

Stora Enso Environmental Guidelines

March 2022

Environmental Guidelines

Sustainability is integral in Stora Enso's business strategy – it is at the core of what we do. We contribute to the transformation of the materials system in three areas where we have the biggest impact and opportunities: climate change, biodiversity, and circularity. We ensure that we conduct our everyday business in a responsible manner.

Our Environmental agenda and the relevant policy objectives guide our environmental work, which is part of our broader approach to sustainability.

About the Environmental guidelines

These Environmental guidelines provide a comprehensive overview to both internal and external stakeholders of our policy objectives and how we work to achieve them for the three environmental areas introduced below. As human rights are an essential part of our approach to sustainability work, they are integrated into all the three chapters. The guidelines also address the three UN Sustainable Development Goals (SDGs) that Stora Enso has identified as the most strategic to its operations: SDG 12 – Responsible consumption and production (Chapter 1), SDG 13 – Climate action (Chapter 2), and SDG 15 – Life on land (Chapter 3).



Environmental management and circularity

This priority area is guided by our *Sustainability Policy* and *Circular Design Guidelines*.

The materials, air, water and waste policy objectives define actions to promote responsible resource use and our Circular Design Guidelines outline our commitment to contribute to a circular bioeconomy through our products and solutions.

› Read more on page 2.

Energy & Climate Change

This priority area is guided by our *Policy for Energy and Climate Change* to ensure we use our unique position as a leading renewable materials company to combat global warming by reducing our direct and indirect fossil CO₂ emissions.

› Read more on page 7.

Forests, Plantations & Land Use

This priority area is guided by our *Wood and Fiber Sourcing*, and *Land Management Policy*.

It encourages sustainable forest management through responsible sourcing and land use to safeguard forest health, biodiversity and productivity.

› Read more on page 11.

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Environmental management and circularity

Our contribution as a renewable materials company

The UN Sustainable Development Goal 12 – Responsible consumption and production: our contribution and business opportunities related to SDG 12 can be summarised by the concepts of circular economy and more specifically, circular bioeconomy. Our products and services are based on renewable raw materials and sustainable forest management, which contribute to responsible consumption and resource use.

Climate change, water scarcity, population growth, over-consumption and urbanisation are global megatrends that are increasing pressure on natural resources, such as finite materials and water.

Responding to these challenges, Stora Enso is developing solutions, that are based on renewable and recyclable raw materials from sustainably managed forests and plantations (see page 11). We promote materials efficiency throughout our operations to reduce environmental impact, financial costs, and to make our operations more resilient to resource scarcity and the impacts of climate change.

Chemical safety is an essential aspect of both our approach to safety and sustainability, it is essential for delivering on our materials, water and waste objectives, and key to achieving our circularity goals.

Our policy objectives

1 We comply with all applicable legal and regulatory obligations in the countries where we operate.

Materials, air and water

Stora Enso operates at the heart of the circular bioeconomy, an integral part of a circular economy, where growth is decoupled from the use of finite natural resources.

As a global company operating in a resource-intensive sector, we comply with national legislation and regulations. The air emissions and water effluents generated by our mills are regulated by the relevant authorities, with limits set through environmental impact assessments and permitting processes that consider local conditions and legislation. Our mills monitor their compliance with these permits and related requirements, as do the relevant environmental authorities.

Due to our geographical footprint, key regulations are driven by the European Union (EU) policy developments, such as the Circular Economy Action Plan as part of the European Green Deal, and the implementation of EU directives into national legislation such as the Water Framework Directive. Other important regulations are the EU's Best Available Techniques (BAT) Reference Documents with Pulp and Paper BAT conclusions and limits concerning effluents to water and emissions to air.

The BAT conclusions for large combustion plants are also relevant to board, pulp, and paper mills.

We proactively follow regulatory developments both within the EU, as well as in other parts of the world, such as the Chinese Environmental Protection Laws, and laws on water protection, air pollution, solid waste, and noise pollution as well as circular economy regulations relevant to our product range. We monitor relevant environmental regulation in Brazil and Uruguay through our joint operations.

We produce various products covered by specific safety regulations including food contact materials, material for toys, packaging for pharmaceuticals, and construction materials. Our product safety and quality control systems cover our processes from product development and raw material sourcing to the delivery of the finished products. We follow several national and EU food contact legislations and demands related to food safety. In addition, our units producing sensitive packaging materials follow Good Manufacturing Practice (GMP), a set of widely recognised guidelines also incorporated into the EU and Chinese regulations. We also oblige our suppliers to comply with our product safety requirements.

Through our Public Affairs organisation and memberships in national and regional industry associations, international organisations, business organisations and value chain initiatives, we engage in the most relevant policy developments. This includes the Industrial Emissions Directive (IED), the EU Circular Economy Action Plan, the Waste Framework Directive, and the Packaging and Packaging Waste Directive.

Chemicals

We promote the use of renewable and sustainable materials applied in products and we support the related policy development with stakeholders and relevant industry organisations. We follow all relevant chemicals-related laws designed to protect both public health and the environment including for instance Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), the EU regulation on the production and use of chemical substances, and the Global Harmonised System (GHS) classification and labelling of chemicals from the United Nations and the biocidal products regulation. We follow the developments of the EU

Chemical Strategy for Sustainability and aim to align the requirements with our processes and products.

Our proactive engagements ensure timely awareness and support future compliance. A list of the most relevant memberships is included on page 6.

2 We respect the local environment where we operate and we ensure environmentally responsible treatment and disposal of emissions and waste.

We apply precautionary management actions to mitigate and remedy potential adverse impacts on the environment and people. Our environmental work primarily takes place at our mills and includes the systematic handling of the locally relevant environmental issues related to water, materials, chemicals, air, and energy efficiency.

The use of materials, water, and energy in our production affects the environment and may also have an impact on people. To keep employees and surrounding communities safe and healthy is a high priority. The impacts to local communities are addressed as part of our approach to Environmental and Social Impact Assessments for new industrial projects, as well as through due diligence processes for mergers, acquisitions, and divestments.

Chemicals are used for various purposes in our production, maintenance, and laboratories, as well as throughout our value chain. The hazardous profile of the chemicals varies and to secure safe use we require systematic chemical safety procedures. Our Group-wide Chemicals Management Guidelines outline the minimum requirements covering all our units globally for both occupational health and safety and environmental safety. They also identify properties for hazardous chemicals that need to be restricted in use or should be replaced with a better option, and they include best practice sharing with the rest of the company. The guidelines are a part of the internal management systems at our operational units and auditing is conducted within their existing structures. We also apply digital tools for managing chemical safety information and safety data sheets.

The wastewater treatment facilities that treat the process water from our production processes release effluents to water. These facilities ensure that discharged water is ecologically safe. Our effluents

include phosphorus, nitrogen, organic substances, suspended solids, and adsorbable organic halogen compounds (AOX)¹. Discharging process water that has not been properly treated can contribute to local environmental impacts. For example, 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.

Our board, pulp, and paper mills monitor effluents discharges including temperature and pH scale. Mills apply both online and offline measurements, such as standard methods for the forest products industry, to fulfill permit limit requirements and to protect ecosystems, wildlife, and human health.

Our production units' atmospheric emissions result from the combustion of fuels for energy generation and from the production process. Emissions include sulphur dioxide (SO₂), nitrogen oxides (NO_x), and fine particles. When not properly managed, SO₂ and NO_x emissions affect air quality and can cause acid rain and soil acidification. We reduce our air emissions through technologies such as coolers, condensers, filters, scrubbers, cyclones, and thermal and catalytic incineration to treat process gases. We also use boiler process control systems to reduce emissions.

3 We continuously improve our sustainability management processes and performance.

Stora Enso's strategic water goals are to reduce water use, to minimise impacts on quality, and to recycle water within mills when possible to reduce the need for water intake. Our Group targets are to decrease both total water withdrawal and process water discharges per saleable tonne of board, pulp and paper. In line with the Group targets and to drive continuous improvement, our units set their own quantified water targets based on their local context.

Local environmental stewardship is supported by third-party certified environmental management systems, which ensure continual improvements according to ISO 14001 and focus on the local environmental issues with highest priority. Stora Enso was one of the first companies in our industry to adopt third-party audited environmental management systems.



We consider environmental management systems as our primary means to drive continual improvements in processes and environmental performance. All Stora Enso's industrial operations must implement and maintain third-party certified environmental management systems².

Locally adapted environmental management systems also provide the foundation for internal performance review and the basis for dialogue with stakeholders.

¹ Adsorbable organic halogen compound is a collective term for chlorine or other halogens bound to organic matter in wastewater.

² All our sawmills, corrugated packaging units, and board, pulp, and paper mills are certified to the ISO 14001 environmental management system standard.





4 We help customers be sustainable; through our renewable and recyclable products and services we contribute to a low-carbon and resource efficient society.

We are developing our expertise to help our customers to be more sustainable. Our product portfolio includes various boards for printing and packaging, several pulp grades, wood-based products for construction, energy pellets, paper products made from virgin fiber and recycled paper, and lignin, which can be used to replace plastics and other products based on non-renewable material.

We seek partnerships with key stakeholders and customers to bring new renewable products with low-fossil carbon emissions to the market. This will help customers to reduce their indirect emissions and improve their sustainability performance. We promote customer engagement at our Innovation Centre for packaging and our Design studios, which are collaboration spaces to inspire new ideas and innovation for consumer benefit.

We provide sustainability information to our customers on standardised platforms such as Sedex and Ecovadis that enable online access to several key areas of sustainability data. Our ecolabel-awarded products offer our customers an opportunity to excel in their environmental performance.

We collect product-specific life cycle inventory data (LCI) for use in life cycle assessments (LCAs), which are conducted by Stora Enso, our customers or brand owners. The environmental performance of our paper, consumer board and containerboard products are reported in line with the voluntary Paper Profile initiative.

We use third-party verified Environmental Product Declarations (EPDs) which offer transparent information about the footprint of a product throughout its life cycle. EPDs are used by our Wood Product divisions' customers to optimise environmental performance in whole building LCA and for green building certification.

We ensure that our products meet the relevant product safety requirements. Our Packaging Materials and Packaging Solutions divisions are ISO 22000, FSSC 22000 certified, and the US Food and Drugs Administration (FDA) food and product safety management systems, ensure that we apply a systematic approach to food safety issues.

We review potential investments including mergers, acquisitions, and divestments for risks and opportunities through our due diligence procedures including Environmental and Social Impact Assessments (ESIAs) and Sustainability Assessment checklist for innovation projects.

Materials and waste

Resource scarcity requires actions to avoid long-term environmental consequences. Consumer awareness is growing, which increases pressure on companies to focus more on environmental responsibility throughout their supply chain. This development, combined with new legislation, is driving our customers to use more renewable and recyclable raw materials to create more sustainable products.

The use of renewable forest-based resources – both virgin and recycled fiber – helps to secure our raw material supply, as we rely less on finite resources. Both virgin and recycled fibers are used for products with special product safety requirements for products such as sensitive food packaging, toys, and pharmaceuticals.

We apply [Circular Design Guidelines](#) to help reduce environmental impacts and we work with value chain partners to ensure actual recyclability. We furthermore promote circularity through the efficient use of raw materials, process residuals reduction, the reuse of fiber, and the creation of business opportunities and revenues from process residuals and by-products.

Stora Enso is a significant user of Paper for Recycling (PfR). Through cooperation with local authorities and waste management companies, and by managing our own collection facilities, we secure a sufficient supply of PfR from industrial, commercial, and domestic sources.

We promote recycling of our products and belong to relevant Extended Producer Responsibility (EPR) schemes to collect and recycle our products in different countries. The efficiency of product end-of-life options, waste collection and material recovery (recycling) depends on the local conditions, infrastructure of the national collection schemes and recovery systems. All packaging materials and products produced by Stora Enso fulfil the requirements of European Packaging and Packaging Waste Directive.

Chemicals

We are emphasising chemical safety in our innovation and business development processes, such as extraction technologies for sugar and lignin and cellulose modification in micro-fibrillated cellulose (MFC), when we bring new biochemical products to the market.

5 We engage with our stakeholders to ensure that our sustainability approach and communication remain material.

We actively engage with national and international experts and other stakeholders to enhance our understanding of rapidly developing issues and topics. In terms of natural and material resource scarcity, these include changing requirements on materials efficiency including energy, water, waste, process residuals, chemical safety, and customer and societal interest in products and solutions that are based on renewable and recyclable forest-based raw materials. Some of our mills have been impacted by water stress in terms of availability or increased water temperatures. We consider water risk management and water accounting to be areas of increasing importance.

Emissions to the atmosphere and 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.

6 We use natural resources with care through the optimised use, re-use and recycling of water and materials. We ensure the environmentally responsible treatment or disposal of waste.

Materials

Stora Enso's production processes generate various residuals and waste, including ash, green liquor dregs, lime mud, wastewater treatment sludge and wood

handling waste during production. Materials such as black liquor, bark and sawdust are used in our internal bioenergy generation, pulp production, and for wood pellet and chipboard manufacturing.

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 whenever legally, technically, and commercially possible.

We constantly seek innovative ways to improve resource efficiency to extract additional economic value from material streams that would otherwise end up as waste. For example, residuals such as ash and sludge are also used for landscaping, landfill construction, road construction, agricultural purposes, or brick manufacturing. Our target is to maintain the high level of a 98% process residuals utilisation rate. The target covers all Stora Enso production units and primarily focusses on the beneficial use of process residuals, revenues from residuals, by-products and new products as well as operational efficiency.

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

Our environmental management systems include on-site management procedures for handling of chemicals, waste, residuals, and emissions to air. Expertise and best practice related to improving the utilisation of process waste and residual materials are shared within the company by expert networks. This work includes process waste reduction projects and monitoring of collaboration opportunities with external partners to increase the value from material streams.

Water

Water plays a central role in our production, heating, cooling, and cleaning processes, and in generating renewable electricity from hydropower. Our main raw material sources, forests and plantations are dependent on rainwater for their growth. In addition, the transportation of process and utility water

uses energy, which affects our Energy and Climate Change Agenda.

While Stora Enso handles relatively large amounts of water, only around 4% is consumed in our production processes through evaporation and with products and waste – almost 96% of the water we use is returned to the local environment. Most of our production units are located where water is relatively abundant, but global water scarcity may still impact our operations through our supply chains, and regulations on pollution, recycling, and water pricing are tightened. We monitor these developments, along with regulatory and market trends in water issues.

We are committed to reducing the impacts of our water use and to minimise any impacts on water quality. We have applied the WRI Water Aqueduct Tool to assess water-related risks at our production units. We apply our Enterprise Risk Management (ERM) procedures geared towards local water stress and financial risk exposure to drive proactive water stewardship. We actively support and participate in international and local initiatives related to water in our operations and in neighbouring communities.

Our process water is purified by wastewater treatment plants before being safely discharged in accordance with all regulatory requirements, whereas cooling and other non-process water is typically clean enough to be safely released without treatment.

We recycle water within our mills whenever possible, to reduce the need for water intake. Reducing our water demand with regards to heating, cooling, and pumping also helps us improve the energy and water efficiency in production and makes the purification of the remaining wastewater more efficient. Our work with water stewardship includes mapping of water flows to drive the wider efficiency work.

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

7 We choose like-minded partners guided by our Supplier Code of Conduct to find solutions that reduce our environmental impact.

All potential suppliers, except private individual forest owners, must go through a pre-qualification process,

which includes signing the Stora Enso Supplier Code of Conduct (SCoC) before being considered for a contract³. Since 2016, wood supply purchases and forest management services, materials, goods, and other services have been covered by our SCoC. In addition to enforcing our SCoC, we engage with our suppliers to help them address sustainability topics. 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.

Minerals (tantalum, tin, gold, and tungsten) are considered 'Conflict Minerals' if originated from conflict areas, fragile post-conflict areas, areas with weak or non-existent governance or security, or areas with widespread and systematic violations of international law and human rights and regulated by the EU Conflict Minerals Regulation⁴. Our sourcing and tendering procedures comprises due diligence geared towards suppliers to make sure Conflict Minerals are not added in our production processes or products. This is supported by auditing the key material suppliers. Our product innovation procedures also assess Conflict Minerals when developing fiber based renewable and recyclable products and services for different end-use applications.

As a downstream user of chemical products, we strive to substitute hazardous chemical products with less hazardous options. Our Group-wide Chemical Management Guidelines identify the chemical properties in focus in our work with substitution.

³ Joint operations, 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 are not subject to the SCoC.

⁴ Regulation (EU) 2017:821 of the European Parliament and of the Council of 17 May 2017 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas ("EU Conflict Minerals Regulation").

Human rights implications

We are committed to fully respect human rights throughout our operations, including ensuring the observance of human rights in all relationships involving Stora Enso, and encouraging our partners to constantly improve their human rights performance – as outlined in our Human Rights Policy and Human Rights Guidelines. While we have defined eight Group-wide highest priority human rights, we continue to respect all human rights.

Specifically, around materials, water and waste, we respect the following human rights in accordance with our commitment to the International Bill of Human Rights:

- a) **The right to water and sanitation** – Excessive water use by industrial facilities and plantations may negatively impact on the human rights of local communities by reducing their access to water and sanitation.
- b) **The human right to a safe, clean, healthy and sustainable environment** – Unauthorised emissions, discharges or damage to the natural environment from industrial operations may impact surrounding communities' members' and the general public's human rights to life and health.

Human Rights impacts are identified and addressed through Environmental and Social Impact Assessment (ESIA) requirements for our new or significant changes to facilities and plantations.

Air, water, and soil emissions/effluents are governed through regulatory permitting and monitoring as well as considered in the local environmental management system related to the industrial or forestry operations. These assessments involve comprehensive stakeholder consultation and analyses to avoid negatively impacting stakeholder rights.

How we report on our progress

To gather information from our organisation and to ensure accurate and transparent reporting we use a web-based reporting tool. Our units' certified management systems (such as ISO 14001) contain procedures and instructions that explain how applicable environmental and energy indicators are consolidated and calculated for reporting.

Products

We report on the technical recyclability of our products as they leave our factory gates. Technical recyclability is defined by international standards and tests, such as PTS and CTP, and for products that are not yet covered by such standards and tests, we do our own tests that prove the technical recyclability of the product.

Materials

We report data on process waste to landfill, the use of PfR and the creation of hazardous waste in our annual Sustainability Report. We have established a KPI on process residuals utilisation and we publicly report the revenues derived from residuals and by-products including income from waste management services.

Water

We transparently report data on water withdrawal, consumption, and water stress in our annual Sustainability Report. This includes both the use of process and cooling water, as well as water consumed at our industrial operations. Discharges of process water, phosphorus, nitrogen, COD and AOX are transparently reported on an annual basis, both on a mill level and as consolidated Group figures. We additionally disclose our water-related strategies and performance to the annual CDP Water Security investor request.

Air emissions

We report data on atmospheric emissions resulting from the combustion of fuels for energy generation in our annual report. This includes carbon dioxide (CO₂), sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC) and fine particles. When not properly managed, SO₂ and NO_x emissions affect air quality and can cause acid rain and soil acidification.

Chemicals

Chemicals-related incidents and accidents with relevance for Lost Time Accidents (LTA) and incidents and non-compliances related to environmental performance are monitored internally.

Environmental investments and costs

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 EU contains BAT conclusions that form the reference for setting permit conditions for installations covered by the EU's Industrial Emissions Directive. BAT conclusions cover board, pulp, paper, and sawmills, as well as medium and large combustion plants in Europe. 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.

Financial costs related to the prevention, reduction and control of environmental impacts are reported in our annual report, together with the relevant environmental investments. Our reporting also includes revenues derived from residuals and by-products

Environmental incidents

We have Group-wide reporting and management processes for environmental incidents occurring at our production units. We disclose details of environmental incidents involving a non-compliance with the local environmental legislation or permit, or a significant stakeholder concern, in our annual [Sustainability Report](#).

The most relevant international engagements most relevant for progressing our environmental management and circularity agenda

- 4evergreen alliance
- The Alliance for Beverage Cartons and the Environment (ACE)
- ProCarton
- The European Federation of Corrugated Board Manufacturers (FEFCO)
- EUROPEN - The European Organization for Packaging and the Environment
- The European Confederation of Woodworking Industries represents (CEI-Bois)
- Confederation of European Paper Industries (CEPI)
- Corporate Leaders Group*(CLG)
- CEN Working Groups
- ISO Working Groups
- UN Global Compact (UNGC)
- World Business Council for Sustainable Development* (WBCSD)
- World Green Building Council (WGBC).
- Signatory to the Ellen MacArthur Global Commitment-New Plastics Economy

* members of the "We Mean Business" alliance



Energy & Climate Change Policy objectives: combatting climate change

Our contribution as a renewable materials company

The UN's Sustainable Development Goal 13 – Climate action: Our products help our customers and society at large to reduce CO₂ emissions by providing low-carbon circular alternatives to solutions based on fossil materials and other non-renewable materials. We also contribute to raising awareness of global warming, a central topic in our communications with stakeholders. In addition, global warming poses physical risks to our operations and has been identified as one of the Group's key risks. We have defined mitigation measures against these risks related to global warming.

As a leading renewable materials company with products derived from sustainably managed forests, tree plantations, responsible sourced fiber and carbon neutral biomass – we are in a unique position to combat global warming.

Proactive action to prevent climate change

A proactive and holistic approach to decreasing our dependency on fossil fuels and reducing our direct and indirect fossil CO₂ emissions will create new business opportunities and help us manage our costs and risks.

We seek to substitute fossil-based and other non-renewable materials with our renewable solutions. Our goal is to provide our customers with 100% regenerative solutions by 2050. These solutions will help mitigate climate change considering all emissions and removals along the value chain.

Through our externally approved⁵ Science-based Target we commit to help limit global warming to 1.5 degrees in accordance to the recommendations made in IPCC's special report from 2018.

Our policy objectives

1 We comply with all applicable legal and regulatory obligations wherever we operate.

As an international company operating in an energy-intensive manufacturing sector, we are subject to diverse and complex legislation and regulations. Due to our geographical footprint, much of this is driven by EU policy developments, and the implementation of EU directives and regulations into national legislation.

At the most fundamental level, the EU Climate Law (passed in June 2021) sets a new, overarching target of reducing emissions by 55% by 2030 (from 1990 levels) and reaching net zero by 2050. It represents a step-change in the EU's ambitions, building on the previous 2020 Climate package, which helped the EU achieve a 20% cut in greenhouse gas emissions (from 1990 levels), 20% of EU energy from renewables and 20% improvement in energy efficiency. To turn the EU's increased ambition into reality, the so-called Fit for 55 package will update much of the existing legislative framework.

Key legislative proposals of relevance to Stora Enso include the revision of the EU Emissions Trading System (EU ETS), which aims to set a higher ETS emissions reduction target; the revision of the Land Use, Land Use Change and Forestry (LULUCF) regulation, which proposes a new 2030 EU-level target of net greenhouse gas (GHG) removals in the LULUCF sector; and revision of the Renewable Energy Directive, which seeks to further increase the commitment to renewable energy by 2030. There is also a proposal for a new Carbon Border Adjustment Mechanism, which will put a carbon price on imports of selected products from markets outside the EU without a comparable emissions pricing system. Although paper and pulp products are not (currently) in scope, some of our competing materials such as steel and cement are covered, which could in turn have an indirect impact. In addition, the EU is planning to update the Industrial Emissions Directive, which aims to prevent and reduce harmful emissions from industry; and will propose a certification scheme for carbon removals, to help incentivise carbon removals and promote sustainable carbon cycles.

Through our direct contact with stakeholders, as well as in engagement with national and regional industry associations, international organisations, NGOs, business organisations and value chain initiatives, we follow and actively contribute to the most relevant policy developments. This proactive engagement ensures timely awareness and supports future compliance. A list of our most relevant memberships on an international level is included on page 10.

2 We proactively raise awareness of the role of forests and our renewable products in achieving a low-carbon society, and work with customers and other stakeholders to substitute fossil-based and other non-renewable materials.

Trees act as carbon storage by absorbing CO₂ from the atmosphere and storing it as carbon in their biomass. The accumulated carbon is then stored in our wood, paper, board and other products. Our products are often also recyclable many times over,

⁵ Approved by the Science Based Target initiative consisting of CDP, WRI, WWF, and the UN Global Compact.



and they typically have a lower fossil carbon footprint than products primarily made from non-renewable materials. Furthermore, at the end of their useful life, wood-fiber-based products can be utilised for high-efficiency bioenergy generation.

We forge partnerships with industry associations, international organisations, and NGOs to improve understanding and share evidence that our products and activities contribute to combatting climate change. Key to these efforts are science-based life cycle considerations that can help quantify our sequestration and substitution effects.

We work together with key stakeholders and specifically with customers to bring a product portfolio to the market that will help them a) to reduce their indirect emissions b) to increase the use of renewable materials and c) to improve their overall sustainability performance. For example, we facilitate customer engagement in our Innovation Centre for packaging, which is a collaboration space to inspire new ideas and innovation for consumer benefit.

3 We continuously improve energy efficiency and strive towards energy self-sufficiency at our mills.

Most of our production processes are energy-intensive and therefore we have established an energy-efficiency target to achieve as a minimum 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. With our long-term target as a vision, we strive to make systematic improvements through our best practice network. Stora Enso “Energy Hunters” are energy efficiency experts that support our mills by evaluating and promoting energy savings projects. Our mills and units are expected to propose potential projects to reduce electricity or heat consumption or replace fossil fuels with alternative fuels. Each year, we select the best 30–40 projects for funding from the central Energy and Water Efficiency Investment Fund, which has been active since 2008. The payback time for our investments is typically 1 to 2 years. On average each set of annual investments remove circa 20kt of fossil CO₂ from our operations.

Our mills and applicable units apply third-party certified management systems and provide

the necessary resources and information to support our systematic work to improve energy efficiency and reduce CO₂ emissions with the help of voluntary management systems standards such as ISO 50001 for energy efficiency and ISO 14001 for environmental management.

4 Our Wood and Fibre Sourcing, and Land Management policy describes our commitment to sustainable forestry, ensuring biodiversity protection, and growing forests as a carbon sink, and the supply of renewable and carbon neutral raw material⁶.

See [Wood and Fibre Sourcing, and Land Use Policy Objectives](#) for details on our sustainable forest management.

Growing trees absorb carbon dioxide (CO₂) from the atmosphere and together with our products act as carbon sinks. In sustainably managed forests and plantations, new generations of trees replace those that are logged, to sequester more CO₂ from the atmosphere. Sustainable forest management therefore incrementally increases the carbon sink while supplying renewable and carbon neutral raw materials.

We believe that sustainable forestry can play a crucial role in combatting climate change. We emphasise the need to use all the parts of harvested trees as efficiently as possible. The most valuable round wood is used to make products such as building materials. Sawdust is pressed into wood pellets for energy generation by residential and industrial customers. Residuals from sawmills and other round wood are converted when possible into pulp, which is used to make renewable packaging, paper and biomaterials products. The remaining by-products, such as bark and branches, can be used as a valuable source of renewable energy.

5 We increase the share of biomass and other lowfossil carbon fuels whenever technically and commercially feasible.

Biomass, such as forest-based production residuals from our mills, can be used to generate carbon-neutral bioenergy. Around 80% of the total CO₂-e emissions from our mill operations originate from carbon-neutral

biomass⁷ sourced inside and outside the company. However, the use of biomass can be considerably more expensive compared to some fossil fuels. In addition, availability throughout the year is not always assured and conversion may require heavy capital expenditure. Therefore, we systematically review our energy systems for technical and commercially viable ways of phasing out our dependency on fossil fuels in favour of biomass or low-fossil carbon alternatives, including externally sourced residuals. In addition, our Energy Hunters programme and energy and water efficiency investment fund support our efforts in phasing out fossil fuels.

As with any capital investment at Stora Enso, any potential improvements are subject to defined investment processes, criteria, and approvals.

6 We aspire to develop supply chains for non-fossil fuels for our operations where they do not exist.

We operate in some countries where we are dependent on the use of fossil fuels to meet our energy needs. In such countries, we investigate the feasibility of developing biomass or alternative low-fossil carbon energy supplies, which contribute towards a gradual shift away from fossil fuels in that particular market.

7 We minimise cost and risk when sourcing supplementary energy, with a preference for low-fossil carbon energy sources.

We rely on supplementary energy supplies, particularly for electricity, and it is important that supply risks are considered and that supplies are price competitive. Consequently, Stora Enso is a minority shareholder in the Finnish energy company Pohjolan Voima Oy (PVO), which owns shares in the Finnish nuclear power company Teollisuuden Voima Oyj (TVO). Our mills in Sweden are primarily supplied with electricity from nuclear power. In Finland the nuclear electricity supply is complemented by other energy sources, mainly hydro power and also some fossil fuels-based electricity.

⁶ Recommendations on Biomass Carbon Neutrality, WBCSD and NCASI, 2015.
⁷ Excluding logistics

Wind and solar energy are being monitored as an option to further decarbonise our emissions. However, due to fluctuation in availability of wind and solar energy the adoption in energy intensive industrial processes depends on viable large-scale storage technologies.

8 We supply low fossil carbon energy that helps decarbonise local and national energy systems when technically and commercially feasible.

Our integrated facilities often have the potential to share surplus low-fossil carbon energy with local and regional partners. Where technically and commercially feasible, such partnerships can contribute significantly to meeting climate objectives – for Stora Enso, as well as local and national objectives. For example:

- Several of our units provide district heating to private and public customers.
- The Montes del Plata pulp mill, which is 50%-owned by Stora Enso, produces from biomass some 5% of Uruguay's total electricity consumption.
- Stora Enso's Langerbrugge Mill provides the local Volvo Car Gent plant with renewable energy for building heating, which has reduced the plant's annual emissions by approximately 15 000 tonnes of fossil CO₂.

We continuously search for partnerships that can use our surplus of low-fossil carbon energy.

9 We work with selected suppliers to find solutions that reduce our direct and indirect fossil CO₂ emissions.

All potential suppliers must go through a pre-qualification process, which includes

signing the Stora Enso Supplier Code of Conduct (SCoC)⁸, before being considered for a contract. We engage with our suppliers to help them address sustainability topics.

We have used sustainability criteria in tenders since 2018. Suppliers are asked to respond to a set of questions, including questions on their CO₂ emissions.

10 We actively engage in research & development and seek partnerships that help to combat climate change.

Innovation is essential in helping us achieve our ambitions – both in terms of developing new and improving existing products and optimising our production processes.

We have traditionally had a strong focus on research and development at our mills and our Research Centres in Imatra (Finland) and Karlstad (Sweden), and we have an Innovation Centre for biomaterials in Stockholm (Sweden).

We also engage in innovation-focused strategic partnerships with three leading Nordic academic institutions; the Chalmers University of Technology in Gothenburg (Sweden), KTH Royal Institute of Technology in Stockholm (Sweden), the Swedish University of Agriculture in Upsala and Aalto University in Helsinki (Finland).

⁸ Joint operations, 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 are not subject to the SCoC.

Human rights implications⁹

We are committed to fully respect human rights throughout our operations, including ensuring the observance of human rights in all relationships involving Stora Enso, and encouraging our partners to constantly improve their performance – as outlined in our Human Rights Policy and Human Rights Guidelines. While we have defined eight Group-wide highest priority human rights, we continue to respect all human rights. A number of them may be directly impacted, either positively or negatively, by our energy- and carbon-related activities.

It is our firm intention to drive down the use of fossil fuel even more over the next ten years so that we get as close to zero as possible using technically and commercially feasible means. This will contribute to minimising the negative impacts and increasing the positive impacts related to the human rights implications of our energy and carbon emission activities outlined below:

- a) The rights to life and health** – Climate change-related natural disasters, which can be exacerbated through fossil CO₂ emissions, can impact the human rights to life and health.
- b) The right to water and sanitation** – Climate change-related floods and droughts, which can be exacerbated through fossil CO₂ emissions, can adversely impact the human right to an adequate quality and quantity of water for domestic use and food production purposes.
- c) The right to an adequate standard of living** – Climate change-related impacts on ecosystem services, which can be made worse through fossil CO₂ emissions, can adversely impact the human right to achieve an adequate standard of living of those impacted and their dependents.
- d) The right to liberty and security** – Climate change-induced or exacerbated natural disasters can adversely impact the human right to physical and economic security, which risks creating climate refugees.

⁹ In accordance with our commitment to comply with the requirements of the UN Guiding Principle on Business and Human Rights.



How we report on our progress

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

Scope 1 – Emissions from sources we directly own or control, including on-site energy generation and processes, power boilers, lime kilns, on-site transportation.

Scope 2 – Emissions related to the purchased electricity and heat consumed in our operations.

Scope 3 – Emissions from other indirect sources along our value chain, reported as CO₂ equivalent estimates.

Our board, pulp and paper facilities report fossil CO₂ emissions quarterly and sawmills and converting facilities annually for scopes 1 and 2. Material emission categories for Scope 3 emissions are updated annually. A Group-level estimate for Scope 3 emissions is updated annually. Our carbon footprint accounting is based on guidelines provided by the Greenhouse Gas Protocol of the World Resources Institute and the World Business Council for Sustainable Development (WBCSD).

We publicly disclose our GHG emissions and climate strategy in our annual report and interim reports, our [Fossil carbon emissions and resilience to global warming summary](#), and to [CDP](#), an organisation that primarily gathers this information to support financial decision making for investors. Our full CDP disclosure is available through CDP' website.

We also report on energy self-sufficiency and the percentage of fossil and biogenic CO₂-emissions.

Science-based targets (SBT)

Following COP21, in December 2017, we became the first forest products company in the world to have our science-based targets approved. The target was

aligned with the below 2 degrees scenario. In 2021 and prior to COP26 Stora Enso renewed its science-based targets to align with the 1.5 degrees scenario.

Our operational target is to reduce our absolute GHG emissions from operations by 50%, compared to a 2019 baseline. It covers all our direct and indirect GHG emissions and is reported as CO₂-equivalents including, in addition to fossil CO₂ emissions, the greenhouse gases N₂O and CH₄.

Our value chain or Scope 3 target is a 50% reduction of (absolute) emissions, compared to a 2019 baseline.

Data collection

To collect information from our organisation and to ensure the accurate calculation of our Scope 1 and 2 and biogenic CO₂ emissions, we use a web-based reporting tool with ready-made templated reports for our KPIs. The tool uses reported energy data in combination with the relevant CO₂ emissions factors to consolidate CO₂ emissions from unit-level up to Group-level.

The tool contains carbon data and all other environmental and energy related information for benchmarking, target follow up and reporting purposes.

The collection of data for Scope 3 estimates is a resource intensive task. The emissions are calculated using the volume-based method where volumes of supplies and our products, transport modes and distances are used in combination with relevant carbon emission factors to estimate the absolute emissions. Currently most factors are generic retrieved from external credible databases, but a transition is ongoing to utilize more primary data as it becomes available.

External Assurance

Since 2015, a level of reasonable assurance has been provided for Stora Enso's reporting on direct and indirect Greenhouse Gas (GHG) emissions (Scopes 1 and 2).

The most relevant international memberships for progressing our Energy and Climate Change agenda

- The Alliance for Beverage Cartons and the Environment (ACE),
- Confederation of European Paper Industries (CEPI),
- Corporate Leaders Group* (CLG),
- European Biomass Association (AEBIOM) and
- The European Confederation of Woodworking Industries represents (CEI-Bois),
- The Forest Dialogue (TFD),
- The Sustainable Biomass Program (SBP),
- World Business Council for Sustainable Development* (WBCSD),
- World Green Building Council (WGBC),
- WWF.

Third-party performance assessments

The Transition Pathway Initiative, an asset owner-led initiative supported by Grantham Research Institute and the London School of Economics, released an assessment report in February 2020 including how eighteen of the largest paper producers globally are preparing for the transition to a low-carbon economy. For the third time in a row, Stora Enso was top ranked in both management quality and carbon performance.

* members of the "We Mean Business" alliance



Wood and Fibre Sourcing, and Land Management policy objectives



Our contribution as a renewable materials company

The UN's Sustainable Development Goal 15 – Life on land: In our sustainable forest management, we are committed to responsible sourcing and land use – to safeguard the health and ecological functions of ecosystems and help conserve biodiversity, soil, and water resources. In order to achieve this, we maintain open dialogues with our stakeholders. All roundwood, chips, sawdust, and externally purchased pulp supplied to our mills come from sustainable sources.

Global challenges such as population growth, increasing demand for agricultural land, and the widening gap between wood supply and demand, require us to use forests, plantations, and other natural resources even more efficiently, and to produce more raw materials from less land. The need to reverse global biodiversity loss demands new ways of managing natural resources and integrating various land uses.

As a leading renewable materials company, we have an obligation to address these challenges wherever we manage forests and plantations, and ensure that all our wood and fiber is responsibly sourced¹⁰.

Sustainable forest management safeguards forest health and productivity, enhances biodiversity and helps to combat global warming – whilst securing the long-term availability of our renewable resources.

Our policy objectives

1 We comply with all applicable legal and regulatory obligations wherever we operate.

As an international company and one of the largest private forest owners in the world in a resource intensive manufacturing sector, we comply with relevant national legislation and regulations, as well as international agreements. Through our membership in national and regional forest industry associations, international organisations, and NGOs we follow and engage in relevant policy developments. This proactive engagement ensures timely awareness and supports our future compliance.

Where national laws and international human rights standards differ, we will follow the higher standard. Where standards and laws conflict, we will seek ways to respect international human rights to the greatest extent possible, such as through third-party partnerships.

2 We transparently, constructively and meaningfully engage key stakeholders in forest management planning and practices.

We actively work with our stakeholders to promote sustainable forest management. We engage in active dialogue with local, national and international stakeholders, and create opportunities for local people to benefit from the economic and social impacts of our

activities. We are an active member of numerous local and global initiatives, forestry associations, networks, and programmes.

3 We respect traditional and multiple uses of forests.

We respect traditional and multiple uses of forests, such as fishing, hunting, and picking wild berries and mushrooms, and recognise that such activities help to preserve each area's distinctive natural, historical and cultural heritage.

4 We recognise the unique economic and cultural rights of indigenous people, including their legitimate rights to traditional land and land use.

Recognising the unique economic and cultural rights of indigenous people, we promote wood and fiber procurement and forest management practices that respect lands that indigenous people traditionally occupy or otherwise use.

5 We utilise and promote with forest owners sustainable forest and land management practices which safeguard the health and ecological functions of ecosystems and help conserve biodiversity, soil and water resources. We monitor the condition of forests and results of management activities, and use tools, such as forest certification, to promote and verify sustainable forest management.

In areas managed by Stora Enso, we use sustainable forest and land management practices that conserve biodiversity, soil (including peat) and water resources, while also safeguarding the health and ecological functions of ecosystems.

¹⁰ Stora Enso applies its policy and guidelines in all wood and fiber sourcing operations including:

- Purchases and exchanges of wood and woody biomass including imports and exports
- Forests owned or managed by the company
- Tree plantations owned or managed by the company
- External purchases and exchanges of pulp

Where Stora Enso has an ownership of over 50%, we will directly apply our policies and guidelines. Otherwise we will seek to ensure that similar policies and/or guidelines are developed and adopted by companies in which Stora Enso is a partner with shared ownership or a minority shareholder.

We take a long-term approach based on ecological landscape planning methods to provide a sustainable wood and fiber supply, while also conserving and restoring vital ecological features and ecosystem services. We manage the spatial and temporal variability of ecosystems at the landscape level. Important considerations include plant and habitat diversity, mature forest habitats, old-growth forests, natural forest community types, and wildlife habitat diversity.

We have systems in place to recognize high conservation values and ensure they are protected. We cooperate with environmental NGOs, government bodies and other stakeholders to improve the science base for the identification and safeguarding such forests.

We strive to use the most appropriate forest management methods for each ecodistrict and site. This may involve maintaining natural disturbance regimes such as regeneration cutting, controlled fires and selective harvesting. Through appropriate silvicultural practices and measures to ensure forest regeneration, we maintain or increase sustainable harvesting, and the quality and quantity of forest products. Intensive forestry practices, such as the planting of exotic tree species and the use of fertiliser, will only be applied after careful planning to ensure that biodiversity is not harmed at the landscape level.

We strive to minimise the risk of damage to forests, for example through wildfire, insects and disease. We do not use persistent biocides, and we strive to minimise the use of other biocides.

We support sustainable forest management and promote forest certification on all land used to supply Stora Enso with wood and fiber. Certification allows us to protect, verify, and communicate a broad range of economic, social and environmental values.

6 We do not procure wood or fiber that has been:

- illegally harvested,
- logged in protected areas or areas currently undergoing the official process of designation for protection, unless the logging is clearly in line with national conservation regulations,
- harvested in forests where High Conservation Values as defined by the High Conservation Value

Resource Network (HCVRN) and duly interpreted through balanced stakeholder processes are threatened by logging¹¹,

- sourced from areas undergoing conversion from forest or other wooded ecosystems to plantations or non-forest uses, unless such conversion is justified on the grounds of net social and environmental gain, or
- harvested in violation of traditional rights or civil rights.

7 We utilise traceability systems to ensure that all the wood and fiber we source originates from legal sources.

We utilise traceability systems to ensure that all the wood and fiber we use originates from legal sources, and we strive to obtain third party verification of these systems through the ISO and/or the Chain of Custody and PEFC Controlled Sources/FSC¹² Controlled Wood schemes.

8 We require our external pulp suppliers to follow similar principles in their wood and fiber procurement.

We require our external pulp suppliers to follow similar principles in their wood and fiber procurement as those we adhere to. This is particularly crucial regarding the undesirable sources listed under policy objective 6. We aim to have timelines in place for suppliers to attain the required performance levels, and their progress is duly audited through questionnaires and certification documentation.

9 We utilise wood in an efficient manner to ensure high added value from resources, promote the recycling of wood and fiber, and use Paper for Recycling when environmentally and commercially viable.

Stora Enso is at the heart of the circular bioeconomy and we are using wood efficiently to minimise waste, maximize added value and reduce costs. An efficient use of Paper for Recycling (PfR) is an essential part of our strategy to be ‘the renewable material company’ as it is contributing to and efficient use of the wood fiber. Stora Enso uses PfR when environmentally, technically and commercially viable. In regions where we have PfR based production we are actively

supporting improved collection and recycling of used wood fiber based paper and board products and we secure sufficient supply of PfR for recycling as raw material through contracts with local suppliers, and by managing our own collection facilities. We also actively collaborate with the fiber-based industry to find ways to further increase the recycling rate.

10 We design and manage tree plantations as part of local land use and contribute to sustainable livelihoods.

When establishing new plantations, we use internationally approved principles, such as the Food and Agriculture Organisation’s (FAO) Voluntary Guidelines on Planted Forests.

Stora Enso’s tree plantations are intensively managed, primarily for specific commercial purposes. We believe that sustainably managed plantations are a key component of a global industrial forest management system, and can enhance local welfare and play an important role in the conservation of native ecosystems. Recognising the increasingly important role of tree plantations in global industrial wood production, we actively promote the development of sustainable plantations and apply a holistic approach in their establishment and management. We design and manage plantations in a landscape context, which recognises them as an integral element of local land use. We do not convert natural forests, protected areas or areas currently undergoing official processes of designation for protection into plantations unless such developments would be in line with the relevant conservation regulations. We use environmental and social impact assessments and other participatory tools to define sustainable land use practices.

We contribute to the improvement of economic conditions and create opportunities for local people to share the economic and social benefits our activities create in the communities where we operate.

11 We refrain from the commercial use of genetically engineered feedstock (GMOs). We will perform research and development in this area.

We refrain from the commercial use of genetically engineered feedstock (GMOs). We will however perform research and development in this area.



In pulping, papermaking, and bio-refining applications we allow the use of commercially available, and commonly accepted, process aids derived from organisms that have been genetically engineered.

When required by specific markets, we will provide products which do not contain additives obtained from organisms that have been genetically engineered.

¹¹ Wherever Stora Enso procures wood and fiber we address High Conservation Values primarily through forest management planning, forest management certification, and FSC Controlled Wood certifications.

¹² Trademark license number (Stora Enso Communications) FSC-N001919.

Human rights implications

We are committed to fully respect human rights throughout our operations, including ensuring the observance of human rights in all relationships involving Stora Enso, and encouraging our partners to constantly improve their performance – as outlined in our Human Rights Policy and Human Rights Guidelines. While we have defined eight Group-wide highest priority human rights, we continue to respect all human rights.

Specifically in the area of wood and fiber sourcing and land management we respect the following human rights:

- a) **Right of self-determination** – We respect the right of ‘people’ under international law to freely pursue their own political, social and cultural development on the lands they traditionally own or otherwise occupy, including the special safeguarding of the natural resources on which they rely, in accordance with the Indigenous and Tribal Peoples Convention (International Labour Organisation Convention 169).
- b) **Just and favourable working conditions** – We respect the rights of our employees and our wider workforce to work under just and favourable working conditions, including a safe and secure workplace, in accordance with the Stora Enso Code, Minimum Human Resource Requirements, Supplier Code of Conduct, ILO core labour rights conventions, and OHS Toolkit.
- c) **Right to take part in cultural life** – We respect communities’ interests in using lands on which we conduct operations for traditional or cultural activities, including the collection of non-timber forest products, providing they do not interfere with our authorized activities or otherwise violate the law.
- d) **Right to own property** – We will only operate on lands where our land use rights have been conveyed and acquired in accordance with the law, whether formal (common or civil law) or informal (customary law).
- e) **Right to freedom of assembly** – We respect the right to peacefully protest against our operations.
- e) **Right to a fair trial** – In conjunction with the right to freedom of assembly, we will not interfere with the right to due process of protesters arrested for activities regarding our operations, including their right to a fair trial and to be presumed innocent until proven guilty by a competent tribunal.
- g. **Access to effective remedy** – We respect the right of stakeholders impacted by our activities to seek an effective remedy.

Appendix

Glossary of terms

AOX – Adsorbable organic halogen compounds

Biodiversity – The variability among living organisms and ecological complexes, including diversity within species, between species, and in ecosystems.

Bioeconomy – Comprising those parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – to produce food, materials and energy (EU definition).

Black liquor – Residual product from the kraft pulp process when digesting pulpwood into paper pulp removing lignin, hemicelluloses and other extractives from the wood to free the cellulose fibers.

Carbon dioxide (CO₂) – One of the principle greenhouse gases, which are causing manmade global warming and climate change. Note that greenhouse gas emissions may also be expressed in tonnes of carbon dioxide equivalent (CO₂e), which is a measure of how much global warming a given quantity of greenhouse gas may cause by using CO₂ as a reference.

Carbon – Trees and plants store CO₂ and energy from the sun as carbon in their biomass. Carbon in biomass is known as biogenic carbon and the CO₂ formed when biomass is burned is called biogenic CO₂. Carbon in biomass is only ‘recently’ removed from the atmosphere and is destined to return to the atmosphere whether trees are harvested or not. Harvesting alters the timing but as long as the forest carbon cycle is kept in balance (see carbon neutrality), the return of the biogenic CO₂ to the atmosphere does not increase overall CO₂ levels over time. Fossil carbon, which has been stored in the earth for millions of years,

would however not return to the atmosphere and increase CO₂ levels without human intervention by extracting and combusting it as fossil fuels.*

Carbon neutral biomass – A property of wood or other biomass harvested from forests where new growth completely offsets losses of carbon caused by harvesting.*

Chain of Custody (CoC) – A certified system, today linked to forest certification, to verify the origin of wood between two defined points as part of the verification of the acceptability of wood and fiber sources. Applied to mills and products, CoC can be linked with forest certification labelling, according to rules defined by schemes such as those run by the Programme for the Endorsement of Forest Certification Schemes (PEFC) and the Forest Stewardship Council (FSC).

Circular bioeconomy – A circular bioeconomy describes the sustainable production and maximum value capture of (secondary) biological renewable resources. It supports a shift toward a circular, low-carbon economy that counterbalances global warming and meets society’s current and future needs for food, products, and energy within the planetary boundaries by complementing or substituting existing non-renewable materials.

Circular economy – An economy where the value of products and materials is maintained for as long as possible; waste and resource use are minimised, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value (European Commission).

* Recommendations on Biomass Carbon Neutrality, WBCSD Forest Solutions and NCASI, 2013.

Climate change – A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods [United Nations Framework Convention on Climate Change (UNFCCC)].

COD – Chemical Oxygen Demand, a measurement of the oxygen required to oxidize soluble and particulate organic matter in water.

Ecological landscape planning – A methodology used to plan the management of large land areas based on identified ecological features such as hydrology, soils, habitat patches and connectivity, energy pathways and natural disturbance patterns. The resulting information can be used as the basis for plans that meet environmental, social and economic objectives for the lands concerned.

Ecosystem – An entire community consisting of plants and animals and their physical environment functioning together as an interdependent unit.

Endangered species – Any species that is in danger of extinction throughout all or a significant portion of its range.

EPR – Extended Producer Responsibility is a policy approach under which producers are given a significant responsibility (financial and/or physical) for the treatment or disposal of post-consumer products.

ESIA – Environmental and Social Impact Assessment

Forest management certification – The third-party verification of forest management practices against a predetermined standard.

Genetic engineering – The stable modification of an organism's genetic constitution via asexual gene transfer. The resultant organisms are known as Genetically Modified Organisms (GMOs).

GHS – Globally Harmonized System of Classification and Labelling of Chemicals is an internationally agreed-upon system, created by the United Nations, designed to replace the various classification and labelling standards used in different countries by using consistent criteria on a global level.

Global warming – A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by greenhouse gas emissions, including CO₂.

Greenhouse gas (GHG) – A gas that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect, which is thought to contribute towards global warming and climate change.

High Conservation Values (HCVs) – Outstanding and critical environmental, cultural, biodiversity or landscape values as defined by the HCV Resource Network and duly interpreted through balanced stakeholder processes. The High Conservation Value Resource Network defines six HCVs:

HCV1 – Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia).

HCV2 – Forest areas containing globally, regionally or nationally significant large landscape level forests, with naturally occurring species in terms of distribution and abundance.

HCV3 – Forest areas that are in or contain rare, threatened or endangered ecosystems.

HCV4 – Forest areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control).

HCV5 – Forest areas fundamental to meeting the basic needs of local communities (e.g. subsistence, health).

HCV6 – Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Indigenous peoples – The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at a time when persons of a different culture or ethnic origin arrived there from other parts of the world (based on a definition used by the UN Working Group on Indigenous Peoples).

ISO 14001 – Issued by the International Organization for Standardization (ISO), the ISO 14001 standard specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance.

Landscape – A large, heterogeneous land area composed of a cluster of interacting ecosystems (such as woods, meadows, marshes, or villages) that is repeated in similar form throughout.

Old-growth Forest – Forest of exceptionally high conservation value due to its combination of very old trees, very large trees, ecologically valuable forest structure, large quantities of woody debris, and species composition representative of the specific ecosystem (ecosite and ecodistrict) in which it is found. Old growth is an ecosite-specific condition that must be identified using locally valid biological criteria.

Paper Profile – The environmental performance of our paper and consumer board products is reported in line with the voluntary Paper Profile initiative. This is a uniform declaration presenting product information, covering environmental aspects related to pulp and paper production including product composition and emissions, wood procurement and environmental management as average data within a specific reporting period.

PfR – Paper for Recycling

REACH – Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH, EC 1907/2006)

Sedex – Global not-for-profit membership organisation acting as home to one of the world's largest collaborative platform for sharing responsible sourcing data on supply chains.

Substitution effect – The reduction of fossil CO₂ or other greenhouse gasses associated with the use of biomass-based products in place of other materials or products.*

Sustainable forest management – The stewardship and use of forest lands in a manner that maintains their productivity, biodiversity, regeneration capacity, vitality and their potential to fulfil their relevant ecological, economic and social functions at local, national and global levels now and in the future.

Traceability systems – Systems which verify the origin of wood by tracking it from forest to the first point where it is received by the company. Traceability systems can be third-party verified through schemes including CoC, ISO 9001, ISO 14001, and the EU Eco-Management and Audit Scheme (EMAS).

UN Global Compact / CEO Water Mandate – UN platform involving United Nations, governments, peers, civil society, and business to share best practices and to forge multi-stakeholder partnerships to address challenges related to water scarcity, water quality, water governance, and access to water and sanitation.