated.

Intangible assets and property, plant and equipment, and right-of-use asset additions

The total capital expenditure excluding investments in biological assets for the year in Stora Enso Oyj and its subsidiaries amounted to EUR 628 (EUR 579) million. Details of ongoing projects and future plans are discussed in more detail in the Report of the Board of Directors.

Note 12 Forest assets

Accounting principles

The forest assets of Stora Enso are defined as standing growing trees, classified as biological assets, and related forest land. The biological assets of Stora Enso consist of standing trees to be used as raw material in pulp and mechanical wood production and as biofuels.

Forest asset valuation is based on continuous operations and sustainable forest management, also taking into consideration environmental restrictions and other reservations. Biological assets are recognised and valued in accordance with the IAS 41 Agriculture standard at fair value and forest land assets are recognised in accordance with the IAS 16 Property, plant and equipment standard. Leased forest land assets are presented as part of right-of-use assets in Note 11. Intangible assets, property, plant and equipment, and right-of-use assets.

The Group changed its accounting policy related to Nordic forest asset valuation at the end of 2020 as explained in Note 1 Accounting principles. The Group has also changed its forest land presentation principles. Previously, forest land assets were included in the statement of financial position line Property, plant and equipment, and as part of the Land and water asset class, as specified in Note 11. Related to presentation principle changes, corresponding comparative figures are presented on a separate line in the statement of financial position and as part of forest assets.

Nordic and plantation forest assets are classified as different classes of assets due to different nature, usage and characteristics of the assets. The main difference is the short-term growing cycle of 6–12 years in plantations versus the long-term growing cycle of 60–100 years in Nordic forests. There are also differences in regeneration methods, forest management, and the use of the assets for other purposes.

Nordic forest assets include holdings in Sweden and Finland (also including minor forest asset holdings in Estonia and Romania) and plantation forest assets include holdings in China, Brazil, Uruguay and Laos. Accounting policies for the different class of forest assets are presented separately below. The Group has forest assets in its own subsidiaries in Sweden, China, and Laos, as well as in joint operations in Brazil and Uruguay, and in equity accounted investments in Finland and Brazil. Stora Enso also ensures that the Group's share of the valuation of forest holdings in equity accounted investments and joint operations are consistent with Group accounting policies. At harvesting, biological assets are transferred to the inventory.

Nordic forest assets

Forest assets in Sweden are recognised at fair value and valued by using a market approach method on the basis of the forest market transactions in the areas where Stora Enso's forests are located. Stora Enso intends to use forest assets to balance the wood supply for its industrial operations and to seek opportunities for further optimisation of its forest asset holdings. The total forest assets value is calculated with verified inventory data and regional standing stock prices, considering among others:

- regional market transaction data based on the forest assets' geographical locations,
- standing stock prices by forest cubic meter (m³ fo) combined from traded forest estates and
- regional standing stock inventory.

Information relating to forest asset transactions are available from several market sources. The market transaction information can be viewed as market-corroborated inputs. Certain adjustments are made to refine the market-corroborated inputs using unobservable inputs, therefore inputs are categorised to fair value hierarchy measurement level 3. The judgements are further explained in Note 2 Critical accounting estimates and judgements.

The total value of the forest assets in Sweden is allocated across standing trees, which are recognised as biological assets and forest land. Allocation of the combined value fair value of forest assets is based on the income approach where separate present values of expected net cash flows are calculated for both biological assets and forest land. The discount rate is determined as the rate at which the valuation based on market transaction prices matches the total forest assets combined cash

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flows for standing trees and forest land. The discount rate is estimated to be the same for biological assets and forest land as the nature and timing of the cash flows are similar.

Biological assets are measured at fair value in accordance IAS 41. The fair value is based on the income approach and the discounted cash flow method whereby the fair value of the biological assets is calculated using cash flows from continuous operations, taking into account the growth potential of one cycle. Forest land is measured at fair value using the revaluation method as defined in the IAS 16 standard. Fair value of forest land is measured based on income approach, including net cash flows related to trees to-be-planted in the future as well as other land related income, such as hunting rights, wind power leases and soil material sales.

Other Nordic forest assets, owned mainly in Finland through Group's 41% shareholding in the equity accounted investment Tornator, are recognised at fair value using the income approach. The valuation of biological assets is based on the discounted cash flow method calculated using cash flows from continuous operations, taking into account the growth potential of one cycle. The forest land is measured at fair value using the revaluation method as defined in IAS 16. The forest land fair value measurement is based on the income approach and the discounted cash flow method, including cash flows from trees to-be-planted in the future as well as other related income. The discount rate applied for both biological assets and forest land is determined using the weighted average cost of capital method.

Changes in the fair value of biological assets are recognised in the income statement. Changes in the fair value of forest land, net of deferred taxes, are recognised in other comprehensive income (OCI) and accumulated in a revaluation reserve in equity. Revaluation reserve is not recycled to the income statement upon disposal. If the fair value of forest land were to be less than cost, the difference would be recognised in the income statement as an impairment loss.

Plantation forest assets

In plantation forest areas, biological assets are recognised at fair value in accordance with the IAS 41 standard and based on the income approach in those areas where the Group has forest land. Fair value measurement is based on fair value hierarchy measurement level 3. Forest land is measured initially and subsequently at cost, using the cost model as defined in IAS 16.

The valuation of biological assets is based on the discounted cash flow method calculated using cash flows from continuous operations and based on sustainable forest management, taking into account growth potential of one cycle. The fair value of the biological assets is based on the productive forestland. The yearly harvest from the forecasted tree growth is multiplied by wood prices and the cost of silviculture and harvesting is then deducted. The fair value of the biological assets is measured as the present value of the harvest from one growth cycle, taking into consideration environmental restrictions and other reservations. The discount rate applied is determined using the weighted average cost of capital method.

Young standing timber less than two years old (less than three years in Montes del Plata) is considered to be an immature asset and is accounted at cost. Fair value is deemed to approximate the cost when little biological transformation has taken place or the impact of the transformation on the price is not expected to be significant, which varies according to the location and species of the assets.

Changes in the fair value of biological assets are recognised in the income statement. The forest land is measured at cost and not depreciated.

The value of forest assets disclosed in the Consolidated statement of financial position from subsidiary companies and joint operations amounts to EUR 6 256 (4 136) million as shown below. The Group's indirect share of forest assets held by associated companies amounts to EUR 837 (798) million. The total forest asset value amounts to EUR 7 093 (4 934) million.

Forest assets

EUR million	Biological assets		Forest land ⁴		Forest assets total	
	Year Ended 31 December	Year Ended 31 December	Year Ended 31 December	Year Ended 31 December	Year Ended 31 December	Year Ended 31 December
	2020	2019	2020	2019	2020	2019
Subsidiaries and joint operations						
Value at 1 January	3 627	457	509	198	4 136	655
Translation differences	99	40	-12	6	88	47
Unrealized change in fair value ^{1,2}	560	546	1 504	0	2 065	546
Additions ³	81	2 675	3	305	84	2 981
Disposals	0	-1	0	0	0	-2
Change due to harvesting ¹	-128	-98	0	0	-128	-98
Other operative changes ¹	-4	-6	0	0	-4	-6
Reclassification from PPE	16	14	0	0	16	14
Value at 31 December	4 250	3 627	2 005	509	6 256	4 136
Associated companies						
Tornator Oyj (41%)	769	740	56	38	825	778
Arauco Florestal Arapoti S.A. (20%)	8	14	4	6	12	19
Value at 31 December	778	753	60	44	837	798
Total	5 028	4 380	2 065	553	7 093	4 934

¹ Items are recorded in the profit and loss lines for biological assets. For forest land, changes in fair value are recognised directly in equity.

² The impact in 2020 is mainly due to valuation and accounting principles changes for Swedish forests. See [Note 1](#) for more details.

³ Additions in 2019 mainly including assets acquired through Bergvik Skog AB restructuring.

⁴ Previously presented as part of Land and water in [Note 11](#). Intangible assets and property, plant and equipment and right-of-use assets. Not including leased forest land.

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Valuation and standing stock of forest assets in main subsidiaries, joint operations and associate company

			As at 31 December 2020					
			Swedish forests	Guangxi	Veracel (50%)	MdP (50%)	Tornator (41%)	Total ³
Land area	Total area	ha	1 398 000	81 000	112 000	135 000	291 000	2 017 000
	- of which owned		1 398 000	—	107 000	95 000	291 000	1 891 000
	- of which leased		—	81 000	5 000	39 000	—	126 000
	Productive area	ha	1 145 000	75 000	47 000	94 000	269 000	1 629 000
Total area	Standing stock	million m ³ fo. ¹	145.0	4.3	4.4	13.0	31.8	198.5
	Standing stock	million m ³ u.b. ²	120.4	3.5	3.7	10.7	26.1	164.3
Productive Forest land	Standing stock	million m ³ fo. ¹	143.0	4.2	4.4	13.0	31.4	195.9
	Standing stock	million m ³ u.b. ²	118.7	3.4	3.7	10.7	25.8	162.2
	Estimated growth	million m ³ u.b. ² /p.a.	5.0	1.1	1.4	2.5	1.1	11.1
	Harvesting	million m ³ u.b. ² /p.a.	3.8	1.0	0.8	1.0	1.2	7.8
Biological assets		EUR million	3 774	176	66	230	769	5 016
Biological assets	Productive area	EUR/ha	3 298	2 359	1 412	2 438	2 860	3 078
Forest land		EUR million	1 829	—	26	150	56	2 061
Total forest assets		EUR million	5 603	176	92	380	825	7 077
Leased forest land		EUR million	—	183	1	37	—	221

¹ Forest cubic meters

² Solid under bark (sub) cubic meters

³ Total figures exclude minor forest ownerships in Laos and associate company Arauco Florestal Arapoti S.A. in Brazil

			As at 31 December 2019					
			Swedish forests ⁵	Guangxi	Veracel (50%)	MdP (50%)	Tornator (41%)	Total ^{4,5}
Land area	Total area	ha	1 398 000	81 000	112 000	131 000	286 000	2 008 000
	- of which owned		1 398 000	—	107 000	95 000	286 000	1 886 000
	- of which leased		—	81 000	5 000	36 000	—	123 000
	Productive area	ha	1 145 000	76 000	50 000	86 000	262 000	1 619 000
Total area	Standing stock	million m ³ fo. ¹	146.3	4.3	3.8	10.0	31.5	195.8
	Standing stock	million m ³ u.b. ²	121.5	3.5	3.1	8.2	25.4	161.8
Productive Forest land	Standing stock	million m ³ fo. ¹	143.2	4.2	3.8	10.0	31.0	192.1
	Standing stock	million m ³ u.b. ²	120.3	3.1	3.1	8.2	25.1	159.8
	Estimated growth ³	million m ³ u.b. ² /p.a.	4.7	0.7	0.8	1.6	1.1	8.9
	Harvesting ³	million m ³ u.b. ² /p.a.	3.4	1.0	0.9	1.4	1.0	7.8
Biological assets		EUR million	3 133	181	86	222	740	4 362
Biological assets	Productive area	EUR/ha	2 738	2 385	1 716	2 608	2 824	2 695
Forest land		EUR million	309	—	36	164	38	548
Total forest assets		EUR million	3 442	181	122	387	778	4 910
Leased forest land		EUR million	—	201	1	40	—	241

¹ Forest cubic meters

² Solid under bark (sub) cubic meters

³ Swedish Forests harvesting volume is annualised based on June-December outcome. Estimated growth is a full year estimate.

⁴ Total figures exclude minor forest ownerships in Laos and equity accounted investment Arauco Florestal Arapoti S.A. in Brazil

⁵ Swedish forest total area (ha), productive area (ha) and biological assets per productive ha recalculated based on information received after 2019 reporting.

Subsidiaries and joint operations

At 31 December 2020 forest assets (excl. leases) were located by value, in Sweden 90% (83%), China 3% (4%), Brazil 1% (3%) and Uruguay 6% (9%). The land area comes to 1 726 (1 722) thousand hectares of which 7% (7%) is leased and under 1% (1%) is restricted. From Stora Enso's total forest holdings 1 361 (1 349) thousand hectares is productive forest land. The harvested wood amounted to 7 (7) million m³ sub. The Montes del Plata and Veracel amounts take into account the ownership share.

Swedish forests

At the end of 2020, the value of the biological assets in Swedish forests amounted to EUR 3 774 (3 133) million and related forest land amounted to EUR 1 829 (309) million. The increase of EUR 1 504 million in forest land value in 2020 is related to the accounting principle change to measure Nordic forest land at fair value using the revaluation method. The increase of EUR 641 million in biological asset value in 2020 is mainly due to the change to a transaction based valuation method and, as a consequence, in a lower discount rate applied in the valuation of biological assets and due to foreign exchange impact. Biological asset value was negatively impacted by changes in parameters applied in discounted cash flow model. Deferred taxes liabilities related to forest assets amounted to EUR 1 153 (709) million. The discount rate of 3.6% (4.2%) is applied in the valuation. In 2020 the discount rate is determined as the rate at which the valuation based on market transaction prices matches the total forest assets combined cash flows for biological assets and forest land. In 2019 discount rate was determined using the weighted average cost of capital method.

The productive land in Swedish forests amounted to 1 145 (1 145) thousand hectares with a standing stock of 118.7 (120.3) million m³ sub and 143.0 (143.2) million forest m³ (fo.). The weighted three-year average market transaction price applied in the valuation for Swedish forests assets in 2020 is EUR 39 per forest m³. The forest asset value corresponds to an average of EUR 4 900 per ha of productive forest land. The annual harvesting is on average 3.8 (3.4) million m³ sub.

The valuation of the forest assets is based on detailed transaction data and price statistics as provided by different market data suppliers. Market transaction data is adjusted to consider the characteristics and nature of Stora Enso's forest assets and to exclude certain non-forest assets and outliers. The valuation takes into account where the forest land is located, price levels and volume of standing stock. Market prices between areas varies significantly. Future changes in value of Swedish forest assets are impacted by changes in market transaction prices and changes in volume of standing stock, considering growth and other changes. See Note 1 for details related to changes in accounting principles and Note 2 for information related estimates and judgment applied in the valuation.

Forest asset location and volume in 2020

		North	Middle	South	Total
Productive area	ha	191 000	949 000	5 000	1 145 000
Percentage of total	%	17%	83%	0%	100%
Standing stock	million m ³ fo.	16.2	125.9	0.8	143.0
Percentage of total	%	11%	88%	1%	100%

Guangxi

At the end of 2020, the value of the biological assets in Guangxi, China, amounted to EUR 176 (181) million. All the forest land in China is leased. The biological assets included young standing timber with a value of EUR 33 (34) million. The movement is driven by higher sales prices and costs and decreases volumes. The discount rate of 8.4% (8.9%) used in the discounted cash flows (DCF) is determined using the weighted average cost of capital method decreased slightly. The productive land in Guangxi totals to 75 (76) thousand hectares with a standing stock of 3.4 (3.1) million m³ sub. The annual harvesting is on average 1.0 (1.0) million m³ sub.

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Veracel

Veracel Celulose S.A. (Veracel), a 50% joint operation company in Brazil, had biological assets fair valued at EUR 132 (172) million, of which Stora Enso's share was EUR 66 (86) million. Decrease is driven by foreign exchange impact and slightly lower volumes. Sales prices increased slightly. The biological assets included young standing timber with a value of EUR 22 (33) million. The discount rate of 8.8% (9.0%) used in the DCF is determined using the weighted average cost of capital method decreased slightly. The related forest land is measured at cost. Stora Enso's share (50%) of the land area is 112 (112) thousand hectares. Stora Enso's share of the productive land in Veracel, Brazil totals 47 (50) thousand hectares with a share of standing stock of 3.7 (3.1) million m³ sub. The ownership share of annual harvesting is on average 0.8 (0.9) million m³ sub.

Montes del Plata

Montes del Plata (MdP), a 50% joint operation company in Uruguay, had biological assets with a fair value of EUR 460 (445) million, of which Stora Enso's share was EUR 230 (222) million. The biological assets included young standing timber with a value of EUR 46 (55) million. The discount rate of 6.5% (8.0%) used in the DCF is determined using the weighted average cost of capital method decreased in 2020. The related forest land is measured at cost. Stora Enso's share (50%) of the land area is 135 (131) thousand hectares. Stora Enso's share of the productive land in Montes del Plata, Uruguay totals 94 (86) thousand hectares with a share of standing stock of 10.7 (8.2) million m³ sub. The ownership share of annual harvesting is on average 1.0 (1.4) million m³ sub.

Associated companies

The Group has two associated companies holding forest assets.

Tornator

Tornator Oyj (Tornator), a 41% owned Finnish associated company, had biological assets with a value of EUR 1 877 (1 805) million, of which Stora Enso's share was EUR 769 (740) million. Forest land had a value of EUR 136 (94) million of which Stora Enso's share was EUR 56 (38) million. The increase in the fair value of biological assets is mainly due to purchases and other minor changes. The increase in the value of forest land is due to purchases and accounting principle change to measure forest land at fair value. Stora Enso's 41% share of the productive forest land in Tornator totals to 269 (262) thousand hectares with a share of standing stock of 25.8 (25.1) million m³ sub. The ownership share of annual harvesting is on average 1.2 (1.0) million m³ sub.

Arauco Florestal Arapoti

Arauco Florestal Arapoti S.A., the 20% owned Brazilian associated company, had biological assets with a fair value of EUR 42 (67) million, of which Stora Enso's share was EUR 8 (14) million. The related forest land is measured at cost.

Biological asset valuation sensitivities of significant assumptions of a +/- 10% movement

	Wood market prices	Growth rate	Discount rate
Guangxi	+/-31	+/-1	+/-3
Veracel	+/-7	+/-7	+/-2
Montes del Plata	+/-24	+/-24	+/-6

Swedish forest asset valuation is sensitive for changes in market transaction prices and volume of standing stock. A change in the average market price of forest assets of EUR 1 per forest m³ would impact the value of forest assets by EUR 143 million. A change in the volume of standing stock of 1 million forest m³ would impact the value of forest assets by EUR 39 million.

Note 13 Equity accounted investments

Accounting principles

Consolidation principles

Associated companies over which Stora Enso exercises significant influence are accounted for using the equity method, which involves recognising the Group's share of the equity accounted investment profit or loss for the year in the Consolidated income statement. The Group's interest in an associated company is carried in the Consolidated statement of financial position at an amount that reflects its share of the net assets of the associate.

The Group's share of results in equity accounted investments is reported in the operating profit to reflect the operational nature of these investments, especially those in wood supply. There is no material goodwill in the Statements of financial position for equity accounted investments. Similarly, dividends received from equity accounted investments are presented in the net cash provided by operating activities in the Consolidated Cash Flow Statement.

Principal equity accounted investments

Company	Reportable segment	Domicile and principal place of operations	As at 31 December			
			Proportion of ownership interest/voting rights held %		EUR million	
			2020	2019	2020	2019
Tornator Oyj	Forest	Finland	41.00	41.00	402	381
Arauco Florestal Arapoti S.A.	Forest	Brazil	20.00	20.00	13	19
Bergvik Skog AB ¹	Forest	Sweden	49.79/36.70	49.79/36.70	11	54
Others					30	29
Carrying Value at 31 December					456	483

¹ The group's shareholding in Bergvik Skog AB is 49.79%, however, the voting rights are limited to 36.7%.

Group share of equity accounted investments income statements

EUR million	Year Ended 31 December	
	2020	2019
Sales	131	170
Net operating expenses	-93	-121
Other operating income ¹	0	129
IAS 41 valuation	13	127
Operating Profit	50	305
Net financial items	-42	-55
Net Profit before Tax	8	249
Income tax	-9	-21
Net Profit for the Year	-1	229

¹ 2019 Other operating income relates to Bergvik Skog AB restructuring, see Note 4 Acquisitions and disposals

The average number of personnel in the equity accounted investments was 1 575 in 2020, compared with 1 637 in 2019.

A summary of the financial information in respect of the Group's material associate, Tornator Oyj, and Bergvik Skog AB is set out below. The Group's share of these associated companies are reported under the Forest division and covers the majority of the Group's total share of results of equity accounted



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investments. The summarised financial information below represents amounts shown in the associate's financial statements prepared in accordance with IFRS.

Tornator Oyj		
EUR million	2020	2019
Current assets	79	43
Non-current assets	2 040	1 918
Current liabilities	52	672
Non-current liabilities	850	144
Tax liabilities	236	216
Sales	141	112
Net profit for the year	52	262
Other comprehensive income	30	-1
Total comprehensive income	82	261
Dividends received from the associate during the financial year	12	14
Net assets of the associate	980	929
Proportion of the Group's ownership interest in Tornator Oyj	41.00%	41.00%
Carrying amount of the Group's interest in Tornator Oyj	402	381

Stora Enso's Finnish forest holdings were divested into an equity accounted investment, Tornator, in 2002. The Group's current 41% ownership is valued at EUR 402 (EUR 381) million at the year-end for 2020. In 2020, the Group's share of Tornator's net profit was EUR 21 (EUR 107) million, including a forest valuation gain of EUR 14 (128) million.

Bergvik Skog AB		
EUR million	2020	2019
Current assets	22	478
Non-current liabilities	0	369
Sales	0	92
Net profit for the year	-42	243
Other comprehensive income	0	27
Total comprehensive income	-42	270
Dividends received from the associate during the financial year ¹	23	1 434
Net assets of the associate	22	109
Proportion of the Group's ownership interest in Bergvik Skog AB	49.79%	49.79%
Carrying amount of the Group's interest in Bergvik Skog AB	11	54

¹ The 2019 amount relates to Bergvik Skog AB restructuring, of which EUR 331 million was paid in cash

The Group owns 49.79% of shares in Bergvik Skog AB which continue to be reported as an equity accounted investment. Details on the 2019 Bergvik Skog AB restructuring are shown in Note 4 Acquisitions and disposals. Stora Enso's shareholding in the company was valued at EUR 11 (EUR 54) million at the year-end in 2020.

Aggregate information of equity accounted investments that are not individually material

EUR million	As at 31 December	
	2020	2019
Current assets	23	27
Non-current assets	36	39
Current liabilities	13	12
Non-current liabilities	1	2
Tax liabilities	2	4
Sales	73	78
Net profit for the year	-1	0
Dividends received during the financial year	1	0
Equity in the Group Statement of Financial Position	43	48
Equity Accounting Value	43	48
Equity Accounting Value for Tornator Oyj	402	381
Equity Accounting Value for Bergvik Skog AB	11	54
Total Equity Accounting Value	456	483

Equity accounted investment company balances

EUR million	As at 31 December	
	2020	2019
Receivables from Equity Accounted Investments		
Non-current loan receivables	2	2
Liabilities due to Equity Accounted Investments		
Trade payables	41	38

Equity accounted investment transactions

EUR million	Year Ended 31 December	
	2020	2019
Sales to equity accounted investments	17	28
Purchases from equity accounted investments	62	109

The Group engages in transactions with equity accounted investments such as sales and purchases of wood. All agreements are negotiated at arm's length and are conducted on terms that the Group considers customary in the industry and generally no less favourable than would be available from independent third parties. Equity accounted investment company trade receivables and both sales to equity accounted investments and purchases from equity accounted investments decreased due to Bergvik Skog AB restructuring.

Total loans including interest receivable to equity accounted investments at the year-end 2020 amounted to EUR 2 (EUR 2) million.

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Note 14 Equity instruments

Accounting principles

The Group has elected to classify its equity investments in Pohjolan Voima shares and certain listed shares held by the Group at fair value through other comprehensive income (FVTOCI) under IFRS 9 by applying the irrevocable election for equity instruments under the standard due to the long-term nature of the ownership. The gains and losses resulting from changes in the fair value of equity investments under FVTOCI are not recycled to the Income Statement upon impairment or disposal, only the dividend income is recognised in the income statement. In addition, the Group also has certain equity investments in unlisted securities that are classified as fair value through income statement.

Summary of values

EUR million	Year Ended 31 December	
	2020	2019
Acquisition cost at 1 January		
Listed securities	3	4
Unlisted securities	120	125
Investments classified as equity instruments	123	129
OCI in opening balance	415	306
Equity Instruments at 1 January	538	435
Translation difference	1	0
Additions	15	1
Change in fair values accounted for as OCI	-136	109
Disposals	-1	-6
Income Statement - gains and losses	1	0
Carrying Amount at 31 December	417	538

Unrealised gains and losses on listed and unlisted securities

EUR million	Year Ended 31 December	
	2020	2019
Net unrealised holding gains (OCI)	279	415
Cost	138	123
Fair Value	417	538
Net unrealised holding gains (OCI)	279	415
Deferred tax	-3	-2
Net Unrealised Holding Gains Shown in Equity as OCI	277	413
Change in Net Unrealised Holding Gains Shown in Equity as OCI	-136	109

PVO shares

The Group holds a 15.6% (15.6%) interest in Pohjolan Voima Oy (PVO), a privately-owned group of companies in the energy sector that produces electricity and heat for its shareholders in Finland. Each subsidiary of the PVO group has its own class of shares that entitle the shareholder to the energy produced in proportion to its ownership of that class of share. The shareholders then have an obligation to cover the costs of production, which are generally lower than market prices. Stora Enso did not receive actual dividend payments from PVO during 2020. The holding is fair valued quarterly using an average of two methods: the discounted cash flow model and trading multiples. The valuation is categorised at level 3 in the fair value hierarchy according to IFRS 13; levels are explained in [Note 25](#) Fair values.

The electricity prices in the model are based on Nordpool prices. Liquid future derivative prices are used for the available years in the model and thereafter increased by an inflation factor. The historical financial statements provide the basis for the cost structure for each of the power assets, which are adjusted by the inflation factor in future years. The discount rate of 3.69% used in the valuation model is determined using the weighted average cost of capital method. A +/- 5% change in the electricity price used in the DCF would change the valuation by EUR +43 million and -37 million, respectively. A +/- 1% change in the discount rate would change the valuation by EUR -30 million and +90 million, respectively.

As an outcome of the arbitration proceedings, a settlement agreement was signed during 2018 between the plant owner Teollisuuden Voima Oyj (TVO) and the plant supplier AREVA-Siemens Consortium concerning the costs and losses caused by the delay of the Olkiluoto 3 project. As a result, the plant supplier agreed to compensate EUR 450 million to the plant owner TVO. Additional maximum EUR 400 million compensation was agreed in case the supplier consortium companies failed to complete the Olkiluoto 3 project by the end of 2019.

In December 2019 TVO announced that the project was further delayed, with the regular electricity generation expected to start in March 2021. In August 2020 Teollisuuden Voima Oyj (TVO) announced that the regular electricity production at Olkiluoto 3 (OL3) nuclear power plant is now expected to commence in February 2022. The revised schedule is based on the updated start-up schedule received from Areva-Siemens Consortium. The updated schedule and the arbitration proceeding outcomes have been taken into account in the year-end PVO valuation. Stora Enso's indirect share of the capacity of Olkiluoto 3 is approximately 8.9%, through its PVO B2 shares.

During 2020 Stora Enso also gave a EUR 13 million convertible shareholder loan note to Pohjolan Voima Oy.

PVO shareholding at 31 December 2020

EUR million	Share Series	% Holding	Asset Category	Fair Value 2020	Fair Value 2019
PVO-Vesivoima Oy	A	20.6	Hydro	132	221
Teollisuuden Voima Oyj	B	15.7	Nuclear	257	275
Teollisuuden Voima Oyj	B2	14.8	Nuclear under construction	0	22
Other	C,C2,V,M	Various	Various	4	4
Total				394	522

The valuation in 2020 amounted to EUR 394 (EUR 522) million against a cost value of EUR 117 (EUR 117) million, with the revaluation of EUR 277 (EUR 405) million being taken to other comprehensive income. The change in PVO's value is mainly caused by a decrease in electricity market prices. No deferred tax is appropriate, as under Finnish tax regulations holdings above 10% are exempt from tax on disposal proceeds.

Principal equity instruments

EUR million	31 December 2020			
	Holding %	Number of Shares	Acquisition Cost	Fair Value
Packages Ltd, Pakistan - listed shares	6.0	5 396 650	3	16
Total Listed Securities			3	16
Pohjolan Voima Oy - unlisted shares	15.6	5 073 972	117	394
Others - unlisted securities			18	7
Total Unlisted Securities			135	401
Total Equity instruments at 31 December 2020			138	417
Total Equity Instruments at 31 December 2019			123	538

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Note 15 Other non-current assets

EUR million	As at 31 December	
	2020	2019
Prepaid expenses and accrued income	15	17
Tax credit	4	5
Other non-current operative assets	9	15
Total	28	37

Note 16 Inventories

Accounting principles

Inventories are reported at lower of cost and net realisable value with the cost determined by the first-in first-out (FIFO) method or, alternatively, by the weighted average cost where it approximates FIFO. The cost of finished goods and work in progress comprises raw material, direct labour, depreciation, other direct costs and related production overheads, but excludes interest expenses. Net realisable value is the estimated selling price in the ordinary course of business, less the costs of completion and sale.

Where market conditions result in the manufacturing costs of a product exceeding its net realisable value, a valuation allowance is made. Valuation allowances are also made for old, slow moving and obsolete finished goods and spare parts. Such valuation allowances are deducted from the carrying value of the inventories in the consolidated statement of financial position.

EUR million	As at 31 December	
	2020	2019
Materials and supplies	331	372
Work in progress	65	84
Finished goods	597	672
Spare parts and consumables	329	317
Other inventories	13	17
Advance payments and cutting rights	64	53
Obsolescence allowance - spare parts and consumables	-109	-101
Obsolescence allowance - finished goods	-12	-16
Net realisable value allowance	-8	-6
Total	1 270	1 391

EUR 3 844 (EUR 4 693) million of inventories have been expensed during the year, which are included in the materials and supplies line and relate to materials. EUR 22 (EUR 14) million of inventory write-downs have been recognised as an expense. EUR 16 (EUR 8) million have been recognised as a reversal of previous write-downs.

Note 17 Operative receivables

Accounting principles

Trade receivables

Trade receivables are recognised initially at fair value and subsequently at their anticipated realisable value with an estimate made for loss allowance on expected credit losses based on a forward-looking and objective review of all outstanding amounts at period end. A simplified approach under IFRS 9 has been implemented for trade receivables and loss allowances are recognised based on expected lifetime credit losses in the Consolidated income statement within other operating expenses. For non-defaulted receivables, expected credit losses are estimated based on externally generated customer level probability of default data that is used in the forward-looking loss allowance calculation model. As a result of the Covid-19 pandemic in 2020, the loss allowance model for non-defaulted receivables was updated by introducing a new macroeconomic indicator that considers the macroeconomic developments and further incorporates forward-looking data to the calculation model. The rebuttable presumption that default does not occur later than when a financial asset is 90 days past due has been applied in the calculation model and a default is normally estimated to occur when trade receivables are at least 90 days overdue or there is otherwise objective evidence supporting the conclusion that a default has occurred. Trade receivables are presented in current assets under Operative receivables in the Consolidated statement of financial position.

Trade receivables under factoring arrangements

Stora Enso uses factoring arrangements as one of the working capital management tools. Sold trade receivables are derecognised once significant related risks and rewards of ownership have been transferred to the buyer. Outstanding balances for trade receivables that were not yet sold at period end but qualify to be sold under factoring programs in the next period, are classified as trade receivables fair valued through other comprehensive income in accordance with the business model and contractual cash flow characteristics tests under IFRS 9. Please refer to [Note 25](#) Fair values for further details.

Current operative receivables

EUR million	As at 31 December	
	2020	2019
Trade receivables - gross carrying amount	893	1 006
Loss allowance	-35	-38
Prepaid expenses and accrued income	96	96
Other receivables	190	224
Total	1 145	1 289

Age analysis of trade receivables

EUR million	As at 31 December	
	2020	2019
Not overdue	819	865
Less than 30 days overdue	26	65
31 to 60 days overdue	0	9
61 to 90 days overdue	1	2
91 to 180 days overdue	0	3
Over 180 days overdue	46	63
Total	893	1 006

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As at 31 December 2020, a gross amount of EUR 74 (EUR 142) million of trade receivables were overdue. These relate to a number of countries and unrelated customers that have no recent history of default. At 31 December 2020, lifetime expected credit losses for trade receivables amounted to EUR 35 (EUR 38) million. Loss allowances for trade receivables are estimated on an individual basis based on a forward-looking model where estimated probabilities of customer default are used in the calculation model. If the Group has concerns regarding the financial status of a customer, an advance payment or an irrevocable letter of credit drawn from a bank is required. At the year end, the letters of credit awaiting maturity totalled EUR 39 (EUR 33) million. Please refer to [Note 24](#) Financial risk management for details of customer credit risk management.

Age analysis of loss allowance

EUR million	As at 31 December	
	2020	2019
Not overdue and less than 90 days overdue	1	1
More than 90 days overdue	33	37
Total	35	38

Reconciliation of loss allowance

EUR million	As at 31 December	
	2020	2019
Opening balance at 1 January	38	36
Change in loss allowance booked through Income Statement	4	9
Write-downs	-7	-6
Closing Balance at 31 December	35	38

The actual credit losses during 2020 amounted to EUR 7 (EUR 6) million of trade receivables being written-off from the Group's balance sheet.

Stora Enso has entered into factoring agreements to sell trade receivables in order to accelerate cash conversion. These agreements resulted in full derecognition of trade receivables amounting to a nominal value of EUR 155 (EUR 255) million at the end of the year. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved.

Note 18 Shareholders' equity

Accounting principles

Dividend and capital repayments

Any dividend or capital repayment proposed by the Board is not deducted from distributable shareholders' equity until approved by the shareholders at the Annual General Meeting.

At 31 December 2020, shareholders' equity amounted to EUR 8 809 (EUR 7 429) million, compared to the market capitalisation on Nasdaq Helsinki of EUR 12 383 (EUR 10 328) million. The market values of the shares were EUR 15.90 (EUR 13.55) for A shares and EUR 15.65 (EUR 12.97) for R shares.

The A shares entitle the holder to one vote per share, whereas R shares entitle the holder to one vote per ten shares with a minimum of one vote, though the accountable par of both shares is the same. A shares may be converted into R shares at any time at the request of a shareholder. At 31 December 2020, the company's fully paid-up share capital, as entered in the Finnish Trade Register, was EUR 1 342 million (EUR 1 342 million). The current accountable par of each issued share is EUR 1.70 (EUR 1.70).

At 31 December 2020, Directors and Group Leadership Team members owned 1 150 (1 150) A shares and 537 921 (478 403) R shares representing 0.02% of the total voting rights of the company. Full details of Director and Executive interests are shown in [Note 7](#) Board and executive remuneration. A full description of company share award programmes is shown in [Note 21](#) Employee variable compensation and equity incentive schemes. However, none of these have any impact on the issued share capital.

Change in share capital and number of shares

	A shares	R shares	Total
At 1 January 2019	176 312 672	612 307 315	788 619 987
Conversion of A shares to R shares	-55 838	55 838	—
At 31 December 2019	176 256 834	612 363 153	788 619 987
Conversion of A shares to R shares	-2 419	2 419	—
At 31 December 2020	176 254 415	612 365 572	788 619 987
Number of votes as at 31 December 2020¹	176 254 415	61 236 557	237 490 972
Share Capital at 31 December 2020, EUR million	300	1 042	1 342
Share Capital at 31 December 2019, EUR million	300	1 042	1 342

¹ R share votes are calculated by dividing the number of R shares by 10. The issued shares by 9 March 2021 will represent the total shares eligible to vote at the forthcoming Annual General Meeting.

Note 19 Non-controlling interests

Accounting principles

Non-controlling interests are presented within the equity of the Group in the Consolidated statement of financial position. The proportionate shares of profit or loss attributable to non-controlling interests and to equity holders of the parent company are presented in the Consolidated income statement after the profit for the period. Transactions between non-controlling interests and Group shareholders are transactions within equity and are thus shown in the Statement of changes in equity. The measurement type of non-controlling interests is decided separately for each acquisition.

Non-controlling interests

EUR million	Year Ended 31 December	
	2020	2019
At 1 January	-7	18
Acquisitions	0	-7
Disposals	0	8
Share of profit for the period	-9	-24
Share of other comprehensive income	1	0
Dividends	0	-1
At 31 December	-16	-7

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Principal non-controlling interests

Company	Principal Place of Business	As at 31 December		
		2020	2020	2019
		Proportion of Ownership Interests Held by Non-controlling Interests, %	EUR million	
Stora Enso Pulp and Paper Asia AB Group	Sweden and China	See separate table below	-18	-9
Others	-		2	2
Total			-16	-7

Non-controlling interests in Stora Enso Pulp and Paper Asia AB Group

Company	Principal Place of Business	31 December 2020			31 December 2019		
		Direct-% of NCI	Indirect-% of NCI	Total-% of NCI	Direct-% of NCI	Indirect-% of NCI	Total-% of NCI
Stora Enso Pulp and Paper Asia AB	Sweden and China	5.79	—	5.79	5.79	—	5.79
Guangxi Stora Enso Forestry Co Ltd	China	5.00	5.50	10.50	5.00	5.50	10.50
Stora Enso (Guangxi) Packaging Company Ltd	China	15.00	4.92	19.92	15.00	4.92	19.92
Stora Enso (Guangxi) Forestry Company Ltd	China	15.00	4.92	19.92	15.00	4.92	19.92

In 2020 non-controlling interest in Stora Enso decreased by EUR 9 million mostly due to negative result in Stora Enso Pulp and Paper Asia AB Group. Net loss in Stora Enso Pulp and Paper Asia AB Group was EUR 54 (EUR 111) million.

Summarised financial information in respect of the subsidiaries that have material non-controlling interests is set out below.

Stora Enso Pulp and Paper Asia AB Group

EUR million	2020	2019
Assets	1 167	1 268
Shareholders' equity attributable to the owners of the parent	-114	-74
Non-controlling interests ¹	-18	-9
Total Equity	-132	-82
Liabilities	1 298	1 350
Net loss for the year	-54	-111
Attributable to:		
Owners of the parent	-44	-91
Non-controlling interests	-10	-20
Net Loss for the Year	-54	-111
Net cash outflow from operating activities	45	-15
Net cash outflow from investing activities	-36	-32
Net cash inflow from financing activities	10	13
Net Cash Outflow/Inflow	19	-34

¹ No dividends were paid to non-controlling interests in 2020 or 2019.

Note 20 Post-employment benefits

Accounting principles

Employee benefits

The Group operates a number of defined benefit and contribution plans throughout the world, the assets of which are generally held in separate trustee administered funds. Such pension and post-retirement plans are generally funded by payments from employees and by the relevant group companies, taking into account the recommendations of independent qualified actuaries. Employer contributions to the defined contribution pension plans are charged to the Consolidated income statement in the year they relate to.

For defined benefit plans, accounting values are assessed using the projected unit credit method. Under this method, the cost of providing pensions is charged to the consolidated income statement to spread the regular cost over the service lives of employees in accordance with the advice of qualified actuaries who carry out a full valuation of the plan every year in all major pension countries. The pension obligation is measured as the present value of the estimated future cash outflows using interest rates of highly rated corporate bonds or government securities, as appropriate, that match the currency and expected duration of the related liability.

The Group immediately recognises all actuarial gains and losses arising from defined benefit plans directly in equity, as disclosed in its consolidated statement of comprehensive income. Past service costs are identified at the time of any amendments to the plans and are recognised immediately in the consolidated income statement regardless of vesting requirements. In the Group's consolidated statement of financial position, the full liability for all plan deficits is recorded.

The Group has established a number of pension and other benefit plans for its operations throughout the world, the cost amounted to EUR 152 (166) million in 2020, as shown in Note 6 Personnel expenses. The majority of the plans are defined contribution schemes and the charge amounted to EUR 136 (156) million.

Stora Enso's total defined benefit obligations for current and former members of staff amount to EUR 1 210 (1 219) million, though assets of EUR 737 (761) million have been put aside in various pension schemes to cover these liabilities. The net funding position of the defined benefit plans is shown in full in the statement of financial position and amounted to EUR 473 million in 2020, an increase of EUR 14 million on the previous year's liability of EUR 458 million. Interest costs are entered under financial costs. The 2020 defined benefit expense in the income statement amounts to EUR 20 million and the actuarial losses recorded in other comprehensive income amount to EUR 21 million. The 2019 defined benefit expense in the income statement amounted to EUR 17 million and the actuarial gains recorded in other comprehensive income amounted to EUR 77 million. In 2021, contributions of EUR 21 million are expected to be paid. In 2020, reimbursements of EUR 24 (-23) million were received.

The Group policy for funding deficits is intended to satisfy local statutory funding requirements for tax deductible contributions together with adjusting the discount factors used in the actuarial calculations for market rates. However, the emphasis of the Group is to provide defined contribution schemes for its post-employment benefits, thus all aspects of the provision and accounting for defined benefit schemes are evaluated. The net liability in the Group statement of financial position reflects the actual deficits in the defined benefit plans. Details of the pension arrangements, assets and investment policies in the Group's main operating countries are shown below.

Finland

The Group funds its Finnish pension obligations mainly through defined contribution schemes, the charge in the income statement being EUR 56 (69) million. By contrast, the remaining obligations covered by defined benefit schemes resulted in a charge of EUR 0 (0) million excluding finance costs. Pension cover since 2001 has been organised entirely through local insurance companies. As statutory pensions in Finland provide by far the greatest proportion of pensions, Group liabilities are proportionately much smaller than in comparable countries.

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Plan assets in Finland are managed by insurance companies. Details of the exact structure and investment strategy surrounding plan assets are not available to participating employers, as the assets actually belong to the insurance companies themselves. The assets are managed in accordance with EU regulations, and also national requirements, under which there is an obligation to pay guaranteed benefits irrespective of market conditions.

Germany

German pension costs amounted to EUR 8 (EUR 9) million, of which EUR 7 (8) million related to defined contribution schemes and EUR 1 (EUR 1) million to defined benefits excluding finance costs. The net liability decreased from EUR 259 million to EUR 250 million. The decrease in net liability arose mainly from changes in financial assumptions and experience. Defined benefit pension plans are mainly accounted for in the statement of financial position through book reserves with some minor plans using insurance companies or independent trustees. Retirement benefits are based on years worked and salaries received during the pensionable service and the commencement of pension payments are linked to the national pension scheme's retirement age. Pensions are paid directly by the companies themselves to their former employees, the security for the pensioners is provided by the legal requirement that the book reserves held in the statement of financial position are insured up to certain limits.

Sweden

In Sweden, all blue-collar staff and part of white-collar staff are covered by defined contribution schemes, the charge in the Income statement being EUR 55 (55) million. Defined benefit schemes are covering majority of white-collar staff and resulted in a charge of EUR 10 (EUR 8) million excluding finance costs.

Total defined benefit obligations amounted to EUR 434 (411) million and the assets totalled EUR 275 (284) million, leaving a net liability of EUR 159 million at the year end, compared with a net liability of EUR 127 million the year before. Change in net liability arose from a decrease in the discount rate, changes in financial assumptions and a refund received from the foundation. Stora Enso has undertaken to pay all local legal pension liabilities for the main ITP scheme to the foundation, thus the remaining liability relates to other small schemes. The long-term investment return target for the foundation is a 3% real return after tax. Stora Enso's Swedish pension fund conducts an annual asset/liability study to optimise its risk parameters.

Other countries

Obligations and assets in the remaining countries were material only in the United Kingdom, at EUR 142 (146) million and EUR 129 (136) million, respectively, leaving a net liability of EUR 13 (EUR 10) million at the end of 2020. This increase in net liability arose from changes in actuarial assumptions.

Net defined benefit obligation reconciliation

EUR million	Defined Benefit Obligation		Fair Value of Plan Assets		Net Defined benefit liability / (asset)	
	2020	2019	2020	2019	2020	2019
Defined benefit obligation at 1 January	1 219	1 115	-761	-714	458	401
Current service cost	15	11			15	11
Past service cost	2	-1	-2	0	1	-1
Interest expense(+) income (-)	12	20	-7	-13	5	7
Total included in Income Statement	29	30	-9	-13	20	17
Actuarial gains and losses arising from changes in demographic assumptions	0	-22			0	-22
Actuarial gains and losses arising from changes in financial assumptions	26	118			26	118
Actuarial gains and losses arising from experience adjustments	-19	38			-19	38
Return on plan assets, excluding amounts included in interest expense(+) income (-)			-28	-57	-28	-57
Total rereasurement gains (-) / losses (+) included in Other Comprehensive Income	8	134	-28	-57	-21	77
Benefit payments	-55	-58	40	48	-15	-9
Employer contributions and refunds			24	-23	24	-23
Translation difference	9	0	-3	-2	6	-1
Net disposals/acquisitions	0	-6	0	2	0	-3
Other	0	3	0	-3	0	0
Defined benefit obligation at 31 December	1 210	1 219	-737	-761	473	458

Defined benefit plans: Country assumptions used in calculating benefit obligations

	Year ended 31 December					
	Finland		Germany		Sweden	
	2020	2019	2020	2019	2020	2019
Discount rate %	0.2	0.4	0.4	0.8	1.1	1.5
Future salary increase %	2.1	2.2	2.5	2.5	2.7	2.9
Future pension increase %	1.2	1.3	1.5	1.8	1.8	2.0
Average current retirement age	64.2	64.0	65.0	65.0	65.0	65.0
Weighted average life expectancy	87.0	87.0	87.7	85.0	88.5	88.4
Duration of pension plans	10.0	10.0	13.2	13.8	17.1	17.4

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Sensitivity of the defined benefit pension obligation

	Impact on defined benefit obligation		
	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	0.50%	Decrease by 7.0%	Increase by 7.9%
Salary growth rate	0.50%	Increase by 1.9%	Decrease by 1.7%
Pension growth rate	0.50%	Increase by 5.7%	Decrease by 5.1%
Life expectancy	1 year	Increase by 4.6%	Decrease by 4.4%

Interest rate risk: The obligations are assessed using market rates of high-quality corporate or government bonds to discount the obligations and are therefore subject to any volatility in the movement of the market rate. The net interest income or expense recognised in profit and loss are also calculated using the market rate of interest.

Mortality risk: In the event that members live longer than assumed, the obligations may be understated originally and a deficit may emerge if funding has not adequately provided for the increased life expectancy.

Defined benefit plan summary by country as at 31 December 2020

EUR million	31 December 2020				
	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	266	27	412	230	936
Present value of unfunded obligations	0	226	22	26	274
Defined benefit obligations (DBO)	266	254	434	256	1 210
Fair value of plan assets	-254	-4	-275	-205	-737
Net liability in the Balance Sheet	13	250	159	51	473

Represented by

Defined benefit pension plans	13	250	159	27	449
Other post-employment benefits	0	0	0	24	24
Net liability in the Balance Sheet	13	250	159	51	473

Defined benefit plan summary by country as at 31 December 2019

EUR million	31 December 2019				
	Finland	Germany	Sweden	Other	Total
Present value of funded obligations	286	16	389	230	922
Present value of unfunded obligations	0	246	22	29	298
Defined benefit obligations (DBO)	286	263	411	259	1 219
Fair value of plan assets	-264	-4	-284	-209	-761
Net liability in the Balance Sheet	22	259	127	50	458

Represented by

Defined benefit pension plans	22	259	127	24	432
Other post-employment benefits	0	0	0	27	27
Net liability in the Balance Sheet	22	259	127	50	458

Plan assets

EUR million	As at 31 December							
	2020				2019			
	Quoted	Unquoted	Total	%	Quoted	Unquoted	Total	%
Equity	97	33	130	17.7	70	41	111	14.6
Debt	72	31	103	14.0	7	96	103	13.6
Property	0	40	40	5.4	0	35	35	4.6
Cash	31	0	31	4.2	41	0	41	5.4
Assets held by insurance companies	0	322	322	43.7	0	330	330	43.4
Others	13	98	111	15.0	15	125	140	18.4
Total pension fund assets	213	525	737	100.0	133	628	761	100.0

Plan assets do not include any real estate or other assets occupied by the group or the Company's own financial instruments. Disclosed asset classification has been updated in 2020 and comparative figures have been restated to follow the current classification.

The two main financial factors affecting group pension liabilities are changes in interest rates and inflation expectations, so the aim of asset investment allocations is to neutralise these effects and maximise returns.

Note 21 Employee variable compensation and equity incentive schemes

Accounting principles

Share awards

The costs of all employee-related share-based payments are charged to the consolidated income statement as personnel expenses over the vesting period. The share programmes may be hedged using Total Return Swaps (TRS) which are settled with cash payments, allowing the company to receive cash compensation to partially offset any change in the share price between the grant and settlement dates. Group TRS instruments do not qualify for hedge accounting and therefore periodic changes to their fair value are recorded in the Income statement in operative costs alongside the share-based programme costs to which they relate.

As a result of the IFRS 2 amendment; Classification and Measurement of Share-based Payment Transactions, effective from 1 January 2018, all share-based payment transactions are classified as equity-settled share awards. Please refer to the Note 1 Accounting principles for further details. The equity-settled share awards (net of tax), are measured at the fair value of the equity instruments on the grant date, and are adjusted for the present value of expected dividends. The fair value of the equity-settled share-based payments determined on the grant date is expensed on a straight-line basis over the vesting period, based on the estimate of equity instruments that will eventually vest, with a corresponding increase in equity.

Short term incentive (STI) programmes

Salaries for senior management are negotiated individually. Stora Enso has incentive plans that take into account the performance, development and results of both business units and individual employees. This performance-based variable compensation system is based on profitability as well as on attaining key business targets.

Group Executives, as well as division and business unit management have STI programmes in which the payment is calculated as a percentage of the annual base salary with a maximum level ranging from 8% to 75%. Non-management employees participate in an STI programme with a maximum incentive level of 7%. All incentives are discretionary. These performance-based programmes cover most employees globally, where allowed by local practice and regulations. For the performance year 2020, the annual incentive programmes were based on financial targets as well as safety and cash flow targets. The financial success metrics in the STI programme are: Operational EBITDA and Operative Working Capital to sales.

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Long term incentive (LTI) programmes

Since 2005, new share based programmes for executives have been launched every year. The 2018 programme, with performance measures that ended in 2020 and will vest in 2021, as well as the current outstanding programmes including the programme that was launched during 2020 have three year targets and vest in one portion after three years.

Three quarters (75%) of the opportunity under the programmes are in performance shares, where shares will vest in accordance with performance criteria proposed by the Remuneration Committee and approved by the Board of Directors. The financial success metric is 3-year Economic Value Added (EVA) and Earnings Per Share (EPS) for the Stora Enso Group. One quarter (25%) of the opportunity under the programmes are in Restricted Shares, for which vesting is only subject to continued employment. The opportunity for members of the GLT has been awarded only in performance shares.

Outstanding restricted and performance share opportunities before taxes are shown in the table below. The total number of shares actually transferred will be less than that shown below because a portion of shares corresponding to employees' tax obligation will be withheld to cover income tax.

Share awards at 31 December 2020

Number of shares	Outstanding restricted and performance share awards at year end			
	2021	2022	2023	Total
2018 programme	686 264			686 264
2019 programme		811 270		811 270
2020 programme			1 056 299	1 056 299
Total	686 264	811 270	1 056 299	2 553 833

The costs of the Stora Enso share-based programmes are recognised as costs over the vesting period, which is the period between the grant and vesting. The total impact of share-based programmes in the Income statement amounted to an expense of EUR 1 (EUR 3) million, all of which were related to restricted and performance share awards. There were no Total Return Swaps (TRS) in use at the end of 2020.

Note 22 Provisions

Accounting principles

Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, and it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount of the obligation can be made. Provisions for dismantling, removal or site restoration are measured at the management's best estimate. The expenditure required to settle the obligation is added to the carrying amount of the assets at acquisition date and depreciated over the useful life of the asset. Provisions are discounted back to their current net present value if the effect of the time value of money is material. As provisions are based on management's best estimate, there is some uncertainty regarding the timing and amount of the costs.

Environmental obligations

Environmental expenditures resulting from the remediation of an existing condition caused by past operations, and which do not contribute to current or future revenues, are expensed as incurred. Environmental liabilities are recorded when it is probable, based on current interpretations of environmental laws and regulations, that a present obligation has arisen and the amount of such liability can be reliably estimated.

Restructuring obligations

A restructuring provision is recognised in the period in which the Group becomes legally or constructively committed to the plan. The relevant costs are those that are incremental to, or incurred as a direct result of, the exit plan, or are the result of a continuing contractual obligation with no ongoing economic benefit, or represent a penalty incurred to cancel the obligation.

Other obligations

Other obligatory provisions are recognised regarding different legal or constructive obligations as guarantees to customers, ongoing lawsuits, claims, or similar.

Provisions

EUR million	Environmental provisions	Restructuring provisions	Other provisions	Total provisions
Carrying Value at 1 January 2019	99	8	10	117
Translation difference	-1	0	0	-1
Company acquisitions	0	0	18	18
Charge in Income Statement				
New provisions	7	40	5	51
Increase in existing provisions	6	0	1	8
Reversal of existing provisions	-1	-2	-1	-4
Payments	-12	-5	-7	-24
Carrying Value at 31 December 2019	97	41	26	165
Translation difference	2	1	-1	2
Charge in Income Statement				
New provisions	13	17	14	45
Increase in existing provisions	5	0	2	7
Reversal of existing provisions	-8	-15	0	-22
Payments	-18	-17	-11	-47
At 31 December 2020	91	28	30	149
Allocation between current and non-current provisions				
Current provisions: Payable within 12 months	3	24	19	46
Non-current provisions: Payable after 12 months	88	4	11	102
Total at 31 December 2020	91	28	30	149

Environmental obligations

Provisions for environmental remediation amounted to EUR 91 million at 31 December 2020, which was a net decrease of EUR 6 million compared with 31 December 2019. The most material environmental provision is based on an agreement between Stora Enso and the City of Falun that obligates the Group to purify runoff from the Kopparberg mine before releasing the water into the environment. The provision at year end amounted to EUR 36 (EUR 37) million.

Restructuring provisions

The Group has undergone major restructuring in recent years, from divestments to mill closures and administrative cost-saving programmes. The liability at the end of 2020 for restructuring provisions amounted to EUR 28 (EUR 41) million and covered the costs of closing down operations, demolition, clearance and redundancy costs for reducing staff numbers.

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Note 23 Operative liabilities

Non-current operative liabilities

EUR million	As at 31 December	
	2020	2019
Post-employment benefit obligations	473	458
Provisions	102	110
Share-based payments	1	2
Other payables	12	37
Total	588	607

Current operative liabilities

EUR million	As at 31 December	
	2020	2019
Trade payables	1 314	1 332
Payroll and staff-related accruals	233	242
Accrued liabilities and deferred income	175	194
Current portion of provisions	46	55
Advances received	26	20
Other payables	89	67
Total	1 883	1 909

Note 24 Financial risk management

Risk management principles and process

Stora Enso is exposed to several financial market risks that the Group is managing under the policies approved by the Board of Directors. The objective is to ensure cost-effective funding of Group companies and manage financial risks effectively. The Stora Enso Group Financial Risk Policy governs all financial transactions in Stora Enso. This policy and any future amendments take effect once they are approved by the Board of Directors and all policies covering the use of financial instruments must comply with it. The Group's joint operations companies operate under their own financial risk policies, which may not be fully similar to the Group's policies.

The major financial market risks are detailed below with the main exposures for the Group being interest rate risk, foreign exchange risk, liquidity and refinancing risk, and commodity price risk, especially for fiber, pulp, and energy.

Interest rate risk

The Group is exposed to an interest rate risk that is the risk of fluctuating interest rates affecting the interest expense of the Group and value of its assets and liabilities. Stora Enso is exposed to the interest rate risk through interest-bearing assets and liabilities, such as loans, financial instruments and lease liabilities, but also through commercial agreements and operative assets and liabilities such as biological assets. The Group's aim is to keep interest costs stable. The Group's aggregate duration should not exceed the average loan maturity, but should aim towards a longer duration. A duration above the average loan maturity is approved by the Board of Directors.

The Group may use interest-rate swaps and cross-currency swaps to manage the interest-rate risk by synthetically converting floating-rate loans into fixed-rate loans through the use of derivatives. The Group's floating and fixed rate interest-rate position as per the year-end is presented in the following table:

Floating and fixed interest-rate position

EUR million	As at 31 December 2020		As at 31 December 2019	
	Floating rate	Fixed rate	Floating rate	Fixed rate
Non-current interest-bearing receivables ¹	1	90	0	74
Current interest-bearing receivables	0	0	0	0
Cash and cash equivalents	1 661	0	876	0
Interest-bearing liabilities ²	-1 642	-3 050	-1 509	-2 603
Interest-bearing assets and liabilities excluding derivatives	19	-2 959	-633	-2 530
Interest-rate and cross-currency swaps	894	-894	810	-810
Interest-bearing assets and liabilities, net of derivatives	913	-3 853	177	-3 339

¹ Excluding interest receivable and listed securities

² Non-current interest-bearing liabilities, current portion of non-current debt, short-term interest bearing liabilities and bank overdrafts excluding derivative liabilities and interest payable

The average interest reset period for the Group's net interest-bearing liabilities, including all interest rate derivatives but excluding cash and cash equivalents, is some 4.6 (4.2) years.

As of 31 December 2020, one percentage point increase in interest rates would increase annual net interest expenses by approximately EUR 5 (EUR 6) million and a similar decrease in interest rates would decrease net interest expenses by EUR 3 (EUR 5) million. This assumes that the duration and the funding structure of the Group remain constant throughout the year. This simulation calculates the interest effect of a 100 basis point parallel shift in interest rates on all floating rate instruments excluding cash equivalents from their next reset date to the end of the year. In addition, all short-term loans maturing during the year are assumed to be rolled over on maturity to year end using the new higher or lower interest rate.

A one percentage point parallel change up or down in interest rates would also result in fair valuation gains or losses of EUR 28 (EUR 31) million before taxes in the cash flow hedge reserve in OCI regarding interest rate and cross-currency swaps under cash flow hedge accounting. [Note 27](#) Derivatives summarises the nominal and fair values of the outstanding interest rate derivative contracts.

Foreign exchange risk – transaction risk

The Group operates globally and is exposed to a foreign-currency transaction risk arising from exchange rate fluctuations. Foreign exchange transaction risk exposure comprises both the geographical location of Stora Enso production facilities around the world, sourcing of raw materials and sales of end products in foreign currencies, mainly denominated in US dollars, British pounds and Swedish crowns. Stora Enso group companies with functional currency other than euro are also exposed to a foreign-currency transaction risk arising from EUR denominated net cash flows in their local currencies. These EUR exposures mainly arise from Stora Enso subsidiaries located in Sweden, Czech Republic and Poland.

The currency transaction risk is the impact of exchange rate fluctuations on the Group's Income statement, which is the effect of currency rates on expected future cash flows and subsequent trade receivables or payables. The Group's standard policy to mitigate the risk is to hedge 45–55% of the highly probable forecast cash flows in major currencies for the next 12 months by using derivative financial instruments, such as foreign exchange forwards and currency options. The Group may also hedge periods between 12 months and 36 months, or change the above mentioned hedging ratio for the next 12 months upon the discretion of the Group's management.

For operative receivables and payables in foreign currencies, the objective of the Group is to hedge 50–100% of the outstanding net receivable balance in major currency pairs.

The table below presents the estimated net operative foreign currency transaction risk exposures for the main currencies for the next 12 months and the related foreign-currency hedges in place as at 31 December, retranslated using year end exchange rates. The net operative receivables and payable exposures, representing the balances as at 31 December, include foreign currency exposures generated by external and intercompany transactions in line with the requirements of IFRS 7. A positive amount of exposure in the table below represents an estimated future inflow or receivable of a foreign currency amount.

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Operative foreign currency transaction risk exposure

EUR million	As at 31 December 2020						As at 31 December 2019					
	EUR	SEK	USD	GBP	AUD	UYU	EUR	SEK	USD	GBP	AUD	UYU
Estimated annual net cash flow exposure in hedged foreign-currency flows ¹	920	-197	1 330	222	46	-40	898	-187	1 173	304	42	-50
Cash flow hedges for the next 12 months	-433	94	-629	-97	-21	22	-558	99	-616	-138	-19	24
Estimated annual net cash flow exposure, net of hedges	488	-104	700	125	24	-18	340	-87	557	166	23	-26
Hedging percentage as at 31 December for next 12 months	47%	48%	47%	44%	46%	54%	62%	53%	53%	45%	45%	47%
Weighted-average hedged rate against EUR ²	—	10.40	1.18	0.90	1.63	55.61	—	10.55	1.17	0.91	1.64	42.34
Operative receivables and payables net exposure	-8	6	192	20	26	-5	-15	-1	168	31	19	-7
Net receivable currency hedges	-10	0	-126	-14	-15	0	7	0	-110	-43	-19	0
Net operative receivables exposure, net of hedges	-18	6	66	5	11	-5	-8	-1	58	-13	0	-7
Estimated annual net transaction risk exposure after hedges	470	-98	766	130	36	-24	333	-88	614	153	23	-33

¹ Cash flows are forecasted highly probable net operating foreign-currency cash flows in hedged currencies. The exposure presented in the EUR column relates to operative transaction risk exposure from EUR denominated cash flows in Group companies located in Sweden, Czech Republic and Poland with functional currency other than EUR.
² The weighted-average exchange rate against EUR is calculated based on bought leg of option collar structure and forward contracts' forward rate and therefore represents the weighted-average hedged rate based on the least favourable hedged rate from the Group's point-of-view.

The following table includes the estimated effect on annual operating profit of a currency weakening of an exposure currency against EUR. The sensitivities have been calculated based on a 5% movement in EUR, SEK, USD, GBP and AUD while 10% movement in UYU. These changes are estimated as reasonably possible changes in exchange rates, measured against year-end closing rates. A corresponding strengthening of the exposure currency would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the income statement or equity and, conversely, a positive amount reflects a potential net gain. In practice, the actual foreign currency results may differ from the sensitivity analysis presented below, since the income statements of subsidiaries with functional currencies other than the euro are translated into the Group reporting currency using the average exchange rates for the year, whereas the statements of the financial position of such subsidiaries, including currency hedges, trade receivables and payable, are translated using the exchange rates at the reporting date. The translation risk exposures are discussed more in detail under the Translation risk chapter below.

The calculation includes currency hedges and assumes that no changes other than a single currency exchange rate movement have taken place in the underlying transaction risk exposure currency. The currency effects are based on estimated operative foreign currency flows for the next twelve months, hedging levels at the year end, and the assumption that the currency cash flow hedging levels and all other variables will remain constant during the next twelve months. Hedging instruments include foreign exchange forward contracts and foreign exchange options. Indirect currency effects with an impact on prices and product flows, such as a product becoming cheaper to produce in a different geographical location, have not been considered in this calculation.

Sensitivity analysis of operative foreign currency transaction risk exposure

EUR million	As at 31 December 2020						As at 31 December 2019					
	EUR	SEK	USD	GBP	AUD	UYU	EUR	SEK	USD	GBP	AUD	UYU
Exposure currency change by ¹	-5%	-5%	-5%	-5%	-5%	-10%	-5%	-5%	-5%	-5%	-5%	-10%
Effect on estimated annual net cash flows in hedged flows	-46	10	-66	-11	-2	4	-45	9	-59	-15	-2	5
Effect on cash flow hedging OCI reserve before taxes as at year end ²	22	-5	31	5	1	-2	28	-5	31	7	1	-2
Effect on net operative receivables and payables after hedges ³	1	0	-3	0	-1	1	0	0	-3	1	0	1
Estimated annual EBIT impact⁴	-23	5	-38	-6	-2	3	-17	4	-31	-7	-1	4

¹ The sensitivity analysis for EUR denominated annual net cash flows, operative net receivables and related hedges refer to the EUR denominated transaction risk arising from EUR denominated foreign-currency cash flows in Sweden, Czech Republic and Poland with functional currency other than EUR.
² The effect on OCI cash flow hedging reserve before taxes at year end is related to the fair value change in derivative contracts qualifying as cash flow hedges of highly probable forecast transactions under IFRS 9.
³ Currency effect related to net operative receivables or payables and related hedges.
⁴ The estimated annual EBIT impact includes currency effects in respect of operative exposures in the Statement of Financial Position, forecast cash flows in hedged flows and the related hedges.

The following table presents the financial foreign currency exposure and the related hedges in place as at 31 December for the main currencies. Net debt includes foreign-currency external loan payables and receivables, foreign-currency internal loan payables and loan receivables and cash equivalents. Loans designated as net investment loans under IAS 21 are excluded from the table as they reduce the foreign-currency exposures on a Group level. The currency derivatives mainly hedge financial exposures in the statement of financial position and from time to time they may also hedge forecast cash flows not qualifying under hedge accounting in accordance with IFRS 9. These forecast cash flows are not included in the table below. A negative amount of exposure in the table represents a net payable of a foreign currency amount.

Additionally, the table includes the estimated effect on the income statement of a currency weakening of an exposure currency against EUR. The sensitivities have been calculated based on a 5% movement in SEK, USD, CNY, and PLN. These changes are estimated as reasonably possible changes in exchange rates, measured against year-end closing rates. A corresponding strengthening of the exposure currency would have an approximately equal opposite impact. A negative amount in the table reflects a potential net loss in the Income statement and, conversely, a positive amount reflects a net potential gain. In practice, the actual foreign currency results may differ from the sensitivity analysis below as the exposure amounts may change during the year.

Financial foreign currency exposure and estimated currency effects in income statement

EUR million	As at 31 December 2020				As at 31 December 2019			
	SEK	USD	CNY	PLN	SEK	USD	CNY	PLN
Foreign-currency net debt ¹	-156	-108	410	51	-36	-142	472	100
Currency hedges	135	-33	-244	-21	0	0	-249	-4
Net exposure after hedges	-21	-140	166	30	-36	-142	223	96
Exposure currency change by	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Effect in the Income Statement²	1	7	-8	-2	2	7	-11	-5

¹ The Group has designated certain internal loans to Chinese subsidiaries as net investment loans under IAS 21. The loans are denominated in EUR, USD, and CNY. The underlying foreign currency gain or loss will be posted as part of CTA in Equity. The nominal amount of net investment loans amounted to EUR 286 (EUR 176) million as per the year end and reduces the currency exposure for relevant currencies in the above table.
² Gains and losses are recognised as part of Net financial items in the Income Statement

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Foreign exchange risk – translation risk

Translation risk results from fluctuations in exchange rates affecting the value of Stora Enso's consolidated net foreign currency denominated assets, liabilities, and income. Translation risk is reduced by funding assets, whenever economically possible, in the same currency as the asset itself. The Group may also enter into foreign exchange forwards, foreign exchange options or foreign currency denominated loans to hedge its net investments in foreign entities with different functional currencies than the Group.

The balance sheets of foreign subsidiaries, equity accounted investments and foreign currency denominated equity instruments in the scope of IFRS 9 are translated into euros using exchange rates prevailing on the reporting date, thus exposing consolidated group equity to fluctuations in currency rates. The resulting translation differences, along with other movements such as the translation rate difference in the income statement, are recorded directly in shareholders' equity. These cumulative differences materialise through the Income statement on the disposal, in whole or in part, of the foreign entity.

The following table presents the translation risk exposure in the Group's Income statement arising from the translation of subsidiaries' and joint operations' foreign-currency income statements into the presentation currency of the Group in the consolidated financial statements.

Translation exposure in Income statement

EUR million	As at 31 December 2020						As at 31 December 2019					
	SEK	USD	GBP	BRL	CZK	CNY	SEK	USD	GBP	BRL	CZK	CNY
Translation exposure in Income Statement¹	38	-165	81	-120	-7	28	102	-238	6	-163	-34	17
Exposure currency change by	-5%	-5%	-5%	-10%	-5%	-5%	-5%	-5%	-5%	-10%	-5%	-5%
Effect on EBIT from translation risk exposure	-2	8	-4	12	-	-1	-5	12	-	16	2	-1

¹ Includes external sales, costs, depreciation and fair valuations of non-euro based entities, retranslated using year end exchange rates.

The next table presents the translation exposure for geographical areas for which the Group has applied net investment hedging techniques to reduce the foreign-currency translation exposure in the consolidated equity. In practise, the Group also incurs material unhedged translation risk exposures in other geographical areas such as Sweden and China. The exposures used in the calculations are based on the foreign currency denominated equity and the hedging levels as at 31 December. Full details of actual CTA movements and hedging results are given in Note 28 Cumulative translation adjustment and equity hedging. The sensitivity analysis includes the effects of currency hedges of net investments in foreign entities and assumes that no changes take place other than a single currency exchange rate movement on 31 December each year.

Translation exposure in Equity

EUR million	As at 31 December	
	2020	2019
Translation exposure on equity in USD area¹	1 323	1 425
EUR/USD equity hedges ²	-244	-267
Translation exposure after hedges	1 079	1 157
Sensitivity before hedges - EUR strengthening 5%	-66	-71
Sensitivity after hedges - EUR strengthening 5%	-54	-58

¹ Includes the joint operation Montes del Plata in Uruguay, which has USD as its functional currency.

² USD denominated bonds classified as hedges of net investments in foreign assets.

Liquidity and refinancing risk

Funding risk arises from the difficulty of obtaining finance for operations at a given point in time. Stora Enso's funding policy states that the average maturity of outstanding loans and committed credit facilities covering short-term borrowings should be at least four years. The policy further states that the Group must have cash equivalents and undrawn committed credit facilities to cover all debt maturing within the next 12 months,

including supply chain financing and factoring. At 31 December 2020, unused committed credit facilities were at EUR 600 (EUR 600) million. The EUR 600 million committed credit facility agreement with a syndicate of 13 banks matures in January 2023 and is used as a backup for general corporate purposes. Stora Enso also has undrawn committed bilateral credit facility arrangements with commercial banks up to EUR 250 million. The original tenor of these bilateral arrangements varies from 18 to 24 months and they mature in 2021 and 2022. In addition, Stora Enso has an undrawn committed EUR 150 million loan signed with European Investment Bank during the fourth quarter that can be drawn latest in 2022 for a five-year maturity. Finally, Stora Enso has access to various additional long-term sources of funding up to EUR 950 (EUR 950) million. These mainly relate to available funding sources from Finnish pension funds.

Refinancing risk, or the risk that maturing debt is not refinanced in the markets, is mitigated by Stora Enso's target of maintaining an even maturity profile of outstanding debt. The table below shows maturity analysis for the Group's contractual financial liabilities classified under principal headings based on the remaining period to contractual maturity at the reporting date. Forward interest rates as at the year-end were used for estimating contractual finance charges for the upcoming years.

Contractual maturity repayments of financial liabilities, settlement net: 2020

EUR million	2021	2022	2023	2024	2025	2026+	Total
Bond loans	299	0	300	299	434	1 469	2 801
Loans from credit institutions	93	404	397	35	150	4	1 083
Lease liabilities	80	66	45	37	30	138	397
Other non-current financial liabilities	0	5	0	0	0	0	5
Non-current borrowings including current portion	471	475	742	371	614	1 612	4 285
Estimated contractual finance charges	98	92	79	67	59	311	706
Contractual repayments on non-current borrowings	570	566	822	439	673	1 922	4 991
Short-term borrowings, carrying amounts	413	0	0	0	0	0	413
Gross-settled derivative liabilities - receipts	1 796	0	0	0	0	0	1 796
Gross-settled derivative liabilities - payments	-1 743	0	0	0	0	0	-1 743
Net-settled derivative liabilities	-27	-15	-11	-2	-1	-1	-58
Trade payables	1 314	0	0	0	0	0	1 314
Bank overdrafts	6	0	0	0	0	0	6
Estimated contractual finance charges	7	0	0	0	0	0	7
Total Contractual Repayments at 31 December 2020	2 335	551	810	436	672	1 921	6 725

Contractual maturity repayments of financial liabilities, settlement net: 2019

EUR million	2020	2021	2022	2023	2024	2025+	Total
Bond loans	0	287	0	300	287	1 113	1 987
Loans from credit institutions	295	214	194	401	37	20	1 162
Lease liabilities	80	67	51	42	34	167	440
Other non-current financial liabilities	0	5	0	0	0	0	5
Non-current borrowings including current portion	375	573	245	743	358	1 299	3 593
Estimated contractual finance charges	109	96	85	71	57	355	773
Contractual repayments on non-current borrowings	483	670	330	814	416	1 654	4 366
Short-term borrowings, carrying amounts	516	0	0	0	0	0	516
Gross-settled derivative liabilities - receipts	1 618	0	0	0	0	0	1 618
Gross-settled derivative liabilities - payments	-1 621	0	0	0	0	0	-1 621
Net-settled derivative liabilities	-20	-15	-14	-10	-2	-1	-62
Trade payables	1 331	0	0	0	0	0	1 331
Bank overdrafts	13	0	0	0	0	0	13
Estimated contractual finance charges	12	0	0	0	0	0	12
Total Contractual Repayments at 31 December 2019	2 333	655	316	804	414	1 653	6 174

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Financial transactions counterparty credit risk

Financial counterparty risk is the risk of fluctuations in the value of the Group's assets as a result of counterparties being unable to meet their obligations arising from financial contracts. The exposure to a financial counterparty risk is measured as the maximum loss that Stora Enso can suffer directly in the event of a single counterparty's credit default. This risk is minimised by:

- entering into transactions only with leading financial institutions and with industrial companies that have a good credit rating;
- only investing in liquid funds and deposits with financial institutions or companies that have a minimum credit rating of BBB-;
- at least the higher of 50% of cash equivalents, or EUR 150 million, of cash equivalents to be held at counterparties with a minimum rating of A- or equivalent using credit ratings from main rating agencies;
- investing at least EUR 75 million of the Group's cash and cash equivalents at counterparties other than the counterparty at which most of Stora Enso's cash and cash equivalents are held;
- requiring parent company guarantees when dealing with any subsidiary of a rated company.

The Group Financial Risk Policy defines the limits for accepted counterparty risk, based on the tenor of financial contract and counterparty's credit rating.

At the year end 2020, there were no significant concentrations of risk with respect to counterparties of derivative contracts, with the highest counterparty mark-to-market exposure being at EUR 18 (EUR 5) million and credit rating of BBB+ (A-) using Standard and Poor's credit rating symbols.

Customer credit risk

Customer credit risk is Stora Enso's exposure to contracts arising from deterioration in the financial health of its customers. The Group uses various measures to reduce customer credit risks, including, but not limited to, letters of credit, prepayments and bank guarantees. The Group has also obtained export guarantees, covering both political and commercial risks, which are used in connection with individual customers outside the OECD area. Management considers that no significant concentration of credit risk with any individual customer, counterparty or geographical region exists for Stora Enso. The aging information of trade receivables and related loss allowances are given in [Note 17](#) Operative receivables.

Commodity price risk

Outstanding commodity hedges

	As at 31 December 2020				31 December 2019			
	Underlying amount of commodity hedged	Average hedged commodity price	Nominal amount hedged in EUR million	Fair value EUR million	Underlying amount of commodity hedged	Average hedged commodity price	Nominal amount hedged in EUR million	Fair value EUR million
Coal component of natural gas purchases	—	—	—	—	54 000 tonnes	USD 58.00	3	—
Electricity purchases								
- Nordic region	1 095 000 MWh	EUR 30.39	33	2	1 361 040 MWh	EUR 36.99	50	-5
- Central Europe	201 480 MWh	EUR 42.26	9	1	315 840 MWh	EUR 40.04	13	1
Oil component of natural gas purchases	—	—	—	—	59 400 barrels	USD 62.60	3	—
Oil purchases	219 516 barrels	USD 52.55	10	—	203 504 barrels	USD 58.92	11	1

The Group is exposed to commodity and energy price volatility that will have an impact on the Group's profitability. Electricity hedge derivatives are part of energy price risk management in the Group, whilst other commodity risks are measured and hedged if economically possible. The Group may apply oil and coal risk component hedging for natural gas purchases as described in the table above. In addition to electricity hedge derivatives, the Group also manages energy price risk by entering into long-term physical fixed price purchase agreements, and by holding a 15.6% stake in Pohjolan Voima Oy (PVO), which is a privately owned group of companies in the energy sector in Finland. The fair value of the shares amounted to EUR 394 (EUR 522) million as per the year-end. The fair value of these shares is dependent on electricity market prices and discussed in more detail in [Note 14](#) Equity instruments.

A 10% movement in energy and raw material prices would result in a EUR 7 (EUR 9) million change in the fair value of commodity financial hedges described in the above table. The majority of these fair value changes, after taxes, are recorded directly in Equity under Hedging Reserves, until the contracts mature and the result is entered in the Income statement. These estimates only represent the sensitivity of commodity financial instruments to market risk and not the Group's full exposure to raw material and energy price risks as a whole, since the actual underlying purchases are not financial instruments within the scope of the IFRS 7 standard. At the end of 2020, the maturities of the energy and commodity contracts, including both financial hedges and fixed-price physical purchase agreements, ranged between 2021 and 2024. In 2019, the maturities ranged between 2020 and 2024.

In an effort to mitigate other commodity price risk exposures in relation to wood fibre price risk, the Group is a significant owner of forest assets in the Nordic region. In 2019, Stora Enso finalised the restructuring of Bergvik Skog's forest holdings in Sweden and increased the Group's forest holdings in Sweden to 1.4 million hectares. The forest assets were placed in a fully owned subsidiary and consolidated line-by-line into Stora Enso's financial statements. The Group's biological assets are discussed in more detail in [Note 12](#) Forest assets. In addition, Stora Enso holds 41.00% share in Tornator Oyj, which is a significant forest owner in Finland. The Group's share in Tornator is reported as an equity-accounted investment and discussed in more detail in [Note 13](#) Equity accounted investments.

Equity price risk

The Group has certain investments in publicly traded securities. Currently these relate to Packages Ltd shares in Pakistan. The market value of these equity investments was EUR 16 (EUR 12) million at the year end. Market value changes in these investments are recorded, after taxes, directly under Shareholders' Equity in the Equity instruments through OCI reserve. Detailed discussion regarding the publicly traded securities can be found from [Note 14](#) Equity instruments.

Capital risk management

Stora Enso's debt structure is focused on capital markets and commercial banks. Group objectives when managing capital are to safeguard the ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders, as well as to maintain an optimal capital structure to reduce the cost of capital. In order to maintain or adjust the capital structure, the Group may, subject to shareholder approval as appropriate, vary the dividends paid to shareholders, buy its own shares on financial markets, return capital to shareholders, issue new shares or sell assets to reduce debt. The Group strives to pay stable dividends linked to the long-term performance with the aim of distributing 50% of Earnings per share (EPS) excluding fair valuations over the cycle.

The Group monitors its capital on the basis of a target net debt-to-equity ratio of 0.60 or less, and ensuring that Net-debt-to-Operational EBITDA ratio remains below 2.0, indicating a solid financial position, and financial flexibility.

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Capital structure

EUR million	As at 31 December	
	2020	2019
Interest-bearing liabilities	4 756	4 192
Interest-bearing assets	1 836	983
Net debt	2 921	3 209
Equity attributable to owners of the parent	8 809	7 429
Operational EBITDA¹	1 270	1 614
Net debt to equity ratio	0.33	0.43
Net debt to operational EBITDA	2.30	1.99

¹ Operational EBITDA definition is included in the "Non-IFRS measures" chapter in the Report of the Board of Directors.

Montes del Plata, a joint operation of Stora Enso, and the Group's subsidiary Stora Enso (Guangxi) Packaging Company Ltd have complied with financial covenants related to debt-to-assets ratio during the reported periods.

Note 25 Fair values



Accounting principles

Financial assets

The Group classifies its financial assets into three categories, which are amortised cost, fair value through other comprehensive income and fair value through profit and loss. The classification is made according to the IFRS 9 standard and management determines the classification of investments at the time of initial recognition.

With investments in debt instruments, the classification is made based on the business model and contractual cash flow characteristics of debt instruments. Investments in debt instruments, for which the business model objective is to hold the financial instruments to collect contractual cash flows and those cash flows are solely payments of principal and interest, are classified as amortised cost and presented under current or non-current assets in the consolidated statement of financial position. Investments in debt instruments, for which the business model objective is to hold the financial instruments for both to collect contractual cash flows and sell financial instruments and the cash flows are solely payments of principal and interest, are classified as fair value through other comprehensive income and presented under current or non-current assets in the consolidated statement of financial position.

The Group's investments into equity instruments, such as listed and unlisted securities, are classified as fair value through profit and loss unless the Group has at inception decided to apply the irrevocable election under IFRS 9 to classify the investments as fair value through other comprehensive income with only dividend income from the investments being recognised in the income statement.

Investments that are not measured at amortised cost or at fair value through other comprehensive income are classified as fair value through profit and loss and are therefore fair valued through the consolidated income statement and presented under current or non-current assets in the consolidated statement of financial position.

Financial liabilities

The Group's financial liabilities are classified into amortised cost or fair value through profit and loss categories. Financial liabilities are measured at amortised cost unless the Group has decided to apply a fair value option to designate a financial liability to be measured at fair value through profit and loss.

Derivatives

Derivative financial assets and liabilities are measured at fair value and classified as fair value through profit and loss or, if the Group has applied hedge accounting, at fair value through other comprehensive income according to the IFRS 9 standard. Derivative financial instruments and hedge accounting are discussed in more detail in [Note 27 Derivatives](#).

Fair value of financial instruments

The fair values of publicly traded derivatives and listed securities, are based on quoted market prices at the reporting date; the fair values of interest rate swaps are calculated as the present value of the estimated future cash flows, and the fair values of foreign exchange forward contracts are determined using forward exchange rates at the reporting date. The valuation principles for derivative financial instruments have been described in more detail in [Note 27 Derivatives](#).

In assessing the fair values of non-traded derivatives and other financial instruments, the Group uses a variety of methods and makes assumptions based on the market conditions at each reporting date. Quoted market prices or dealer quotes for identical or similar instruments are used for non-current debt. Other techniques, such as option pricing models and estimated discounted value of future cash flows, are used to determine fair values for the remaining financial instruments. The face values, less any estimated credit adjustments, for financial assets and liabilities with a maturity of less than one year are assumed to approximate their fair values. The fair values of financial liabilities for disclosure purposes are estimated by discounting the future contractual cash flows at the current market interest rates available to the Group for similar financial instruments.

Purchases and sales of financial instruments are recognised based on trade date accounting, which is the date on which the Group commits to purchasing or selling the financial instrument. Financial instruments are derecognised when the rights to receive or the cash flows from the financial instruments have expired or have been transferred and the Group has substantially transferred all risks, rewards and obligations of the ownership of the financial asset or liability.

Fair value hierarchy

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs which have a significant effect on the recorded fair values that are not based on observable market data.

The Group evaluates the categorisation of its fair value measurements within the fair value hierarchy on a regular basis at the end of the reporting period. There were no transfers recognised in the fair value hierarchy between Levels 1 and 2 and no transfers into or out of Level 3 fair value measurements during 2020 and 2019. See [Note 14 Equity instruments](#) for more information on Level 3 fair value measurement of listed and unlisted securities.

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Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2020

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy			Note
						Level 1	Level 2	Level 3	
Financial assets									
Listed securities	—	16	—	16	16	16	—	—	14
Unlisted securities	—	394	7	401	401	—	—	401	14
Non-current interest-bearing receivables	91	2	—	93	93	—	2	—	26
Trade and other operative receivables	814	44	—	858	858	—	44	—	17
Short-term interest-bearing receivables	1	60	6	66	66	—	65	—	26
Cash and cash equivalents	1 661	—	—	1 661	1 661	—	—	—	
Total	2 566	515	13	3 094	3 094	16	111	401	

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy			Note
						Level 1	Level 2	Level 3	
Financial liabilities									
Non-current interest-bearing liabilities	3 801	19	2	3 822	4 233	—	21	—	26
Current portion of non-current debt	472	—	—	472	472	—	—	—	26
Short-term interest-bearing liabilities	444	11	1	456	456	—	12	—	26
Trade and other operative payables	1 547	—	—	1 547	1 547	—	—	—	23
Bank overdrafts	6	—	—	6	6	—	—	—	
Total	6 270	30	3	6 303	6 715	—	33	—	

Hedge accounted derivatives are presented under fair value through OCI and non-hedge accounted derivatives under fair value through income statement categories in the above tables for financial assets and liabilities.

Carrying amounts of financial assets and liabilities by measurement and fair value categories: 2019

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy			Note
						Level 1	Level 2	Level 3	
Financial assets									
Listed securities	—	12	—	12	12	12	—	—	14
Unlisted securities	—	522	3	526	526	—	—	526	14
Non-current interest-bearing receivables	71	1	—	72	72	—	1	—	26
Trade and other operative receivables	930	38	—	968	968	—	38	—	17
Short-term interest-bearing receivables	3	17	3	23	23	—	20	—	26
Cash and cash equivalents	876	—	—	876	876	—	—	—	
Total	1 879	591	7	2 477	2 477	12	59	526	

EUR million	Amortised cost	Fair value through OCI	Fair value through income statement	Total carrying amount	Fair value	Fair value hierarchy			Note
						Level 1	Level 2	Level 3	
Financial liabilities									
Non-current interest-bearing liabilities	3 207	21	4	3 232	3 549	—	24	—	26
Current portion of non-current debt	376	—	—	376	376	—	—	—	26
Short-term interest-bearing liabilities	546	24	1	572	572	—	26	—	26
Trade and other operative payables	1 574	—	25	1 598	1 598	—	—	25	23
Bank overdrafts	13	—	—	13	13	—	—	—	
Total	5 716	45	30	5 790	6 107	—	50	25	

Hedge accounted derivatives are presented under fair value through OCI and non-hedge accounted derivatives under fair value through income statement categories in the above tables for financial assets and liabilities.

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In the previous tables, the fair value is estimated to be equal to the carrying amount for short-term financial assets and financial liabilities, such as trade receivables and payables due to their short time to maturity and limited credit risk. The fair value of non-current interest-bearing liabilities, considered as a level 2 fair value measurement, is estimated based on a discounted cash flow analysis in which the yield curves observable at commonly quoted intervals are used as a discount factor in the model.

In 2014, Stora Enso acquired 100% of shares in the US-based company Virdia Inc. The transaction included potential pay-outs depending on the completion of specific technical and commercial milestones. The present value of the estimated pay-outs, considered as a level 3 fair value measurement, is estimated based on certain probability criteria. At year end, the fair value amounted to EUR 0 (EUR 25) million and is presented in the table above under trade and other operative payables. In January 2020, the milestones were settled with an amount of approximately EUR 25 million.

Reconciliation of level 3 fair value measurement of financial assets and liabilities

EUR million	2020	2019
Financial assets		
Opening balance at 1 January	526	422
Gains/losses recognised in income statement	1	0
Gains/losses recognised in other comprehensive income	-140	109
Additions	15	0
Disposals	-1	-5
Closing balance at 31 December	401	526

EUR million	2020	2019
Financial liabilities		
Opening balance at 1 January	-25	-21
Gains/losses recognised in income statement	0	-4
Deductions	25	0
Closing balance at 31 December	0	-25

Note 26 Interest-bearing assets and liabilities

Accounting principles

Interest-bearing assets – loan receivables

Loan receivables are debt instruments with fixed or determinable payments that are not quoted on an active market. They are recorded initially at fair value and subsequently measured at an amortised cost. Loss allowance for expected credit losses is calculated based on the general approach under IFRS 9, where loss allowance is recognised based on 12-month expected credit losses if there has not been a significant increase in credit risk since the initial recognition. A significant increase in the credit risk will be evaluated based on a comparison of the risk of a default occurring on the financial instrument as at the reporting date with the risk of default occurring on the financial instrument as at the date of initial recognition. The Group may use, for example, rates of credit default swaps (CDS) observable on financial markets to produce the risk assessment.

Interest income on loan receivables is included in financial income and expense. Loan receivables with a maturity less than 12 months are included in current assets under interest-bearing receivables, and those with maturities greater than 12 months, in non-current interest-bearing receivables.

Interest-bearing liabilities

Interest-bearing liabilities are recognised initially at fair value, net of transaction costs incurred. In subsequent periods, interest-bearing liabilities are measured at amortised cost using the effective interest method. Any difference between the proceeds net of transaction costs and redemption value is recognised in the Consolidated income statement over the maturity period of the borrowings. Interest expenses are accrued for and recorded in the Consolidated Income statement for each period.

Interest-bearing liabilities with an original maturity greater than 12 months are classified as non-current interest-bearing liabilities in the Consolidated statement of financial position, though repayments falling due within 12 months are presented in current liabilities under the current portion of non-current debt. Short-term commercial paper, bank and other interest-bearing liabilities, for which the original maturity is less than 12 months, are presented in current liabilities under interest-bearing liabilities.

Lease liabilities

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Lease liabilities are initially capitalised at the commencement of the lease and measured at the present value of the lease payments that are not paid at the commencement date, discounted using the Group's incremental borrowing rate. The lease term applied corresponds to the non-cancellable period except in cases where the Group is reasonably certain to exercise renewal option or prolong the contract. The Group allocates the consideration in the contract to each lease component and separates non-lease components if these are identifiable. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The lease liabilities are subsequently measured at amortised cost using the effective interest method. Lease payment is allocated between the capital liability and finance charges to achieve a constant interest rate on the outstanding liability balance. Lease liabilities are remeasured mainly when there is a change in future lease payments arising from a change in an index or rate, or if there is a change in the Group's assessment whether it will exercise an extension option. When lease liability is remeasured, a corresponding adjustment is generally made to the carrying amount of the right-of-use asset.

The Group has elected not to recognise lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low value assets. Leases of low value assets mainly include IT and office equipment, certain vehicles and machinery and other low value items. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

Interest-bearing assets

EUR million	As at 31 December	
	2020	2019
Listed securities	16	12
Long-term derivative assets	2	1
Long-term deposits	87	68
Long-term loans to equity accounted investments	2	2
Other long-term loan receivables	2	1
Total non-current interest-bearing assets	109	84
Short-term derivative assets	65	20
Short-term deposits	0	3
Other short-term loan receivables	1	0
Cash equivalents	1 661	876
Total current interest-bearing assets	1 726	898
Total interest-bearing assets	1 836	983



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The annual average interest income rate for deposits and loan receivables during 2020 was approximately 0.2% (0.6%). Current interest-bearing receivables did not include any material accrued interest at 31 December 2020. The Group has evaluated that there has not been a significant increase in credit risk related to interest-bearing receivables after the initial recognition. Accordingly, they are considered to have a low credit risk and loss allowance is recognised based on 12-month expected credit losses.

Interest-bearing liabilities

EUR million	As at 31 December	
	2020	2019
Bond loans	2 789	1 978
Loans from credit institutions	1 083	1 162
Lease liabilities	397	440
Long-term derivative financial liabilities (see Note 25)	21	24
Other non-current liabilities	5	5
Non-current interest-bearing liabilities including current portion	4 294	3 608
Short-term borrowings	413	516
Interest payable	35	33
Short-term derivative financial liabilities (see Note 25)	9	23
Bank overdrafts	6	13
Total Interest-bearing Liabilities	4 756	4 192

EUR million	2020	2019
Carrying value at 1 January	4 192	3 344
Additions in lease liabilities due to adoption of IFRS 16	0	525
Acquisition of subsidiary companies	0	793
Proceeds of new long-term debt	1 081	870
Additions in lease liabilities	39	29
Repayment of long-term debt	-333	-1 216
Repayment of lease liabilities and interest	-85	-88
Change in short-term borrowings and interest payable	-101	-58
Change in derivative financial liabilities	-17	-21
Translation differences and other	-20	13
Total Interest-bearing Liabilities	4 756	4 192

Events during 2020 and 2019

Stora Enso has a Green Bond Framework as part of its Sustainable Finance approach. The ambition is to offer a loan-format to support sustainability-focused fixed income investors and to report the direct environmental impacts of some investments and business activities.

In April 2020, Stora Enso successfully issued a SEK 1 700 million green bond under its EMTN (Euro Medium Term Note) programme and Stora Enso's Green Bond Framework. The bond matures in April 2025. In June 2020, Stora Enso successfully tapped the above mentioned 2025 SEK Green Bond issued in April 2020 with an additional nominal of SEK 1 400 million. The bond consist of fixed and floating tranches and pays a floating coupon of STIBOR +2.20% and a fixed coupon of 2.375%.

In November 2020, Stora Enso successfully issued a new EUR 500 million green bond under its EMTN (Euro Medium Term Note) programme and Stora Enso's Green Bond framework. The bond matures in December 2030 and pays a fixed coupon of 0.625%.

In February 2019, Stora Enso successfully issued its first Green Bonds with a total nominal value of SEK 6 000 million. The bonds consist of three tranches with SEK 3 000 million maturing in August 2021 and paying a floating coupon of STIBOR +0.85%, SEK 1 250 million maturing in February 2024 and paying a floating coupon of STIBOR +1.45%, and SEK 1 750 million maturing in February 2024 and paying a fixed coupon of 1.875%. There are no financial covenants for the bonds.

Please refer to the Stora Enso Sustainability report for further information regarding the use of proceeds and Stora Enso's Sustainable Finance strategy.

In the second quarter of 2019, Stora Enso issued SEK 1 000 million loan in Green Bond format under the EMTN and Green Bond frameworks. The loan matures in 2026. In addition, Stora Enso entered into a new amortising credit-institution loan with the nominal of SEK 1 500 million. The loan had a original maturity date in 2021 but it was prepaid already during 2020.

During 2020, Stora Enso's total repayments of bond notes amounted to a nominal of EUR 0 (USD and EUR bond notes of EUR 219) million. During 2020 Stora Enso renegotiated loan terms of its two existing credit-institution loans by extending the maturities and amending the other loan terms such as interest rate of the loans. This resulted in EUR 2 million initial modification net gain being recognised in the Income Statement. The modification gain will be amortised over the remaining lifetime of the loans.

Interest-bearing liabilities - maturities, interest rates and currency breakdown

Stora Enso's borrowings maturities range from 2021 to the longest borrowing maturing in 2036. Borrowings have either fixed or floating interest rates ranging from 0.5% (0.5%) to 7.3% (7.3%). The average interest rate on borrowings for the full year amounted to 3.2% (3.5%) with a run-rate of 3.0% as per the year end. Part of Stora Enso's borrowings have been fixed through floating-to-fixed interest rate swaps and cross-currency swaps. The majority of Group loans are denominated in euros, US dollars, Swedish crowns or Chinese renminbis. Detailed maturity analysis of the Group's borrowings are set out in [Note 24](#) Financial risk management.

Net debt

In 2020 net interest-bearing liabilities decreased by EUR 288 (increased by EUR 1 117) million to EUR 2 921 (EUR 3 209) million. Net interest-bearing liabilities are equal to total interest-bearing liabilities less total interest-bearing assets such as cash equivalents and deposits. Cash and cash equivalents net of overdrafts increased by EUR 792 (decreased by EUR 265) million to EUR 1 655 (EUR 863) million as at 31 December 2020. In 2020, the total cash outflow for leases was EUR 85 (EUR 88) million including interest component of EUR 19 (EUR 20) million.

The ratio of net debt to the last 12 months' operational EBITDA was 2.3 (2.0). The net debt/equity ratio was 0.33 (0.43) as per the year-end.



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Bond loans

Issue/ Maturity Dates	Description of Bond	Interest Rate %	Currency of Bond	Nominal Value Issued	Outstanding As at 31 December		Carrying Value As at 31 December	
					2020	2019	2020	2019
All Liabilities are Held by the Parent Company					Currency million		EUR million	
Fixed Rate								
2006-2036	Global 7.250% Notes 2036	7.25	USD	300	300	300	242	264
2016-2023	Euro Medium Term Note	2.125	EUR	300	300	300	299	299
2017-2027	Euro Medium Term Note	2.5	EUR	300	300	300	299	299
2018-2028	Euro Medium Term Note	2.5	EUR	300	300	300	298	298
2019-2024	Euro Medium Term Note (Green Bond)	1.875	SEK	1 750	1 750	1 750	174	167
2020-2025	Euro Medium Term Note (Green Bond)	2.375	SEK	1 550	1 550	0	155	0
2020-2030	Euro Medium Term Note (Green Bond)	0.625	EUR	500	500	0	494	0
Total Fixed Rate Bond Loans							1 962	1 326
Floating Rate								
2015-2025	Euro Medium Term Note	Euribor+2.25	EUR	125	125	125	125	125
2015-2027	Euro Medium Term Note	Euribor+2.35	EUR	25	25	25	25	25
2019-2021	Euro Medium Term Note (Green Bond)	Stibor+0.85	SEK	3 000	3 000	3 000	299	287
2019-2024	Euro Medium Term Note (Green Bond)	Stibor+1.45	SEK	1 250	1 250	1 250	124	119
2019-2026	Euro Medium Term Note (Green Bond)	Stibor+1.60	SEK	1 000	1 000	1 000	99	95
2020-2025	Euro Medium Term Note (Green Bond)	Stibor+2.20	SEK	1 550	1 550	0	155	0
Total Floating Rate Bond Loans							827	651
Total Bond Loans							2 789	1 978

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Note 27 Derivatives

Accounting principles

Derivative financial instruments and hedge accounting

Derivative financial instruments are initially recognised in the consolidated statement of financial position at fair value and subsequently measured at their fair value at each reporting date according to valuation methods described in this note. Derivative contracts with maturity greater than 12 months are classified as non-current interest-bearing receivables and liabilities, and contracts maturing within 12 months are presented under current interest-bearing receivables and liabilities.

When derivative contracts are entered into, the Group designates them as either hedges of highly probable forecast transactions or firm commitments (cash flow hedges), hedges of the exposure to changes in the fair value of recognised assets or liabilities (fair value hedges), hedges of net investments in foreign entities, or derivative financial instruments not meeting the hedge accounting criteria in accordance with IFRS 9. The method of recognising the resulting gains or losses on derivative instruments is dependent on the nature of the item being hedged.

At the inception of a hedge, the Group documents the relationship between the hedging instrument and the hedged item, as well as its risk management objective and strategy for undertaking various hedging transactions. This process includes linking all financial instruments designated under hedge accounting to specific assets and liabilities or to specific firm commitments or highly probable forecast transactions in order to verify and document the hedge relationship between the hedged item and the hedging instrument as required by IFRS 9. The Group also documents its qualitative prospective assessment at the hedge inception of whether the derivatives used in a hedge relationship are highly effective in offsetting changes in fair value or cash flows of hedged items. Hedge effectiveness will be assessed in accordance with IFRS 9 requirements.

The hedge ratio used for hedging relationships is usually 1:1. For currency and commodity hedging purposes, the Group uses a hedge designation where the critical terms of the hedging instrument and the hedged item will coincide in terms of the notional amount and timing. In respect of interest rate hedging, the interest rate basis between swap contracts and underlying debt will coincide. Since the critical terms of the hedges and underlying risks match, the hedging instruments are considered to offset any changes related to the anticipated transactions.

Potential sources of ineffectiveness that may be expected to occur in relation to currency and commodity hedges are mainly related to the forecasted transaction not occurring in the amount or at the time expected. For interest rate hedges, cross-currency basis spread or initial fair value of the hedging instrument at the date of hedge designation may result in ineffectiveness being recognised in the income statement. Potential sources of ineffectiveness for all the aforementioned hedges also include possible effects of credit risk dominating fair value changes arising from the hedging instrument and the hedged item designated under the hedging relationship.

Cash flow hedges

Derivatives used in currency cash flow hedges are mainly forward contracts and options, with swaps mainly used for commodity and interest rate hedging purposes. In respect of commodity hedges, the Group may also use risk component hedging to hedge highly probable forecast purchases of natural gas. These purchases create natural gas price exposure which translates as coal and crude oil risk components that can be hedged by using API2 coal and Dated Brent crude oil linked swaps, which are expected to fully offset changes in the market value of the hedged risk components. Both of the risk components are separately identifiable and reliably measurable due to the pricing formula being specified in the natural gas purchase agreement.

In 2020, the Group entered into new interest rate swap contracts with a total nominal value of SEK 1 250 million. The interest rate swaps have been designated as cash flow hedges of newly issued SEK denominated floating-rate green bond and related tap issue maturing in 2025. In 2019, the group entered into new interest rate swap contracts with a total nominal value of SEK 4 000 million. The

interest rate swaps have been designated as cash flow hedges of the issued SEK denominated floating-rate green bonds maturing in 2021, 2024 and 2026.

Changes in the fair value of derivatives designated and qualifying as cash flow hedges, and which are effective, are recognised in a separate equity category of OCI cash flow hedges reserve, the movements of which are disclosed in the consolidated statement of comprehensive income. For currency forwards, both the spot element and forward points have been included to the hedge designation. In case of currency options, the time value of an option is excluded from the hedge designation and only the intrinsic value component of an option is designated as the hedging instrument. The changes in option time value are recognised in a cost of hedging reserve within OCI. The cumulative gain or loss of a derivative deferred in equity is transferred to the consolidated income statement and classified as an income or expense in the same period in which the hedged item affects the consolidated income statement. The unrealised gains and losses related to cash flow hedges are expected to be recycled through the income statement within one to three years with the longest hedging contract maturing in 2027 (2027). However, the majority of the contracts are expected to mature in 2021.

Realised results of hedge accounted derivative instruments hedging foreign currency sales transactions or purchases are booked as adjustments to sales or materials and services, depending on the nature of the underlying hedged item. In respect of hedges of exposures to foreign currency risk of future transactions resulting in the recognition of non-financial assets, the gains and losses deferred to the cash flow hedges reserve within OCI are transferred from equity to be included in the initial acquisition cost of the non-financial asset at the time of recognition. The Group may hedge foreign-currency risk of external or internal foreign-currency purchases where the underlying amount purchased in a foreign-currency impacts the value of inventory in a local currency. In such cases the gains and losses are initially booked as an adjustment to raw material inventory and recycled further to finished goods inventory with being ultimately recognised in the consolidated income statement at the time when the hedged items are sold to an external customer. In case of non-current assets, the deferred amounts are ultimately recognised in the income statement through depreciation over the lifetime of the non-financial assets.

When a hedging instrument expires or is sold, terminated or exercised or no longer meets the hedge accounting criteria under IFRS 9, any cumulative gain or loss deferred in equity at that time remains in equity and is accounted for as an adjustment to income or expense when the committed or forecast transaction is ultimately recognised in the consolidated income statement. However, if the underlying forecasted transaction is no longer expected to occur, the cumulative gain or loss reported in equity from the period when the hedge was effective is immediately recognised in the consolidated income statement.

Fair value hedges

In case of fair value hedges, the Group uses either derivatives or borrowings as a hedging instrument to manage the risk associated with the fair value of a hedged item. The gains and losses on hedging instruments designated and qualifying as fair value hedges, and which are highly effective, are recorded in the consolidated income statement, along with any changes in the fair value of the hedged assets or liabilities attributable to the hedged risk.

Net investment hedges

For hedges of net investments in foreign entities, the Group uses either derivatives or foreign-currency borrowings for this purpose. If the hedging instrument is a derivative, any gain or loss thereon relating to the effective portion of the hedge is recognised in equity in CTA as disclosed in the consolidated statement of comprehensive income; the gain or loss relating to the ineffective portion is immediately recognised in the consolidated income statement. In addition, exchange gains and losses arising on the translation of a foreign-currency borrowing that hedges net investment in a foreign operation are also recognised in CTA, with any ineffective portion being immediately recognised in the consolidated income statement. The gains and losses recognised in CTA are recycled from equity to the consolidated income statement at the time when the underlying hedged net investment is disposed.

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Non-hedge accounted derivatives

Certain derivative transactions, while providing effective economic hedges under Group risk management policies, do not qualify for hedge accounting under the specific rules in IFRS 9 and therefore changes in the fair value of such non-qualifying hedges are accounted for at fair value in the consolidated income statement. For non-hedge accounted derivatives economically hedging foreign-currency risk of net of operative receivables and payables, the fair value changes are recognised in operating profit under other operating income and expense. For other non-hedge accounted derivatives, the fair value changes are recognised in the consolidated income statement under financial income and expense.

Valuation of derivatives

Derivative financial instruments are recorded in the statement of financial position at their fair values defined as the amount at which the instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such financial items have been estimated on the following basis:

- Currency forward contract fair values are calculated using forward exchange rates at the reporting date.
- Currency option contract fair values are calculated using reporting date market rates together with common option pricing models.
- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.
- Cross-currency swaps fair values are calculated using a discounted cash flow method with the exchange of notionals being also included into the valuation model.

Total foreign exchange gains and losses in the income statement excluding hedges

EUR million	Year ended 31 December	
	2020	2019
Other operating income ¹	-19	12
Other operating expense ²	9	-10
Borrowings, cash equivalents and lease liabilities	-22	-6
Total	-32	-3

¹ 2019 figures reported under Sales, comparative figures are not restated.

² 2019 figures reported under Materials and services, comparative figures are not restated.

Hedge gains and losses in operating profit

EUR million	Year ended 31 December	
	2020	2019
Cash flow hedge accounted derivatives		
Currency hedges	-2	-83
Commodity hedges	-23	12
Total	-24	-71
As adjustments to sales	-1	-79
As adjustments to materials and services	-23	8
Realised from OCI through income statement	-24	-71
Currency hedges ineffectiveness	0	-3
Commodity hedges ineffectiveness	-1	0
Net losses from cash flow hedges	-25	-74
Non-hedge accounted derivatives		
Net receivable hedges	10	-17
Net gains/losses on non-hedge accounted derivatives	10	-17
Net hedge losses in operating profit	-16	-91

In 2020, certain forecasted future transactions were no longer expected to occur, and due to this hedge accounting was ceased for those transactions. This resulted in a loss of EUR 1 (EUR 3) million being booked in the Group's operating profit and the loss being presented in the table above as ineffectiveness from cash flow hedges.

Hedge gains and losses in financial items

EUR million	Year ended 31 December	
	2020	2019
Cash flow hedge accounted derivatives		
Interest rate hedges ineffectiveness	2	0
Net gains/losses from cash flow hedges	2	-1
Non-hedge accounted derivatives		
Currency derivatives	14	0
Net gains on non-hedge accounted derivatives	14	0
Net gains/losses in financial items	16	-1

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Nominal and fair values of derivative instruments

EUR million	As at 31 December							
	Nominal values	Positive fair values	Negative fair values	Net fair values	Nominal values	Positive fair values	Negative fair values	Net fair values
	2020				2019			
Currency derivatives								
Forwards: Operational cash flow hedging	1 041	40	-2	37	759	6	-9	-4
Options: Operational cash flow hedging	645	14	-1	13	1 458	9	-8	1
Total cash flow hedge accounted	1 686	53	-3	50	2 217	15	-17	-2
Forwards: Trade and loan receivables hedging	436	6	-1	4	414	3	-1	3
Total non-hedge accounted	436	6	-1	4	414	3	-1	3
Total currency derivatives	2 122	59	-5	54	2 631	18	-18	0
Commodity derivatives								
Electricity swaps: Costs hedging	42	8	-4	3	63	1	-5	-4
Oil swaps: Costs hedging	10	1	-1	0	14	1	0	1
Coal swaps: Costs hedging	0	0	0	0	3	0	0	0
Total cash flow hedge accounted	52	8	-5	3	80	2	-5	-3
Total commodity derivatives	52	8	-5	3	80	2	-5	-3
Interest rate derivatives								
Interest rate swaps: Financial expenses hedging	694	0	-17	-17	563	0	-12	-11
Cross-currency swaps: Financial expenses hedging	200	0	-6	-6	200	0	-15	-15
Total cash flow hedge accounted	894	0	-23	-23	763	0	-27	-27
Total interest rate derivatives	894	0	-23	-23	763	0	-27	-27
Total cash flow hedge accounted	2 631	62	-32	30	3 060	18	-49	-32
Total non-hedge accounted	436	6	-1	4	414	3	-1	3
Total derivatives	3 068	67	-33	34	3 474	21	-50	-29

Positive and negative fair values of financial derivative instruments are shown under interest-bearing receivables and liabilities, and non-current interest-bearing receivables and liabilities. The presented fair values in the table include accrued interest and option premiums.

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Changes in fair values of hedged items and hedging instruments 2020

EUR million	Change in value of hedged item to determine hedge effectiveness	Change in value of outstanding hedging instruments	Ineffectiveness
Foreign exchange risk - Forward and option contracts (excluding option time value)	-51	51	0
Foreign exchange risk - Net investment hedges	-23	23	0
Commodity price risk - Commodity swaps ¹	17	-18	-1
Interest rate risk - Interest rate swaps	6	-6	0
Interest rate and foreign exchange risk - Cross-currency swaps ²	-7	9	2

¹ Ineffectiveness booked in Operating profit.

² Ineffectiveness booked in Net financial items.

Changes in fair values of hedged items and hedging instruments 2019

EUR million	Change in value of hedged item to determine hedge effectiveness	Change in value of outstanding hedging instruments	Ineffectiveness
Foreign exchange risk - Forward and option contracts (excluding option time value) ¹	64	-67	-3
Foreign exchange risk - Net investment hedges	6	-6	0
Commodity price risk - Commodity swaps	23	-23	0
Interest rate risk - Interest rate swaps	4	-4	0
Interest rate and foreign exchange risk - Cross-currency swaps	-1	1	0

¹ Ineffectiveness booked in Operating profit.

Breakdown of cash flow hedging reserve and net investment hedges in equity 2020

EUR million	At 1 Jan 2020	Change in fair value recognised in OCI/CTA	Reclassified from OCI to profit and loss	Tax impact	At 31 Dec 2020
Foreign exchange risk - Operational cash flow hedging	-2	50	2	-10	39
Commodity price risk - Commodity swaps	-2	-17	24	-2	3
Interest rate risk - Interest rate swaps	-8	-6	0	1	-13
Interest rate and foreign exchange risk - Cross-currency swaps	-11	9	-7	0	-9
Cost of hedging reserve	1	0	0	0	0
Total cash flow hedge reserve in OCI	-22	35	18	-11	20
Foreign exchange risk - Net investment hedges	12	23	0	-5	30
Total net investment hedges in CTA	12	23	0	-5	30
Total hedging reserves	-10	58	18	-15	51

Breakdown of cash flow hedging reserve and net investment hedges in equity 2019

EUR million	At 1 Jan 2019	Change in fair value recognised in OCI/CTA	Reclassified from OCI to profit and loss	Tax impact	At 31 Dec 2019
Foreign exchange risk - Operational cash flow hedging	-17	-67	86	-4	-2
Commodity price risk - Commodity swaps	25	-23	-12	9	-2
Interest rate risk - Interest rate swaps	-5	-4	0	1	-8
Interest rate and foreign exchange risk - Cross-currency swaps	-10	1	1	-3	-11
Cost of hedging reserve	-2	3	0	-1	1
Total cash flow hedge reserve in OCI	-9	-90	75	1	-22
Foreign exchange risk - Net investment hedges	20	-6	-4	1	12
Total net investment hedges in CTA	20	-6	-4	1	12
Total hedging reserves	11	-96	72	3	-10

Financial impact of netting for instruments subject to an enforceable master netting agreement 2020

EUR million	Not offset in the statement of financial position			Net exposure
	Gross amount of recognised financial instruments	Related liabilities (-) or assets (+) subject to master netting agreements	Collateral received (-) or given (+)	
Derivative assets	67	-25	0	42
Derivative liabilities	-33	25	0	-8

Financial impact of netting for instruments subject to an enforceable master netting agreement 2019

EUR million	Not offset in the statement of financial position			Net exposure
	Gross amount of recognised financial instruments	Related liabilities (-) or assets (+) subject to master netting agreements	Collateral received (-) or given (+)	
Derivative assets	21	-14	0	7
Derivative liabilities	-50	14	0	-36

The Group enters into derivative transactions under master netting agreements agreed with each counterparty. In case of an unlikely credit event, such as default, all outstanding transactions under the agreements are terminated, and only a single net amount per counterparty is payable for settlement of all transactions. The agreements do not meet the criteria for offsetting in the statement of financial position, because offsetting is enforceable only in the occurrence of certain future events.



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Note 28 Cumulative translation adjustment and equity hedging

Accounting principles

The Group operates internationally and is thus exposed to currency risks arising from exchange rate fluctuations on the value of its net investment in non-euro area foreign subsidiaries, joint operations, and equity accounted investments. Exchange differences arising from the retranslation of net investments in foreign entities that are non-euro foreign subsidiaries, joint operations or equity accounted investments, and of financial instruments that are designated as and are hedges of such investments, are recorded directly in the shareholders' equity in the cumulative translation adjustment (CTA). Movements in CTA (including related hedges) are shown in the consolidated statement of comprehensive income.

The cumulative translation adjustments of disposals and liquidations are combined with their gain or loss on disposal. The CTA is recycled in the consolidated income statement upon disposal of a business unit.

The Group policy for translation risk exposure is to minimise this by funding assets whenever possible and economically viable in the same currency, but if matching the assets and liabilities in the same currency is not possible, hedging of the remaining translation risk may take place. The gains and losses net of tax on all financial liabilities and instruments used for hedging purposes are offset in CTA against the respective currency movements arising from the restatement of the net investments at current exchange rates on the reporting date. The Group has also applied net investment loan accounting under IAS 21 for certain intragroup loans.

Cumulative translation adjustment - movement

EUR million	Year ended 31 December	
	2020	2019
At 1 January		
CTA on net investments	-148	-355
Net investment hedges and loans	18	27
Income tax related to hedges and loans	-6	-7
Net CTA in Equity	-136	-335
CTA movement OCI		
Restatement of opening equity	-157	7
Difference in Income Statement translation	18	13
CTA release through the Income Statement	0	182
CTA other changes	-4	5
Net investment hedges and loans	16	-9
Income tax related to hedges and loans	-4	1
CTA movement OCI total	-131	198
At 31 December		
CTA on net investments	-292	-148
Net investment hedges and loans	34	18
Income tax related to hedges and loans	-10	-6
Net CTA in Equity	-267	-136

The release of cumulative translation adjustments to the income statement amounted to EUR 0 (EUR -182) million. In 2019 a loss of EUR 171 million was related to the Bergvik Skog restructuring in Sweden.

Cumulative translation adjustment - financial position

EUR million	As at 31 December					
	Cumulative Translation Adjustments (CTA)		Net Investment Hedges and Loans		Net CTA in the Statement of Financial Position	
	2020	2019	2020	2019	2020	2019
Brazil	-299	-209		0	-299	-209
China	74	73	-6	0	67	73
Czech Republic	29	33	-9	-9	20	24
Poland	-49	-24	17	17	-32	-7
Russia	-91	-55		0	-91	-55
Sweden	6	-128	47	47	52	-82
Uruguay (USD)	43	158	-14	-37	29	122
USA	-1	6		0	-1	6
Others	-4	-1		0	-4	-1
CTA before Tax	-292	-148	34	18	-258	-130
Taxes			-10	-6	-10	-6
Net CTA in Equity	-292	-148	25	12	-267	-136

The main movements in CTA in 2020 were a gain of EUR 134 (EUR 158) million related to the Swedish crown, loss of EUR 122 (gain of EUR 25) million related to the US dollar, loss of EUR 35 (gain of EUR 15) million related to Russian Ruble, loss of EUR 25 (gain of EUR 4) million related to Polish Zloty, and loss of EUR 90 (EUR 5) million related to Brazilian Real.

The net amount of hedging gain included in the CTA during the period amounted to EUR 13 (loss of EUR 8) million. At December 2020 the total amount of net investment hedges and loans amounted to gain of EUR 25 (EUR 12) million.

Hedging instruments and unrealised hedge losses

EUR million	As at 31 December					
	Nominal amount (Currency)		Nominal amount (EUR)		Unrealised Losses (EUR)	
	2020	2019	2020	2019	2020	2019
Borrowings						
USD area	300	300	244	267	-11	-25
Total Hedging			244	267	-11	-25

The group is currently only hedging its equity exposure to the US dollar arising from its joint operation located in Uruguay with USD functional currency.

Net Investment loans

At 31 December 2020 Net investment loans had an impact of EUR 5 (0) million on CTA in Equity.

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Note 29 Commitments and contingencies

Accounting principles

Guarantees

The guarantees entered into with financial institutions and other credit guarantors generally oblige the group to make payment in the event of default by the borrower. The guarantees have an off-balance sheet credit risk representing the accounting loss that would be recognised at the reporting date if the counterparties fail to perform completely as contracted. The credit risk amounts are equal to the contract sums, assuming the amounts are not paid in full and are irrecoverable from other parties.

Commitments

EUR million	As at 31 December	
	2020	2019
On own behalf		
Mortgages	0	2
Other commitments	14	3
On behalf of equity accounted investments		
Guarantees	2	4
On behalf of others		
Guarantees	6	6
Other commitments	36	13
Total	58	28
Mortgages	0	2
Guarantees	8	10
Other commitments	50	17
Total	58	28

In 2020, the Group's commitments amounted to EUR 58 (EUR 28) million. In addition, the parent company Stora Enso Oyj has guaranteed the liabilities of many of its subsidiaries and joint operations up to EUR 1 219 (EUR 1 508) million as of 31 December 2020.

Capital commitments

EUR million	As at 31 December	
	2020	2019
Total	207	223

Capital expenditure commitments are not recognised in the balance sheet and these include the Group's share of direct capital expenditure contracts in joint operations. Commitments in relation to capital expenditure mainly relate to the Oulu mill conversion and other ongoing projects at the Imatra Mill in Finland and the Žďirec sawmill in Czech Republic.

Contingent liabilities

Stora Enso has undertaken significant restructuring actions in recent years which have included the divestment of companies, sale of assets and mill closures. These transactions include a risk of possible environmental or other obligations the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably and for which the related future cost is considered to be at least probable.

Stora Enso has been granted various investment subsidies and has given certain investment commitments in different countries e.g. Finland, China and Sweden. If committed planning conditions are not met, local officials may pursue administrative measures to reclaim some of the formerly granted investment subsidies or to impose penalties on Stora Enso, and the outcome of such a process could result in a negative financial impact on Stora Enso.

Stora Enso is party to legal proceedings that arise in the ordinary course of business and which primarily involve claims arising out of commercial law. The management does not consider that liabilities related to such proceedings before insurance recoveries, if any, are likely to be material to the Group's financial condition or results of operations.

Legal proceedings in Latin America

Veracel

On 11 July 2008, Stora Enso announced that a federal judge in Brazil had issued a decision claiming that the permits issued by the State of Bahia for the operations of Stora Enso's joint operations company Veracel were not valid. The judge also ordered Veracel to take certain actions, including reforestation with native trees on part of Veracel's plantations and a possible fine of, at the time of the decision, BRL 20 (EUR 3) million. Veracel disputes the decision and has filed an appeal against it. Veracel operates in full compliance with all Brazilian laws and has obtained all the necessary environmental and operating licences for its industrial and forestry activities from the relevant authorities. In November 2008, a Federal Court suspended the effects of the decision. No provisions have been recorded in Veracel's or Stora Enso's accounts for the reforestation or the possible fine.

The tax authority has claimed that part of the PIS (social integration programme) and COFINS (contribution for the financing of social security) paid by Veracel on the purchase of raw materials and services in years 2006-2016 was not eligible for tax credit. Stora Enso and Veracel consider the remaining pending claims unjustified and no provisions have been recorded in Veracel's or Stora Enso's accounts for this matter. The dispute was still pending at balance sheet date. The remaining pending claim relating to Stora Enso's share in Veracel is BRL 40 million (EUR 6 million). The outlook of the dispute is considered to be more positive than in earlier years and there will be no further reporting on this dispute.

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Note 30 Group companies

Subsidiaries	Country	Group ownership, %	
		2020	2019
A/O Ladsen	Russia	100.00	100.00
AB Stabergsvikens tomter	Sweden	100.00	100.00
Anjala Fiber & Energy Oy	Finland	100.00	100.00
AO Stora Enso	Russia	100.00	100.00
AS Stora Enso Latvija	Latvia	100.00	100.00
Bergnät 1 AB	Sweden	100.00	100.00
Bergnät 2 AB	Sweden	100.00	100.00
Box Inc AB	Sweden	100.00	100.00
Cellutech AB	Sweden	100.00	100.00
Centrum Dystybućji i Obróbkki Drewna Sp. z.o.o.	Poland	100.00	100.00
Changzhou Stora Enso Packaging Technology Co. Ltd.	China	100.00	100.00
DanFiber A/S	Denmark	51.00	51.00
Dongguan Stora Enso Inpac Packaging Co. Ltd.	China	100.00	100.00
Efora Oy	Finland	100.00	100.00
Enso Alueverkko Oy	Finland	100.00	100.00
Euro - Timber, spol. s.r.o.	Slovak Republic	100.00	100.00
FPB Holding GmbH & Co. KG	Germany	99.98	99.97
Guangxi Stora Enso Forestry Co. Ltd.	China	89.50	89.50
Herman Andersson Oy	Finland	100.00	100.00
HESPOL Sp. z.o.o.	Poland	100.00	100.00
Hälsingeskogen vind AB	Sweden	100.00	0.00
Jiashan Stora Enso Inpac Packaging Co. Ltd.	China	100.00	100.00
Lumipaper Ltd	UK	100.00	100.00
Lumipaper NV	Belgium	100.00	100.00
Mena Wood Oy Ltd	Finland	100.00	100.00
Merivienti Oy	Finland	0.00	100.00
OOO Olonetsles	Russia	99.48	96.88
OOO Settles	Russia	100.00	100.00
OOO Setnovo	Russia	100.00	100.00
OOO Stora Enso Forest West	Russia	100.00	100.00
OOO Stora Enso Packaging BB	Russia	100.00	100.00
OOO Stora Transport	Russia	100.00	100.00
OOO Terminal	Russia	100.00	100.00
Primaskog 1 AB	Sweden	100.00	0.00
Primaskog 2 AB	Sweden	100.00	0.00
Primaskog 3 AB	Sweden	100.00	0.00
Primaskog 4 AB	Sweden	100.00	0.00
Primaskog 5 AB	Sweden	100.00	0.00
Primaskog 6 AB	Sweden	100.00	0.00
Primaskog 7 AB	Sweden	100.00	0.00
Primaskog 8 AB	Sweden	100.00	0.00
Primaskog 9 AB	Sweden	100.00	0.00
Skogsutveckling Syd AB	Sweden	66.67	66.67
Stora Enso China Packaging (HK) Co., Limited	Hong Kong	100.00	100.00
Stora Enso (Guangxi) Forestry Company Ltd.	China	80.08	80.08
Stora Enso (Guangxi) Packaging Company Ltd.	China	80.08	80.08

Subsidiaries	Country	Group ownership, %	
		2020	2019
Stora Enso (HK) Ltd	Hong Kong	100.00	100.00
Stora Enso (Southern Africa) (Pty) Ltd	South Africa	100.00	100.00
Stora Enso AB	Sweden	100.00	100.00
Stora Enso Amsterdam B.V.	Netherlands	100.00	100.00
Stora Enso Arapoti Holding Florestal S.A.	Brazil	100.00	100.00
Stora Enso Australia Pty Ltd	Australia	100.00	100.00
Stora Enso Austria GmbH	Austria	100.00	100.00
Stora Enso Belgium NV	Belgium	100.00	100.00
Stora Enso Bergskog 1 AB	Sweden	100.00	0.00
Stora Enso Bergskog 2 AB	Sweden	100.00	0.00
Stora Enso Bioenergi AB	Sweden	100.00	100.00
Stora Enso Bois SAS	France	100.00	100.00
Stora Enso Brasil Ltda	Brazil	100.00	100.00
Stora Enso China Co., Ltd	China	100.00	100.00
Stora Enso China Holdings AB	Sweden	100.00	100.00
Stora Enso Corbehem SAS	France	100.00	100.00
Stora Enso Danmark A/S	Denmark	100.00	100.00
Stora Enso Eesti AS	Estonia	100.00	100.00
Stora Enso Espana S.A.U	Spain	100.00	100.00
Stora Enso Fors AB	Sweden	100.00	100.00
Stora Enso France SAS	France	100.00	100.00
Stora Enso Germany GmbH	Germany	100.00	100.00
Stora Enso Holding France SAS	France	100.00	100.00
Stora Enso Holdings UK Ltd	UK	100.00	100.00
Stora Enso Ingerois Oy	Finland	100.00	100.00
Stora Enso Inpac Corrugated Packaging (Hebei) Company Limited	China	100.00	100.00
Stora Enso Inpac Hebei Protective Packaging Co., Ltd.	China	100.00	100.00
Stora Enso Inpac Packaging Co. Ltd	China	100.00	100.00
Stora Enso International Oy	Finland	100.00	100.00
Stora Enso Italia Srl	Italy	100.00	100.00
Stora Enso Japan K.K.	Japan	100.00	100.00
Stora Enso Kabel GmbH	Germany	99.98	99.97
Stora Enso Langerbrugge NV	Belgium	100.00	100.00
Stora Enso Lao Co. Ltd	Laos	100.00	100.00
Stora Enso Laos Plantation AB	Sweden	100.00	100.00
Stora Enso LLC	Ukraine	100.00	100.00
Stora Enso Maxau GmbH	Germany	100.00	100.00
Stora Enso Mexico S.A.	Mexico	100.00	100.00
Stora Enso Middle East DMCC	United Arab Emirates	100.00	100.00
Stora Enso Narew Sp.z.o.o.	Poland	100.00	100.00
Stora Enso North American Sales, Inc.	USA	100.00	100.00
Stora Enso Oulu Holding Oy	Finland	100.00	0.00
Stora Enso Oulu Oy	Finland	100.00	100.00
Stora Enso Packagent Oy	Finland	0.00	100.00
Stora Enso Packaging AB	Sweden	100.00	100.00



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Subsidiaries	Country	Group ownership, %	
		2020	2019
Stora Enso Packaging AS	Estonia	100.00	100.00
Stora Enso Packaging Oy	Finland	100.00	100.00
Stora Enso Packaging SIA	Latvia	100.00	100.00
Stora Enso Packaging UAB	Lithuania	100.00	100.00
Stora Enso Paper AB	Sweden	100.00	100.00
Stora Enso Paper France SAS	France	100.00	100.00
Stora Enso Paper GmbH	Germany	100.00	100.00
Stora Enso Paper Oy	Finland	100.00	100.00
Stora Enso Paper UK Ltd	UK	100.00	100.00
Stora Enso Pension Trust Ltd.	UK	100.00	100.00
Stora Enso Plantor AB	Sweden	100.00	100.00
Stora Enso Poland S.A.	Poland	100.00	100.00
Stora Enso Polska Sp.z.o.o.	Poland	100.00	100.00
Stora Enso Portugal Lda	Portugal	100.00	100.00
Stora Enso Praha s.r.o.	Czech Republic	100.00	100.00
Stora Enso Publication Papers Oy Ltd	Finland	100.00	100.00
Stora Enso Pulp AB	Sweden	100.00	100.00
Stora Enso Pulp and Paper Asia AB	Sweden	94.21	94.21
Stora Enso Sachsen GmbH	Germany	100.00	100.00
Stora Enso Skog AB	Sweden	100.00	100.00
Stora Enso Skog AS	Norway	100.00	100.00
Stora Enso Skog och Mark AB	Sweden	100.00	100.00
Stora Enso South East Asia Pte Ltd	Singapore	100.00	100.00
Stora Enso Timber AB	Sweden	100.00	100.00
Stora Enso Timber Deutschland GmbH	Germany	0.00	100.00
Stora Enso Timber DIY Products B.V.	Netherlands	100.00	100.00
Stora Enso Treasury Stockholm AB	Sweden	100.00	100.00
Stora Enso UK Limited	UK	100.00	100.00
Stora Enso US Inc.	USA	100.00	0.00
Stora Enso Veitsiluoto Oy	Finland	100.00	100.00
Stora Enso Verwaltungs GmbH	Germany	100.00	100.00
Stora Enso Wood Products d.o.o. Koper	Slovenia	100.00	100.00
Stora Enso Wood Products GmbH	Austria	100.00	100.00
Stora Enso Wood Products Japan K.K.	Japan	100.00	100.00
Stora Enso Wood Products Oy Ltd	Finland	100.00	100.00
Stora Enso Wood Products Planá s.r.o.	Czech Republic	100.00	100.00
Stora Enso Wood Products Sp.z.o.o.	Poland	100.00	100.00
Stora Enso Wood Products Zdirec s.r.o.	Czech Republic	100.00	100.00
Stora Enso WP Bad St. Leonhard GmbH	Austria	100.00	100.00
Stora Enso WP HV s.r.o.	Czech Republic	100.00	100.00
Stora Kopparbergs Bergslags AB	Sweden	100.00	100.00
Sydved AB	Sweden	66.67	66.67
UAB Stora Enso Lietuva	Lithuania	100.00	100.00
Virdia B2X, LLC	USA	100.00	100.00
Virdia LLC	USA	100.00	100.00
Virdia Ltd	Israel	100.00	100.00
VLAR Papier NV	Belgium	100.00	100.00

Associated companies	Country	Group ownership, %	
		2020	2019
Arauco Florestal Arapoti S.A.	Brazil	20.00	20.00
Bergvik Skog AB	Sweden	49.79	49.79
Encore Ympäristöpalvelut Oy	Finland	30.41	30.41
Honkalahden Teollisuuslaituri Oy	Finland	50.00	50.00
Kemi Shipping Oy	Finland	50.00	50.00
Kemira Cell Sp.z.o.o.	Poland	45.00	45.00
Metsäteho Oy	Finland	23.95	23.95
Oy Keskuslaboratorio - Centrallaboratorium Ab	Finland	32.24	32.24
Perkaus Oy	Finland	33.33	33.33
Pressretur AB	Sweden	33.33	33.33
Puhoksen Satama Oy	Finland	50.00	50.00
SELF Logistika SIA	Latvia	50.00	50.00
Steveco Oy	Finland	34.39	34.39
Suomen Keräyspaperi Tuottajayhteisö Oy	Finland	40.09	40.09
SweTree Technologies AB	Sweden	23.83	29.93
Tornator Oyj	Finland	41.00	41.00
Trätåg AB	Sweden	50.00	50.00
TreeToTextile AB	Sweden	25.75	25.00
ZMP GMBH	Austria	30.00	30.00
Österbergs Förpackningsmaskiner AB	Sweden	50.00	50.00

Other companies	Country	Group ownership, %	
		2020	2019
AMEXCI AB	Sweden	9.10	9.10
Arevo AB	Sweden	7.89	7.89
Clic Innovation Oy	Finland	9.87	9.87
CombiEnt AB	Sweden	5.40	5.40
East Office of Finnish Industries Oy	Finland	4.00	4.00
Packages Limited	Pakistan	6.40	6.40
Pohjolan Voima Oy	Finland	15.61	15.61
Radioskog AB	Sweden	10.00	10.00
RK Returkartong AB	Sweden	8.40	8.40
SSG Standard Solutions Group AB	Sweden	14.29	14.29
Sölvesborgs Stuveri & Hamn AB	Sweden	7.36	7.36
Union Developement Récup. Pap.	France	10.70	10.70

Joint operations	Country	Group ownership, %	
		2020	2019
Celulosa y Energía Punta Pereira S.A.	Uruguay	50.00	50.00
El Esparragal Asociación Agraria de Responsabilidad Limitada	Uruguay	50.00	50.00
Eufores S.A.	Uruguay	50.00	50.00
Forestal Cono Sur S.A.	Uruguay	50.00	50.00
Ongar S.A.	Uruguay	50.00	50.00
Stora Enso Uruguay S/A	Uruguay	50.00	50.00
Terminal Logística e Industrial M'Bopocúa S.A.	Uruguay	50.00	50.00
Veracel Celulose SA	Brazil	50.00	50.00
Zona Franca Punta Pereira S.A.	Uruguay	50.00	50.00

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Note 31 Related party transactions

Balances and transactions between the Group and its subsidiaries and joint operations, which are classified as related parties, have been eliminated on consolidation and are not disclosed in this note.

The Group has classified Solidium Oy as a related party. This is entirely owned by the State of Finland, and owned 10.7% of Stora Enso shares and 27.3% of all votes on 31 December 2020. The group has applied an exemption, as stated in IAS 24 paragraph 25, not to disclose transactions and outstanding balances with government-related entities.

The Group has classified FAM AB as a related party. FAM AB owned 10.2% of Stora Enso shares and 27.3% of all votes on 31 December 2020.

The key management personnel of the Group are the members of the Group Leadership Team and the Board of Directors. The compensation of key management personnel is presented in [Note 7](#) Board and executive remuneration.

In the ordinary course of business, the Group engages in transactions on commercial terms with equity accounted investments and other related parties that are not any more favourable than those that would be available to other third parties – with the exception of Veracel. Stora Enso intends to continue with transactions on a similar basis with its equity accounted investments, further details of which are shown in [Note 13](#) Equity accounted investments.

Group companies, including subsidiary companies and joint operations, are listed in [Note 30](#) Group companies.

Paper for recycling

The Group owns non-controlling interests in several paper recyclers, from which paper for recycling is purchased at market prices.

Forest assets and wood procurement

The Group has a 41.0% interest in Tornator with the remaining 59.0% being held mainly by Finnish institutional investors. Stora Enso has long-term purchase contracts with the Tornator Group for approximately 2 million cubic metres of wood annually at market prices, and in 2020 purchases of 2 (2) million cubic metres came to EUR 73 (67) million.

The Group procures wood at market prices from Kopparfors Fastigheter AB, a fully owned subsidiary of Kopparfors Skogar AB, which is completely owned by FAM AB. In 2020 the purchases from the related party amounted to EUR 21 (6) million and the sales of services by Stora Enso to the said related party amounted to EUR 0 (4) million. At the end of 2020 the Group had EUR 3 (1) million of open payables to and EUR 0 (1) million of open receivables from the related party.

Stevedoring

The Group owns 34.4% of shares in Steveco Oy, a Finnish company engaged in loading and unloading vessels. The other shareholders in Steveco are UPM-Kymmene, Finnlines and Ahlström Capital. The stevedoring services are provided by Steveco at market prices and in 2020 amounted to EUR 23 (25) million.

Note 32 Earnings per share

Accounting principles

Basic earnings per share, attributable to the owners of the parent company, are calculated by dividing the net profit attributable to shareholders by the weighted average number of ordinary shares in issue during the year, excluding ordinary shares purchased by the group and held as treasury shares. Diluted earnings per share are calculated by adjusting the weighted average number of ordinary shares plus the diluted effect of all potential dilutive ordinary shares, such as shares from share-based payments.

Earnings per share

	Year Ended 31 December	
	2020	2019
Net profit for the period attributable to the owners of the parent, EUR million	626	880
Total comprehensive income attributable to the owners of the parent, EUR million	1 625	1 113
Weighted average number of A and R shares	788 619 987	788 619 987
Weighted average number of share awards	561 769	912 677
Weighted diluted number of shares	789 181 756	789 532 664
Basic Earnings per Share, EUR	0.79	1.12
Diluted Earnings per Share, EUR	0.79	1.12
Total Recognised Income and Expense per Share, EUR	2.06	1.41



Parent Company Stora Enso Oyj financial statements

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Parent company income statement

EUR million	Note	Year ended 31 December	
		2020	2019
Sales	2	2 190	2 641
Changes in inventories of finished goods and work in progress + / -		1	-15
Production for own use		1	1
Other operating income	3	187	191
Materials and services	4	-1 587	-1 899
Personnel expenses	5	-217	-229
Depreciation and impairment	6	-127	-118
Other operating expenses	7	-442	-478
		2 185	2 546
Operating profit		5	95
Financial income and expenses	9	356	189
Profit before Appropriations and Taxes		360	284
Appropriations	10	146	-53
Income tax expense	11	-1	0
Profit for the period		506	230

Parent company statement of financial position

EUR million	Note	As at 31 December	
		2020	2019
Assets			
Non-current assets			
Intangible assets	13	60	79
Tangible assets	13	876	883
Investments	14	8 275	7 934
Non-current assets total		9 211	8 897
Current assets			
Inventories	15	310	295
Short-term receivables	16	668	935
Financial securities	17	1 275	276
Cash in hand and at bank		678	506
Total current assets		2 930	2 012
Total assets		12 141	10 909
Equity and liabilities			
Equity	18		
Share capital		1 342	1 342
Share premium		3 639	3 639
Fair value reserve		-6	-10
Invested non-restricted equity fund		633	633
Retained earnings		449	456
Profit for the period		506	230
Total equity		6 563	6 291
Accumulated appropriations	19	167	254
Obligatory provisions	20	23	28
Liabilities			
Non-current liabilities	22	2 915	2 195
Current liabilities	23	2 473	2 141
Total liabilities		5 387	4 336
Total equity and liabilities		12 141	10 909

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Parent company cash flow statement

EUR million	Year ended 31 December	
	2020	2019
Cash provided by operating activities		
Profit for the period	506	230
Adjustments and reversal of non-cash items:		
Direct taxes	1	0
Appropriations	-146	53
Depreciation according to plan and impairment	127	118
Unrealised foreign exchange gains and losses	-38	57
Other non-cash items	-2	0
Financial income and expenses	-356	-189
Change in working capital:		
Increase(-)/decrease(+)		
in current non-interest-bearing receivables	18	96
Increase(-)/decrease(+) in inventories	-14	31
Increase(+)/decrease(-)		
in current non-interest-bearing liabilities	14	-94
Cash flow from operating activities before financial items and taxes	110	303
Interest received from operating activities	41	30
Interest paid from operating activities	-66	-73
Dividends received from operating activities	370	267
Other financial items, net	13	8
Direct taxes paid	-2	-2
Cash provided by operating activities	466	533
Net cash provided by investing activities		
Investments in tangible and intangible assets	-102	-155
Capital gains from sale of tangible and intangible assets	1	3
Investments in subsidiary shares and other capital contributions	-262	-2
Proceeds from disposal of subsidiary shares and other repayment of capital	16	7
Proceeds from disposal of other investments	1	2
Payments of non-current loan receivables	-500	-843
Proceeds from non-current loan receivables	803	371
Net cash provided by investing activities	-43	-617
Cash flow from financing activities		
Proceeds from (issue of) long-term liabilities	1 040	801
Proceeds from (payment of) long-term liabilities	-340	-101
Proceeds from (issue of) short-term liabilities	892	733
Proceeds from (payment of) short-term liabilities	-640	-1 042
Dividends paid	-223	-394
Group contributions received	1	0
Cash flow from financing activities	729	-3
Net change in cash and cash equivalents	1 153	-87
Translation differences	19	0
Cash and cash equivalents at start of year	782	868
Cash and cash equivalents at year end	1 953	782
Cash and cash equivalents at year end includes:		
Financial securities	1 275	276
Cash in hand and at bank	678	506
Cash and cash equivalents total	1 953	782

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Notes to the parent company financial statements

Note 1 Accounting principles

The financial statements of Stora Enso Oyj have been prepared in accordance with the Finnish Accounting Act and other current rules and regulations concerning financial statements in Finland.

Derivative contracts

Stora Enso is exposed to several financial market risks that the Group is responsible for managing under policies approved by the Board of Directors. The objective is to have cost-effective funding in Group companies and to manage financial risks using financial instruments in order to decrease earnings volatility. The main exposures for the Group are interest rate risk, currency risk, funding risk and commodity price risk, especially for fibre and energy. The parent company manages these risks centrally in the Group. The Group's risk management principles are presented in more detail in [Note 24](#) Financial Risk Management to the consolidated financial statements.

Derivative contracts are measured at fair value on the balance sheet. Derivatives with external counterparties that are subject to hedge accounting are recognised as financial assets and liabilities at fair value through the income statement in the same manner as the parent company's derivatives with other Group companies as counterparties. The parent company's derivative contracts that are used to hedge the parent company's own cash flow are measured at fair value, and the change in fair value (effective part) is recognised, in line with hedge accounting principles, in the fair value reserve in equity on the balance sheet, while the ineffective part is recognised in the parent company's income statement. The fair value of derivatives not included in hedge accounting is entered immediately in the income statement.

Interest income and expenses related to derivatives that are used to manage the interest rate risk are allocated over the contract period and are used to adjust interest expenses related to hedged loans. Option premiums are recognised as advance payments until the options mature.

With regard to derivatives, more information about the measurement principles, fair values and changes in fair value is provided in [Note 25](#).

Pensions

Statutory pension security is arranged through employment pension insurance companies outside the Group. Some employees have additional pension security through life insurance companies outside the Group. Pension contributions are allocated in accordance with performance-based salaries and wages for the financial period.

Intangible and tangible assets and depreciation

The balance sheet value of intangible and tangible assets is their direct acquisition cost less depreciation according to plan and any impairment. Depreciation according to plan is recognised for intangible and tangible assets, based on their expected useful lives.

Depreciation is based on the following useful lives:

Buildings and structures	10–50 years
Production machinery and equipment	10–20 years
Light machinery and equipment	3–5 years
Intellectual property rights	3–20 years

No depreciation is recognised for land and water areas.

Inventories

Inventories are measured at acquisition cost or at net realisable value if lower. Acquisition cost is determined using the FIFO method or the weighted average cost method. The cost of finished goods and work in progress comprises raw materials, direct labour, depreciation and other direct costs, as well as the related production overhead. Net realisable value is the estimated selling price less the costs of completion and sale.

Leasing

Leasing payments are recognised in other operating expenses. The remaining leasing payments under leasing agreements are presented in [Note 24](#) Commitments and Contingencies.

Expenditure on research and development

Expenditure on research and development is recognised as an expense for the financial period.

Income taxes

The tax expense on the income statement includes income taxes based on the taxable profit for the financial period and tax adjustments for previous periods. The parent company does not recognise deferred tax assets and liabilities, excluding derivatives, in its financial statements. Deferred tax assets and liabilities that can be recognised on the balance sheet are presented in [Note 21](#).

Obligatory provisions

Future costs and losses that no longer generate corresponding income, to which the company is committed or by which the company is obligated, are recognised in the income statement according to their nature and in obligatory provisions on the balance sheet.

Emission rights

During 2020, the company was issued 0.5 million tonnes of free emission allowances in accordance with the EU Emissions Trading Directive. Emission allowances are recognised through a net cash cost basis, meaning that the difference between the actual emissions and the emission allowances received is recognised through profit or loss if the actual emissions are larger than the emission allowances received. During the financial period, the emissions emitted were 0.4 million tonnes. The emission rights purchased during the financial period are recognised in other operating expenses, and the emission rights sold during the financial period are recognised in other operating income.

At the end of the financial period, the market value of the emission rights was EUR 32.54 per tonne.

Comparability of the information for the financial period

On 1 January 2020, Stora Enso merged its container board business into the Consumer Board division. As a result of the merger, the name of the division changed into Packaging Materials. Stora Enso has also established a new Forest division. The changes took effect on 1 January 2020. Comparatives have been restated in [Note 2](#).

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Note 2 Net sales by division and market area

EUR million	Year ended 31 December	
	2020	2019
By division		
Packaging Materials	1 319	1 476
Packaging Solutions	4	1
Biomaterials	140	231
Forest	667	846
Other	60	87
Total	2 190	2 641
Distribution by region		
Finland	978	1 258
Other Europe	814	925
North and South America	119	121
Asia and Oceania	209	263
Africa	25	29
Others	43	45
Total	2 190	2 641

Note 3 Other operating income

EUR million	Year ended 31 December	
	2020	2019
Rent and equivalents	4	4
Gains on sale of fixed assets	1	2
Insurance compensation	0	2
Production and maintenance services	2	4
Subsidies, grants and equivalents	1	2
Administration services	145	141
Proceeds from sales of emission rights	16	17
Other operating income	18	20
Total	187	191

Note 4 Materials and services

EUR million	Year ended 31 December	
	2020	2019
Materials and supplies		
Purchases during the period	1 113	1 376
Change in inventories +/-	8	15
External services	466	508
Total Materials and Services	1 587	1 899

Note 5 Personnel expenses and average number of employees

EUR million	Year ended 31 December	
	2020	2019
Salaries and fees	184	189
Statutory employer costs		
Pensions	27	33
Other personnel costs	6	6
Total	217	229

Remuneration for the CEO and the members of the Board of Directors

Remuneration for the CEO and the members of the Board of Directors is presented in [Note 7](#) to the Consolidated financial statements.

Pension liabilities for the CEO

Pension liabilities for the CEO are presented in [Note 7](#) to the Consolidated financial statements.

Receivables from management

There were no loan receivables from the company's management.

Average number of employees	2020	2019
Number of employees during the financial period	2 827	3 021

Note 6 Depreciation and impairment

EUR million	Year ended 31 December	
	2020	2019
Depreciation according to plan	118	115
Impairment of fixed assets	9	3
Total	127	118

Depreciation and amortisation on each item in the statement of financial position is included under intangible and tangible assets.

Note 7 Other operating expenses

EUR million	Year ended 31 December	
	2020	2019
Product freight	135	149
Sales commissions	34	41
Rental costs	15	13
Administration and office services	202	209
Insurance premiums	8	7
Other personnel expenses	10	20
Public and other relations	3	3
Emission rights expenses	16	18
Other operating expenses	12	15
Merger loss	5	
Total	442	478

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Note 8 Auditors' fees

EUR million	Year ended 31 December	
	2020	2019
Audit fees	1	1
Total	1	1

Note 9 Financial income and expenses

EUR million	Year ended 31 December	
	2020	2019
Dividend income		
From Group companies	358	253
From equity accounted investments	12	14
Total	370	267
Interest income from non-current investments		
From Group companies	37	35
Total	37	35
Other interest and financial income		
From Group companies	6	1
From others	12	13
Total	18	15
Total financial income	426	317
Interest and other financial expenses		
To Group companies	0	-1
Other financial expenses	-71	-111
Total	-71	-112
Impairment on investments		
Impairment on investments in non-current assets	1	-17
Total financial expenses	-70	-129
Total financial income and expenses	356	189
The item "Financial Income and Expenses" includes exchange rate gains/losses (net)	24	-27

Note 10 Appropriations

EUR million	Year ended 31 December	
	2020	2019
Difference between depreciation according to plan and depreciation recognised in taxation	87	-54
Group contributions received	59	1
Total appropriations	146	-53

Note 11 Income tax expense

EUR million	Year ended 31 December	
	2020	2019
Income taxes from primary operations for the period	-1	0
Total income tax	-1	0

Note 12 Environmental expenses

EUR million	Year ended 31 December	
	2020	2019
Materials and services	33	35
Personnel expenses	2	2
Depreciation and impairment	11	10
Total	46	48
Air quality protection	11	12
Wastewater treatment	20	22
Waste management	9	10
Soil and groundwater protection	1	0
Other environmental protection measures	4	3
Total	46	48

Note 13 Intangible and tangible assets

Intangible assets

EUR million	Intellectual property rights	Other non-current expenditure	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	176	11	18	206
Increases	1	0	5	6
Decreases	-18	-2	0	-19
Reclassification	14	2	-16	0
Acquisition cost 31 Dec	174	12	7	193
Accumulated depreciation and impairment 1 Jan	-118	-9	0	-127
Accumulated depreciation on decreases and reclassifications	18	2	0	19
Depreciation for the period	-15	-2	0	-16
Impairments	-9	0	0	-9
Accumulated depreciation 31 Dec	-125	-8	0	-133
Book value on 31 December 2020	49	3	7	60
Book value on 31 December 2019	58	3	18	79

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Tangible assets

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	18	524	2 455	177	49	3 223
Increases	0	8	37	1	49	95
Decreases	0	-10	-41	-15	0	-66
Reclassification	0	9	25	1	-34	0
Acquisition cost 31 Dec	18	530	2 476	163	63	3 251
Accumulated depreciation and impairment 1 Jan	0	-368	-1 811	-162	0	-2 341
Accumulated depreciation on decreases and reclassifications	0	10	41	15	0	66
Depreciation for the period	0	-13	-86	-3	0	-102
Impairment for the period	0	0	0	0	0	0
Accumulated depreciation 31 Dec	0	-372	-1 856	-150	0	-2 377
Increase in value 1 Jan	2	0	0	0	0	2
Increase in value 31 Dec	2	0	0	0	0	2
Book value on 31 December 2020	20	159	620	13	63	876
Book value on 31 December 2019	20	156	644	15	49	883

Production plant and equipment

Book value on 31 December 2020	601
Book value on 31 December 2019	623

Tangible assets includes capitalized interest costs EUR 2 million (EUR 2 million in 2019).

Advance payments and acquisitions in progress

EUR million	Intangible assets	Buildings and structures	Plant and equipment	Other tangible assets	Total
Acquisition cost 1 Jan	18	0	48	1	67
Increases	5	0	49	0	54
Reclassification	-16	0	-33	-1	-51
Acquisition cost 31 Dec	7	0	63	0	71

Tangible assets

Capitalised environmental expenditure

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	4	21	57	6	0	87
Increases	0	7	2	0	3	13
Depreciations for the period	0	-2	-8	-1	0	-11
Book value on 31 December 2020	4	26	51	5	3	89
Air quality protection	1	10	36	0	3	49
Wastewater treatment	3	2	13	1	1	20
Waste management	0	1	1	2	0	4
Soil and groundwater protection	0	14	0	1	0	15
Noise and vibration prevention	0	0	0	1	0	1
	4	26	51	5	3	89

EUR million	Land and water areas	Buildings and structures	Plant and equipment	Other tangible assets	Advance payments and acquisitions in progress	Total
Acquisition cost 1 Jan	4	14	58	6	0	83
Increases	0	9	6	1	0	15
Depreciations for the period	0	-1	-7	-2	0	-10
Book value on 31 December 2019	4	21	57	6	0	87
Air quality protection	0	9	40	1	0	50
Wastewater treatment	4	2	15	1	0	22
Waste management	0	2	1	3	0	5
Soil and groundwater protection	0	8	0	1	0	8
Noise and vibration prevention	0	0	0	1	0	1
	4	21	57	6	0	87

In 2020 and 2019, no environmentally based fines, charges or compensation were paid, and no subsidies or grants were received for environmental protection.

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Note 14 Non-current investments in shares and loan receivables

EUR million	Shares in Group companies	Loan receivables from Group companies	Shares in associated companies	Loan receivables from associated companies	Other shares	Other receivables	Total investments
Acquisition cost 1 Jan	6 231	1 455	37	2	180	68	7 973
Increases	272	891	0	0	0	51	1 215
Decreases	-31	-826	0	0	0	-17	-874
Acquisition cost 31 Dec	6 473	1 520	37	2	180	103	8 314
Impairments 1 Jan	-38	0	0	0	-1	0	-39
Impairments 31 Dec	-38	0	0	0	-1	0	-39
Book value on 31 December 2020	6 435	1 520	37	2	178	103	8 275
Book value on 31 December 2019	6 193	1 455	37	2	178	68	7 934

Note 15 Inventories

EUR million	As at 31 December	
	2020	2019
Materials and supplies	145	154
Work in progress	6	7
Finished goods	123	121
Other inventories	35	13
Total	310	295

Note 16 Short-term receivables

EUR million	As at 31 December	
	2020	2019
Short-term loan receivables		
Receivables from Group companies		
Loan receivables	240	583
Commodity derivative receivables	4	5
Interest receivables	20	28
Total	263	615
Receivables from others		
Loan receivables	0	3
Commodity derivative receivables	6	1
Other receivables	52	15
Interest receivables	6	4
Total	64	22
Total current interest-bearing receivables	327	637
Current non-interest-bearing receivables		
Receivables from Group companies		
Trade receivables	100	103
Other receivables	60	1
Commodity derivative receivables	2	1
Total	162	104
Receivables from others		
Trade receivables	119	142
Deferred tax assets	3	2
Other receivables	24	21
Accrued income	32	28
Total	178	194
<p>Stora Enso may enter into factoring agreements to sell trade receivables in order to accelerate cash conversion. Nominally, such agreements led to the nominal derecognition of EUR 32.4 million (EUR 51.4 million in 2019) by the end of the financial period. The continuing involvement of Stora Enso in the sold receivables was estimated as being insignificant due to the non-recourse nature of the factoring arrangements involved.</p>		
EUR million	As at 31 December	
	2020	2019
Total current non-interest-bearing receivables	341	298
Total current receivables	668	935
Significant accruals		
Tax-equivalent receivables	14	15
Advances paid	7	5
Other accruals	11	9
Total	33	28

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Note 17 Financial securities

EUR million	As at 31 December	
	2020	2019
From Group companies	442	86
From others	833	190
Total	1 275	276

Note 18 Shareholders' equity

EUR million	As at 31 December	
	2020	2019
Restricted shareholders' equity		
Share capital 1 Jan	1 342	1 342
Share capital 31 Dec	1 342	1 342
Share premium fund 1 Jan	3 639	3 639
Share premium fund 31 Dec	3 639	3 639
Fair value reserve 1 Jan	-10	-10
Increase (-) / Decrease (+)	4	0
Fair value reserve 31 Dec	-6	-10
Total restricted equity	4 975	4 971
Change in share capital and number of shares are presented in Note 18 to the Consolidated financial statements.		
Non-restricted shareholders' equity		
Invested unrestricted equity reserve 1 Jan	633	633
Invested unrestricted equity reserve 31 Dec	633	633
Retained earnings 1 Jan	686	850
Dividend distribution	-237	-394
Retained earnings 31 Dec	449	456
Profit for the period	506	230
Total non-restricted equity	1 588	1 319
Total shareholders' equity	6 563	6 291
Calculation of distributable equity 31 Dec		
Fair value reserve 31 Dec	-6	-10
Invested unrestricted equity reserve 31 Dec	633	633
Retained earnings 31 Dec	449	456
Profit for the period	506	230
Total	1 582	1 310

Note 19 Accumulated appropriations

EUR million	As at 31 December	
	2020	2019
Depreciation difference		
Intellectual property rights	2	2
Other non-current expenditure	-1	-1
Buildings and structures	26	25
Plant and equipment	141	227
Other tangible assets	0	1
Total	167	254

Note 20 Obligatory provisions

EUR million	As at 31 December	
	2020	2019
Restructuring provisions	3	3
Environmental provisions	14	21
Other provisions	4	4
Total	22	28

Note 21 Deferred tax liabilities and receivables

EUR million	As at 31 December	
	2020	2019
Deferred tax liability due to depreciation difference	-18	-35
Deferred tax receivable due to derivatives	3	2
Deferred tax receivable due to loss	32	61
Deferred tax receivable due to provisions	4	5
Deferred tax receivables and liabilities due to other temporary differences	-9	-9
Total deferred tax receivable	12	24

Deferred tax liabilities and receivables excluding derivatives have not been recognised on the balance sheet.

Note 22 Non-current liabilities

EUR million	As at 31 December	
	2020	2019
Non-current liabilities		
Bonds	2 497	1 983
Loans from credit institutions	416	212
Other non-current liabilities to group companies	2	0
Total	2 915	2 195
Liabilities with maturities later than five years		
Bonds	1 462	1 109
Total	1 462	1 109

Specifications of Bond loans are presented in Note 26 Interest-bearing liabilities in Consolidated financial statements.

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Note 23 Current liabilities

EUR million	As at 31 December	
	2020	2019
Current interest-bearing liabilities		
Liabilities to Group companies		
Other loans	1 491	1 329
Commodity derivative liabilities	6	1
Total	1 497	1 330
Liabilities to others		
Other loans	180	255
Commodity derivative liabilities	4	5
Interest due	28	22
Bonds	299	0
Loans from credit institutions	3	99
Total	514	381
Total current interest-bearing liabilities	2 011	1 712
Current non-interest-bearing liabilities		
Liabilities to Group companies		
Trade payables	71	89
Commodity derivative liabilities	1	1
Accrued liabilities and deferred income	1	1
Total	73	92
Liabilities to equity accounted investments		
Trade payables	40	37
Total	40	37
Liabilities to others		
Advances received	3	1
Trade payables	244	208
Other loans	30	14
Accrued liabilities and deferred income	72	77
Total	349	301
Total current non-interest-bearing liabilities	462	429
Total current liabilities	2 473	2 141
Substantial accrued liabilities and deferred income		
Payroll payments accrued	41	46
Annual discounts	17	17
Other accrued liabilities and deferred income	14	15
Total	73	79

Note 24 Commitments and contingencies

EUR million	As at 31 December	
	2020	2019
For Group debt		
Guarantees	1 096	1 291
For joint venture debt		
Guarantees	123	212
On behalf of Associated companies		
Guarantees	2	4
On behalf of others		
Other commitments	36	0
Other commitments, own		
Leasing commitments, in next 12 months	8	7
Leasing commitments, after next 12 months	7	10
Mortgages	0	2
Lease commitments	6	6
Other commitments	12	1
Total	1 289	1 533
Mortgages	0	2
Guarantees	1 221	1 507
Leasing commitments	15	17
Lease commitments	6	6
Other commitments	47	1
Total	1 289	1 533

Contingent liabilities

Stora Enso Oyj has implemented significant restructuring measures in recent years. These measures have included divestments of business operations and production units, as well as mill closures. These transactions include a risk of possible environmental or other obligations, the existence of which would be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. A provision has been recognised for obligations for which the related amount can be estimated reliably and the occurrence of which is considered likely.

Stora Enso Oyj is party to legal proceedings that arise in the ordinary course of business and primarily involve claims arising out of commercial law. The company management does not believe that such processes as a whole, before any insurance compensation, would have significant impacts on the company's financial position or profit from operations. Some of the most significant legal proceedings are described in [Note 29](#) to the consolidated financial statements.

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Note 25 Financial instruments

Valuation of derivatives

The fair value is defined as the amount at which a derivative instrument could be exchanged in an orderly transaction between market participants at the measurement date. The fair values of such instruments are determined on the following basis:

- Currency forward contract fair values are calculated using forward exchange rates on the reporting date.
- Currency option contract fair values are calculated using reporting date market rates together with common option pricing models.
- Commodity contract fair values are computed with reference to quoted market prices on futures exchanges or other reliable market sources.
- Interest rate swaps fair values are calculated using a discounted cash flow method.

Fair value hierarchy

Stora Enso uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities;
- Level 2: other techniques, for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly;
- Level 3: techniques which use inputs that have a significant effect on the recorded fair values that are not based on observable market data.

The parent company's derivatives are classified as Level 2 in the fair value hierarchy.

Nominal and fair values of derivative instruments

EUR million	As at 31 December 2020			
	Nominal values	Positive fair values	Negative fair values	Fair values, Net
Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies				
Currency forwards	1 861	40	-34	5
Currency options	1 200	15	-12	2
Commodity contracts	84	12	-12	0
Interest rate swaps	673	0	-17	-17
Non-hedge accounted derivatives				
Currency forwards	570	6	-3	4
Total	4 387	72	-78	-5
of which against subsidiaries	1 638	7	-53	-46
of which against external parties	2 749	65	-24	40

EUR million	As at 31 December 2019			
	Nominal values	Positive fair values	Negative fair values	Fair values, Net
Cash flow hedges entered on behalf of the parent company and its subsidiaries, for which hedge accounting is applied in target companies				
Currency forwards	1 401	13	-14	-1
Currency options	2 697	16	-17	-1
Commodity contracts	133	6	-6	0
Interest rate swaps	533	0	-12	-11
Non-hedge accounted derivatives				
Currency forwards	364	3	-1	2
Total	5 127	38	-49	-11
of which against subsidiaries	1 968	19	-15	4
of which against external parties	3 159	19	-34	-15

Fair value reserve

The net amount of the parent company's unrealised cash flow hedge losses in the fair value reserve was EUR 5.8 million, which was related to currency and interest rate derivatives. Currency and interest rate derivatives also include a gain of EUR 0.1 million related to the time value of options. These unrealised losses are recognised in the income statement upon the maturity of the hedging contracts. The longest hedging contract will mature in 2027. However, the majority of the contracts are expected to mature during 2021. The ineffective portions of hedges are recognised as adjustments to revenue or materials and services according to the hedged item. During 2020, there were no ineffective hedges recognised in the income statement. Derivatives used in currency cash flow hedges are mainly forward contracts and options. Swaps are mainly used in commodity hedges and interest rate cash flow hedges.

Hedge gains and losses in operating profit

EUR million	Year ended 31 December	
	2020	2019
Cash flow hedge accounted derivatives		
Currency hedges	-1	-13
Commodity hedges	-1	-1
Total	-3	-14
As adjustments to sales	-1	-13
As adjustments to materials and services	-1	-1
Items realised from the fair value reserve that are recognised in the income statement	-3	-14
Net losses from cash flow hedges	-3	-14
Non-hedge accounted derivatives		
Currency derivatives	3	0
Net gains on non-hedge accounted derivatives	3	0
Net hedge gains/losses in operating profit	1	-14

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Hedge gains and losses in financial items

EUR million	Year ended 31 December	
	2020	2019
Non-hedge accounted derivatives		
Currency derivatives	8	-14
Net gains/losses in financial items	8	-14

Sensitivity of currency derivatives to strengthening of EUR

EUR million	31 December 2020		
	SEK	USD	GBP
Currency change against EUR	-5.0%	-5.0%	-5.0%
Currency derivatives hedging cash flow next 12 months in EUR	0	171	11
Estimated effect on fair value reserve in EUR	0	7	0

Sensitivity of commodity derivatives to price risk

There were no outstanding commodity derivatives related to parent company's cash flows at the end of reporting period.

More detailed information about financial instruments are presented in [Note 24](#) Financial risk management, [Note 25](#) Fair values and [Note 27](#) Derivatives to the Consolidated financial statements.

Note 26 Related party transactions

EUR million	31 December	
	2020	2019
Related party transactions with associated companies and joint ventures:		
Purchase of materials and supplies during the year	9	10
Non-current loan receivables at year end	2	2
Trade payables at year end	40	37

The Group's principles for related party transactions are presented in [Note 31](#) to the Consolidated financial statements.



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Signatures for the financial statements

There have been no material changes in the Parent Company's financial position since 31 December 2020. The liquidity of the Parent Company remains good and the proposed dividend does not risk the solvency of the Company.

28 January 2021

Jorma Eloranta
Chair

Hans Stråberg
Vice Chair

Håkan Buskhe

Elisabeth Fleuriot

Hock Goh

Mikko Helander

Christiane Kuehne

Antti Mäkinen

Richard Nilsson

Annica Bresky
President and CEO

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Auditor's report

(Translation of the Finnish Original)

To the Annual General Meeting of Stora Enso Oyj

Report on the Audit of Financial Statements

Opinion

In our opinion

- the consolidated financial statements give a true and fair view of the group's financial position and financial performance and cash flows in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of the financial statements in Finland and comply with statutory requirements.

Our opinion is consistent with the additional report to the Audit Committee.

What we have audited

We have audited the financial statements of Stora Enso Oyj (business identity code 1039050-8) for the year ended 31 December 2020. The financial statements comprise:

- the consolidated balance sheet, income statement, statement of comprehensive income, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies
- the parent company's balance sheet, income statement, statement of cash flows and notes.

Basis for Opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

To the best of our knowledge and belief, the non-audit services that we have provided to the parent company and to the group companies are in accordance with the applicable law and regulations in Finland and we have not provided non-audit services that are prohibited under Article 5(1) of Regulation (EU) No 537/2014. The non-audit services that we have provided are disclosed in [note 5](#) to the Financial Statements.

Our Audit Approach

Overview



- We have applied an overall group materiality of EUR 52 million.
- We performed audit procedures at 28 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality.
- Valuation of forest assets
- Provisions and contingent liabilities

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

Overall group materiality	EUR 52 million
How we determined it	Based on operating profit and total assets
Rationale for the materiality benchmark applied	We chose operating profit and total assets as the benchmarks because, in our view, they are relevant benchmarks against which the performance of the group is commonly measured by users of the financial statements.

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How we tailored our group audit scope

We tailored the scope of our audit, taking into account the structure of the group, the accounting processes and controls, and the industry in which the group operates.

The Group operates in a significant number of legal entities or "reporting components" globally. We determined the nature, timing and extent of audit work that needed to be performed at reporting components by us, as the group engagement team, or component auditors operating under our instruction. Where the work was performed by component auditors, we issued specific instructions to those auditors which included our risk analysis, materiality and global audit approach. We performed audit procedures at 28 reporting components in 11 countries that are considered significant based on our overall risk assessment and materiality. We have considered that the remaining reporting components do not present a reasonable risk of material misstatement for consolidated financial statements and thus our procedures related to these reporting components have been limited to targeted audit procedures over significant balances and to analytical procedures performed at group level.

By performing the procedures above at reporting components, combined with additional procedures at the group level, we have obtained sufficient and appropriate evidence regarding the financial information of the group as a whole to provide a basis for our opinion on the consolidated financial statements.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

Key audit matter in the audit of the group	How our audit addressed the key audit matter
<p>Valuation of forest assets Refer to Note 1, Note 2 and Note 12 in the consolidated financial statements for the related disclosures</p> <p>Forest assets comprise of forest land and biological assets excluding leased forest land assets. As of December 31, 2020 the fair value of the Group's forest assets owned through subsidiaries, joint operations and associated companies was EUR 7 093 million, of which EUR 5 028 million was related to biological assets and EUR 2 065 million was related to forest land.</p> <p>Forests assets in Sweden are valued by using a market approach method based on forest market transactions and volume of standing trees in those areas where the Group's forests are located. Market prices between areas varies significantly and judgement is applied to define relevant areas for market transactions used in the valuation. In addition, market transaction data is adjusted to consider characteristics and nature of the Group's forest assets and to exclude certain non-forest assets and transactions considered as outliers compared to other transactions. Biological asset valuation is computed based on a discounted cash flow (DCF) method in accordance with IAS 41 Agriculture. For forest land the revaluation method is applied as defined in IAS 16 Property, plant and equipment. Forest land is revalued using a DCF method based on estimated future net cash flow streams related to trees to-be planted in the future as well as other income, such as hunting rights, wind power leases and soil material sales. Total value of biological assets and forest land agrees to the market transaction based value of forest assets as a discount rate implied by the market transactions is used in DCF method to value these assets.</p>	<p>The Group's decision to change the accounting principles and valuation method for Nordic forests assets at the end of 2020 has been evaluated against the requirements set by IFRS standards.</p> <p>We obtained an understanding of management's forest assets valuation process, evaluated the design and tested the operating effectiveness of internal controls related to directly and indirectly owned forest assets.</p> <p>Our audit procedures over valuation of directly owned forest asset included:</p> <ul style="list-style-type: none"> • Evaluation of the methodology adopted by management for the valuation; • Testing the mathematical accuracy of the model used for valuation; • Assessment of the discount rates applied in the valuation; • Assessment of the other key valuation assumptions; and • Validation of key inputs and data used in the valuation model including sales price assumptions, growth assumptions and cost assumptions. <p>In addition, specific to the market transaction based valuation in Sweden our audit procedures included:</p> <ul style="list-style-type: none"> • Assessment of the definition of relevant areas for market transactions used in the valuation; • Assessment of the adjustments made to the market transaction data; and • Validation of key inputs and data used in the valuation model including market transaction data and volume of standing trees.

Key audit matter in the audit of the group	How our audit addressed the key audit matter
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The value of biological assets outside Sweden is determined using discounted cash flows based on sustainable forest management plans taking into account the growth potential of one cycle. The one cycle varies depending on the geographic location and species. Determining the discounted cash flows require estimates of growth, harvest, sales price and costs.

The other Nordic forest land, previously accounted at cost, is revalued by using a DCF method based on its estimated future net cash flow streams related to trees to-be-planted in the future as well as other non-forest related income. The forest land for the plantations is continued to be accounted at cost.

Due to the level of judgment involved in the valuation of forest assets as well as the significance of forest assets to the Group's financial position, this is considered to be a key audit matter.

We involved valuation specialists in the audit work over valuation of directly owned forest assets.

Related to indirectly owned forest assets we have communicated with the auditors of the three largest associates and joint operations. As part of the communication, among other things, we have evaluated the key audit procedures performed related to valuation of forest assets.

Lastly, we assessed the appropriateness of disclosures related to forest assets.

Provisions and contingent liabilities

Refer to [Note 2](#), [Note 22](#) and [Note 29](#) in the consolidated financial statements for the related disclosures

As of 31 December 2020, the Group had environmental, restructuring and other provisions totaling EUR 149 million.

In addition, the Group has disclosed significant open legal cases and other contingent liabilities in Note 29. The assessment of the existence of the present legal or constructive obligation, the analysis of the probability of the outflow of future economic benefits, and the analysis of a reliable estimate, require management's judgement to ensure appropriate accounting or disclosures.

Due to the level of judgement relating to recognition, valuation and presentation of provisions and contingent liabilities, this is considered to be a key audit matter.

We obtained an understanding of management's process to identify new obligations and changes in existing obligations.

We analysed significant changes in material provisions from prior periods and obtained a detailed understanding of these changes and assumptions applied.

Our audit procedures related to material provisions recognized included:

- Assessment of the recognition criteria for the liability;
- Evaluation of the methodology adopted by management for the measurement of the liability;
- Testing of the mathematical accuracy of the measurement calculation;
- Assessment of the discount rates applied in the measurement; and
- Assessment of the other key measurement assumptions and inputs.

We obtained legal letters on the main outstanding legal cases.

We reviewed minutes of the board meetings including sub committees.

We assessed the appropriateness of the presentation of the most significant contingent liabilities in the consolidated financial statements.

We have no key audit matters to report with respect to our audit of the parent company financial statements.

There are no significant risks of material misstatement referred to in Article 10(2c) of Regulation (EU) No 537/2014 with respect to the consolidated financial statements or the parent company financial statements.

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Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or to cease operations, or there is no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Other Reporting Requirements

Appointment

We were first appointed as auditors by the annual general meeting on 28 March 2018.

Other Information

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises the report of the Board of Directors.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the report of the Board of Directors, our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion

- the information in the report of the Board of Directors is consistent with the information in the financial statements
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement of the report of the Board of Directors, we are required to report that fact. We have nothing to report in this regard.

Other Statements

We support the proposal that the financial statements are adopted. The proposal by the Board of Directors regarding the distribution of profits is in compliance with the Limited Liability Companies Act. We support that the Board of Directors and the Managing Director of the parent company should be discharged from liability for the financial period audited by us.

Helsinki 9 February 2021

PricewaterhouseCoopers Oy

Authorised Public Accountants

Samuli Perälä

Authorised Public Accountant (KHT)

Stora Enso in capital markets

Stora Enso ensures that all material information that has an impact on Stora Enso's share price is simultaneously available to the general public and financial community in order to ensure the right share price level in relation to the company's history, assets and future prospects. In its engagement with the capital markets, Stora Enso's Investor Relations aims to support the brand with accurate, consistent and credible financial communications.

Shares and shareholders

Shares and voting rights

The shares of Stora Enso Oyj (hereafter the "Company" or "Stora Enso") are divided into A and R shares, which entitle holders to the same dividend but different voting rights. Each A share and each ten R shares carry one vote at a shareholders' meeting. However, each shareholder has at least one vote.

On 31 December 2020, Stora Enso had 176 254 415 A shares and 612 365 572 R shares in issue, of which the Company held no A shares or R shares. The total number of Stora Enso shares in issue was 788 619 987 and the total number of votes was 237 490 972.

Share listings

Stora Enso shares are listed on the Nasdaq Helsinki and the Nasdaq Stockholm. Stora Enso shares are quoted in Helsinki in euros (EUR) and in Stockholm in Swedish crowns (SEK).

American Depositary Receipts (ADRs)

Stora Enso has a sponsored Level I American Depositary Receipts (ADR) facility. Stora Enso ADRs are traded over-the-counter (OTC) in the USA. The ratio between Stora Enso ADRs and R shares is 1:1, i.e. one ADR represents one Stora Enso R share. Citibank, N.A. acts as the depositary bank for the Stora Enso ADR programme. The trading symbol is SEOAY and the CUSIP number is 86210M106.

Share registers

The Company's shares are entered in the Book-Entry Securities System maintained by Euroclear Finland Oy, which also maintains the official share register of Stora Enso Oyj.

On 31 December 2020, 661 986 729 of the Company's shares were registered in Euroclear Finland, 111 151 042 in Euroclear Sweden AB and 15 482 216 of the Company's R shares were registered in ADR form in Citibank, N.A.

Distribution by book-entry system, 31 December 2020

Number of shares	Total	A shares	R shares
Euroclear Finland Oy	661 986 729	164 737 636	497 249 093
Euroclear Sweden AB ¹	111 151 042	11 516 779	99 634 263
Citi administered ADRs ¹	15 482 216	-	15 482 216
Total	788 619 987	176 254 415	612 365 572

¹ Shares registered in Euroclear Sweden and ADRs are both nominee registered in Euroclear Finland.

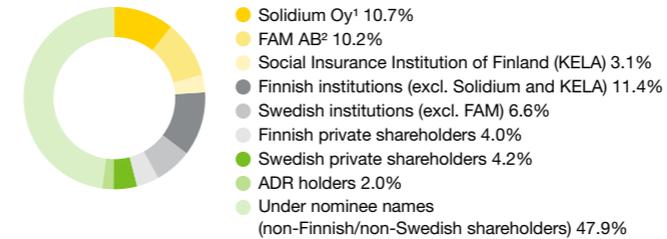
Ownership distribution, 31 December 2020

	% of shares	% of votes	% of shareholders
Solidium Oy ¹	10.7%	27.3%	0.0%
FAM AB ²	10.2%	27.3%	0.0%
Social Insurance Institution of Finland (KELA)	3.1%	10.1%	0.0%
Finnish institutions (excl. Solidium and KELA)	11.4%	8.3%	2.4%
Swedish institutions (excl. FAM)	6.6%	5.2%	1.7%
Finnish private shareholders	4.0%	2.4%	42.0%
Swedish private shareholders	4.2%	2.7%	52.2%
ADR holders	2.0%	0.7%	1.0%
Under nominee names (non-Finnish/non-Swedish shareholders)	47.9%	16.1%	0.7%

¹ Entirely owned by the Finnish state.

² As confirmed to Stora Enso.

Ownership distribution, % of shares held



¹ Entirely owned by Finnish state.

² As confirmed to Stora Enso.

Share capital

On 31 December 2020, the Company's fully paid-up share capital entered in the Finnish Trade Register was EUR 1 342 million. The current accountable par of each issued share is EUR 1.70.

Conversion

According to the Articles of Association, holders of Stora Enso A shares may convert these into R shares at any time. The conversion of shares is voluntary. The conversions of a total of 2 419 A shares into R shares were recorded in the Finnish Trade Register during the year 2020.

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Changes in share capital 2012–2020

	No. of A shares issued	No. of R shares issued	Total no. of shares	Share capital (EUR million)
Stora Enso Oyj, 1 Jan 2012	177 148 772	612 389 727	789 538 499	1 342
Conversion of A shares into R shares, Dec 2011–Nov 2012	-1 000	1 000	-	-
Stora Enso Oyj, 31 Dec 2012	177 147 772	612 390 727	789 538 499	1 342
Cancellation of shares owned by the Company, 15 May 2013	-	-918 512	788 619 987	-
Conversion of A shares into R shares, Dec 2012–Nov 2013	-51 568	51 568	-	-
Stora Enso Oyj, 31 Dec 2013	177 096 204	611 523 783	788 619 987	1 342
Conversion of A shares into R shares, Dec 2013–Nov 2014	-40 000	40 000	-	-
Stora Enso Oyj, 31 Dec 2014	177 056 204	611 563 783	788 619 987	1 342
Conversion of A shares into R shares, Dec 2014–Nov 2015	-524 114	524 114	-	-
Stora Enso Oyj, 31 Dec 2015	176 532 090	612 087 897	788 619 987	1 342
Conversion of A shares into R shares, Dec 2015–Nov 2016	-25 000	25 000	-	-
Stora Enso Oyj, 31 Dec 2016	176 507 090	612 112 897	788 619 987	1 342
Conversion of A shares into R shares, Dec 2016–Nov 2017	-114 770	114 770	-	-
Stora Enso Oyj, 31 Dec 2017	176 392 320	612 227 667	788 619 987	1 342
Conversion of A shares into R shares, Dec 2017–Nov 2018	-79 648	79 648	-	-
Stora Enso Oyj, 31 Dec 2018	176 312 672	612 307 315	788 619 987	1 342
Conversion of A shares into R shares, Dec 2018–Nov 2019	-55 838	55 838	-	-
Stora Enso Oyj, 31 Dec 2019	176 256 834	612 363 153	788 619 987	1 342
Conversion of A shares into R shares, Dec 2019–Nov 2020	-2 419	2 419	-	-
Stora Enso Oyj, 31 Dec 2020	176 254 415	612 365 572	788 619 987	1 342

For more historical data about the share capital, please visit storaenso.com/investors/shares

Stora Enso's activities in capital markets during 2020

Stora Enso's Investor Relations activities cover equity and fixed-income markets to ensure full and fair valuation of the Company, continual access to funding sources, and stable bond pricing. Investors and analysts are met physically and virtually on a regular basis in Europe and North America. In 2020, the Investor Relations (IR) team conducted several individual and group meetings with equity investors, whilst maintaining regular contact with equity research analysts at investment banks and brokerage firms. Due to Covid-19, all investor meetings were held virtually between March and December. All in all, the IR team met alone or with top management 625 (450) investors and arranged 285 (340) meetings including virtual, one-on-one, group meetings, conference calls and site visits. Despite the Covid-19 pandemic, Stora Enso was able to meet more investors and analysts compared to the previous year. There were also meetings with fixed-income analysts and investors. Senior management and the IR personnel also gave presentations at virtual equity and fixed-income investor conferences in Scandinavia, Continental Europe, the United Kingdom, and North America.

More than 400 investors and analysts joined Stora Enso's virtual Capital Markets Day (CMD) on 11 November 2020. At the CMD, Stora Enso published its updated strategy and financial targets to support the Group's focus on growth and value creation. The presentations of President and CEO Annica Bresky and CFO Seppo Parvi covered Stora Enso's three focus areas for growth (Packaging Materials and Packaging Solutions, Building Solutions, and Biomaterials innovations), market growth drivers, the recent forest fair valuation method change and a review of all divisions. Stora Enso organises Capital Markets Days regularly to provide investors and analysts with information about the Group strategy, performance and businesses.

Disclosure of financially material ESG topics for investors

Investors' interest in Stora Enso's environmental, social and governmental (ESG) performance has increased further during the past few years. Due to this development, Stora Enso started to report in 2020 against the Standards by the Sustainability Accounting Standards Board (SASB) which aims to improve sustainability reporting for investors. SASB is an independent non-profit organisation that develops its standards based on extensive feedback from companies, investors, and other market participants as part of a transparent, publicly-documented process. Reporting according to the industry specific standards aims to improve comparability between companies on financially material ESG topics.

Stora Enso's reporting has been prepared according to the SASB's Sustainability Accounting Standards for Forest Management and Pulp & Paper Products, located within SASB's Renewable Resources & Alternative energy section. Specific indicators in these two Standards relate to financially material topics in the industry, such as sustainable forest management and certification, GHG emissions, air quality, energy management, water management, and supply chain management.

In Stora Enso's [online SASB Content Index](#), the specific standard indicators are listed with references to the locations of these disclosures (supported by URL links) in Stora Enso's annual reporting. These

references are complemented in the index with additional information, such as explanations on reasons for omissions as necessary.

During 2020, Stora Enso also provided feedback to SASB in order to participate in the development of their standard setting for renewables industry. Stora Enso participated in SASB's Pulp & Paper industry consultation project, Human capital research project, and Plastic risks and opportunities in Pulp & Paper and Chemicals consultation. Stora Enso's Head of Investor Relations is a member of SASB's Standard Advisory Group (SAG). Stora Enso aims to continuously improve its' sustainability reporting to inform investors about the progress, ambitions and future direction of the company.

Guidance policy

In connection with Financial statement release for 2020, Stora Enso resumed its annual outlook even though the uncertainties due to the ongoing pandemic in the global economy are expected to remain in 2021.

Closed period

Stora Enso closed period starts when the reporting period ends or 30 days prior to the announcement of the results, whichever is earlier, and lasts until the results are announced. The dates are published in the financial calendar at storaenso.com/investors. During closed periods, Stora Enso PDMR's or persons entered into the Company's Closed Period List are not allowed to trade in Company securities. In addition, there will be no discussions regarding financial issues with the capital markets or the financial media during the closed period. This applies to meetings, telephone conversations or other means of communication.

Shareholdings of other Group-related bodies at 31 December 2020

E.J. Ljungberg's Education Foundation owned 1 780 540 A shares and 2 336 224 R shares, E.J. Ljungberg's Foundation owned 39 534 A shares and 101 579 R shares, Mr. and Mrs. Ljungberg's Testamentary Foundation owned 5 093 A shares and 13 085 R shares and Bergslaget's Healthcare Foundation owned 626 269 A shares and 1 609 483 R shares.

Shareholders

At the end of 2020 the Company had approximately 112 232 registered shareholders, including about 61 196 Swedish shareholders and about 1 078 ADR holders. Each nominee register is entered in the share register as one shareholder.

The free float of shares excluding shareholders with holdings of more than 5% of shares or votes is approximately 624 million shares, which is 79% of the total number of shares issued. The largest shareholder in the Company is Solidium Oy based in Finland.

Major shareholders as at 31 December 2020

By voting power	A shares	R shares	% of shares	% of votes
1 Solidium Oy ¹	62 655 036	21 792 540	10.7%	27.3%
2 FAM AB ²	63 123 386	17 000 000	10.2%	27.3%
3 Social Insurance Institution of Finland (KELA)	23 825 086	973 982	3.1%	10.1%
4 Ilmarinen Mutual Pension Insurance Company	4 312 762	16 593 924	2.7%	2.5%
5 Varma Mutual Pension Insurance Company	5 163 018	1 140 874	0.8%	2.2%
6 MP-Bolagen i Vetlanda AB	4 828 000	1 000 000	0.7%	2.1%
7 Elo Mutual Pension Insurance Company	2 000 000	8 111 225	1.3%	1.2%
8 Erik Johan Ljungberg's Education Foundation	1 780 540	2 336 224	0.5%	0.8%
9 SEB Investment Management	-	12 162 195	1.5%	0.5%
10 Bergslaget's Healthcare Foundation	626 269	1 609 483	0.3%	0.3%
11 The State Pension Fund	-	5 713 755	0.7%	0.2%
12 Unionen (Swedish trade union)	-	3 782 750	0.5%	0.2%
13 Lannebo Funds	-	3 690 000	0.5%	0.2%
14 The Society of Swedish Literature in Finland	-	3 000 000	0.4%	0.1%
15 OP-Suomi Investment Fund	-	2 914 494	0.4%	0.1%
Total	168 314 097	101 821 446	34.3%	75.2%
Nominee-registered shares ^{3,4}	74 882 644	480 357 046	70.4 %	51.8 %

¹ Entirely owned by the Finnish State. ² As confirmed to Stora Enso. ³ As some of the shareholdings on the list are nominee registered, the percentage figures do not add up to 100%. ⁴ According to Euroclear Finland. The list has been compiled by the Company on the basis of shareholder information obtained from Euroclear Finland, Euroclear Sweden and a database managed by Citibank, N.A (Cit). This information includes only directly registered holdings, thus certain holdings (which may be substantial) of shares held in nominee or brokerage accounts cannot be included. The list is therefore incomplete.

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Share price performance and volumes

Helsinki

The Stora Enso R (STERV) share price increased by 21% during 2020 (29% increase in 2019). Over the same period, the OMX Helsinki Index increased by 10% (13% increase in 2019) and the OMX Helsinki Basic Materials Index by 9% (29% increase in 2019).

Stockholm

The Stora Enso R (STE R) share price increased by 16% during 2020 (31% increase in 2019). Over the same period, the OMX Stockholm 30 Index increased by 6% (26% increase in 2019) and the OMX Stockholm Basic Materials Index increased by 23% (29% increase in 2019).

OTC

Stora Enso ADR (SEOAY) share price increased by 32% during 2020 (25% increase in 2019). Over the same period, the Standard & Poor's Global Timber and Forestry Index increased by 18% (16% increase in 2020).

Share prices and volumes 2020

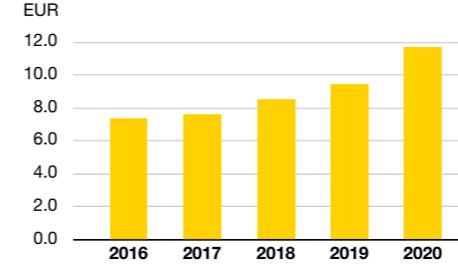
		Helsinki, EUR	Stockholm, SEK	OTC, USD
High	A share	16.20	161.40	
	R share	15.85	159.95	19.27
Low	A share	9.26	101.00	
	R share	7.25	80.70	7.92
Closing, 31 Dec 2019	A share	15.90	159.20	
	R share	15.65	157.3	19.14
Change from previous year	A share	17%	12%	
	R share	21%	16%	32%
Cumulative trading volume, no. of shares	A share	4 661 921	3 158 007	
	R share	605 233 285	187 148 487	9 456 802

The volume-weighted average price of R shares over the year was EUR 11.52 in Helsinki (EUR 11.05 in 2019), SEK 120.94 in Stockholm (SEK 116.91 in 2019) and USD 12.56 on the OTC in the USA (USD 12.36 in 2019). The percentage of R shares traded was 60.7% (57.9% in 2019) in alternative trading venues, 29.6% (31.1% in 2019) in Helsinki, 9.2% (10.5% in 2019) in Stockholm and 0.5% (0.5% in 2019) on the OTC in the USA. Total market capitalisation on the OMX Helsinki at year-end was EUR 12.4 billion (EUR 10.3 billion).

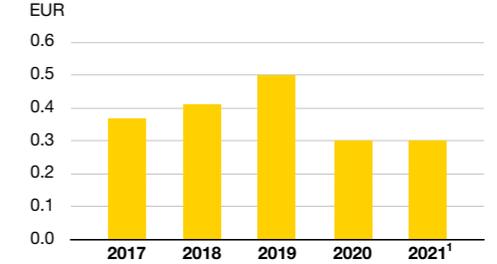
Alternative trading venues

Stora Enso shares can be also traded outside Nasdaq Helsinki and Nasdaq Stockholm, where the shares are listed. During 2020, the three largest alternative trading venues included Cboe APA SI, Cboe BXE OTC and Cboe APA OTC. The alternative trading venues' market share of monthly volume in Stora Enso shares varied between 53% and 70%. Of the alternative trading venues, Cboe APA SI had the biggest share of the volume with 22% on an annual basis (Cboe BXE had the biggest share of the volume in 2019 with 30%).

Equity per share

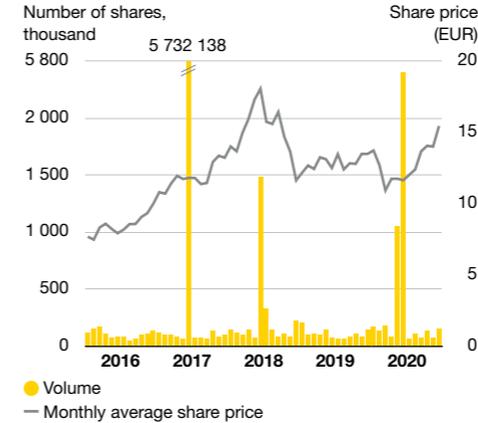


Dividend per share

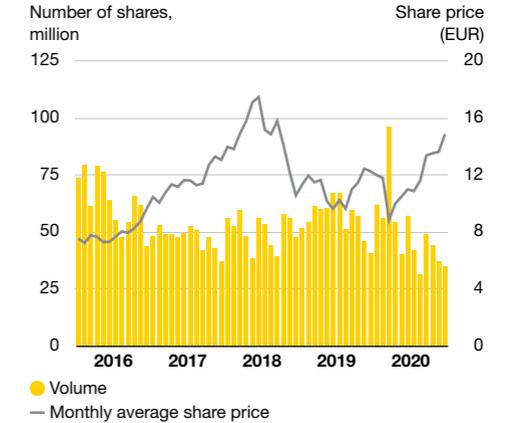


¹ Board of Directors' proposal to the AGM for distribution of dividend.

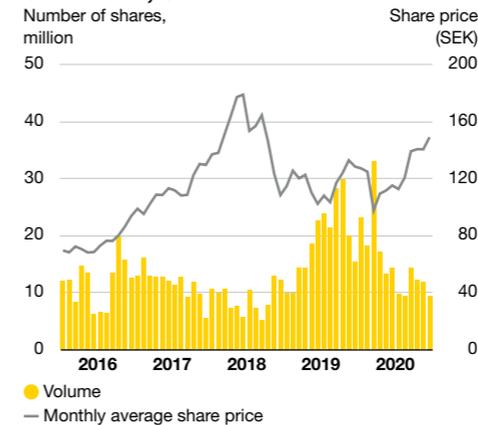
Helsinki, Stora Enso A



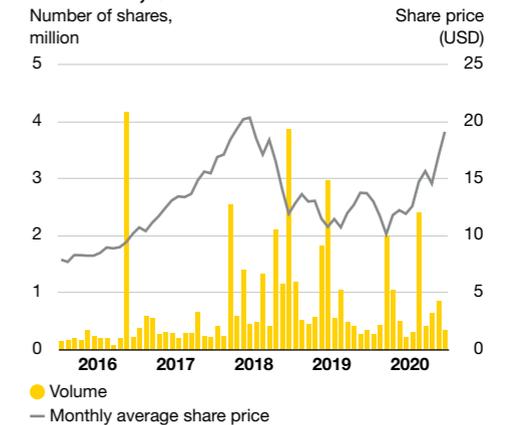
Helsinki, Stora Enso R



Stockholm, Stora Enso R



New York, Stora Enso ADR



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Stora Enso is included in at least the following indices

OMX INDICES	STOXX INDICES	FTSE INDICES	MSCI INDICES	SUSTAINABILITY INDICES
OMX Helsinki	STOXX Global 1800	FTSE RAFI All-World 3000	MSCI Finland	CDP's Climate A- list
OMX Helsinki 25	STOXX Europe 600	FTSE RAFI Developed 1000	MSCI Nordic countries	FTSE4 Good Index
OMX Helsinki Large Cap	STOXX Europe Mid 200	FTSE RAFI Europe	MSCI Europe	STOXX® Global ESG Leaders Indices
OMX Helsinki Benchmark	STOXX Nordic	FTSE Finland 25 Index	MSCI Europe Materials	ECPI EMU Ethical Equity index
OMX Helsinki Basic Materials	EURO STOXX	FTSE4Good Global	MSCI World	ECPI World ESG Equity Index
OMX Helsinki Basic Resources	EURO STOXX Basic Materials		MSCI World Mid Cap	OMX GES Sustainability Finland
OMX Helsinki Forestry & Paper	EURO STOXX Basic Resources			Solactive Europe Corporate Social Responsibility Index
OMX Stockholm				Euronext Vigeo World, Europe and Eurozone 120
OMX Stockholm Benchmark				MSCI ESG indices
OMX Stockholm Large Cap				
OMX Stockholm Basic Materials				
OMX Stockholm Basic Resources				
OMX Stockholm Forestry & Paper				
OMX Nordic				
OMX Nordic Large Cap				
Nasdaq OMX Nordic Materials				
VINX Basic Materials				
VINX Basic Resources				

Read more about sustainability indexes in the **Sustainability Report 2020**.

Sustainability is central to Stora Enso's strategy. The emphasis is to keep sustainability information widely available on the Group website to benefit and serve different stakeholders in equal manner. As a consequence, Stora Enso simultaneously reduces the number of sustainability index survey questionnaires in which it participates. The Group is targeting its participation in those questionnaires and enquiries that it has assessed to be the most material.

Trading codes and currencies

	Helsinki	Stockholm	OTC
A share	STEAV	STE A	-
R share	STERV	STE R	-
ADRs	-	-	SEOAY
Segment	Large Cap	Large Cap	-
Sector	Materials	Materials	-
Currency	EUR	SEK	USD
ISIN, A share	FI0009005953	FI0009007603	
ISIN, R share	FI0009005961	FI0009007611	
CUSIP	-	-	86210M106
Reuters			STERV.HE
Bloomberg			STERV FH Equity

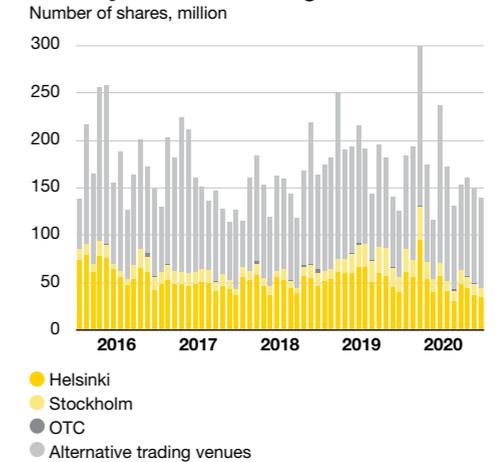
Stora Enso R Share vs Nasdaq Helsinki indices



Market capitalisation on Nasdaq Helsinki



Monthly R shares trading volumes



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Key share data 2011–2020, total operations (for calculations see Calculation of Key figures)

According to Nasdaq Helsinki	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Earnings per share, EUR	0.79	1.12	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43
– diluted, EUR	0.79	1.12	1.28	0.79	0.59	1.02	0.13	-0.07	0.61	0.43
– excl. FV, EUR ¹	0.45	0.61	1.26	0.89	0.65	1.24	0.40	0.40	0.33	0.63
Equity/share, EUR	11.17	9.42	8.51	7.62	7.36	6.83	6.43	6.61	7.32	7.45
Dividend and distribution/share, EUR	0.30 ²	0.30	0.50	0.41	0.37	0.33	0.30	0.30	0.30	0.30
Payout ratio, %	38	27	39	52	63	32	231	-429	49	70
Dividend and distribution yield, %										
A share	1.9	2.2	4.5	3.1	3.56	3.9	4.0	4.1	5.3	5.9
R share	1.9	2.3	5.0	3.1	3.62	3.9	4.0	4.1	5.7	6.5
Price/earnings ratio (P/E), excl. FV ¹										
A share	35.3	22.2	8.8	14.8	16.0	6.8	18.7	18.3	17.3	8.0
R share	34.8	21.2	8.0	14.9	15.7	6.8	18.6	18.3	15.9	7.3
Share prices for the period, EUR										
A share										
– closing price	15.90	13.55	11.05	13.20	10.40	8.40	7.48	7.31	5.70	5.03
– average price	12.06	12.88	16.36	11.93	8.50	8.87	7.29	6.82	6.15	7.73
– high	16.20	14.45	18.45	13.79	10.45	11.01	8.35	7.49	7.15	9.80
– low	9.26	10.85	10.75	10.26	6.56	6.70	5.73	5.42	5.10	4.70
R share										
– closing price	15.65	12.97	10.09	13.22	10.21	8.39	7.44	7.30	5.25	4.63
– average price	11.52	11.05	14.61	11.54	7.88	8.70	7.16	5.79	5.08	6.28
– high	15.85	13.05	18.29	13.75	10.28	10.95	8.38	7.54	5.95	8.99
– low	7.25	9.10	9.92	9.70	6.50	6.58	5.71	4.76	4.14	3.73
Market capitalisation at year-end, EUR million										
A share	2 802	2 388	1 948	2 328	1 836	1 483	1 324	1 295	1 010	891
R share	9 580	7 939	6 175	8 094	6 250	5 135	4 547	4 464	3 212	2 835
Total	12 383	10 328	8 123	10 422	8 085	6 618	5 871	5 756	4 222	3 726
Number of shares at the end of period, (thousands)										
A share	176 254	176 257	176 313	176 392	176 507	176 532	177 056	177 096	177 148	177 149
R share	612 366	612 363	612 307	612 228	612 113	612 088	611 564	611 524	612 391	612 389
Total	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 620	789 538	789 538
Trading volume, (thousands)										
A share	4 662	1 299	3 068	6 768	1 254	1 641	1 553	1 656	831	1 402
% of total number of A shares	2.6	0.7	1.7	3.8	0.7	0.9	0.9	0.9	0.5	0.8
R share	605 233	679 475	610 300	571 717	765 122	798 507	731 067	828 401	977 746	1 237 898
% of total number of R shares	98.8	111.0	99.7	93.4	125	130.5	119.5	135.5	159.7	202.1
Average number of shares (thousands)										
basic	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 620	788 620
diluted	789 182	789 533	789 883	790 024	789 888	789 809	789 210	788 620	788 620	788 620

¹ Earnings per share (EPS) excl. FV was added to the list of non-IFRS measures in 2020 replacing the key figure of EPS excl. IAC.

Comparatives are recalculated for 2018–2019. For 2011–2017 table includes EPS excl. IAC figures.

² Board of Directors' proposal to the AGM for distribution of dividend.

IAC = Items affecting comparability

Read more about incentive programmes in [Note 21](#) and Management interests in [Note 7](#).

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Debt investors

Funding strategy

Stora Enso's funding strategy is based on the Group's financial targets. Stora Enso should have access to sufficient and competitively priced funding at any time to be able to pursue its strategy and achieve its financial targets. Stora Enso's debt structure is focused on the capital markets and commercial banks. Stora Enso maintains consistent dialogue with fixed-income community with informative and transparent communication and meetings in conferences and roadshows.

Funding is obtained in the currencies of the Group's investments and assets (primarily CNY, EUR, SEK and USD). Commercial paper markets are used for short-term funding and liquidity management.

In 2020, Stora Enso strengthened significantly its liquidity and funding position due to the uncertainty in the global economy caused mainly by the Covid-19 pandemic. Stora Enso has EUR 1 655 million cash and cash equivalents at 31 December 2020. The company has EUR 600 million Committed Revolving Credit Facility fully undrawn, committed bilateral credit facility arrangements with commercial banks up to EUR 250 million and an undrawn committed EUR 150 million loan with European Investment Bank that can be drawn latest in 2022 for five-year maturity. Additionally, the company has access to EUR 950 million statutory pension premium loans in Finland. Stora Enso has a good access to various funding sources.

Public debt structure as at 31 December 2020

	EUR	USD	SEK
Public issues	EUR 300 million 2023	USD 300 million 2036	SEK 3000 million 2021
	EUR 300 million 2027		SEK 3000 million 2024
	EUR 300 million 2028		SEK 3100 million 2025
	EUR 500 million 2030		
Private placements	EUR 125 million 2025		SEK 1000 million 2026
	EUR 25 million 2027		

Debt programmes and credit facilities as at 31 December 2020

	EUR	SEK
Commercial paper programmes	Finnish Commercial Paper Programme EUR 750 million	Swedish Commercial Paper Programme SEK 10 000 million
EMTN (Euro Medium-Term Note programme)	EUR 4 000 million	
Back-up facility	EUR 600 million sustainability linked revolving credit facility 2023 ¹	
	EUR 150 million Bilateral Committed Credit Facility 2021	
	EUR 100 million Bilateral Committed Credit Facility 2022	
	EUR 150 million committed undrawn EIB loan. To be drawn latest 2022, five-year maturity	

¹ Undrawn committed credit facility EUR 600 million. Part of the pricing for the facility agreement is based on Stora Enso's Science Based Targets to combat global warming by reducing greenhouse gases, including CO₂.

Stora Enso has integrated sustainability agenda to its funding and financial services. The Group has the long-term aim to secure funding partners that have sustainability as a fundamental part of their agenda. We aim to influence and develop the financial markets to ensure that sustainability becomes an integral part of decisions and credit evaluation. For more information, please see **Stora Enso's Sustainability 2020**, section Investors or visit our website storaenso.com/investors.

Green Bonds

In 2020, Stora Enso issued two green bonds in 2020: SEK 3 100 million in April and EUR 500 million in November. There are no financial covenants connected to these bonds. The bonds are listed on the Luxembourg Stock Exchange. In accordance with the Green Bond Framework, proceeds from Green Bonds will be used solely to finance or refinance projects (going back up to two years) and activities defined under the Eligible Categories presented below.

1. Sustainable Forest Management
2. Renewable, Low-Carbon, and Eco-Efficient Products, Product Technologies, and Processes
3. Energy Efficiency
4. Renewable Energy and Waste to Energy
5. Sustainable Water Management
6. Waste Management and Pollution Control

Please find additional information here: [Green bond impact report](#)

Rating strategy

Stora Enso Group's target is to have at least one public credit rating with the ambition to remain investment grade and sustain such metrics throughout business cycles. The present rating and outlook from Moody's and Fitch Ratings are shown below.

Ratings as at 31 December 2020

Rating agency	Long/short-term rating	Valid from
Fitch Ratings	BBB- (stable)	8 August 2018
Moody's	Baa3 (stable) / P-3	1 November 2018

Stora Enso's current credit ratings are: Baa3 with stable outlook from Moody's and BBB- with stable outlook from Fitch Ratings. Both ratings correspond to an Investment Grade rating, and there were no changes in the ratings during 2020.

Stora Enso's goal is to ensure that rating agencies continue to be comfortable with Stora Enso's strategy and performance. The Company's strategy is to achieve liquidity well in line with the comfort level of the agencies. Review meetings are arranged with the Stora Enso management annually, and regular contact is maintained with the rating analysts.

Read more about debt and loans in [Note 26](#).

Stora Enso as a taxpayer

Stora Enso's operations generate value through taxes for governments around the world. In 2020, Stora Enso paid again approximately EUR 1 billion into public sectors, including EUR 611 million in collected taxes.

Stora Enso aims to be transparent with respect to economic value generation. For this purpose, Stora Enso makes a voluntary commitment to openly provide details of the taxes paid by the group to governments in its main countries of operation. This commitment to our stakeholders is fully in line with Stora Enso's values to 'Do what's right' and 'Lead'.

Stora Enso's tax policy

Stora Enso's tax policy is approved by the CEO and is reviewed annually, with updates as necessary. As a responsible and prudent taxpayer, Stora Enso is committed to ensure that the group observes all applicable tax laws, rules and regulations in all jurisdictions where it conducts its business activities. Stora Enso follows international transfer pricing guidelines and local legislation. In addition to our legal and regulatory requirements, our tax principles comply with our values. Furthermore, we seek to ensure that our tax strategy is aligned with our business and commercial strategy. We only undertake tax planning that is duly aligned to economic activity. This means that all tax decisions are made in response to commercial activity, and tax is only one of many factors that are taken into account when making business decisions.

As with any other business expense, however, we have an obligation to manage our tax costs as part of our financial responsibility to societies and shareholders. We are therefore willing to respond to tax incentives and exemptions granted by governments on reasonable grounds, and we currently have operations in countries that offer favourable tax treatments, where their location is also justified by sound commercial considerations.

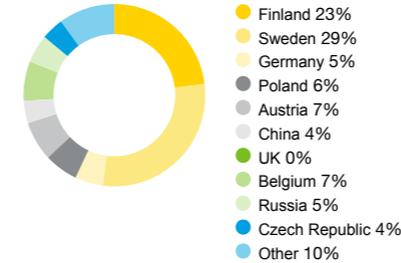
Stora Enso has operations in the following locations that offer favourable tax treatments:

- The joint operation Montes del Plata operates a pulp mill in a Special Economic Zone in Uruguay.
- Stora Enso's two forestry companies in Guangxi, China are entitled to exemption from corporate income tax and value added tax on their sales, and our related industrial company is entitled to reduced tax rates until 2025.
- Stora Enso conducts business, mainly consisting of sales services, in the United Arab Emirates, Singapore and Hong Kong.
- For logistical and operational reasons, pulp from the group's joint operations in Brazil and Uruguay is traded via a pulp sourcing and marketing company based in the Netherlands.
- AS Stora Enso Latvija has been granted a corporate income tax credit relating to an investment project. The credit is available for utilization against tax arising on profit distribution in future years.

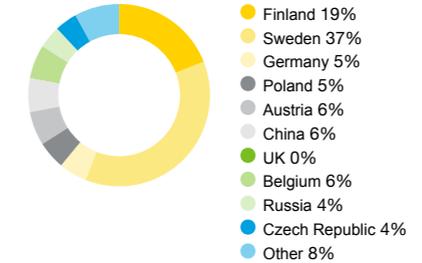
Our commitment to tax transparency is also reflected in our relationships with tax authorities and governments. We seek to work positively, proactively and openly with tax authorities on a global basis, aiming to minimise disputes and to build confidence wherever possible. We also work with government representatives, mainly through associations, by providing corporate views and impacts at request to aid law-making and implementation.

The Stora Enso tax team, reporting to the group CFO, works closely with the businesses and other internal stakeholders to identify and manage business and compliance tax risks to ensure a sustainable yet business feasible platform for operations. Internal stakeholders are continuously trained on tax related matters in order to enhance capabilities and improve overall tax compliance and tax reporting position of Stora Enso group. The tax team is involved in business changes already in the planning phase to ensure

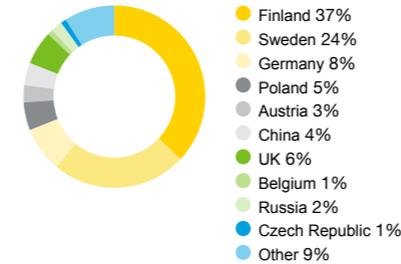
Total taxes borne 2020



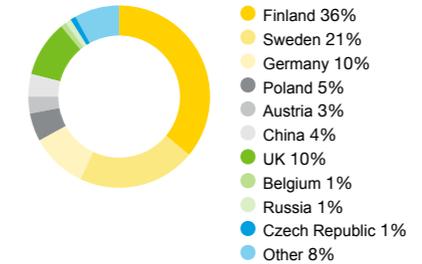
Total taxes borne 2019



Total taxes collected 2020



Total taxes collected 2019



the alignment and appropriate compliance of tax rules and regulations. Tax team monitors changes in tax legislation and regularly reviews tax affairs and risk management procedures to ensure that Stora Enso can identify, assess and mitigate tax risk. As part of protecting shareholder value, we act with integrity in all tax matters and accurately report the Group's tax position to our shareholders and other stakeholders.

Stora Enso's tax footprint

In 2020, Stora Enso paid EUR 980 million (1 265 million) in taxes to governments in countries where the group has operations. A total of EUR 369 million (498 million) was paid directly by the group (taxes borne) while EUR 611 million (767 million) was collected on behalf of governments (taxes collected).

Stora Enso did not pay any corporate income tax in Finland in 2020 because of tax losses carried forwards from previous years. The tax losses of EUR 329 million (328 million) carried forward in Finland are the result of several factors including high closure and restructuring costs incurred in the past.

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Taxes paid in major countries of operation

		Year Ended 31 December							
		Taxes borne						Total	
		Corporate income tax		Employment taxes		Operational taxes			
EUR million	Primary activity	2020	2019	2020	2019	2020	2019	2020	2019
Finland	Production and sales	0	0	76	76	10	20	86	96
Sweden	Production and sales	13	84	88	93	5	7	106	184
Germany	Production and sales	3	10	11	11	3	4	17	25
Poland	Production and sales	11	13	6	7	5	5	22	25
Austria	Production and sales	12	14	13	13	1	1	26	28
China	Production and sales	2	7	8	15	7	7	16	29
United Kingdom	Sales	0	0	1	1	0	0	1	1
Belgium	Production and sales	12	17	10	10	4	4	26	31
Russian Federation	Production and sales	9	10	3	3	5	7	17	20
Czech Republic	Production and sales	8	12	7	7	0	0	15	19
Other		12	11	16	16	9	13	37	40
Total		82	178	239	252	48	68	369	498

		Year Ended 31 December								Total taxes paid	
		Taxes collected						Total			
		VAT & similar ¹		Payroll taxes		Other taxes					
EUR million	Primary activity	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Finland	Production and sales	35	37	144	143	47	96	226	276	312	372
Sweden	Production and sales	63	77	83	85	0	0	146	162	252	346
Germany	Production and sales	32	51	20	25	0	0	52	76	68	101
Poland	Production and sales	18	25	11	10	0	0	29	35	52	60
Austria	Production and sales	5	11	15	16	0	0	20	27	47	55
China	Production and sales	14	20	10	10	0	0	24	30	40	59
United Kingdom	Sales	35	73	2	2	0	0	37	75	38	76
Belgium	Production and sales	1	3	9	8	0	0	9	11	35	42
Russian Federation	Production and sales	9	10	2	2	0	0	11	12	28	32
Czech Republic	Production and sales	0	0	5	5	0	0	5	5	20	24
Other		27	31	19	19	5	8	52	58	88	98
Total		239	338	318	325	53	104	611	767	980	1265

¹ VAT, goods and services taxes and similar turnover related taxes

Stora Enso did not pay any corporate income tax in Finland in 2020 because of tax losses carried forwards from previous years. The tax losses of EUR 329 million (328 million) carried forward in Finland are the result of several factors including high closure and restructuring costs incurred in the past.

All companies within the scope of Stora Enso's tax footprint are consolidated or joint operations, which have been consolidated proportionally with Stora Enso's share amounting to at least 50%. Consolidation includes all companies that have either at least 10 employees or a turnover of EUR 5 million or above.

If a Stora Enso company was in a recovery position regarding VAT or energy taxation in a specific country, tax payments for this company have been reported at NIL.

Taxes borne include all tax and tax-like payments that Stora Enso has paid as own taxes. Tax-like payments include other forms of government revenue raised outside of the tax regime, such as payments for emission rights or social security payments.

Taxes collected include all tax and tax-like payments that Stora Enso has collected on behalf of the government, including e.g. payroll taxes as well as VAT and similar sales-related taxes paid by Stora Enso. The economic burden for such taxes ends up with the buyer or final consumer.

Stora Enso's tax footprint figures also reflect governmental incentives granted in the form of reduced tax rates or tax exemption, by reporting lower tax payments. However, governmental support is often granted in the form of subsidies, particularly in relation to energy consumption or favoured investments, which are not considered in our tax footprint calculations.

Capacities by mill in 2021

Packaging Materials

Consumer board	Location	Grade	Capacity 1 000 t
Beihai	CHN	LPB, CKB, FSB, FBB	510
Fors	SWE	FBB	455
Imatra	FIN	SBS, FBB, LPB	1 195
Ingerois	FIN	FBB	295
Skoghall	SWE	LPB, CUK	925
Total			3 380

Containerboards	Location	Grade	Capacity 1 000 t
Heinola	FIN	SC fluting	300
Ostrołęka	POL	Testliner, Pfr fluting, sack paper, wrapping paper, RCF-based liner and fluting	760
Oulu ¹	FIN	Kraftliner, white-top kraftliner	450
Varkaus	FIN	Kraftliner, white-top kraftliner	405
Total			1 915

¹ Oulu kraftliner line ramping up

Barrier coating	Location	Grade	Capacity 1 000 t
Beihai	CHN	Barrier coating	80
Skoghall (Forshaga)	SWE	Barrier coating	120
Imatra	FIN	Barrier coating	455
Total			655

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Packaging Solutions

Biocomposites

Mill	Location	Product	Division	Capacity 1 000 t
Hylte	SWE	Biocomposite	Packaging Solutions	15
Total Biocomposite				15

Corrugated packaging

	Grade	Capacity million m ²
Baltic states	Corrugated packaging	155
Kaunas		
Riga		
Tallinn		
Finland	Corrugated packaging	160
Lahti		
Kristiinankaupunki		
Poland	Corrugated packaging	410
Łódź		
Mosina		
Ostrołęka		
Tychy		
Russia	Corrugated packaging	395
Arzamas		
Balabanovo		
Balabanovo offset		
Lukhovitsy		
Sweden	Corrugated packaging	265
Jönköping		
Skene		
Vikingstad		
Total	Corrugated packaging	1 385

China Packaging

	Location	Grade	Capacity million pcs	Capacity million m ²
Gaobu, Dongguan	CHN	Consumer packaging	390	30
Jiashan, Zhejiang	CHN	Consumer packaging	145	20
Qian'an, Hebei	CHN	Consumer packaging	300	25
Wu Jin, Jiangshu	CHN	Consumer packaging	75	10
Total			910	85

Formed fiber

Mill	Location	Product	Division	Capacity million pcs
Hylte	SWE	Formed Fiber	Packaging Solutions	60
Total Formed fiber				60

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Biomaterials

Mill	Location	Grade	Division	Capacity 1 000 t
Enocell	FIN	Short, long-fiber and dissolving pulp	Biomaterials	490
Skutskär	SWE	Short, long-fiber and fluff pulp	Biomaterials	540
Sunila	FIN	Long-fiber pulp	Biomaterials	375
Montes del Plata (50% share)	URU	Short-fiber pulp	Biomaterials	740
Veracel (50% share)	BRA	Short-fiber pulp	Biomaterials	575
Total				2 720

Chemical Pulp

Mill	Location	Grade	Division	Capacity 1 000 t
Heinola	FIN	Neutral Sulphite Semi-Chemical Pulp	Packaging Materials	285
Kaukopää, Imatra	FIN	Short and long-fiber	Packaging Materials	825
Nymölla	SWE	Short and long-fiber	Paper	330
Ostrołęka	POL	Long-fiber	Packaging Materials	130
Oulu ¹	FIN	Long-fiber	Packaging Materials	550
Skoghall	SWE	Long-fiber	Packaging Materials	375
Tainionkoski, Imatra	FIN	Short and long-fiber	Packaging Materials	195
Varkaus	FIN	Long-fiber	Packaging Materials	310
Veitsiluoto	FIN	Short and long-fiber	Paper	375
Chemical Pulp Total (incl. Biomaterials)				6 095*

¹ Ramping up

* Estimated market pulp volumes 2 500 000 tonnes

Deinked Pulp (DIP)

Mill	Location	Grade	Division	Capacity 1 000 t
Hylte ¹	SWE	DIP	Paper	145
Langerbrugge	BEL	DIP	Paper	680
Maxau	GER	DIP	Paper	295
Ostrołęka	POL	Recycled fiber based pulp	Packaging Materials	700
Sachsen	GER	DIP	Paper	430
Total				2 250

¹ Production of DIP will end latest in Q2 2021

CTMP

Mill	Location	Grade	Division	Capacity 1 000 t
Beihai	CHN	BCTMP	Packaging Materials	210
Fors	SWE	CTMP	Packaging Materials	220
Kaukopää	FIN	CTMP	Packaging Materials	220
Skoghall	SWE	CTMP	Packaging Materials	310
Total				960

Lignin

Mill	Location	Product	Division	Capacity 1 000 t
Sunila	FIN	Lignin	Biomaterials	50
Total Lignin				50

Wood Products

Mill	Location	Sawing Capacity 1 000 m ³	Further Processing Capacity 1 000 m ³	Pellet capacity 1 000 t	CLT capacity 1 000 m ³	LVL capacity 1 000 m ³
Ala	SWE	400	50	100	-	-
Alytus	LIT	210	115	-	-	-
Amsterdam	NLD	-	80	-	-	-
Bad St. Leonhard	AUT	360	105	-	80	-
Brand	AUT	440	295	-	-	-
Gruvön ¹	SWE	370	150	100	80	-
Honkalahti	FIN	310	70	-	-	-
Imavere	EST	340	160	100	-	-
Impilahti	RUS	160	10	25	-	-
Launkalne ²	LAT	260	70	50	-	-
Murow	POL	300	210	-	-	-
Nebolchi	RUS	180	45	40	-	-
Näpi	EST	50	180	25	-	-
Planá	CZE	390	220	-	-	-
Uimaharju ³	FIN	240	-	-	-	-
Varkaus	FIN	230	35	-	-	75
Veitsiluoto ⁴	FIN	200	-	-	-	-
Ybbs	AUT	700	450	-	110	-
Zdírec	CZE	580	220	80	-	-
Total		5 720	2 465	520	270	75

¹ Gruvön CLT production ramping up

² Launkalne pellets production ramping up

³ Uimaharju sawmill belongs to division Biomaterials

⁴ Veitsiluoto sawmill belongs to division Paper

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Paper

Mill	Location	Grade	Capacity 1 000 t
Anjala	FIN	Impr. news, book, LWC, wallpaper base	435
Hylte	SWE	News	245
Kvarnsveden	SWE	SC, impr. news, packaging paper	565
Langerbrugge	BEL	SC, news	555
Maxau	GER	SC	530
Nymölla	SWE	WFU	485
Sachsen	GER	News, impr. news, directory	310
Veitsiluoto	FIN	LWC, MWC, WFU, speciality paper, packaging paper	790
Total			3 915

Abbreviations used in the tables:

BCTMP	bleached chemi-thermo-mechanical pulp
CKB	coated kraft back board
CLT	cross-laminated timber
CTMP	chemi-thermo-mechanical pulp
CUK	coated unbleached kraftboard
DIP	deinked pulp
FBB	folding boxboard
LPB	liquid packaging board
LVL	laminated veneer lumber
LWC	light-weight coated paper
MWC	medium-weight coated paper
PfR	paper for recycling
SBS	solid bleached sulphate board
SC	supercalendered paper
WFU	wood-free uncoated paper

The formula: (Sum of net saleable production of two best consecutive months / Available time of these two consecutive months) × Available time of the year

Information for shareholders

Annual General Meeting (AGM)

Stora Enso Oyj's Annual General Meeting (AGM) will be held on Friday 19 March 2021 at 4.00 p.m. Finnish time.

Nominee-registered shareholders wishing to attend and vote at the AGM must have shares that would entitle to being registered in the Company shareholders' register on the record date 9 March 2021 and must be temporarily registered in the Stora Enso shareholders' register by 16 March 2021. For shares registered through Euroclear Sweden and for holders of ADRs the timetable may vary and earlier dates apply. Instructions for submitting notice of attendance is given in the invitation to the AGM, which can be consulted on Stora Enso's website at storaenso.com/agm.

AGM and dividend in 2021

9 March	Record date for AGM
19 March	Annual General Meeting (AGM)
22 March	Ex-dividend date
23 March	Record date for dividend
30 March	Dividend payment

Dividend

The Board of Directors proposes to the AGM that a dividend of EUR 0.30 per share will be paid to the shareholders for the fiscal year ending 31 December 2020. The dividend payable on shares registered with Euroclear Sweden will be forwarded by Euroclear Sweden AB and paid in Swedish crowns. The dividend payable to ADR holders will be forwarded by Citibank N.A. (Citi) and paid in US dollars.

Publications dates for 2021

29 January	Financial results for 2020
Week 6	Annual Report 2020
23 April	Interim report for January-March
21 July	Half-year report for January-June
20 October	Interim report for January-September

Distribution of financial information

Stora Enso's Annual Report 2020 consists of five sections: Strategy, Sustainability, Financials, Governance and Remuneration. You can find the highlights of the year and all reports as downloadable PDF files at storaenso.com/annualreport.

Summary, Governance and Remuneration are available in English, Finnish and Swedish. Strategy, Sustainability and Financials are available in English. The official financial statements (in Finnish) and a list of principal subsidiaries (in English) can be found on the company's website.

Interim reports and Half-year reports are published in English, Finnish and Swedish at storaenso.com/press.

Information for holders of American Depositary Receipts (ADRs)

The Stora Enso dividend reinvestment and direct purchase plan is administered by Citibank N.A. The plan makes it easier for existing ADR holders and first-time purchasers of Stora Enso ADRs to increase their investment by reinvesting cash distributions or by making additional cash investments. The plan is intended for US residents only. Further information on the Stora Enso ADR programme is available at citi.com/DR.

Contact information for Stora Enso ADR holders

Citibank Shareholder Services
Computershare
P.O. Box 43077
Providence, Rhode Island 02940-3077
Email: citibank@shareholders-online.com

Toll-free number: (877)-CITI-ADR
Direct dial: (781) 575-4555

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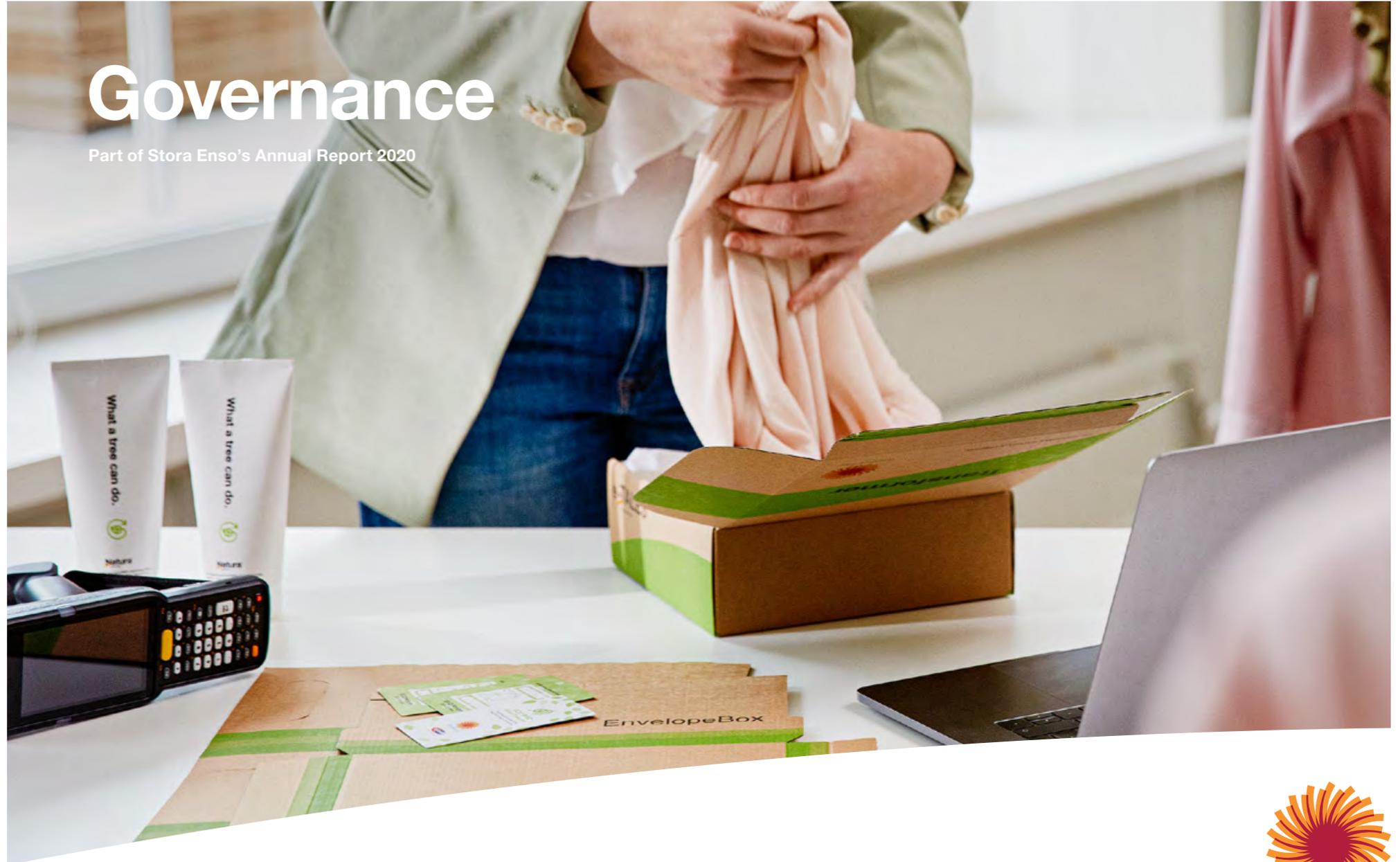
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Stora Enso complies with current governance rules and regulations, and applies best practices in the field of governance.



Governance

Part of Stora Enso's Annual Report 2020

THE RENEWABLE MATERIALS COMPANY



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Responsibility is one of Stora Enso's values and in governance terms it translates into a strong commitment to sound principles of corporate governance and sustainability.

Wood can also transform into a textile. Our dissolving pulp is used as a raw material for e.g. viscose in textile industry, replacing cotton and fossil-based materials, such as polyester. The e-TALES by Stora Enso is a portfolio of tailor-made solutions for e-commerce packaging, designed to meet the needs of end-consumers, online retailers and logistics departments. A paperboard tube to reduce plastic in primary packaging of cosmetics, which is a new application area for our paperboard, Natura Shape™ by Stora Enso.



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The duties of the various bodies within Stora Enso Oyj ("Stora Enso" or the "Company") are determined by the laws of Finland and by the Company's corporate governance policy, which complies with the Finnish Companies Act and the Finnish Securities Market Act. The rules and recommendations of the Nasdaq Helsinki Oyj and Nasdaq Stockholm AB stock exchanges are also followed, where applicable. The corporate governance policy is approved by the Board of Directors ("Board").

Stora Enso complies with the Finnish Corporate Governance Code 2020 issued by the Securities Market Association (the "Code"). The Code is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in Appendix 1 of this Corporate Governance Report. The deviations are due to differences between the Swedish and Finnish legislation, governance code rules and practices, and in these cases Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

This Corporate Governance Report is available as a PDF document at storaenso.com/investors/governance.

General governance issues

The Board and the President and CEO are responsible for the management of the Company. Other governance bodies have an assisting and supporting role.

The Stora Enso group prepares Consolidated financial statements and Interim Reports conforming to International Financial Reporting Standards (IFRS), and publishes Annual Reports as well as Interim Reports in Finnish, Swedish and English language. Stora Enso Oyj prepares its Financial statements in accordance with the Finnish Accounting Act.

The Company's head office is in Helsinki, Finland. It also has head office functions in Stockholm, Sweden.

Stora Enso has one statutory auditor elected by the shareholders at the Annual General Meeting (AGM).

To the maximum extent possible, corporate actions and corporate records are taken and recorded in English.

Objectives and composition of governance bodies

The shareholders exercise their ownership rights through the shareholders' meetings. The decision-making bodies with responsibility for managing the Company are the Board and the CEO. The Group Leadership Team (GLT) supports the CEO in managing the Company.

Day-to-day operational responsibility rests with the GLT members and their operation teams supported by various staff and service functions.

Governance bodies



Shareholders' meeting
Shareholders' Nomination Board



Board of Directors
Financial and Audit Committee
Remuneration Committee
Sustainability and Ethics Committee



President and CEO
Ethics and Compliance
Management Committee –
Group Leadership Team (GLT)

Auditing

Internal Audit _____ External Audit _____

Shareholders' meetings

The Annual General Meeting of shareholders (AGM) is held annually to present detailed information about the Company's performance and to deal with matters such as adopting the annual accounts, setting the dividend (or distribution of funds) and its payment, and appointing the Chair, Vice Chair and the members of the Board of Directors as well as the Auditor.

Shareholders may exercise their voting rights and take part in the decision-making process of Stora Enso by participating in shareholders' meetings. Shareholders also have the right to ask questions of the Company's management and Board of Directors at shareholders' meetings. Major decisions are taken by the shareholders at Annual or Extraordinary General Meetings. At a shareholders' meeting, each A share and each ten R shares carry one vote.

During the years 2020–2021 and the Covid-19 pandemic, certain of the above mentioned rights may be carried out as pre-voting and the right to present counterproposals and ask questions in advance of the meeting, the answers to which will be presented on the Company's website.

The Board of Directors convenes a shareholders' meeting by publishing a notice to the meeting at the Company's website not more than three (3) months before the last day for advance notice of attendance mentioned in the notice to the meeting and not less than three weeks before the date of the meeting. In addition, the Company publishes details on the date and location of the meeting, together with the address of the Company's website, in at least two Finnish and two Swedish newspapers. Other regulatory notices to the shareholders are delivered in the same way.

The AGM shall be held yearly by the end of June in Helsinki, Finland. The Finnish Companies Act and Stora Enso's Articles of Association specify in detail that the following matters have to be dealt with at the AGM:

- presentation and adoption of the annual accounts
- presentation of the report of the Board of Directors and the Auditor's report
- use of the result and distribution of funds to the shareholders
- resolution concerning discharge of the members of the Board and the CEO from liability
- presentation of remuneration policy and/or report
- decision on the number and the remuneration of the members of the Board and the Auditor
- election of the Chair, Vice Chair and other members of the Board and the Auditor
- any other matters notified separately in the notice to the meeting.

In addition, the AGM shall take decisions on matters proposed by the Board of Directors. A shareholder may also propose items for inclusion in the agenda provided that they are within the authority of the shareholders' meeting and the Board of Directors was asked to include the items in the agenda no later than on the date set out by the Company, which must be not earlier than four weeks before the publication of the notice to the meeting and which will be announced at the Company's website no later than by the end of the financial year preceding the AGM.

An Extraordinary General Meeting of Shareholders is convened when considered necessary by the Board of Directors or when requested in writing by the Auditor or shareholders together holding a minimum of one tenth of all the shares to discuss a specified matter which they have indicated.

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Stora Enso's AGM was held on 4 June 2020 in Helsinki, Finland. The AGM was held with exceptional procedures based on a temporary legislative act approved by the Finnish Parliament to limit the spread of the Covid-19 pandemic. This meant that shareholders were able to participate in the meeting only through voting in advance as well as making counterproposals and presenting questions in advance. The AGM had originally been called to be held on 19 March 2020, however, had to be cancelled from being held at such date due to the Covid-situation with following restrictive national measures arising in Finland during the same week. Of all issued and outstanding shares in the Company a total of 59.3% of all shares (59.4% in 2019) and a total of 80.7% of all votes (80.9% were represented at the meeting, with 91.4% of all A shares (91.6%) and 50.1% of all R shares (50.1%) represented. All Board members, President and CEO, CFO and EVP Legal as well as the Company's Auditor were present at the meeting via remote access. The AGM in addition to regular matters authorised the Board to decide on a share issue or share repurchase covering a maximum of 2 000 000 R shares in order to carry out the Company's compensation or remuneration schemes. No Extraordinary General Meetings of Shareholders were convened in 2020.

Shareholders' Nomination Board

Shareholders at the Annual General Meeting (AGM) have established a Shareholders' Nomination Board to exist until otherwise decided and to annually prepare proposals to the shareholders' meeting concerning:

- the number of members of the Board;
- the Chair, Vice Chair and other members of the Board;
- the remuneration for the Chair, Vice Chair and members of the Board;
- the remuneration for the Chair and members of the committees of the Board.

The AGM has approved the Charter of the Shareholders' Nomination Board and shall approve any proposed amendments of the Charter, other than technical updates.

The Shareholder's Nomination Board according to its Charter comprises four members:

- the Chair of the Board;
- the Vice Chair of the Board;
- two members appointed annually by the two largest shareholders (one each) as of 31 August.

The Board through its Chair shall ensure that the annual appointment of the members to the Shareholders' Nomination Board is carried out as set out in the Charter as decided by the AGM. The Board Chair shall annually convene the first meeting of the Shareholders' Nomination Board, which shall elect its Chair amongst its members that annually are appointed by the Company's two largest shareholders.

The Shareholders' Nomination Board shall serve until further notice, unless the AGM decides otherwise. Its members are elected annually and their term of office shall end when new members are elected to replace them.

Board of Directors

Stora Enso is managed by the Board acting in accordance with the Finnish Companies Act as well as other applicable legislation.

According to the Company's Articles of Association, the Board comprises six to eleven ordinary members appointed by the shareholders at the AGM for a one-year term. The majority of the directors shall be independent of the Company. In addition, at least two of the directors comprising this majority shall be independent of significant shareholders of the Company. A significant shareholder is a shareholder that holds at least 10% of all the Company's shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares. The independence is evaluated yearly in accordance with the Finnish Corporate Governance Code.

All directors are required to deal at arm's length with the Company and its subsidiaries and to disclose circumstances that might be perceived as a conflict of interest.

The shareholders at the AGM decide the remuneration of the Board members

In 2020

The Shareholders' Nomination Board in 2020 comprised four members: Jorma Eloranta (Chair of the Board), Hans Stråberg (Vice Chair of the Board) and two other members appointed by the two largest shareholders, namely Harri Sailas (Solidium Oy) and Marcus Wallenberg (FAM AB). Marcus Wallenberg was elected Chair of the Shareholders' Nomination Board.

The main tasks of the Shareholders' Nomination Board were to prepare the proposals for the AGM 2021 concerning Board members and their remuneration. The Shareholders' Nomination Board during its working period 2020–2021 convened four (4) times. Each member of the Shareholders' Nomination Board attended all the meetings. Jorma Eloranta and Hans Stråberg did not participate in the preparations or the decision-making regarding Board remuneration.

In its proposal for the AGM 2021, the Shareholders' Nomination Board proposes that of the current members of the Board of Directors – Håkan Buskhe, Elisabeth Fleuriot, Hock Goh, Mikko Helander, Christiane Kuehne, Antti Mäkinen and Richard Nilsson be re-elected members of the Board of Directors until the end of the following AGM and that Helena Hedblom and Hans Sohlström be elected new members of the Board of Directors for the same term of office. It is proposed that Antti Mäkinen be elected Chair of the Board and Håkan Buskhe Vice Chair of the Board. Jorma Eloranta and Hans Stråberg had informed the Shareholders' Nomination Board that they were not available for re-election. The Shareholders' Nomination Board also proposes that the annual remuneration for the Chair, Vice Chair and members of the Board of Directors as well as for the Chairs and members of Board Committees be maintained at the 2020 level.

For the purpose of carrying out its tasks, the Shareholders' Nomination Board has received the results of the yearly evaluation of the Board of Directors as well as the assessment of each director's independence of the Company and of significant shareholders. The Board performance evaluation material has also included a report on Board member interviews by the Chair of the Board of Directors. The Shareholders' Nomination Board has taken the results of the Board evaluation and the requirements relating to director independence into account in its work. The Shareholders' Nomination Board further considers the principles of the Board Diversity Policy in preparing its proposal. The Shareholders' Nomination Board has a Charter that defines its tasks and responsibilities in more detail.

Remuneration

No remuneration is paid for members of the Shareholders' Nomination Board as decided by the AGM. The Shareholders' Nomination Board Charter is presented at storaenso.com/investors/governance.

Composition of the Shareholders' Nomination Board in 2020

Jorma Eloranta ¹ , member	Hans Stråberg ¹ , member
Chair of Stora Enso's Board of Directors	Vice Chair of Stora Enso's Board of Directors
Marcus Wallenberg, Chair	Harri Sailas, member
Chair of Stora Enso's Shareholders' Nomination Board. Born 1956. B.Sc. (Foreign Service). Chair of the Board of Directors of FAM AB.	Member of Stora Enso's Shareholders' Nomination Board. Born 1951. M.Sc. (Econ.). Chair of the Board of Directors of Solidium Oy.

¹ Curriculum vitae of Jorma Eloranta and Hans Stråberg, see page 12.

(including the remuneration of the members of the Board committees).

The Board supervises the operation and management of Stora Enso and decides on significant matters relating to strategy, investments, organisation and finance.

The Board is responsible for overseeing management and for the proper organisation of the Company's operations. It is likewise responsible for overseeing the proper supervision of accounting and control of financial matters.

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The Board has defined a working order, the principles of which are published on page 6 of this report and on the Company's website.

The AGM elects the Chair and Vice Chair of the Board. Should the Chair or Vice Chair of the Board of Directors resign or become otherwise unable to act as Chair or Vice Chair during their term of office, the Board may elect a new Chair or Vice Chair from among its members for the remaining term of office.

The Board annually agrees on focus areas for the Board's work during the upcoming year constituting the Board Agenda.

The Board appoints the CEO, Chief Financial Officer (CFO) and other GLT members. The Board approves the main organisational structure of the Company.

The Board reviews and determines the remuneration of the CEO, which is described in the Annual Report and on the Company's website. The Board and each of its Committees evaluates its performance annually. The results of the Board's evaluation are reviewed by the Board and shall be communicated to the Shareholders' Nomination Board, which shall take the results of the Board evaluation into account in its work. The Board also reviews the corporate governance policy annually and amends it when required.

The Board's work is supported through its committees – the Financial and Audit Committee, the Remuneration Committee and the Sustainability and Ethics Committee. Each committee's Chair and members are appointed by the Board annually.

The Board meets at least five times a year. The Board members meet regularly without management in connection with the Board meetings.

Board Diversity Policy

The Company has established a Board Diversity Policy setting out the principles concerning the diversity of the Board. The Shareholders' Nomination Board shall in connection with preparing its proposals for the nomination of directors to the AGM consider the principles of the Company's Board Diversity Policy.

Directors shall be nominated on the basis of their merits and with consideration of the benefits of diversity and the principles that the Company refers to as Diversity of Thought, including but not limited to criteria of diversity such as gender, age, nationality and individual differences both in professional and personal experiences. The merits of directors include knowledge of the operational environment of the Company, its markets and of the industry within which it operates, and may include elements such as financial, sustainability or other specific competency, geographical representation and business background as required in order to achieve the appropriate balance of diversity, skills, experience and expertise of the Board collectively. The foremost criteria for nominating director candidates shall be the candidates' skills and experiences, industrial knowledge as well as personal qualities and integrity. The composition of the Board as a whole shall reflect the requirements set by the Company operations and its development stage. The number of directors and the composition of the Board shall be such that they enable the Board to see to its duties efficiently. Both genders shall be represented on the Board and the aim of the Company shall be to strive towards a good and balanced gender distribution.

The Shareholders' Nomination Board has taken the principles of the policy into account in its work. The Shareholders' Nomination Board finds that the composition of the Board as proposed to the AGM 2021 reflects diversity and a good variety of skills and experiences among the Board members following the principles set out in the Board Diversity Policy. The aim of the Shareholders' Nomination Board going forward is to continuously evaluate the long-term competencies that would benefit the Board work as well as ensure that a Diversity of Thought is maintained on the Board. The aim is to maintain or further strengthen a good and balanced gender distribution.

The Board Diversity Policy is presented at storaenso.com/investors/governance.

In 2020

The Board had nine members at the end of 2020, all of them independent of the Company. The Board members are also independent of significant shareholders of the Company with the exception of Richard Nilsson (Investment Manager at FAM AB), Antti Mäkinen (CEO of Solidium) and Håkan Buskhe (CEO of FAM AB). Hans Stråberg having served on the Board for more than ten years, is based on an overall evaluation concluded independent of the Company.

The Board members nominated at the AGM in 2020 were Jorma Eloranta (Chair), Hans Stråberg (Vice Chair), Håkan Buskhe, Elisabeth Fleuriot, Hock Goh, Mikko Helander, Christiane Kuehne, Antti Mäkinen and Richard Nilsson. The Board convened 14 times during the year. The members' participation rate in meetings amounted to 98%.

In its meeting after the AGM on 4 June 2020 the Board discussed focus areas for its work. The Board agreed that these areas for the year to come should be (1) Strategy, and (2) Operational performance in the present market situation. Various matters have been discussed, reviewed and decided in the Board based on the agenda. Further, the CEO has on a monthly basis reported progress on the same to the Board.

The Board has conducted an internal self-evaluation relating to the Board's work, which together with the evaluation of the Board members' independence has been provided to the Shareholders' Nomination Board for information. The Board performance evaluation has also included Board member interviews performed by the Board Chair, the result of which has been reported to the Shareholders' Nomination Board. Overall assessment of the Board's work and performance – even during Covid-19 pandemic – has been positive. The Board has worked according to all applicable rules and regulations. For detailed information about the Board members and their share ownerships, see pages 12–13.

Remuneration

Board remuneration is decided by the AGM each year. The AGM 2020 decided on an annual remuneration of EUR 197 000 for the Board Chair, EUR 112 000 for the Vice Chair and EUR 76 000 for other members, which is paid partly in Company shares as set out in the resolution of the AGM. In addition, remuneration may be paid based on Board Committee memberships.

Board Diversity in 2020

The Board has during 2020 been composed of nine members representing five different nationalities and a diverse range of experience from global companies and industrial sectors. All Board members have university degrees from different fields like engineering, technology, finance and law. All members have vast experience from global companies either from earlier operative positions or through board memberships. A detailed description of the educational and professional backgrounds of the Board members can be found on pages 12–13.

The Board members represent a good knowledge of the operational environment of the Company as well as particular experience of amongst others sustainability, financial competence and the business environment relevant to the operations of the Company. The age of the Board members during 2020 varied from 49 years to 69 years and the Board was composed of two women and seven men.

The Shareholders' Nomination Board has in 2020 considered its previous evaluation of competencies that may be further strengthened in the long term Board succession planning. In its proposal for the AGM 2021 the Shareholders' Nomination Board has proposed a Board composition that includes three women and six men in the age range of 47 years to 65 years and representing a total of five different nationalities. The proposed new Board members Helena Hedblom and Hans Sohlström would bring strong leadership and management as well as industrial competence and experience to the Board and would in the view of the Shareholders' Nomination Board add strong value to the Board as a collective.

The aim of the Shareholders' Nomination Board going forward is to continuously evaluate the long-term competencies that would benefit the Board work as well as ensure that a Diversity of Thought is maintained on the Board. The aim is to maintain or further strengthen a good and balanced gender distribution.

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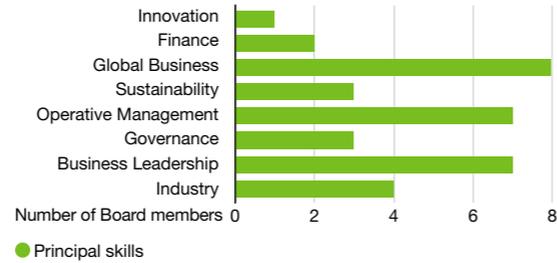
Board skills matrix

Name	Director since	Principal skills	Independent of		Committee memberships 2020			Other current listed boards*
			Company	Owners	FAC	SECo	RemCo	
Jorma Eloranta	2016	Global Business, Business Leadership, Operative Management, Governance	●	●	Member		Chair	
Hans Stråberg	2009	Global Business, Business Leadership, Operative Management, Industry	●	●			Member	3
Håkan Buskhe	2020	Innovation, Global Business, Business Leadership, Industry	●	●		Member		2
Elisabeth Fleuriot	2013	Global Business, Operative Management, Business Leadership, Sustainability	●	●	Member			1
Hock Goh	2012	Global Business, Operative Management, Business Leadership, Sustainability	●	●	Member			3
Mikko Helander	2019	Global Business, Business Leadership, Operative Management, Industry	●	●		Member		
Christiane Kuehne	2017	Global Business, Operative Management, Business Leadership, Sustainability	●	●		Chair		
Antti Mäkinen	2018	Finance, Operative Management, Governance	●	●			Member	2
Richard Nilsson	2014	Finance, Industry, Governance, Global Business	●	●	Chair			

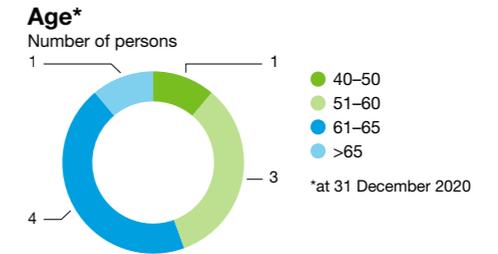
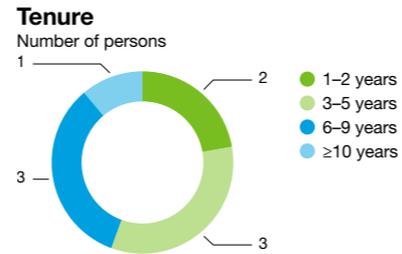
● yes ● no

The table sets out the primary skills of each Board member. The fact that an item is not highlighted for a Board member does not mean that such member does not possess that qualification or skill.
*at 31 December 2020

Principal skills



Board diversity in figures



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Working order of the Board

The working order describes the working practices of the Board. A summary of key contents is presented below.

Board meetings

- occur regularly, at least five times a year, according to a schedule decided in advance;
- special Board meetings, if requested by a Board member or the CEO, be held within 14 days of the date of request;
- agenda and material shall be delivered to Board members one week before the meeting.

Information

- the Board shall receive information monthly concerning financial performance, the market situation and significant events within the Company's and the group's operations;
- Board members shall be informed about all significant events immediately.

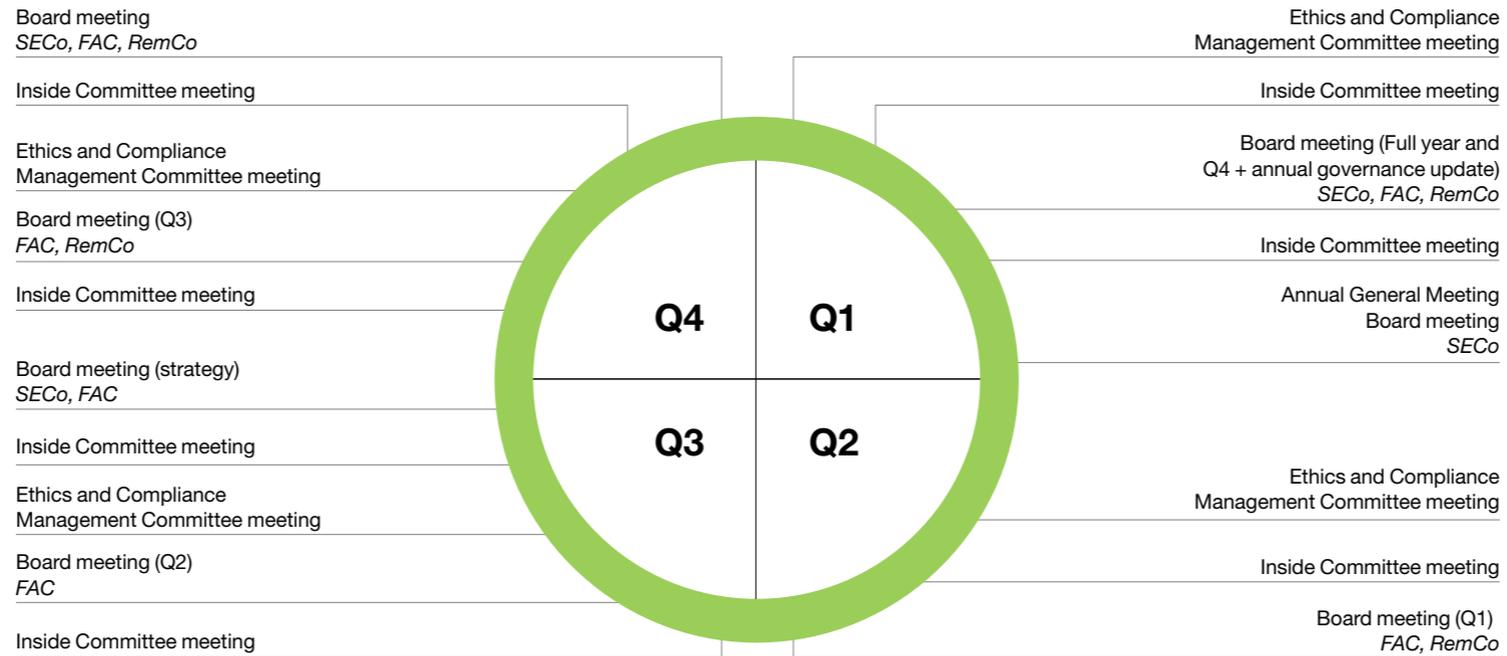
Matters to be handled at Board meetings

- matters specified by the Finnish Companies Act;
- approval of business strategy;
- organisational and personnel matters:

- decisions concerning the basic top management organisation;
- decisions concerning the composition of the GLT;
- remuneration of the CEO;
- appointment and dismissal of the CEO and approval of heads of divisions and other members based on CEO's proposal belonging to the GLT;
- appointment of Committee Chairs and members;
- remuneration of GLT members based on CEO's proposal;
- review talent management and succession planning process (in particular CEO);

- economic and financial matters:
 - approval and review of annual budget;
 - approval of loans and guarantees, excluding intra-group loans and guarantees;
 - approval of share repurchases, if any, as well as report of share repurchases;
 - approval of Group Risk Management Policy according to Financial and Audit Committee's proposal;
- investment matters:
 - approval of investment policy of the group;
 - approval of major investments;
 - approval of major divestments;
 - receive relevant analyst meeting presentations and analyst reports;
- other matters:
 - report of the CEO on the group's operations;
 - reports of the Remuneration Committee, Financial and Audit Committee and Sustainability and Ethics Committee by the chairs of the respective committees. The recommendations and proposals by the Shareholders' Nomination Board shall be reported to the Board by the Chair of the Board;
 - approval and regular review of the Corporate Governance Policy and the charters of the Board Committees;
 - annual self-assessment of Board work and performance as well as independence;
- other matters submitted by a member of the Board or the CEO.

The Board of Directors' and management's annual working cycle



Quarterly
 - Meetings with auditors
 - Divisional Business & Innovation Review meetings

Monthly
 - GLT meetings
 - Investment Working Group meetings

SECo = Sustainability and Ethics Committee
FAC = Financial and Audit Committee
RemCo = Remuneration Committee

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Board committees

The tasks and responsibilities of the Board committees are defined in their charters, which are approved by the Board. All the committees evaluate their performance annually, are allowed to use external consultants and experts when necessary and shall have access to all information needed. Each committee's Chair and members are appointed by the Board annually.

Financial and Audit Committee

The Board has a Financial and Audit Committee to support the Board in maintaining the integrity of the Company's financial reporting and the Board's control functions. It regularly reviews and monitors the system of internal control and internal audit as well as its efficiency, management and reporting of financial risks, the audit process, the Company's procedures for monitoring related party transactions and the annual corporate governance statement. It makes recommendations regarding the appointment of external auditor for the Parent Company and the main subsidiaries and monitors the auditor's independence.

The Committee comprises three to five Board members, who are independent and not affiliated with the Company. The members of the Committee must have sufficient expertise and experience to be able to challenge and evaluate the Company's internal accounting function and internal and external audit functions. At least one member must have the relevant expertise in accounting and auditing as required by applicable regulation. The Financial and Audit Committee meets regularly, at least four times a year. The Committee members meet the external and internal auditors regularly without the management being present. The Chair of the Committee presents a report on each Financial and Audit Committee meeting to the Board. The tasks and responsibilities of the Financial and Audit Committee are defined in its charter, which is approved by the Board. Financial and Audit Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

In 2020

The Financial and Audit Committee comprised four members in 2020: Richard Nilsson (Chair), Jorma Eloranta, Elisabeth Fleuriot and Hock Goh.¹ The Committee convened eight times. The members' participation rate in meetings amounted to 96%.

The main task of the Committee is to support the Board in maintaining the integrity of Stora Enso's financial reporting and the Board's control functions. To fulfil its task the Committee regularly reviews the Company's system of internal control, management and reporting of financial and enterprise risks as well as the audit process. Furthermore, the Committee has increased its focus on IT security and closely monitors related risks. A review of the forest land valuation method has been in focus during the year as well as internal controls and cyber security. The Committee further reviews material compliance related cases relating to the integrity of financial reporting or fraud investigations that have been reported to Internal Audit and Ethics and Compliance during the year.

Remuneration

Chair EUR 21 200 per annum and member EUR 14 800 per annum as decided by the AGM.

The Financial and Audit Committee Charter is presented at storaenso.com/investors/governance.

¹ The Committee prior to the AGM on 4 June 2020 comprised the following three members: Richard Nilsson (Chair), Jorma Eloranta and Elisabeth Fleuriot.

Remuneration Committee

The Board has a Remuneration Committee which is responsible for recommending and evaluating executive nominations and remunerations (including reviewing and recommending the CEO's remuneration), evaluating the performance of the CEO, and making recommendations to the Board relating to management remuneration issues generally, including equity incentive remuneration plans.

The Remuneration Committee also reviews the Remuneration Report and the Remuneration Policy. There is a Remuneration Committee representative present at the AGM to answer questions relating to the management remuneration. The Board appoints the CEO and approves his/her remuneration as well as the nomination and compensation of other members of the Group Leadership Team (GLT).

The Committee comprises three to four Board members, who are independent and not affiliated with the Company. The Remuneration Committee meets regularly, at least once a year. The Chair of the Remuneration Committee presents a report on each Remuneration Committee meeting to the Board. The tasks and responsibilities of the Remuneration Committee are defined in its charter, which is approved by the Board. Remuneration Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

In 2020

The Remuneration Committee comprised three members in 2020. The members were Jorma Eloranta (Chair), Antti Mäkinen and Hans Stråberg. The Committee convened six times. The members' participation rate in meetings amounted to 100%.

The main task of the Committee is to recommend, evaluate and propose executive nominations and remunerations, review the Company's remuneration reporting, and to make recommendations to the Board relating to management remuneration in general, including short and long term incentive programmes. The Committee has further reviewed the external reporting on executive remuneration and in particular the new formatted Stora Enso Remuneration Report, which will be presented to the AGM 2021.

Remuneration

Chair EUR 10 600 and member EUR 6 400 per annum as decided by the AGM.

The Remuneration Committee Charter is presented at storaenso.com/investors/governance.

Sustainability and Ethics Committee

The Board has a Sustainability and Ethics Committee which is responsible for overseeing the Company's sustainability and ethical business conduct, its strive to be a responsible corporate citizen, and its contribution to sustainable development. The Committee regularly reviews Stora Enso's Sustainability Strategy and Ethics and Compliance Strategy and, in accordance with Stora Enso's corporate governance structure, oversees their effective implementation as well as reviews the Company's external sustainability reporting. In its work the Committee takes into consideration Stora Enso's Purpose and Values as well as the Stora Enso Code and Business Practice Policy.

The Committee comprises two to four Board members who are nominated annually by the Board. The members are independent of and not affiliated with Stora Enso. At least one Committee member is expected to have sufficient prior knowledge and experience in handling sustainability and ethics matters.

The Committee meets regularly, at least two times a year. The Chair of the Committee presents a report on each Sustainability and Ethics Committee meeting to the Board. The tasks and responsibilities of the Committee are defined in its charter, which is approved by the Board. Sustainability and Ethics Committee members may receive remuneration solely based on their role as directors. The compensation is decided by the shareholders at the AGM.

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In 2020

The Sustainability and Ethics Committee comprised three members in 2020: Christiane Kuehne (Chair), Håkan Buskhe and Mikko Helander.¹ The Committee convened four times. The members' participation rate in meetings amounted to 100%.

The Committee in each of its meetings reviews the areas relevant for the Committee's work, including safety and sustainability matters as well as ethics and compliance matters. The Committee further reviews safety status and sustainability and ethics and compliance KPI's, sustainability reporting as well as relevant sustainability and safety initiatives and processes carried out during the year. An important part of the Committee's work consists of overseeing reported compliance cases.

Remuneration

Chair EUR 10 600 and member EUR 6 400 per annum as decided by the AGM.

The Sustainability and Ethics Committee Charter is presented at storaenso.com/investors/governance.

¹The Committee prior to the AGM on 4 June 2020 comprised the following three members: Christiane Kuehne (Chair), Hock Goh and Göran Sandberg.

Ad-Hoc Strategy Committee

The Board agreed to form a temporary Ad-Hoc Committee to discuss, prepare and assist Management in making a strategy proposal that was brought to the Board for approval.

In 2020

The Ad-Hoc Strategy Committee comprised four members in 2020: Jorma Eloranta (Chair), Håkan Buskhe, Antti Mäkinen and Annica Bresky. The Committee convened four times. The members' participation rate in meetings amounted to 100%.

The Committee's role was advisory and it had no decision-making power in respect of the strategic issues discussed.

Remuneration

No separate remuneration was paid to the Ad-Hoc Strategy Committee members.

Group Leadership Team as at 31 December 2020



¹ Acting Head of Packaging Solutions until 31 March 2020. Member of GLT as of 1 April 2020.

² Seppo Toikka, acting Head of Wood Products until 30 June 2020, not a member of GLT.

³ Malin Bendz, EVP HR, was a member of GLT until 15 January 2020. Per Lyrvall, acting Head of HR 16 January–31 August 2020.

⁴ Member of GLT as of 1 November 2020.

⁵ Member of GLT as of 1 November 2020.

⁶ Noel Morrin, EVP Sustainability, was a member of GLT until 31 August 2020.

Management of the Company

Chief Executive Officer (CEO)

The CEO is in charge of the day-to-day management of the Company in accordance with the Finnish Companies Act and the instructions and orders issued by the Board. It is the duty of the CEO to ensure that the Company's accounting principles comply with the law and that financial matters are handled in a reliable manner.

The Board approves the main organisation, including the functions reporting to the CEO. At the end of 2020 the CEO was directly in charge of the following functions, which also reported to her:

- Divisions (Packaging Materials, Packaging Solutions, Biomaterials, Wood Products, Forest and Paper)
- CFO (responsible for Accounting, Controlling, Efora, Enterprise Risk Management, Internal Audit, Investor Relations, Tax, Treasury)
- IT and Digitalisation
- Human Resources
- Legal, General Counsel
- Communications and Marketing
- Sustainability
- Sourcing and Logistics
- Strategy and Innovation (responsible for Innovation and R&D, special strategic projects, Corporate Finance and M&A, Investment Process, Energy Services)

The CEO is also responsible for preparatory work with regard to Board meetings. In addition, the CEO supervises decisions regarding key personnel and other important operational matters. One of the GLT members acts as deputy to the CEO as defined in the Finnish Companies Act.

Group Leadership Team (GLT)

The GLT is chaired by the CEO. The GLT members are appointed by the CEO and approved by the Board. At the year end 2020, the fifteen GLT members were the CEO, the CFO, the heads of the divisions, Communications and Marketing, HR, IT and Digitalisation, Legal (who is also General Counsel), Sourcing and Logistics, Strategy and Innovation, and Sustainability.

The GLT assists the CEO in supervising the Group and divisional performance against agreed targets, portfolio strategy, ensuring the availability and value-creating allocation of Group funds and capital, and statutory, governance, compliance and listing issues and policies.

The GLT meets regularly every month, and as required.

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In 2020

The GLT had 15 members at the end of 2020. The GLT convened 12 times during the year. Important items on the agenda in 2020 were Covid-19 related scenarios and mitigation actions, safety issues, financial performance, strategy and transformation, sustainability, customer-driven innovation, reviewing the operations of the Group, planning and following up investment and other strategic projects, digitalisation, and preparatory work for Board meetings. The GLT further held a total of 26 Covid-19 related additional meetings as well as 6 additional meetings to prepare the Company's new strategy.

Divisions and other functions

The divisions are responsible for their respective line of business and are organised and resourced to deal with all business issues. The CEO steers the divisions through quarterly and as needed in Business Performance Reviews as well as the GLT meetings.

Strategic investment projects are approved on group level following the mandate by the CEO and Board of Directors. Each Division will in addition be granted an annual allocation intended for smaller annual replacement and development needs in relation to investments. All projects are reviewed by the Investment Working Group (IWG) comprising group and division representatives and headed by the CFO (also the allocation proposals are made by IWG).

Innovation and R&D is organised in two structures. On group level the long term research and company wide collaborations with academia and external R&D providers are managed by a small team of experts. The innovation related to current and future offering of the businesses are executed within the divisions to drive market and customer focus. The progress of innovation efforts is evaluated in quarterly Business and Innovation Reviews with the CEO, CFO, Head of Innovation and R&D, the division Head and the division Innovation Head. The portfolio of potential transformational innovation projects is reviewed on a quarterly basis by the CEO, CFO, CSIO and the heads of divisions. Innovation funding is supported from group level by both

the innovation and the digitalisation fund, where divisions make proposals, which are then reviewed and decided by IWG.

At Stora Enso, sustainability work is led by the Executive Vice President (EVP), Sustainability, who reports directly to the CEO and is part of the Group Leadership Team (GLT). The CEO holds the ultimate responsibility for the successful implementation of our sustainability strategy. Everyday sustainability topics are managed by the Group Sustainability team together with the Human Resources, Legal, Wood Supply, Group OHS, and Sourcing and Logistics functions, as well as the company's six business divisions. Each of the business divisions has its own Head of Sustainability, who reports directly to the EVP of the division. Other key functions, such as Sourcing and Logistics, have sustainability organisations to support their management teams. The everyday implementation of Stora Enso's Sustainability Agenda is the responsibility of line management supported by functional experts at all levels.

Stora Enso's sustainability work is steered by the Sustainability Council, which includes members from the business divisions, Sourcing and Logistics function, and subject matter experts from the Group Sustainability team. Chaired by the EVP, Sustainability, its work involves sharing good practices and identifying longer-term opportunities and challenges that may require a Group-wide response. The Sustainability Council met ten times during 2020. The GLT is periodically informed of specific sustainability developments, as is the Board of Directors when appropriate, through its Sustainability and Ethics Committee.

The Company has user boards for certain cross-functional service functions (Logistics, IT, Energy and parts of Wood Supply). These user boards consist of representatives of the divisions using these services. The user boards supervise and steer the operations of the respective functions.

The Company has established proper disclosure policies and controls, and process for quarterly and other ongoing reporting.

Other supervisory bodies and norms

Auditor

The AGM annually elects one auditor for Stora Enso. The Financial and Audit Committee

monitors the auditor selection process and gives its recommendation as to who should serve as auditor to the Board for the purpose of making the proposal to the shareholders at the AGM. The auditor shall be an authorised public accounting firm, which appoints the responsible auditor.

Auditor's fees and services

EUR million	Year Ended 31 December	
	2020	2019
Audit fees	4	4
Audit-related	0	0
Tax fees	0	0
Other fees	0	0
Total	4	4

In 2020

The Board in 2020 on the recommendation of the Financial and Audit Committee proposed that PricewaterhouseCoopers Oy be re-elected auditor by the AGM 2020 for the third year as the Company's auditors. The AGM 2020 elected PricewaterhouseCoopers Oy as auditor for a term of office expiring at the end of the AGM 2021.

Internal Audit

Stora Enso's Internal Audit is an independent, objective assurance and consulting activity designed to add value and improve the operations of Stora Enso. Internal Audit helps the organisation to accomplish its objectives by providing a systematic, disciplined approach to evaluate and improve the effectiveness of internal control, risk management and governance processes.

Internal Audit reports regularly about the status of the audits and audit findings to the Financial and Audit Committee, Board of Directors. Administratively Internal Audit reports to the CFO. The Financial and Audit Committee approves the appointment of the Head of Internal Audit following the recommendation by the CEO.

Internal Audit plan is risk and assurance-based and focuses to the core-processes in Stora Enso value chain, supporting processes at the Group

and site levels and key strategic investments in different divisions. As part of process audits and also separately, Internal Audit reviews IT and cyber security management throughout the company on a regular basis. Internal Audit co-operates with other assurance functions during the year in order to avoid overlapping with assurance activities and to be able to identify gaps. Internal audit executes during the year possible special engagements based on separate request and agreed with management and Financial and Audit Committee. Financial and Audit Committee approves Internal Audit Annual Plan and Charter.

Ethics and Compliance Management Committee

Stora Enso's Ethics and Compliance Management Committee supervises and monitors legal and regulatory ethics and compliance related policies, implementation and maintenance of processes and tools regarding the same, and concrete compliance issues and cases in the field of business practices. The Ethics and Compliance Management Committee consists of the General Counsel (Chair), CEO, CFO, Head of HR, Head of Communications and Marketing, Head of Sustainability and Head of Internal Audit with the Legal Counsel dedicated to compliance matters being the secretary. The Ethics and Compliance Management Committee shall convene at least four times every year.

Ethics and Compliance

Stora Enso is committed to taking responsibility for its actions, to complying with all applicable laws and regulations wherever it operates, and to creating and maintaining ethical relationships with its customers, suppliers and other stakeholders. The Stora Enso Code is a single set of values defined for all employees, to provide guidance on the Company's approach to ethical business practices, environmental values, and human and labour rights. These same values are applied wherever Stora Enso operates. In 2011 the company established its Business Practice Policy to complement the Code, which further sets out Stora Enso's approach to ethical business practices and describes the processes for reporting on violations thereof. The Business Practice Policy was revised in 2016 in order to streamline and simplify policies and guidelines. Continuous e-learning, communication, face-to-face training and sign-off are organised in order

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to ensure that these are part of the everyday decision-making and activities at Stora Enso.

Stora Enso uses an index to monitor and evaluate employee perceptions of the work on topics covered by the Stora Enso Code. The index is based on employee responses to related questions in the annual employee survey. After a slight decrease with one unit in 2019 (84) the index increased to 86 in 2020. The target is to continue the positive trend and continued efforts will therefore be put on communication and training in 2021.

In order to enhance the supervision and monitoring of legal and regulatory compliance related policies and issues, Stora Enso has established its Ethics and Compliance Management Committee. In addition, Compliance Forums, comprising of heads of key functions, in divisions, group functions and Chinese operations play an important role in risk assessing and monitoring compliance within their respective areas. The Compliance Forums use the Ethics and Compliance Self-Assessment Tool (T.E.S.T.) to give them a better overview of the progress their units are making in policy implementation, compliance measures taken, and possible gaps and risks in compliance. Results of the T.E.S.T. are covered in Compliance Forums and action plans developed and followed up accordingly.

Stora Enso's employees are encouraged to report any suspected cases of misconduct or unethical behaviour to their own supervisor, or to Human Resources or Legal functions. Stora Enso uses an additional external service, The Speak Up Hotline, through which employees and any third party globally can anonymously report potential non-compliance cases by phone, mail, or online. This service, which covers all of Stora Enso's units, is available 24/7.

Insider administration

The Company complies with EU and Finnish insider regulation as well as the guidelines of Nasdaq Helsinki Oy. The Company's internal insider guidelines are published and distributed throughout the group. Stora Enso's legal function and the General Counsel are responsible for the procedures relating to inside administration, including monitoring compliance with applicable regulation, keeping of inside lists and internal training. The Company has established an Inside Committee composed of the CEO, CFO as well as representatives of Communications

and Marketing, IR and Legal for the purpose of continuously reviewing pending projects and the existence of inside information in the Company.

The Company expects the management and all its employees to act in the way required of an insider. All unpublished information relating to the Company's present and future business operations shall be kept strictly confidential.

Persons discharging managerial responsibilities (PDMR's) in Stora Enso are the members of the Board, the CEO and the CFO, as well as other members of the Group Leadership Team (GLT). PDMR's, as well as their closely related persons, are subject to a duty to notify the Company and the Finnish Financial Supervisory Authority of all transactions with the securities of the Company.

The Company also keeps a list of persons that are involved in the preparation of interim reports and financial results, which is approved by the General Counsel (Closed Period List). Persons included in the list are e.g. members of the Division management teams, members of Financial Communications and Investor Relations as well as the heads and certain team members of Treasury, Group Accounting and Controlling and Legal.

Persons, who participate in the development and preparation of a project that constitutes inside information, are considered project specific insiders. A separate project-specific insider register is established when required by the decision of the General Counsel or Assistant General Counsel.

The insider guidelines do not permit Stora Enso PDMR's or persons involved in the preparation of interim reports or financial results and entered into the Closed Period List to buy or sell any of the Company's securities (i.e. shares, options and synthetic options) during the closed period defined below or when they possess information that could have a material impact on the Stora Enso share price.

Closed period

Stora Enso closed period starts when the reporting period ends or 30 days prior to the announcement of the results, whichever is earlier and lasts until the results are announced. The dates are published in the financial calendar at storaenso.com/investors.

During closed periods Stora Enso PDMR's or persons entered into the Company's Closed Period List are not allowed to trade in Company securities.

Guidelines for Related Party Transactions

The principles applicable to monitoring of Stora Enso related party transactions are set out in Stora Enso's Guideline for Related Party Transactions. The Guideline defines Stora Enso related parties and sets out the decision-making order and principles for monitoring related party transactions including a description of Stora Enso internal controls with regards to related party transactions. Information on material transactions with related parties is set out in Note 31 of Stora Enso's consolidated financial statements.

Stora Enso business activities may include regular or less frequent transactions with related parties. Transactions with related parties shall always promote the purpose of the Company and be concluded on acceptable terms and in the interest of the Company, as well as in compliance with prevailing regulation. Internal controls have been designed to ensure that related party transactions are duly monitored and identified.

Related party transactions, which are part of the ordinary course of business and undertaken on market terms are approved in accordance with the Company's internal guidelines. Any transaction which would not meet these terms must be reported to the Financial and Audit Committee and approved by the Board of Directors. The Board of Directors is responsible for overseeing the processes established for monitoring related party transactions.

Internal control and risk management related to financial reporting

Internal control over financial reporting

The system of internal control related to financial reporting in the Stora Enso group is based upon the framework issued by the Committee of Sponsoring Organisations (COSO) and comprises five principal components of internal control: the control environment, risk assessment, control activities, information and communication, and monitoring.

The internal controls related to financial reporting are designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with applicable laws and regulations, generally accepted accounting principles and other requirements for listed companies.

Control environment

Stora Enso's control environment sets the tone of the organisation providing the company purpose and values, policies, processes and structures as a foundation for carrying out internal control across the organisation. Stora Enso has a formal Code that sets forth its rules. To complement the Code, Stora Enso has a Business Practice Policy, which further sets out Company's approach to ethical business practices and describes the processes for reporting on violations thereof. All employees are expected to comply with the Code and the Business Practice Policy. Continuous e-learning, face-to-face training and sign-off are organised in order to ensure that these are part of the everyday decision-making and activities at Stora Enso.

The Board, supported by the Financial and Audit Committee, has the overall responsibility for setting up an effective system of internal control and risk management. Responsibility for maintaining effective risk management and internal controls over financial reporting is delegated to the CEO. The GLT and senior management issue corporate guidelines in accordance with Stora Enso's policy management process. These guidelines stipulate responsibilities and authority and constitute the control environment for specific areas, such as finance, accounting, investments, purchasing and sales. These responsibilities have been described in Stora Enso's Risk and Internal Control Policy which also outlines the responsibilities of the first and second line of defense. Group Internal Control function, under the CFO's supervision, is responsible for group-wide internal control governance and processes, whereas divisions, various support and service functions are accountable for operating effective internal controls.

Risk assessment

Stora Enso's management specifies objectives relating to the preparation of financial statements. The Company applies an annual process to establish the overall materiality and to identify significant financial statements accounts and disclosures. Relevant objectives and risks for processes are identified and evaluated to determine Stora Enso's minimum internal control requirements for all business units and support functions. The assessment of risks includes risks related to fraud and irregularities as well as the risk of loss or the misappropriation of assets.

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Information on the development of essential risk areas and executed and planned activities in these areas are regularly communicated to the Financial and Audit Committee. A comprehensive description of Stora Enso's risk management can be found at storaenso.com/investors.

Control activities

Stora Enso's control activities are the policies, guidelines, procedures and organisational structures in place to ensure that management directives are carried out and that necessary action is taken to address risks related to the achievement of objectives relating to financial reporting. Stora Enso's minimum internal control requirements are aimed at preventing, detecting and correcting material accounting and disclosure errors and irregularities and are performed on all company levels. They include a range of activities such as approvals, authorisations, verifications, reconciliations, reviews of operating performance,

the security of assets and the segregation of duties as well as general IT controls.

Information and communication

The Company's information and communication channels support the completeness and correctness of financial reporting. For example, the management communicates information about Stora Enso's financial reporting objectives, financial control requirements, policies and procedures regarding accounting and financial reporting to all employees concerned. The management also communicates regular updates and briefings regarding changes in accounting policies and reporting and disclosure requirements. Subsidiaries and operational units make regular financial and management reports to the management, including the analysis of and comments on financial performance and risks. The Board receives monthly financial reports. The Company has internal and external procedures

for anonymous reporting of violations related to accounting, internal controls and auditing matters.

Monitoring

The Company's financial performance is reviewed at each Board meeting. The Financial and Audit Committee reviews all Interim Reports and the Board approves them before they are released by the CEO. The annual financial statements and the Report of the Board of Directors are reviewed by the Financial and Audit Committee and approved by the Board. The effectiveness of the process for assessing risks and the execution of control activities are monitored continuously at various levels. Information on the development of essential risk areas and executed and planned activities in these areas are regularly communicated to the Financial and Audit Committee. Monitoring involves both formal and informal procedures applied by management and processes owners, including reviews of

results which are compared against the set budgets and plans, analytical procedures and key performance indicators. Stora Enso is utilizing an internal control tool to facilitate and automate internal control processes, control performance, continuous controls monitoring and quarterly internal control reporting to management. In 2020 Stora Enso has increased control validation testing scope and continued harmonising control performance over financial reporting.

In addition to the Group Internal Control function, Stora Enso Internal Audit has an independent oversight role on internal control governance. Internal Audit regularly evaluates the implementation level of policies and guidelines as well as the effectiveness and efficiency of Stora Enso's governance, risk management and system of internal control over financial reporting according to the Internal Audit charter, approved by The Financial and Audit Committee.



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Members of the Board of Directors



Jorma Eloranta

Born 1951. M.Sc. (Tech.), D.Sc. (Tech.) h.c.

Position

Chair of Stora Enso's Board of Directors since April 2017, Vice Chair April 2016–April 2017. Member of Shareholders' Nomination Board since April 2016. Chair of the Remuneration Committee since April 2017 and member since April 2016. Member of the Financial and Audit Committee since April 2017.

Board memberships

Chair of the Board of Finnish Fair Foundation. Vice Chair of the Supervisory Board in Finnish Naval Foundation. Chair of the Board and CEO of Pienelo Ltd.

Principal work experience and other information

President and CEO of Metso 2004–2011, President and CEO of Kvaerner Masa-Yards 2001–2003 and President and CEO of Patria Industries Group 1997–2000. Executive Vice President of Finvest Group and Jaakko Pöyry Group 1996 and President of Finvest 1985–1995.

Total remuneration 2020, EUR ¹	222 400
Meeting attendance	14/14
FAC attendance	8/8 ●
RemCo attendance	6/6 ●
SECo attendance	
Shareholding in Stora Enso ²	1 150 A shares, 34 285 R shares
Independent member	Yes



Hans Stråberg

Born 1957. M.Sc. (Eng.).

Position

Vice Chair of Stora Enso's Board of Directors since April 2017 and member since April 2009. Member of Shareholders' Nomination Board since April 2017. Member of the Remuneration Committee since March 2010.

Board memberships

Chair of the Board of Atlas Copco AB, Roxtec AB, CTEK Holding AB and AB SKF. Member of the Board of Investor AB, Mellby Gård AB, and Anocca AB.

Principal work experience and other information

President and CEO of AB Electrolux 2002–2010. Several management positions at Electrolux in Sweden and the USA 1983–2002.

Total remuneration 2020, EUR ¹	118 400
Meeting attendance	14/14
FAC attendance	
RemCo attendance	6/6 ●
SECo attendance	
Shareholding in Stora Enso ²	45 389 R shares
Independent member	Yes



Håkan Buskhe

Born 1963. M.Sc. (Eng.), Licentiate of Engineering.

Position

Member of Stora Enso's Board of Directors since June 2020. Member of the Sustainability and Ethics Committee since June 2020.

Board memberships

Chair of the Board of Directors of IPCO AB. Member of the Board of AB SKF, Munters Group and Kopparfors Skogar.

Principal work experience and other information

CEO of FAM AB. CEO and President of SAAB AB 2010–2019 and E.ON Nordic 2008–2010. Executive positions in E.ON Sweden 2006–2008, CEO of the logistics company Schenker North 2001–2006, as well as several positions in Storel AB 1998–2001, Carlsberg A/S 1994–1998 and Scansped AB 1988–1994.

Total remuneration 2020, EUR ¹	82 400
Meeting attendance	6/6 ³
FAC attendance	
RemCo attendance	
SECo attendance	2/2 ⁴ ●
Shareholding in Stora Enso ²	2 781 R shares
Independent member	Yes/no ⁵



Elisabeth Fleuriot

Born 1956. M.Sc. (Econ.).

Position

Member of Stora Enso's Board of Directors since April 2013. Member of the Financial and Audit Committee since March 2019.

Board memberships

Board member and Chair of CSR Committee at G4S. Chair of the Board of Ynsect and Foundation Caritas.

Principal work experience and other information

Senior advisor at Astanor Venture Capital. President and CEO of Thai Union Europe Africa 2013–2017. Senior Vice President, Emerging Markets and Regional Vice President, France, Benelux, Russia and Turkey, in Kellogg Company 2001–2013. General Manager, Europe, in Yoplait, Sodial Group 1998–2001. Several management positions in Danone Group 1979–1997.

Total remuneration 2020, EUR ¹	90 800
Meeting attendance	12/14
FAC attendance	7/8 ●
RemCo attendance	
SECo attendance	
Shareholding in Stora Enso ²	26 512 R shares
Independent member	Yes



Hock Goh

Born 1955. B. Eng. (Hons) in Mechanical Engineering.

Position

Member of Stora Enso's Board of Directors since April 2012. Member of the Financial and Audit Committee since June 2020.

Board memberships

Member of the Board of AB SKF, Santos Australia and Vesuvius Plc.

Principal work experience and other information

Operating Partner of Baird Capital Partners Asia 2005–2012. President of Network and Infrastructure Solutions, Schlumberger Ltd 2002–2005 and President Asia, Schlumberger Ltd 1998–2002.

Total remuneration 2020, EUR ¹	90 800
Meeting attendance	14/14
FAC attendance	4/4 ⁶ ●
RemCo attendance	
SECo attendance	
Shareholding in Stora Enso ²	31 265 R shares
Independent member	Yes

FAC = Financial and Audit Committee
RemCo = Remuneration Committee
SECo = Sustainability and Ethics Committee

● Chair ● Member

¹ Detailed description of remuneration for Board and Committee memberships as decided by the AGM in 2020 in Remuneration Report on page 4.

² Shares held by Board members and related parties. Board members' related parties held no Stora Enso shares.

³ Meetings attended out of the meetings held after election as Board member.

⁴ Meetings attended out of the meetings held after election as SECo member.

⁵ Håkan Buskhe is independent of the company but not of its significant shareholders due to his position as the CEO of FAM AB.

⁶ Meetings attended out of the meetings held after election as FAC member.

The independence is evaluated in accordance with Recommendation 10 of the Finnish Corporate Governance Code. The full recommendation can be found at cgfinland.fi. A significant shareholder according to the recommendation is a shareholder that holds at least 10% of all company shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares.



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Mikko Helander

Born 1960. M.Sc. (Tech.).

Position

Member of Stora Enso's Board of Directors since March 2019. Member of the Sustainability and Ethics Committee since June 2020.

Board memberships

Vice Chair of the Board of the Confederation of Finnish Industries EK. Vice Chair of the Board of Finnish Commerce Federation as of 1 January 2021. Chair of the Board of Rajamme Vartijain Säätiö foundation. Member of the Finnish Chambers of Commerce and Climate Leadership Coalition. Member of the Delegation of Finnish Business and Policy Forum EVA. Member of the supervisory Board of Finnish Fair Foundation.

Principal work experience and other information

President and CEO of Kesko Oyj since 2015. CEO of Metsä Board Oyj 2006–2014 and Metsä Tissue Oyj 2003–2006. Several management positions in Valmet Oyj 1984–1990 and 1993–2003. Managing Director of Kasten Hövik Oy 1990–1993.

Total remuneration 2020, EUR ¹	82 400
Meeting attendance	14/14
FAC attendance	
RemCo attendance	
SECo attendance	2/2 ³ ●
Shareholding in Stora Enso ²	7 079 R shares
Independent member	Yes



Christiane Kuehne

Born 1955. LL.M., B.B.A.

Position

Member of Stora Enso's Board of Directors since April 2017. Chair of the Sustainability and Ethics Committee since March 2019.

Board memberships

Member of the Board of James Finlays Ltd, Wetter Foundation and Foundation Pierre du Bois.

Principal work experience and other information

Operative roles within the Nestlé Group 1977–2015. Her last operative role at Nestlé was as Head of Strategic Business Unit Food with strategic responsibility for the food business of Nestlé at global level.

Total remuneration 2020, EUR ¹	86 600
Meeting attendance	14/14
FAC attendance	
RemCo attendance	
SECo attendance	4/4 ●
Shareholding in Stora Enso ²	11 073 R shares
Independent member	Yes



Antti Mäkinen

Born 1961. LL.M.

Position

Member of Stora Enso's Board of Directors since March 2018. Member of the Remuneration Committee since March 2019.

Board memberships

Member of the Board of Rake Oy, Metso Outotec Oyj and Sampo Oyj. Chair or a member of the shareholders' nomination boards of several listed companies.

Principal work experience and other information

CEO of Solidium Oy since 2017. Several leading management positions within Nordea Corporate & Investment Banking, most notably as Head of Corporate Finance in Finland, Head of Strategic Coverage unit and as Co-Head for Corporate & Investment Banking, Finland 2010–2017. CEO of eQ Corporation and its main subsidiary eQ Bank Ltd. 2005–2009.

Total remuneration 2020, EUR ¹	82 400
Meeting attendance	14/14
FAC attendance	
RemCo attendance	6/6 ●
SECo attendance	
Shareholding in Stora Enso ²	7 498 R shares
Independent member	Yes/no ⁴



Richard Nilsson

Born 1970. B.Sc. (BA and Econ.).

Position

Member of Stora Enso's Board of Directors since April 2014. Chair of the Financial and Audit Committee since April 2016 and member since April 2015.

Board memberships

Member of the Board of Directors of IPCO AB and group companies, and Cinder Invest AB.

Principal work experience and other information

Investment Manager at FAM AB since 2008. Pulp & paper research analyst at SEB Enskilda 2000–2008, Alfred Berg 1995–2000 and Handelsbanken 1994–1995.

Total remuneration 2020, EUR ¹	97 200
Meeting attendance	14/14
FAC attendance	8/8 ●
RemCo attendance	
SECo attendance	
Shareholding in Stora Enso ²	23 615 R shares
Independent member	Yes/no ⁵

FAC = Financial and Audit Committee
RemCo = Remuneration Committee
SECo = Sustainability and Ethics Committee

● Chair ● Member

¹ Detailed description of remuneration for Board and Committee memberships as decided by the AGM in 2020 in Remuneration Report on page 4.

² Shares held by Board members and related parties. Board members' related parties held no Stora Enso shares.

³ Meetings attended out of the meetings held after election as SECo member.

⁴ Antti Mäkinen is independent of the company but not of its significant shareholders due to his position as the CEO of Solidium Oy.

⁵ Richard Nilsson is independent of the company but not of its significant shareholders due to his employment at FAM AB.

The independence is evaluated in accordance with Recommendation 10 of the Finnish Corporate Governance Code. The full recommendation can be found at cgfinland.fi. A significant shareholder according to the recommendation is a shareholder that holds at least 10% of all company shares or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares.

Göran Sandberg was Member of Stora Enso's Board of Directors since April 2017 until his resignation on 4 June 2020. Sandberg has participated in all Board and relevant Committee meetings held during 2020 prior to his resignation. He was independent of the company but not of its significant shareholders due to his position as executive director of majority shareholders of FAM AB, a significant shareholder of the company.

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Members of the Group Leadership Team



Annica Bresky

Born 1975. M.Sc. (Engineering), MBA.

Position

President and Chief Executive Officer (CEO). Member of the GLT since 2017. Joined the company in 2017. President and CEO since 1 December 2019.

Board memberships, principal work experience and other information

Executive Vice President, Consumer Board Division 2017–2019. President and CEO of Iggesund Paperboard AB, part of the Swedish Holmen Group 2013–2017. Mill Director at BillerudKorsnäs AB 2010–2013. Prior to that engineering and superintendent positions at Stora Enso's Kvarnsveden Mill in 2001–2010. Member of the Board of AB Fagerhult.

Shareholding in Stora Enso

14 511 R shares



Seppo Parvi

Born 1964. M.Sc. (Econ.).

Position

Chief Financial Officer (CFO), Deputy CEO. Country Manager Finland and member of the GLT since 2014. Joined the company in 2014.

Board memberships, principal work experience and other information

CFO and EVP, Food and Medical Business Area at Ahlstrom Corporation 2009–2014. CFO for Metsä Board (M-real) 2006–2009. Prior to that various line management positions at the packaging company Huhtamäki, including responsibilities such as paper manufacturing within Rigid Packaging Europe and General Manager for Turkey. Chair of the Board of the Finnish Forest Industries Federation as of 1 January 2021. Deputy Chair of the Board of Pohjolan Voima Oy. Member of the Board of Ilmarinen and East Office of Finnish Industries Oy.

Shareholding in Stora Enso

46 401 R shares



Tobias Bäärman

Born 1977. M.Sc. (Econ.).

Position

Chief Strategy and Innovation Officer. Member of the GLT since 1 November 2020. Joined the company in 2017.

Board memberships, principal work experience and other information

SVP Controlling, Strategy and IT for Consumer Board division 2017–2019. Prior to that Finance Director at Iggesund Paperboard and various positions at Statoil and Procter and Gamble.

Shareholding in Stora Enso

0



David Ekberg

Born 1975. B.Sc. (Business Administration).

Position

Executive Vice President, Packaging Solutions. Member of the GLT since 1 April 2020. Joined the company in 2017.

Board memberships, principal work experience and other information

Acting Head of Stora Enso Packaging Solutions until 31 March 2020. Senior Vice President and Head of Business Unit Nordic Packaging at Stora Enso 2018–2019. Senior Vice President and Head of Finance and IT Packaging Solution at Stora Enso 2017–2018. Executive Vice President / CFO / COO at Climeon AB 2015–2017. Several management positions at Ericsson Group 1997–2015.

Shareholding in Stora Enso

625 R shares



Johanna Hagelberg

Born 1972. M.Sc. (Industrial Eng. & Mgmt) and M.Sc. (Eng. and Mgmt of Manufacturing Systems).

Position

Executive Vice President, Sourcing and Logistics. Member of the GLT since 2014. Joined the company in 2013.

Board memberships, principal work experience and other information

SVP Sourcing, Stora Enso Printing and Living 2013–2014. Chief Procurement Officer at Vattenfall AB 2010–2013. Prior to that leading Sourcing positions at NCC, RSA Scandinavia and within the Automotive Industry. Member of the Board of Bufab AB.

Shareholding in Stora Enso

24 795 R shares

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Kati ter Horst

Born 1968. MBA (International Business), M.Sc. (Econ.).

Position

Executive Vice President, Paper Division. Member of the GLT since 2014. Joined the company in 1996.

Board memberships, principal work experience and other information

Senior Vice President, Paper Sales, Stora Enso Printing and Living until 2014. Prior to that several managerial positions in the paper business. Chairman of the Board of EURO-GRAPH asbl. Member of the Board of Outokumpu Oyj, Finnish Forest Industries Federation and Climate Leadership Coalition.

Shareholding in Stora Enso

56 467 R shares



Hannu Kasurinen

Born 1963. M.Sc. (Econ.).

Position

Executive Vice President, Packaging Materials Division. Member of the GLT since 2019. Joined the company in 1993.

Board memberships, principal work experience and other information

Several leadership positions in Stora Enso, including EVP and SVP, Liquid Packaging and Carton Board in Consumer Board Division, Group Treasurer, SVP of Strategy and EVP of Wood Products Division.

Shareholding in Stora Enso

35 486 R shares



Katariina Kravi

Born 1967. LL.M., Trained on the Bench.

Position

Executive Vice President, HR. Member of the GLT since 1 September 2020. Joined the company 1 September 2020.

Board memberships, principal work experience and other information

EVP, HR and Chief People and Culture Officer at Tieto Oyj 2012–2020. Prior to that several HR management positions at Nokia.

Shareholding in Stora Enso

0



Ulrika Lilja

Born 1975. M.Sc. (BA and Econ.).

Position

Executive Vice President, Communications and Marketing. Member of the GLT since 2014. Joined the company in 2014.

Board memberships, principal work experience and other information

Senior Vice President Communications, Stora Enso Printing and Living in 2014. Director of External Communications at SSAB 2010–2013. Prior to that several leading communications positions at OMX Stockholm Stock Exchange and Neonet. Member of the Board of Swedish Association of Communication Professionals.

Shareholding in Stora Enso

20 067 R shares



Per Lyrvall

Born 1959. LL.M.

Position

Executive Vice President, Legal, General Counsel. Country Manager Sweden since 2013. Member of the GLT since 2012. Joined the company in 1994.

Board memberships, principal work experience and other information

Legal Counsel 1994–2008. Prior to joining Stora Enso legal positions at Swedish courts, law firms and Assi Domän. Deputy Member of the Board of Skogsindustrierna.

Shareholding in Stora Enso

69 199 R shares directly, 1 257 R shares through related persons (spouse)

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Markus Mannström

Born 1963. M.Sc. (Paper Tech.).

Position

Executive Vice President, Biomaterials Division. Member of the GLT since 2015. Joined the company in 2001.

Board memberships, principal work experience and other information

Chief Technology Officer (CTO) of the company 2015–2017. Member of the Renewable Packaging division management team 2009–2014. Member of the Board of Teollisuuden Voima Oyj, Montes del Plata, Veracel and Tree to Textile. Deputy Member of the Board of Pohjolan Voima Oy.

Shareholding in Stora Enso

25 251 R shares



Teemu Salmi

Born 1973. B.Sc. (Computer Science).

Position

CIO, Head of IT & Digitalisation. Member of the GLT since 1 November 2020. Joined the company in 2017.

Board memberships, principal work experience and other information

Various executive positions at Ericsson, most recently as SVP and Head of business unit IT & Cloud in Middle East & Africa.

Shareholding in Stora Enso

6 620 R shares



Annette Stube

Born 1967. Master's degree in psychology.

Position

Executive Vice President, Sustainability. Member of the GLT since 1 September 2020. Joined the company 1 September 2020.

Board memberships, principal work experience and other information

Head of Sustainability in A.P. Møller–Maersk 2008–2020. Prior to that Director of Sustainability programmes in Novo Nordisk. Member of the Board of Fortum.

Shareholding in Stora Enso

0



Jari Suominen

Born 1969. M.Sc. (BA).

Position

Executive Vice President, Forest Division. Member of the GLT since 2014. Joined the company in 1995.

Board memberships, principal work experience and other information

Executive Vice President, Wood Products Division until 2019. Senior Vice President, Head of Building and Living Business Area until 2014. Prior to that several managerial positions in paper and wood products businesses. Chair of Finnish Wood Products Industry Association. Member of the supervisory board of Varma Mutual Pension Insurance Company. Deputy Member of the Board of East Office of Finnish Industries Oy.

Shareholding in Stora Enso

49 002 R shares



Lars Völkel

Born 1975. M.Sc. (BA), leadership degree from Hult Ashridge Business School.

Position

Executive Vice President, Wood Products Division. Member of the GLT since 1 July 2020. Joined the company 1 July 2020.

Board memberships, principal work experience and other information

CEO of Ambibox GmbH 2018–2020. CEO of Franke Kitchen Systems 2014–2017. EVP Luxury retail & CEO of Poggenpohl at Nobia 2011–2014. Has held various managerial positions at Electrolux incl. VP Western Europe.

Shareholding in Stora Enso

0

Malin Bendz, EVP HR, was a member of GLT until 15 January 2020. Per Lyrvall, acting Head of HR 16 January–31 August 2020.
Seppo Toikka, acting Head of Wood Products until 30 June 2020. Was not a member of GLT.
Noel Morrin, EVP Sustainability, was a member of the GLT until 31 August 2020.

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Due to differences between the Swedish and Finnish legislation, governance code rules and corporate governance practices Stora Enso's Corporate Governance deviates in the following aspects from the Swedish Corporate Governance Code:

Rule 1.3 The company's nomination committee is to propose a chair for the annual general meeting. The proposal is to be presented in the notice of the meeting.

- According to Finnish annual general meeting (AGM) practice, the Chair of the Board of Directors opens the meeting and proposes the chair for the AGM. The proposed chair is normally an attorney-at-law.

Rule 2.1 The nomination committee is also to make proposals on the election and remuneration of the statutory auditor.

- According to the Finnish Code, the Financial and Audit Committee shall make a recommendation on the auditor election for the Board, which shall give its proposal on the matter to the AGM.

Rule 9.6 The shareholders' meeting is to decide on all share and share-price related incentive schemes for the executive management.

- The company's incentive schemes are established by the Board of Directors. If the programmes include the issuance of new shares or disposal of shares held by the Company then such issuance of share or an authorisation to the Board of Directors to decide on such issuance of shares will be subject to shareholder approval.

Rule 9.9 Guidelines regarding remuneration to the board and executive management are also to cover salary and other remuneration to other members of the executive management.

- According to the Finnish Code, the remuneration guidelines (called policy according to the Finnish Code) is not to cover other executives than the CEO and Deputy CEO, and shall cover all Board remuneration.

Rule 10.5 The remuneration report is to contain a reference to where in the company's annual report the information required by Chapter 5, Sections 40–44 of the Swedish Annual Accounts Act (1995:1554) is to be found.

- The Company reports in accordance with the Finnish accounting regulation and does therefore not include this note in its remuneration report.



Remuneration

Part of Stora Enso's Annual Report 2020

THE RENEWABLE MATERIALS COMPANY





Remuneration

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Letter from the Remuneration Committee Chair

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- Remuneration development
- Remuneration policy summary

Remuneration Report 2020

Introduction

This report has been prepared in accordance with the Finnish Corporate Governance Code of 2020, which is available at cgfinland.fi. Stora Enso also complies with the Swedish Corporate Governance Code ("Swedish Code"), with the exception of the deviations listed in [Appendix 1](#) of the Corporate Governance Report. The deviations are due to differences between the Swedish and Finnish legislation, governance code rules, and practices. Where differences exist, Stora Enso follows the practice in its domicile. The Swedish Code is issued by the Swedish Corporate Governance Board and is available at corporategovernanceboard.se.

Letter from the Remuneration Committee Chair

Dear Shareholders,

On behalf of the Board, I present our 2020 Remuneration Report. This report includes the main principles of our remuneration for the members of the Board of Directors, President and CEO, and Deputy CEO, and our remuneration decision-making procedure; a description of our current policy and details of how our remuneration arrangements were implemented during year 2020. Information on remuneration for the Group Leadership Team is presented in **Financials 2020**.

The company's remuneration policy was published by a stock exchange release on 30 January, 2020, and was presented to the Annual General Meeting on 4 June 2020. In favour of the remuneration policy, 98.91 percent of the total votes were cast. Based on the voting results, it was recorded that the AGM decided to support the presented remuneration policy. I want to thank our shareholders for their strong support.

General remuneration principles

Stora Enso aims to provide a level of remuneration that motivates, encourages, attracts and retains employees of the highest calibre. To maximise the effectiveness of remuneration within Stora Enso, careful consideration is taken to ensure that the remuneration elements drive the business strategy of the company and its long-term financial interests. The Remuneration Committee is fully aware of its responsibility in ensuring that remuneration supports and drives our strategic priorities. In addition, a fundamental element in the remuneration principles at Stora Enso is the concept of pay-for-performance, and an important aspect of our approach to remuneration is to look at the total remuneration provided to employees.

In 2020, our remuneration policy was ranked the best for Large Cap companies in Finland, which is a highly appreciated accolade for the work we have done in Stora Enso to prepare this policy. The members of the ranking committee included representatives from the pension insurance company Varma, the Directors' Institute of Finland, and Nasdaq. Our remuneration policy was particularly praised for its connection to the Group's strategy and sustainability work. The policy was also considered thorough and precise. The remuneration elements must drive the company's business strategy and its long-term financial interests. Our clear and transparent policy is formulated to achieve that goal.

Remuneration outcomes during 2020

Similar to many other companies, we have experienced unprecedented uncertainties and a very difficult business environment surrounding the worldwide outbreak of Covid-19 during the past year.

In a few weeks after we announced our 2020 incentive plans, the situation completely changed, and though the impact of the outbreak remained uncertain, it became clear that the calculations and forecasts that these plans were based on were quickly becoming obsolete.

One of the key focus areas for Stora Enso during this year, besides safeguarding the safety of our people, was to strengthen our financial resilience and to weather the challenging times we had ahead of us. In order to do that, securing and enhancing our cash flow was key. It was also important that our STI program reflected this change and aligned our focus with our company's interests. After careful consideration we reassessed our STI targets and replaced all operational/individual targets in the 2020 STI plan with a cash flow metric, except those targets that relate to safety.

During the year, all remuneration to members of the Board of Directors, President and CEO, and Deputy CEO in relation to 2020 was

awarded in accordance with the approved Remuneration policy.

The outcome of the Short term incentive plan for 2020 was approved in early 2021 in relation to performance against the financial metrics Earnings Before Interest, Taxes, Depreciation, Amortisation (EBITDA) and Operating Working Capital (OWC) that had been set at the beginning of the year, and measurable operational metrics (cash flow and safety). Stora Enso achieved performance beneath applicable financial targets for the year, which resulted in STI earnings below target for the CEO and Deputy CEO. Details of the STI outcomes are provided in the section on Short Term Incentive (STI) programme for the CEO and Deputy CEO.

The 2018 Performance share plan outcome was approved in early 2021 based on pre-agreed measures. Performance was measured over three years beginning on 1 January, 2018, and ending on 31 December, 2020. Further details of the vesting outcome for the share programmes is provided in the section on Long Term Incentive (LTI) programmes for the CEO and Deputy CEO.

Remuneration Policy review

Whilst our policy has just completed its first year of implementation, the Committee will continue to monitor its effectiveness and appropriateness for our business. By the publication date of this report, no changes have been proposed to the policy, and no clawback provisions have been used. We will ensure that the policy continues to support the Group's strategy, which was updated at the end of year 2020. In addition, the alignment with external views on executive remuneration will be reviewed carefully.

On behalf on the Committee and the board, I thank you for your continued support.

Jorma Eloranta
Chair of the Remuneration Committee

Remuneration

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Letter from the Remuneration Committee Chair

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Remuneration development

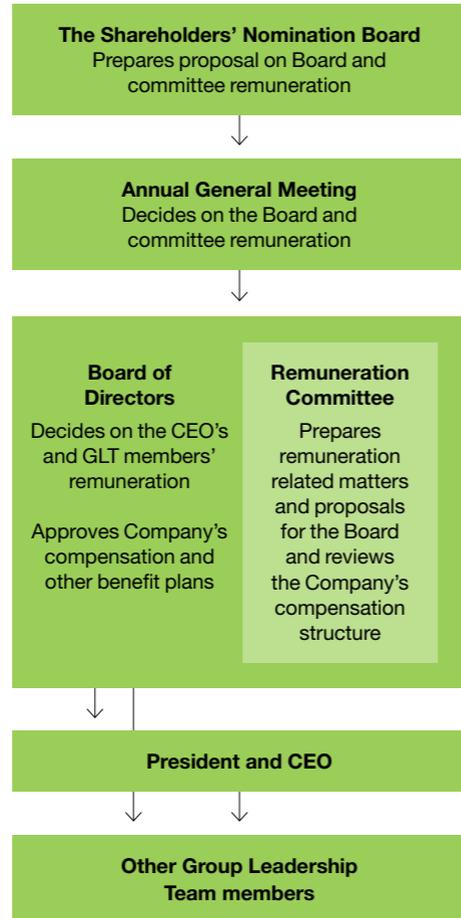
Remuneration policy summary

Remuneration Report 2020

Decision-making procedure

The shareholders at the AGM decide annually on the remuneration of the Board members (including the remuneration of the members of Board committees). The proposals for the AGM concerning the remuneration for the Chair, Vice Chair and members of the Board as well as the remuneration for the Chair and members of the committees of the Board are prepared by the Company's Shareholders' Nomination

Remuneration decision-making procedure



Board, which is composed of representatives of the main shareholders of the Company as well as Board member representatives and described in more detail in **Governance 2020**. The Board representatives of the Shareholders' Nomination Board do not participate in the decision-making relating to Board or Board Committee remuneration.

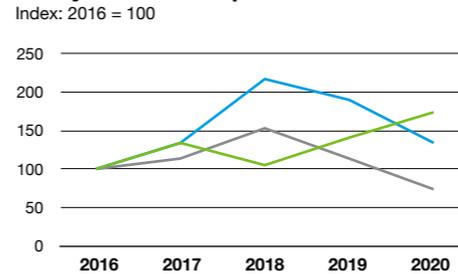
The Board appoints the CEO and approves his/her remuneration as well as the remuneration of other GLT members. The Board's Remuneration Committee prepares remuneration related matters and proposals for the Board and is further responsible for ensuring that management remuneration principles are aligned with the Company's objectives and shareholder interest.

Remuneration development

The graph below shows the development for selected financial measures since 2016 and up until 2020.

The graph "Five-year comparison of paid remuneration" shows the CEO, Deputy CEO, Board, and average employee remuneration development since 2016 and up until 2020. Amounts have been indexed to 100 at the 2016 year level in order to show the relative development in the years 2016–2020.

Five-year financial performance



¹ Based on Factset data.
² Earnings per share (EPS) year-to-date.
³ Operational Earnings Before Interest and Tax (EBIT).

During the period 2016–2020, the employee average remuneration has stayed relatively unchanged, while the board members remuneration increased by 8.3% (108.3), and Deputy CEO remuneration increased by 39.6% (139.6).

There was a high variance in CEO and Deputy CEO remuneration in the 2016–2020, since these are heavily dependent on variable pay parts (STI and LTI) that depend on financial company performance. Financial performance (EPS, Operating EBIT) increased in 2017–2018, which also resulted in higher variable pay outcomes, but since 2018, financial performance and also variable pay-outs have been lower. As a result, CEO and deputy CEO remuneration increased in 2017 and 2018 but then decreased in 2019–2020. It should be noted that though

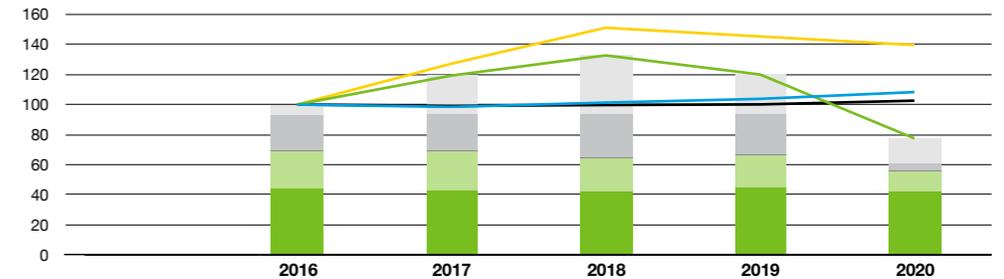
we can show a correlation between financial performance and variable pay, variable pay outcomes depend on performance towards set targets that may be higher or lower than actual outcomes.

To illustrate the impact of different components to CEO remuneration, we have broken down the remuneration into bars that illustrate the relative development of pay elements in 2016–2020. Due to variance in variable pay, CEO remuneration increased in 2017–2019 but fell back in 2020 compared to 2016.

At Stora Enso, company performance is linked to the remuneration for approximately 98% of our employees through various profit sharing and variable pay programmes.

Five-year comparison of paid remuneration

Index: 2016 = 100



	2016	2017	2018	2019	2020
Board member average ¹	100.0	98.4	101.3	103.8	108.3
President and CEO ^{2,3}	100.0	119.3	132.7	120.0	77.5
Deputy CEO ³	100.0	127.2	151.1	145.3	139.6
Employee average ⁴	100.0	99.1	99.7	100.1	102.6

President and CEO

- Annual salary
- Pension
- Other benefits
- Short Term Incentives
- Long Term Incentives

¹ Total Board member fees divided by number of Board members. The index will vary depending on the total board fees paid as well as the Board composition.

² Current President and CEO started on 1 December 2019. Due to that, only 1 month of STI was paid in 2020 as time in the CEO position, whereas full year of STI will be included in the 2021 figures. Amounts in the years 2019–2020 relate to payments made to the current President and CEO after that date, as well as amounts paid to the previous President and CEO that relate to the period before that date.

³ Remuneration depends on a fixed part, such as base salary, pension and other benefits, but also to a large extent on variable pay parts that may result in higher or lower total remuneration year-to-year.

⁴ The total wages and salaries paid to employees in Stora Enso divided by the average number of employees. The index will vary based on the total headcount and total wages and salaries paid.

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Remuneration Policy Summary

This Remuneration Policy summary describes Stora Enso's main principles and the decision-making process of remuneration for the members of the Board, President and the Chief Executive Officer (CEO) and Deputy CEO, and the remuneration elements for them. For the full Remuneration Policy, see storaenso.com.

Board remuneration

Remuneration of the Board is decided annually by the shareholders at the AGM or a possible extraordinary shareholder meeting. The remuneration of the members of the Board may depend on their respective roles as Chair, Vice Chair, and Members of the Board or its committees. Board remuneration can be paid in cash or in cash and shares as further decided by the AGM.

Remuneration for the President and Chief Executive Officer (CEO) and Deputy CEO

The total remuneration to the CEO and Deputy CEO consists of:

- annual base salary (ABS)
- variable pay components as short-term incentives (cash when applicable) and long-term incentives (shares when applicable)
- long-term benefits (pension, medical and health benefits)

The purpose, operation, opportunity and link to performance of each remuneration element is described below:

Annual Base Salary – ABS (Fixed pay)

The purpose of the base salary is to attract and retain talent of the calibre to deliver our strategic priorities. There is no maximum salary limit. The CEO and Deputy CEO salary increases take into consideration average salary increases for appropriate parts of the wider workforce. Increases may be larger, or applied more often, at the discretion of the Board under certain circumstances such as, but not limited to, the general development of business, financial performance, operational performance or when required considering market practice.

Short Term Incentives – STI (Variable pay)

The purpose of the STI programme is to drive alignment against set objectives and to create engagement by setting clear measurable yearly targets that will have a direct impact on company performance. There is the opportunity of a maximum percentage of the annual fixed salary if targets are met. The STI maximum opportunity is reviewed yearly to ensure market competitiveness and link to strategy. The Board may decide on a maximum STI opportunity of 50%–100% of ABS for the CEO and Deputy CEO.

The STI programme is based partly on financial metrics and partly on measurable non-financial operational metrics that are set at the beginning of each year and measured for one year.

Financial metrics are, for example, related to sales growth, profit, working capital and cash flow or other financial metrics as decided by the Board.

Operational metrics are based on the Stora Enso balanced scorecard, with targets in the strategic areas of Innovation, Customer Insight, Structured Processes, Motivated Employees and Special Projects. These may also be adjusted to reflect any changes in the balanced scorecard. Operational metrics will account for no more than 40% of the STI opportunity. Target levels of operational metrics for the CEO and the Deputy CEO are decided by the Board.

Given that the performance metrics are measurable, it is possible for the Board to objectively evaluate the outcome at the end of each performance period. No pay out of incentives is done until financial results have been audited and approved by the external auditor.

Long Term Incentives – LTI (Variable pay)

The purpose of the LTI is to incentivise and align management with shareholder interests and the long-term strategy of the company, including its sustainability. This is done through setting measurable financial long-term targets as well as through encouraging personal share ownership.

LTI consists of a Performance Share award in Stora Enso shares. LTI maximum opportunity is reviewed yearly to ensure market competitiveness and link to strategy. The Board may decide on a maximum LTI opportunity of 70% - 120% of ABS for the CEO, and Deputy CEO.

Each LTI plan has a share price cap set in EUR. The number of shares transferred to the participant is reduced proportionally, should the share price at vesting date exceed this share price cap.

The shares will vest dependent on at least three-year financial performance criteria proposed by the Remuneration Committee and decided by the Board.

The financial metrics are for example related to earnings per share, economic value added, share price development, cash flow or other financial metrics as decided by the Board.

Given that the performance metrics are measurable, it is possible for the Board to objectively evaluate the outcome at the end of each performance period. No pay out of incentives is done until financial results have been audited and approved by the external auditor.

Long Term Benefits – LTB

The purpose is to stay competitive and aligned to market practice, giving the CEO and Deputy CEO the confidence of a solid insurance coverage during their term of office, and the opportunity to retire at the normal retirement age.

In Finland, the contributions on top of the statutory pension shall be limited to 23.5% of pensionable salary, while in Sweden, total pension contributions shall be limited to 30% of pensionable salary. Pensionable salary is a fixed salary and paid STI. The retirement age is 65 years.

The CEO and Deputy CEO may have accident, disability and death insurances in line with collectively agreed pension plans, to the extent that those include this coverage in Sweden and Finland. In addition, the CEO and Deputy CEO may be covered by a company sponsored health insurance. The cost of the above-mentioned insurances may be up to 4% of fixed salary.

For positions governed by rules other than Finnish or Swedish, pension benefits and other benefits may be duly adjusted for compliance with mandatory rules or established local practice, taking into account, to the extent possible, the overall purpose of these guidelines.

Other Benefits

The purpose is to stay competitive and aligned to market practice. Some benefits will also help to attract and retain talent. Benefits are based on cost and will be provided in line with local market practice. The cost of the car benefit may be up to 4% of the fixed salary.

The level of Relocation Benefits will depend on individual circumstances and market practice. These will be provided for a limited period of time.

For positions governed by rules other than Finnish or Swedish, benefits may be duly adjusted for compliance with mandatory rules or established local practice, taking into account, to the extent possible, the overall purpose of these guidelines.

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This report is prepared in accordance with the Finnish Decree of the Ministry of Finance of the remuneration policy and remuneration report (608/2019), as well as other applicable regulations.

Remuneration presented in the report is either earned and paid during 2020, or earned and due to be paid in 2021.

During 2020, there has been no recovery of paid or reduction of outstanding awards during 2020 in respect of the President and CEO or Deputy CEO. There have been no deviations from the decision-making procedure as set out in the Stora Enso Remuneration Policy.

Board member remuneration in 2020

In 2020, the Stora Enso Board members were compensated as set out in the following chart.

Board remuneration

EUR	Year Ended 31 December	
	2020	2019
Chair	197 000	192 000
Vice Chair	112 000	109 000
Board Member	76 000	74 000

Pursuant to the decision by the Annual General Meeting 2020, the annual remuneration for the members of the Board has been paid in Company shares and cash so that 40% was paid in Stora Enso R shares purchased on the Board members' behalf on the market at a price determined in public trading, and the rest in cash. The shares were purchased within two weeks of the AGM 2020. The Company has paid all costs and transfer tax related to the purchase of Company shares. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

In addition, the AGM decided that the following annual remuneration be paid to the members of the Board Committees:

- for the Chair of the Financial and Audit Committee EUR 21 200, and
- for the members of the Financial and Audit Committee EUR 14 800 each,
- for the Chair of the Remuneration Committee EUR 10 600, and
- for the members of the Remuneration Committee EUR 6 400 each,
- for the Chair of the Sustainability and Ethics Committee EUR 10 600, and
- for the members of the Sustainability and Ethics Committee EUR 6 400 each.

Board Remuneration and Committee Memberships

EUR thousand (before taxes)	Year Ended 31 December				Total	Total
	Board remuneration	Financial and Audit Committee	Remuneration Committee	Sustainability and Ethics Committee		
Board members at 31 December 2020						
Jorma Eloranta, Chair	197	15	11		222	217
Hans Stråberg, Vice Chair	112		6		118	115
Håkan Buskhe	76			6	82	
Elisabeth Fleuriot	76	15			91	88
Hock Goh	76	15			91	80
Mikko Helander	76			6	82	74
Christiane Kuehne	76			11	87	84
Antti Mäkinen	76		6		82	80
Richard Nilsson	76	21			97	95
Former Board members						
Göran Sandberg (until 4 June 2020)	—	—	—	—	—	80
Total remuneration as Directors¹²³	841	66	23	23	953	913

¹ 40% of the Board remuneration, excluding Committee remuneration in 2020 was paid in Stora Enso R shares purchased on the market and distributed as follows: to Chair – 7 209 R shares; Vice Chair – 4 098 R shares; and members – 2 781 R shares each. The Company has no formal policy requirements for the Board members to retain shares received as remuneration.

² Stora Enso's Shareholders' Nomination Board was appointed by the AGM in 2016 to exist until otherwise decided. The Shareholders' Nomination Board according to its Charter as approved by the AGM comprises of four members: the Chair and Vice Chair of the Board of Directors, as well as two members appointed by the two largest shareholders (one each) as of 31 August each year. No separate remuneration is paid to members of the Nomination Board.

³ The Company additionally pays the transfer tax for share purchases for each member, in line with the AGM decision, the amount of which is considered also taxable income for each member.

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CEO and Deputy CEO remuneration

The total earned (paid) remuneration for the current President and CEO in the period 1 January to 31 December 2020 amounted to EUR 1 567 000 (1 584 000), including the annual base salary, customary fringe benefits (such as car and mobile phone) STI and LTI programmes, and pension.

2020 Paid and earned CEO remuneration

Annual base salary	EUR 894 000 was earned and paid in fixed salary during 2020.
Short-term incentive	In 2019 the CEO was entitled to an STI programme with a maximum opportunity of 75% of annual fixed salary. Paid STI in 2020 related to the time as CEO in 2019 amounted to 18.4% of the annual prorated salary with a corresponding value of EUR 14 000. In 2020, the CEO was entitled to an STI programme with a maximum opportunity of 75% of the annual fixed salary. Earned STI related to 2020, due to be paid in 2021, amounted to 18.9% of the annual salary, with a corresponding value of EUR 171 000.
Long-term incentive	Paid LTI in 2020 related to the 2017 LTI programme amounted to 33 588 shares corresponding to a value of EUR 363 000 before tax. ¹ The 2018 LTI programme (performance period 2018-2020) ended at year end and is due to be paid in 2021. Earned LTI related to the 2018 LTI programme amounted to 12 066 shares corresponding to a value of EUR 189 000 before tax. ²
Other benefits	Benefits include holiday pay, mobile phone, car, and insurance amounting to EUR 29 000.
Pension	The retirement age is 65. The President and CEO's pension plan consists of a defined contribution pension plan with contributions of 30% of pensionable salary. Pension contributions amounted to EUR 284 000 during the year.
Termination of assignment	There is a notice period of six months with a severance payment of twelve months salary on termination by the company but with no contractual payments on any change of control.
Total earned remuneration (paid) ³	Total remuneration earned (paid) in 2020 amounted to EUR 1 567 000 (1 584 000).
Earned proportion of fixed to variable remuneration (paid) ³	The proportion of fixed compensation earned was 77% (76%), while the proportion of variable compensation earned was 23% (24%).

¹ Vesting price EUR 10.67

² Value is calculated using the 30 December, 2020 closing price of EUR 15.65. The final value of the vested shares will depend on the share price on vesting date 1 March, 2021.

³ Earned amounts include STI and LTI earned during 2020 and are due to be paid in 2021. The paid amount includes STI and LTI paid during 2020.

The total earned (paid) remuneration for the current Deputy CEO in the period 1 January to 31 December 2020 amounted to EUR 828 000 (920 000), including annual salary, customary fringe benefits (such as car and mobile phone) STI and LTI programmes, and a supplementary pension.

2020 Paid and earned Deputy CEO remuneration

Annual base salary	EUR 405 000 was earned and paid in fixed salary during 2020.
Short-term incentive	In 2019, the Deputy CEO was entitled to an STI programme with a maximum opportunity of 50% of the annual fixed salary. Paid STI in 2020 related to 2019 amounted to 6.4% of the annual salary with a corresponding value of EUR 26 000. In 2020, the Deputy CEO was entitled to an STI programme with a maximum opportunity of 50% of the annual fixed salary. Earned STI related to 2020, due to be paid in 2021, amounted to 12.6% of the annual salary, with a corresponding value of EUR 54 000.
Long-term incentive	Paid LTI in 2020 related to the 2017 LTI programme amounted to 25 817 shares corresponding to a value of EUR 275 000 before tax. ¹ The 2018 LTI programme (performance period 2018-2020) ended at year end and is due to be paid in 2021. Earned LTI related to the 2018 LTI programme amounted to 9 936 shares corresponding to a value of EUR 155 000 before tax. ²
Other benefits	Benefits include holiday pay, mobile phone, car, and insurance amounting to EUR 37 000.
Pension	The retirement age is 65. The Deputy CEO's pension plan includes mandatory TyEl and a supplementary defined contribution pension plan with contributions of 23.5% of pensionable salary. Pension costs amounted to EUR 176 000 during the year.
Termination of assignment	There is a notice period of six months with a severance payment of twelve months salary on termination by the company but with no contractual payments on any change of control.
Total remuneration (paid) ³	Total compensation earned (paid) in 2020 amounted to EUR 828 000 (920 000).
Proportion of fixed to variable remuneration (paid) ³	The proportion of fixed compensation earned was 75% (67%), while the proportion of variable compensation earned was 25% (33%).

¹ Vesting price EUR 10.67

² Value is calculated using the 30 December, 2020 closing price of EUR 15.65. The final value of the vested shares will depend on the share price on vesting date 1 March, 2021.

³ Earned amounts include STI and LTI earned during 2020 and are due to be paid in 2021. The paid amount includes STI and LTI paid during 2020.

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Short Term Incentive (STI) programme for the CEO and Deputy CEO

The CEO and Deputy CEO are entitled to an STI programme decided by the Board each year. The 2020 STI programme was based 70% on financial targets and 30% on individual metrics/targets, and the outcome was detailed as below.

	Description of Criteria	Weighting	Performance (0–100%) ⁴	STI outcome ⁵
CEO	Group EBITDA ¹	70%	25.3%	EUR 171 000 (18.9% out of the Annual Base Salary)
	Group OWC (%) ²			
	Individual metrics/targets ³			
Deputy CEO	Group EBITDA ¹	70%	25.3%	EUR 54 000 (12.6% of the Annual Base Salary)
	Group OWC (%) ²			
	Individual metrics/targets ³			

¹ Earnings Before Interest, Taxes, Depreciation, Amortisation

² Operational Working Capital Ratio

³ Safety and Cash Flow as a replacement of other individual metrics/targets in 2020

⁴ Measured performance (out of 100%)

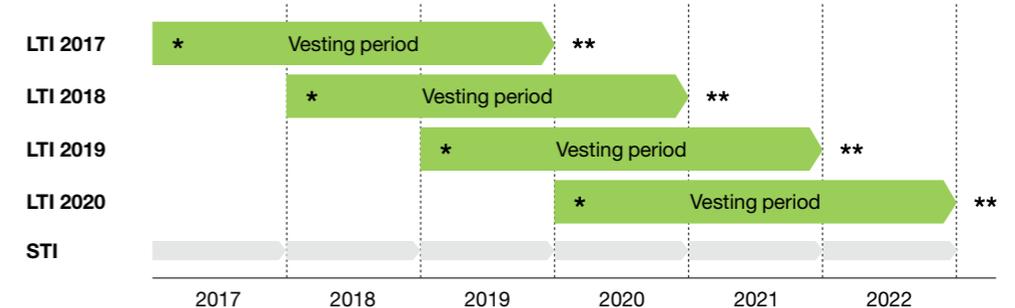
⁵ Total earned STI outcome due to be paid in 2021

Long Term Incentive (LTI) programmes for the CEO and Deputy CEO

The CEO and Deputy CEO participate in 2018, 2019 and 2020 share based LTI programmes.

The programmes have three-year targets and vest in one portion after three years. The 2018 programme is related to the performance period 2018–2020, the 2019 programme is related to the performance period 2019–2021, and the 2020 programme is related to the performance period 2020–2022. The opportunity under the current outstanding LTI programmes are in Performance Shares.

Share-based compensation plan



* Date of grant 1 March ** Date of vest 1 March ● Yearly STI programme LTI Long term incentive STI Short term incentive

During the year the LTI 2017 programme was paid out, the performance period for the LTI 2018 programme ended, and the LTI 2020 programme was launched. The CEO was awarded 95% of the annual base salary in the 2020 LTI programme, while the Deputy CEO was awarded shares corresponding to 70% of the annual base salary. The LTI 2018 programme resulted in a 49.84% performance outcome due to be paid in 2021. Further to LTI 2018, the CEO and deputy CEO held outstanding awards in the LTI 2019 and LTI 2020 programmes at year end.

	Plan type	Plan name	Performance period	Award date	Vesting date	Performance criteria ¹	Awarded shares	Performance outcome	Shares paid/earned ²
CEO	Performance share plan	LTI 2017	1 January 2017 to 31 December 2019	1 March 2017	2 March 2020	EVA, EPS	25 191	100%	25 191 ³
		LTI 2018	1 January 2018 to 31 December 2020	1 March 2018	1 March 2021	EVA, EPS	24 210	49.84%	12 066 ⁴
		LTI 2019	1 January 2019 to 31 December 2021	1 March 2019	1 March 2022	EVA, EPS	27 160	-	-
		LTI 2020	1 January 2020 to 31 December 2022	2 March 2020	1 March 2023	EVA, EPS	75 080	-	-
	Restricted share plan	LTI 2017	-	1 March 2017	2 March 2020	-	8 397	-	8 397 ³
Deputy CEO	Performance share plan	LTI 2017	1 January 2017 to 31 December 2019	1 March 2017	2 March 2020	EVA, EPS	19 363	100%	19 363 ³
		LTI 2018	1 January 2018 to 31 December 2020	1 March 2018	1 March 2021	EVA, EPS	19 936	49.84%	9 936 ⁴
		LTI 2019	1 January 2019 to 31 December 2021	1 March 2019	1 March 2022	EVA, EPS	23 850	-	-
		LTI 2020	1 January 2020 to 31 December 2022	2 March 2020	1 March 2023	EVA, EPS	25 340	-	-
	Restricted share plan	LTI 2017	-	1 March 2017	2 March 2020	-	6 454	-	6 454 ³

¹ Economic Value Added (EVA), Earnings per Share (EPS).

² The total number of shares actually transferred will be lower because a portion of shares corresponding to the tax obligation will be withheld to cover income tax.

³ Gross shares paid at vest date 2020.

⁴ Gross shares earned and payable at vesting date 2021.

Stora Enso recommends and expects Group Leadership Team members to hold Stora Enso shares at a value corresponding to at least one annual base salary. Stora Enso shares received as remuneration are therefore recommended not to be sold until this level has been reached.



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It should be noted that Stora Enso and its business are exposed to various risks and uncertainties and certain statements herein which are not historical facts, including, without limitation those regarding expectations for market growth and developments; expectations for growth and profitability; and statements preceded by "believes", "expects", "anticipates", "foresees", or similar expressions, are forward-looking statements. Since these statements are based on current plans, estimates and projections, they involve risks and uncertainties, which may cause actual results to materially differ from those expressed in such forward-looking statements. Such factors include, but are not limited to: (1) operating factors such as continued success of manufacturing activities and the achievement of efficiencies therein, continued success of product development, acceptance of new products or services by the Group's targeted customers, success of the existing and future collaboration arrangements, changes in business strategy or development plans or targets, changes in the degree of protection created by the Group's patents and other intellectual property rights, the availability of capital on acceptable terms; (2) industry conditions, such as strength of product demand, intensity of competition, prevailing and future global market prices for the Group's products and the pricing pressures thereto, price fluctuations in raw materials, financial condition of the customers and the competitors of the Group, the potential introduction of competing products and technologies by competitors; and (3) general economic conditions, such as rates of economic growth in the Group's principal geographic markets or fluctuations in exchange and interest rates. All statements are based on management's best assumptions and beliefs in light of the information currently available to it and Stora Enso assumes no obligation to publicly update or revise any forward-looking statement except to the extent legally required.