

GREEN BOND REPORT 2021



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Leader in responsibility

Our consistent responsibility efforts have received recognition from several third parties.

UN Global Compact LEAD: A Global Compact LEAD company for demonstrating world-class commitment to corporate responsibility. We are one of 37 companies globally—the only forest-industry company and Finnish company participating.

Dow Jones Sustainability Index: The only company in the forest and paper industry in the Dow Jones European and World Sustainability Indices (DJSI) for 2021–2022.

MSCI ESG ratings: An AAA rating in the assessment. MSCI ESG Research provides MSCI ESG ratings on global public companies, according to each company’s exposure to industry-specific ESG risks and its ability to manage those risks relative to its peers.

CDP Programme: Leadership position in CDP Forests for preventing deforestation, CDP Water for water security and CDP Climate for tackling climate change.

S&P Global's Sustainability Yearbook: Gold Class distinction in The Sustainability Yearbook 2022 by S&P Global as one of the top-scoring companies in our industry.

EcoVadis: The highest possible Platinum level for our responsible performance for which only 1% of over 75,000 companies assessed globally attain.

Bloomberg Gender-Equality Index (GEI): UPM is among the 418 public companies globally and one of the two Finnish companies in this index. The GEI lists the companies most committed to transparency in gender reporting and advancing women’s equality.



Executive summary

We are in a unique position to advance circular bioeconomy and to take the world towards a future beyond fossils.

Responsibility is an integral part of our Biofore strategy. We source our raw materials from sustainably managed forests and we foster biodiversity. We develop climate-positive products that replace fossil-based ones. We have ambitious and science-based emission reduction targets.

Responsibility has also an important role in our financing. We established a Green Finance Framework in November 2020, which received the overall rating of Dark Green from CICERO Shades of Green. We have issued two Green Bonds: EUR 750 million in November 2020 and EUR 500 million in March 2021.

In this report we present the allocation of the proceeds and impacts achieved of these two bonds.

Detailed information on the allocation of the EUR 500 million bond proceeds can be found from pages 8–13. Details of EUR 750 million bond allocation can be found from the Green Bond Report 2020. The reporting is based on the green finance portfolio as at 31 December 2021. We have used portfolio approach but share also bond by bond information.

We have reported our EU Taxonomy-eligible activities in the Annual Report 2021. The eligibility evaluation was based on financial year 2021 information and the funds allocated to the green bonds cover years 2018–2021 thus a separate evaluation of the EU Taxonomy eligibility has not been done.

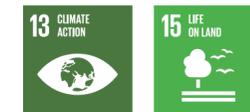
Green Bond portfolio

EUR 1,250m

using Eligible Assets and Projects from the following categories:

Sustainable forest management

- 784,000 certified hectares
- 3.8 million tonnes carbon sink
- Positive impact on biodiversity



Climate-positive products and solutions

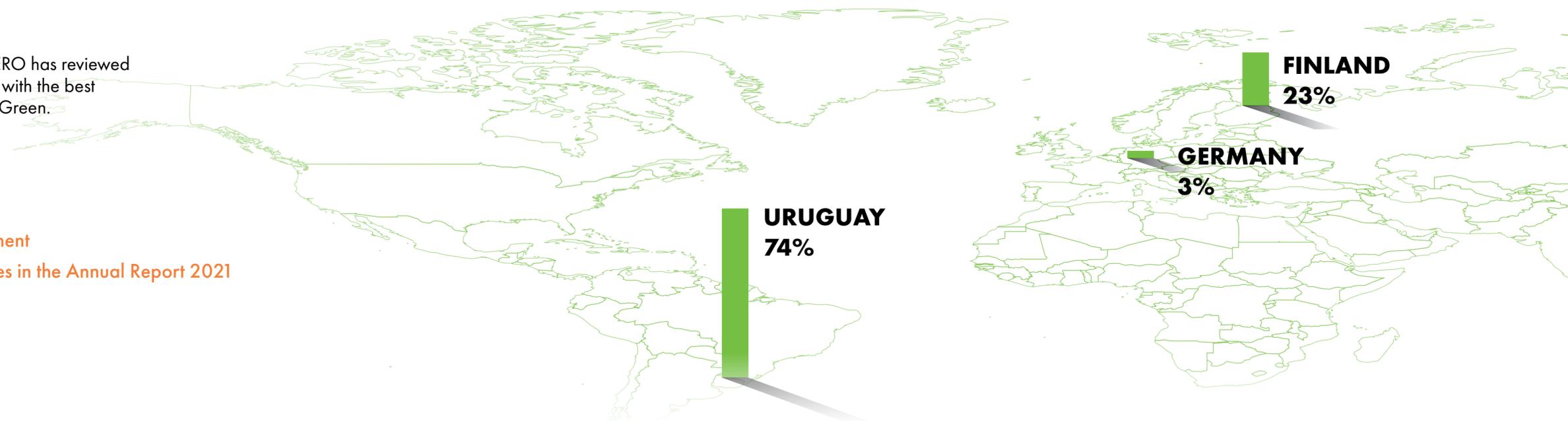
- 1,514 patents
- 161 trademarks
- Bio-based solutions to replace fossil-based materials



CICERO
Dark Green

The second-party verifier CICERO has reviewed our Green Finance Framework with the best possible rating, CICERO Dark Green.

- > Green Finance Framework
- > CICERO second-party opinion
- > Green Finance Framework Q&A
- > Green Bond Report 2020
- > UPM Annual Report 2021
- > UPM Responsibility Statement
- > Taxonomy-eligible activities in the Annual Report 2021
- > UPM website



Green Bond Summary

| Green Bond portfolio allocated proceeds and impacts | | | |
|---|--------------------------------------|--------------------------|---------------------------------------|
| Issuer | UPM-Kymmene Corporation | | |
| Bond type | Senior, unsecured | | |
| Listing | Euronext Dublin | | |
| Second Party Opinion | CICERO | | |
| Nominal value total | EUR 1,250 million | | |
| Nominal value per bond | EUR 750 million | EUR 500 million | |
| ISIN | XS2257961818 | XS2320453884 | |
| Bond Ratings | Baa1 Moody's, BBB Standard & Poor's | Baa1 Moody's | |
| Issue date | 19 November 2020 | 22 March 2021 | |
| Maturity date | 19 November 2028 | 22 March 2031 | |
| Coupon | 0.125% | 0.500% | |
| Allocated proceeds | EUR 1,082 million/87% | EUR 750 million/100% | EUR 332 million/66% |
| Unallocated proceeds | EUR 168 million/13% | - | EUR 168 million/34% |
| Look-back period | 1-3 yrs | 2-3 yrs | 1-2 yrs |
| Re-financing* | EUR 875 million/70% | EUR 750 million/100% | EUR 125 million/25% |
| Financing* | EUR 375 million/30% | - | EUR 375 million/75% |
| Geographical split | Uruguay 74%, Finland 23%, Germany 3% | Uruguay 77%, Finland 23% | Uruguay 65%, Finland 25%, Germany 10% |

| Categories used | EUR 1,082 million | EUR 750 million | EUR 332 million |
|--|---------------------------------|---------------------------------|---------------------------------|
| Sustainable forest management | EUR 893 million in total | EUR 672 million in total | EUR 222 million in total |
| Forest assets carrying value | EUR 592 million | EUR 592 million | |
| Sustainable forest management costs | EUR 168 million | EUR 80 million | EUR 88 million |
| Plantation acquisition | EUR 112 million | | EUR 112 million |
| Nursery investments | EUR 21 million | | EUR 21 million |
| Climate positive products and solutions | EUR 189 million | EUR 78 million in total | EUR 111 million in total |
| R&D costs in biobusinesses | EUR 154 million | EUR 78 million | EUR 76 million |
| Biochemicals refinery investment | EUR 34 million | | EUR 34 million |

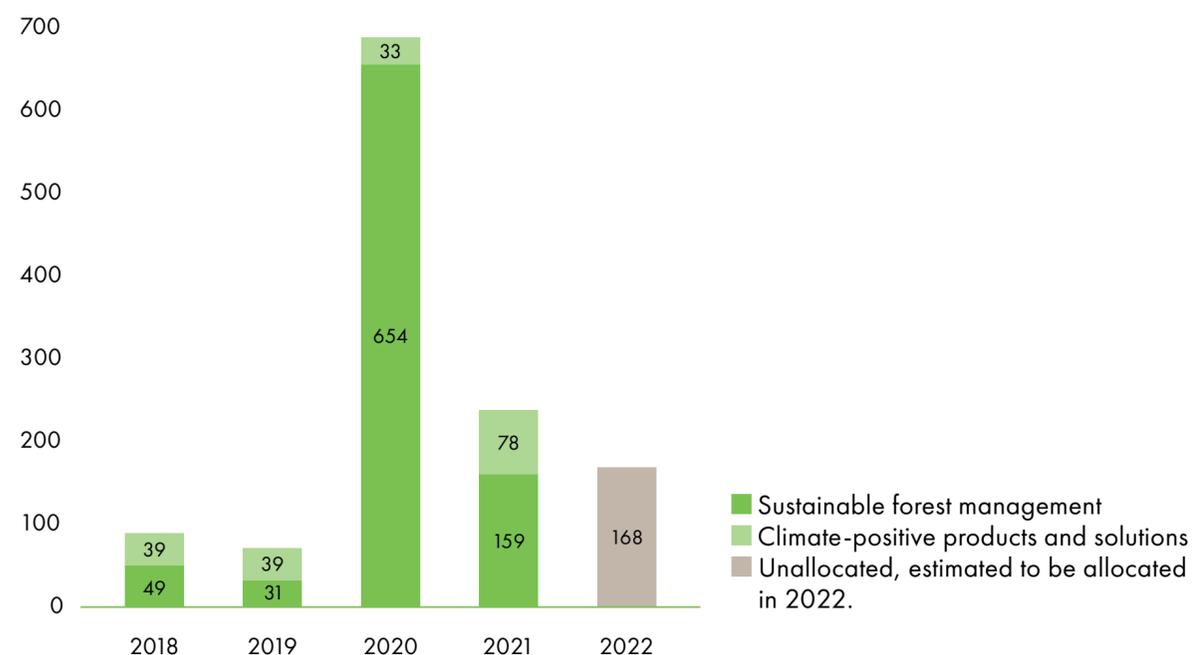
Green Bond Allocation 31 December 2021

Nominal value total EUR 1,250 million

EUR million (%)



Allocation per year per category (EUR million)



Annual carbon sink 2021

4,300 tonnes CO₂e /EUR 1 million

(calculated for the Sustainable forest management, EUR 893m)

or

3,000 tonnes CO₂e /EUR 1 million

(calculated for the whole nominal value of the bond portfolio, EUR 1,250m)

| Impact indicators | Related SDGs |
|---|--------------|
| <ul style="list-style-type: none"> 784,000 hectares of certified forest and 36,000 hectares in the process to be certified, end of year 2021 Five-year annual average carbon sink of UPM's own and leased forests 3.8 million tonnes of CO₂ equivalents in 2021 Positive impact on biodiversity measured in UPM-owned Finnish forests by selected indicators in 2020 and 2021 Updated biodiversity strategy launched for Uruguay in 2021 | |
| <ul style="list-style-type: none"> 1,514 patents and 161 trademarks in Biochemicals, Biomedicals, Biocomposites and Biofuels at the end of 2021. This represents the number of patents and trademarks that generated costs during the period of 2018–2021 Biochemicals refinery investment will offer new bio-based solutions that replace fossil-based solutions for the material sector | |

Note: Carbon sink information is based on a recent study by the Natural Resource Institute of Finland for UPM's own and leased forest assets in Finland and Uruguay.

Note: Figures presented in this report are rounded and therefore the sum of individual figures might deviate from the presented total figure.

* The allocated amount to projects financed before bond issuance: re-financing, the allocated amount to projects financed after bond issuance: financing

A future beyond fossils

As a frontrunner in forest industry, we provide renewable solutions for various end uses. We invest in sustainable growth and innovate for a future beyond fossils. Responsibility is at the core of everything we do.

Biofore strategy drives our transformation as a bioeconomy frontrunner. We seek sustainable growth by enabling our customers and consumers to make more sustainable choices. High performance, innovations and world-leading responsibility are the cornerstones of our strategy.

Our transformation has been ongoing for more than 10 years, at an increasing pace. We have an agile operating model and nurture a culture of high performance and integrity.

Our renewable and recyclable products meet the everyday needs of consumers, and at the same time address many global challenges such as climate change and resource scarcity. Many of our products offer sustainable alternatives for fossil raw materials and energy, for example replacing fossil plastics in consumer products as well as steel and cement in construction or fossil fuels in traffic, aviation and electricity markets. Furthermore, we provide our customers with completely new solutions, creating innovative growth businesses.

We are in an intensive phase of building a world-scale pulp mill in Uruguay and a next generation biochemicals refinery in Germany. We are also conducting the basic engineering of a potential new biofuels refinery that would scale up our successful biofuels business. These transformative growth projects represent significant future earnings growth for us. They are set to further improve our business mix with higher-margin, higher-value businesses.

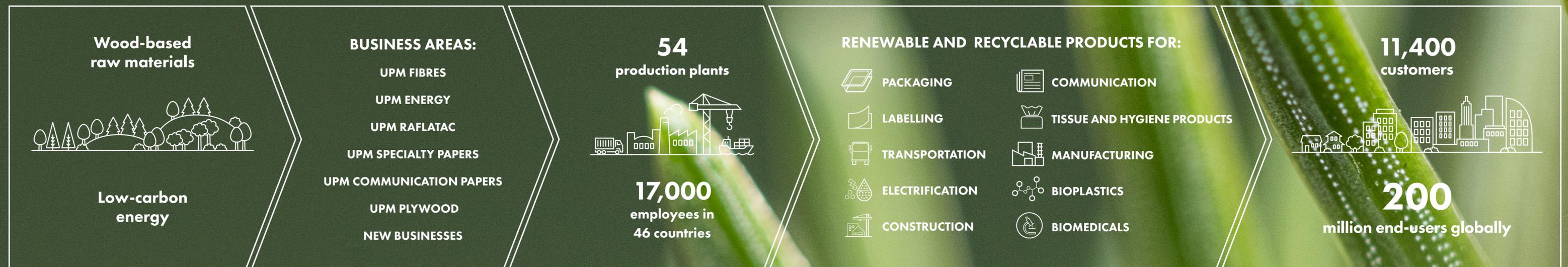
Sales in 2021
EUR 9,814 m

Company ratings

Moody's
Baa1
with stable outlook

Standard & Poor's
BBB
with stable outlook

THIS IS UPM



Sustainable choices

Forests provide a renewable source of raw materials for a broad range of products, from everyday necessities to ground-breaking innovations and alternatives to fossil-based materials. Growing forests are also one of the biggest absorbers of carbon on the planet, second only to oceans. They are critical to biodiversity and they protect water systems. For many, they provide a livelihood and are a source of wellbeing and recreation. Today, they are more important than ever.



HOW WE MAKE A POSITIVE IMPACT



ENABLING SUSTAINABLE CONSUMER CHOICES

Consumers make important purchasing decisions, and we play a role in enabling sustainable choices. Responsible alternatives with credible information assist better choices. We provide sustainable solutions and create a future beyond fossils.

- Renewable and recyclable materials
- Sustainable product design
- Responsibility across product lifecycle
- Eco-labelled products



MITIGATING CLIMATE CHANGE

We are committed to the UN's 1.5 °C climate target and to science-based measures to mitigate climate change. We are also committed to becoming net-zero by 2040, ten years ahead of the Paris Agreement. We practise climate-positive forestry wherever we operate.

- Our forests absorb CO₂ from the air as they grow
- We aim to reduce our own emissions by 65% and supply chain emissions by 30% by 2030
- Our products replace fossils in various end-uses
- We innovate climate-positive products



IMPROVING BIODIVERSITY

Forests are critical to biodiversity. We want to ensure forests are full of life and continue to grow for generations to come. Safeguarding biodiversity makes forests more resilient to climate change, thereby also benefitting our business.

- Global biodiversity programme, established in 1998
- Science-based biodiversity indicators
- Stringent sustainability criteria for our own work and for our supply chain
- Sustainable forestry provides prosperity for local communities



ADVANCING A CIRCULAR BIOECONOMY

We promote the efficient use of all raw material streams and reduce, reuse and recycle whenever possible. Cross-industry collaboration provides a greater impact.

- Products made from side streams, residues and recovered materials
- Recyclability as an integral element of sustainable product design
- Efficient use of different resources
- Leading recycler in paper manufacturing

Allocated categories



Sustainable forest management

Our business is based on sustainable forest management. We grow and harvest wood to produce renewable and recyclable materials and products.



Climate-positive products and solutions

We are developing innovative, high-quality products from wood-based biomass. Many of our products offer sustainable alternatives for fossil raw materials and energy, for example replacing fossil plastics in consumer products, steel and cement in construction or fossil fuels in traffic, aviation and electricity markets.





Sustainable forest management

Our business is based on sustainable forest management. We grow and harvest wood to produce renewable and sustainable materials and products.

ICMA CATEGORY

Environmentally sustainable management of living natural resources and land use



Use of proceeds – EUR 500 million Green Bond

Sustainable forest management includes acquisition, maintenance and management of forest certified under the FSC™ (Forest Stewardship Council™, FSC N003385) and the PEFC (the Programme for the Endorsement of Forest Certification, PEFC/02-44-41).

The total amount used for this category was EUR 222 million, of which EUR 62 million was used in 2020 and EUR 159 million in 2021. EUR 88 million was allocated to sustainable forest management costs. These include, but are not limited to, sub-contracted activities, such as land preparation, planting, fertilising, as well as costs related to leased plantation areas and the operation of nurseries. The main part of sustainable forest management costs are related to plantations in Uruguay.

EUR 112 million was allocated to the acquisition of new plantation areas, including both the land areas as well as the trees growing on those areas. EUR 21 million was allocated to eucalyptus tree nursery investments in Uruguay to secure the availability of high quality seedlings for the plantations.

Commitments and targets

By managing our forests sustainably, we safeguard the availability of wood, protect biodiversity and mitigate and adapt to climate change. We take a holistic approach to sustainable forestry wherever we operate, adhering to the following commitments:

- Third party-verified and credible certification systems for all our forests
- Third party-verified and certified chain of custody systems to ensure 100% wood traceability
- No wood from tropical rainforests or from forest plantations that have been established by converting natural forests

- No operations in areas where the rights of indigenous peoples are endangered
- No plantation operations in water-stressed areas
- Strong stakeholder engagement
- Focus on UPM’s 2030 responsibility targets: Climate-positive land use and positive impact on biodiversity

Our impacts

Forest certification

Finland and Uruguay are our main wood sourcing regions. At the end of 2021, we owned approximately 820,000 hectares of forest land in Finland and Uruguay of which 784,000 is certified. 36,000 hectares are in the process of certification as the land was acquired recently. Most of the forest land is in Finland, totalling 515,000 hectares. In Uruguay, we have about 305,000 hectares of eucalyptus plantations, grasslands and conservation areas. We lease 161,000 hectares in Uruguay and manage around 1.3 million hectares of private forest in Finland.

We also promote forest certification to private forest owners and our other customers. We have established the FSC group certification scheme which covered approximately 520,000 hectares in Finland and over 13,000 hectares in Uruguay in 2021. We actively participate in developing forest certification on a national and global level. We maintain active dialogue with the FSC and PEFC organisations and participate in national and international working groups for certification development.

Forest carbon sink

We are committed to climate-positive forestry. To ensure that our forests remain carbon sinks, they need to grow more than we use them. We are improving the health, growth and carbon sequestration of our forests. The annual carbon sink from owned and leased forests in Finland and Uruguay has averaged 3.8 million tonnes of CO₂ equivalent over the past five years. In 2021, soil carbon accounting models for Uruguayan plantations were developed.

784,000 hectares certified forest land

Five years annual average carbon sink of 3.8 million tonnes of CO₂ equivalents

Role of plantations and improving biodiversity in Uruguay

Uruguay's native forests are all protected. The country is located within a temperate climate zone with no rainforests. Plantations are established on former grazing lands classified for commercial forests. The Uruguay Forestry Act sets strict rules for plantation design and structure. These include rules on location, tree types and identifying suitable forestry soils for plantation development, as well as safe zones around roads, native forests and waterways.

Eucalyptus availability for the new pulp mill in Uruguay is secured through our own and leased plantations, as well as through wood sourcing agreements with private partners. Our plantation areas in Uruguay cover 466,000 hectares of UPM's own and leased land.

Sustainably managed plantations are highly productive, acting as a carbon sink while improving biodiversity. Eucalyptus' fast growth rate and rotation time of 10 years make it the preferred plantation tree. We have created a permanent carbon storage of 55 million tonnes of CO₂ equivalent during the past 30 years. Our biodiversity programme has been implemented in plantations since the early 1990s. In 2020, we defined the biodiversity indicators for the company-owned land as part of our global biodiversity programme.

During 2021, we implemented an upgraded biodiversity conservation management strategy to increase biodiversity in the long term in our own land. (please see case example on page 10). At present, the network of formal conservation areas covers nearly 16,000 hectares. The aim is to increase these protected areas under UPM's defined conservation categories and to continue with the long-term biodiversity programme.

Our plantation operations are also strengthening rural regions and communities through increased opportunities for education and employment, as well as through developing services and infrastructure.

Improving biodiversity in Finland

We are continuously working to improve biodiversity in our forests. We promote biodiversity as part of our everyday forest management and through conservation and collaborative stakeholder projects. Based on indicators developed in co-operation with researchers, we monitor our biodiversity development.

In 2019, we set a target of having a positive impact on biodiversity in our own forests in Finland with following indicators:

- Tree species
- Forest age
- Forest structure
- Protected areas
- Valuable habitats
- Habitation restoration
- Species and habitat projects
- Indicator development

Overall positive development was measured in 2021 with six out of eight sub-indicators showing positive development.

New Forest Action Programme launched

In early 2022, we published a new Forest Action Programme, which will run until 2030. The global programme steers our global wood sourcing operations and covers our own forests in Finland and the United States as well as in our plantations in Uruguay. The new programme covers not only climate and biodiversity targets but also sustainability criteria related to water and soil as well as economic and social contribution.

> [More about UPM Forest Action programme](#)

> [Information on EUR 750 million Green Bond allocation and impacts can be found from Green Bond Report 2020](#)

**We act
through
forests**

Case examples



Protecting biodiversity in Uruguay

In Uruguay, biological surveys have been carried out in areas owned by UPM since the early 1990s to help identify, classify, and protect species and native ecosystems. In 2020, we defined three biodiversity indicators for our land as part of the global biodiversity programme.

In 2021, we implemented an upgraded biodiversity strategy to increase biodiversity in the long term. The strategy has four key elements:

- diverse landscape management,
- value ecosystems conservation,
- endangered species conservation, and
- alien species management.

We aim to increase the protected areas, and to continue with the long-term monitoring programmes. Our plan is to include 20% or more of our own land holding designated as under conservation management. We continually work with external experts to have an up-to-date list of total species, flora and fauna, and endangered species. Of the native flora species in Uruguay recorded by the end of 2021, 70% of those species were also present on land owned by UPM, for example.

A new native flower species was also discovered on our conservation land for the first time in Uruguay. The white flower, *Antiphytum charruasorum*, shows the importance of maintaining conservation areas growing around the eucalyptus plantations.



Decaying wood as an indicator of biodiversity

One clear difference between natural and commercial forests is the amount of decaying wood. More than a fifth of Finland's forest species depend on decaying wood at some point in their lives. Different species such as fungi and insects are best adapted to live on a particular type of decaying wood, and the species that live on a tree are influenced by the tree species, the size of the tree, the position of the decaying wood and the stage of decay.

We will investigate the effects of nature management measures in commercial forests, such as leaving retention and decaying trees in regeneration fellings, on the structural features and species of forests that are important for biodiversity. The study started in autumn 2021 in co-operation with the Natural Resources Institute of Finland. In the first phase, 30–50 regeneration areas harvested in 2000–2018 in Southern Finland will be inventoried. In addition to species and structural inventories, we aim to create a reliable method for assessing the impact of nature management measures.

The study seeks to verify how UPM's conservation of retention and decaying trees in its own forests has affected the amount and species distribution of biodiversity important to the structural features (large decaying trees, coarse decaying wood). We will also develop a list of indicator species based on three species groups to monitor the impact of nature management on species diversity.

**ICMA CATEGORY**

Eco-efficient and/or circular economy adapted products, production technologies and processes



Climate-positive products and solutions

We are developing innovative, high-quality products from wood-based biomass. Many of our products offer sustainable alternatives for fossil raw materials and energy, for example replacing fossil plastics in consumer products, steel and cement in construction or fossil fuels in traffic, aviation and electricity markets.

Use of proceeds - EUR 500 million Green Bond

Climate-positive products and solutions include financing the development, operations, maintenance and expansion of the production of climate-positive products and solutions.

The total amount used for this category was EUR 111 million, of which EUR 33 million was used in 2020 and EUR 78 million in 2021. EUR 76 million was allocated to the R&D costs of UPM Biochemicals, UPM Biocomposites, UPM Biofuels and UPM Biomedicals businesses. EUR 34 million was allocated to the investment in a first of its kind biochemicals refinery in Leuna, Germany. The facility is currently under construction and once ready, it will enable a switch from fossil-based raw materials to wood-based sustainable alternatives in textiles, plastics, PET bottles and packaging of pharma or cosmetics products, for example.

Commitments and targets

UPM's Biofore Base research centres in Lappeenranta, Finland and Leuna, Germany are accelerating the development of new bio-based products and their launch to markets. The Leuna Biofore Base works in connection with the upcoming biochemicals refinery and specialises in developing new biomolecular products.

The Biofore Base research centres unite our various technologies with globally accumulated experience and expertise in the new and existing businesses. The centres also focus on piloting and analytics enabling seamless collaboration with customers, value chain partners and research organisations such as universities.

Our 2030 responsibility targets and our contribution to the UN Sustainable Development Goals are integrated into our R&D activities and product development. We want our products to create value for our stakeholders during the entire product lifecycle. In 2021, we further developed our Sustainable Product Design concept.

> [More information on our website.](#)

Our impacts

Biochemicals – New business coming to life

The ongoing new-to-the world biorefinery investment will open completely new markets for us, with large growth potential in the future. The biorefinery will produce a range of 100% wood-based biochemicals, the main products being bio-monoethylene glycol (BioMEG), bio-monopropylene glycol (BioMPG) and renewable functional fillers, with a total annual capacity of approximately 220,000 tonnes.

While recycling has become the mainstream choice for sustainable materials, UPM's biochemicals made from renewable raw materials will offer a missing link to achieve a sustainable circular bioeconomy: rubber and plastics based on renewable chemicals. Our glycols and Renewable Functional Fillers (RFF) work well in existing production and recycling processes, and will support the transition from oil-, gas-, and coal-based materials to bio-based solutions (see case example on page 13 and details on the methodology used for carbon footprint calculations on page 18).

Biofuels – lower emissions with renewable fuels

We offer our customers ways to replace fossil raw materials and reduce their carbon footprint with wood-based advanced biofuels. Our UPM BioVerno diesel offers a low-emission solution for transportation by significantly decreasing the amount of greenhouse gas emissions compared to fossil fuels. UPM BioVerno naphtha works identically to fossil-based naphtha and can be used both for plastics and as a low-emission biocomponent for gasoline.

At the end of 2021, we had 1,514 patents and patent applications and 161 active trademarks in our biobusinesses portfolio globally.

Our operations are based on a circular bioeconomy and our raw material, crude tall oil, is a residue from pulp production. Our production process and development focus aims at further emission reductions and material efficiency. Advanced biofuels play an important role in UPM's Biofore strategy by offering innovative and sustainable alternatives to fossil-based products.

We are also conducting the basic engineering of a potential new biofuels refinery. The planned next generation biofuels refinery would improve the long-term competitiveness and sustainability performance of UPM Biofuels by introducing several sustainable feedstocks. It would also enhance material efficiency with solutions based on the use of waste and residues without compromising global food production or biodiversity. The use of green hydrogen is studied as part of the technology concept.

Biomedicals – opening new markets

UPM Biomedicals develops and supplies innovative and sustainable wood-based biomedical products for clinical and life science applications. The main component in our products is high-quality nanocellulose, extracted from birch wood.

We actively collaborate with universities, research centres and key industrial partners in the fields of high-throughput drug screening, personalised medicine, advanced cell therapies, 3D bioprinting, tissue engineering and advanced wound care. More than 520 patents and patent applications protect our existing and future products.

In life science, our main products are GrowDex®, a range of hydrogels for 3D cell culturing, and GrowDase™, an enzyme to release the cells from the gel. Our gels are animal free and do not introduce animal DNA into the test results. GrowInk™ is a range of bioinks for 3D bioprinting, used in areas like cancer research, where models of tumours can be printed to test their response to different treatments. Launched in 2021, our collaboration with CELLINK will allow us to develop the technology to print organs or tissue that, in the future, could be transplanted into patients. In the clinical field, FibDex® wound dressings were marketed and sold to healthcare professionals and hospitals in Finland, and work is ongoing to expand into other European markets.

Biocomposites – a year of growth

UPM Biocomposites is mitigating climate change and creating circular bioeconomy solutions through the manufacture of innovative composite materials and decking products.

UPM ProFi utilises post-consumer plastic waste and post-industrial label waste to manufacture high-quality composite decking. The label production side streams from UPM Raflatac and its customers are collected and delivered to Germany, where the composite decking is manufactured. Recycled plastic from European post-consumer waste is also utilised in the manufacturing process. UPM ProFi's latest product launches in the UPM ProFi Piazza product range consist of up to 75% recycled materials.

UPM Formi creates and manufactures wood-based biocomposites, which enables up to an 80% reduction in the carbon footprint of the end product, compared to similar products made from fossil-based materials. The composite materials are suitable for various end uses, including kitchenware, personal care and acoustic devices (see case example on page 13).

> Information on EUR 750 million Green Bond allocation and impacts can be found from [Green Bond Report 2020](#)

**We act
through
products**

Case examples



Renewable Functional Fillers will be a real game-changer

Today, about 15 million tons of oil-based carbon black and silica are used annually to reinforce rubbers and plastics in tyres, hoses, sealing systems and other rubber and plastic products. Industries are intensively looking for more sustainable business alternatives.

The wood-based renewable functional fillers to be produced in the future biorefinery will have the same performance level as fossil-based fillers. When they enter the market, they will significantly reduce the carbon footprint of various rubber and plastic products. According to our calculations, RFFs have over 90% lower CO₂ footprint than industrial carbon black. When used in combination with bio-based rubbers and plasticisers, they enable final compounds to contain up to 85% renewable substances.

Wood-based fillers are also much lighter. Lightness in the automotive industry translates to better mileage, lower costs and a reduction of CO₂ emissions.

The market size for RFF is huge — carbon black is one of the top 10 petro-based products in the world. Industrial carbon black used in tyres constitutes around one third of their component materials and profiles can account for up to half.

For industrial use, the composition of each rubber compound must be carefully optimised. We aim to perfect our new customised product quickly and effectively through close customer collaboration.

Please see page 18 for background of the CO₂ footprint calculation.



MySoda made of UPM Formi EcoAce recognised in international design competitions

The Finnish company, MySoda, designs and manufactures the first-ever sparkling water makers made of sustainable, wood-based biocomposite, UPM Formi EcoAce. The design approach was recognised with the prestigious iF gold award and Red Dot product design award in 2021.

MySoda is a good example of customer co-operation in the development of the new product. Designed by Arni Aromaa from Pentagon Design and manufactured by MySoda, the end result is a sustainable consumer product with an appealing unique design and up to 70% lower carbon footprint. MySoda sparkling water makers are being sold in several European countries.

Today's consumers demand more sustainable choices. MySoda is using almost 100% renewable based UPM Formi EcoAce biocomposite as a raw material instead of fossil-based plastics. The biocomposite is made using certified renewable fibres and polymers derived from UPM BioVerno naphtha. The bionaphtha production is certified by ISCC which confirms sustainability of the material.

Although composed of natural fibres, the UPM Formi EcoAce has similar material properties as fossil-based plastics and similar moulding technics can be used with it. The look and feel bears some similarities with wood as the wood fibres contained within create a natural finish for the end product.

Governance



**UPM Green Finance
Committee - internal
governance**

**Independent auditor
- external review
and assurance**



Governance

We established a Green Finance Framework in November 2020. The framework is based on the 2018 version of the Green Bond Principles published by the International Capital Markets Association (ICMA) and the 2020 version of the Green Loan Principles Principles, published by the Loan Market Association (LMA), the Asia Pacific Loan Market Association (APLMA) and the Loan Syndications and Trading Association (LSTA), respectively.

The framework was reviewed by the second-party verifier CICERO and received the best possible rating, CICERO Dark Green. The review also included an assessment of the governance structure of the framework, which was rated to be excellent. We have designed and implemented a process to ensure that only projects aligned with the criteria set out will be selected for Green Finance Instruments. We have also established a Green Finance Committee, including members from Treasury, Responsibility, Investor relations and Finance. We have a Green Finance Register for Green Finance Instruments issued by UPM for the

purpose of monitoring the Eligible Assets and Projects and the allocation of net proceeds from Green Finance Instruments. The Green Finance Register is forming the basis for impact reporting.

The Green Finance Committee has approved the final allocation of Eligible Asset and Project and the impact reporting for the EUR 750 million Green Bond in March 2021 and for the EUR 500 million Green Bond in March 2022. The first Green Bond Report was published in April 2021 and this second Green Bond Report in April 2022.

- > UPM as an investment – Debt
- > Green Finance Framework
- > CICERO second-party opinion
- > Green Bond Report 2020

GREEN FINANCE FRAMEWORK

Use of Proceeds

- Sustainable forest management
- Climate-positive products & solutions
- Pollution prevention & control including waste management
- Water & wastewater management
- Energy efficiency initiatives
- Renewable energy

Project Evaluation and Selection

Process designed and implemented to ensure Eligible Assets and Projects are aligned with eligibility criteria

Green Finance Committee

- Treasury
- Responsibility
- Finance
- IR

Management of Proceeds

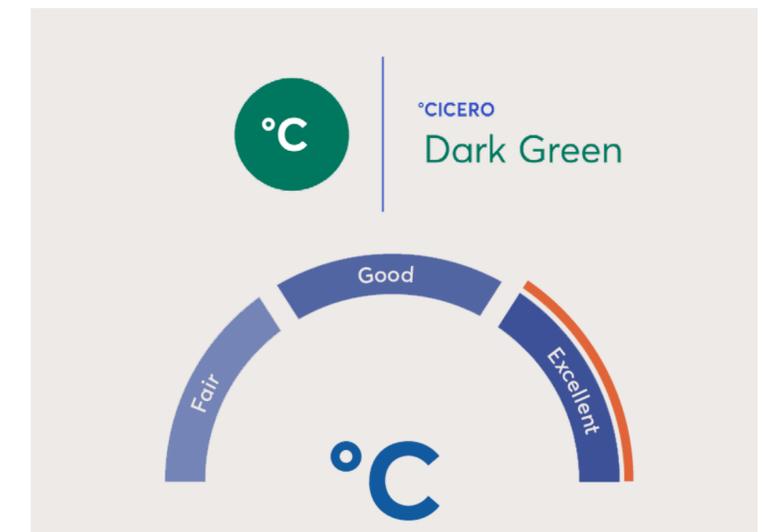
Green Bond Register monitoring the Eligible Assets and Projects and allocation of net proceeds from Green Bonds. Excess proceeds to be held in accordance with UPM’s liquidity management policy, which ensures that proceeds are not used for fossil fuel related investments.

Reporting

UPM will annually publish a report on the allocation and impact of Green Bonds issued under this framework

Allocation report

- List of Eligible Assets and Projects
- Case studies and descriptions
- Amounts invested in each category



Independent Practitioner's Assurance Report

To the Management of UPM-Kymmene Corporation

We have been engaged by the Management of UPM-Kymmene Corporation (hereinafter also the "Company") to perform a limited assurance engagement on selected information described below for the reporting period ended 31 December 2021, disclosed in the UPM-Kymmene Corporation's Green Bond Report 2021 (hereinafter also the Selected Information).

Our conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Selected Information for the reporting period ended 31 December 2021 has not been prepared, in all material aspects, in accordance with the UPM-Kymmene Corporation's Green Finance Framework.

When reading our assurance report, the inherent limitations to the accuracy and completeness of the Selected Information should be taken into consideration.

Our assurance report has been prepared in accordance with the terms of our engagement. We do not accept, or assume responsibility to anyone else, except to UPM-Kymmene Corporation for our work, for this report, or for the conclusions that we have reached.

Selected Information

The scope of our work was limited to assurance over the information presented in UPM-Kymmene Corporation's Green Bond Report 2021 on page 4 table 'Allocated proceeds and impacts' covering under it the use of proceeds in section 'Categories' and the impacts in section 'Impact indicators' (the Selected Information) as of 31 December 2021.

Practitioner's independence, qualifications and quality control

We have complied with the independence and other ethical requirements of the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

PricewaterhouseCoopers Oy applies International Standard on Quality Control 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.

Management's responsibility

The Management of UPM-Kymmene Corporation is responsible for preparing the Green Bond Report 2021 in accordance with the Reporting criteria as set out in the Company's Green Finance Framework. The Management of UPM-Kymmene Corporation is also responsible for such internal control as the management determines is necessary to enable the preparation of the Green Bond Report 2021 that is free from material misstatement, whether due to fraud or error.

Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the Selected Information in the Green Bond Report 2021 based on the procedures we have performed and the evidence we have obtained. We conducted our limited 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”. That Standard requires that we plan and perform the engagement to obtain limited assurance about whether the Selected Information is free from material misstatement.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other disclosures on the Selected Information in the Green Bond Report 2021. The procedures selected depend on the practitioner’s judgement, including an assessment of the risks of material misstatement of the Selected Information.

Our work consisted of, amongst others, the following procedures:

- Making enquiries of relevant UPM-Kymmene Corporation management to assess to whether the reporting has been prepared in accordance with the UPM Green Finance Framework;
- Assessed the design of the processes and internal controls for managing, recording and reporting the Selected Information;
- Inspected minutes of the Green Finance Committee to confirm that the allocation of proceeds to eligible assets had been considered and approved according to the process described in the Green Finance Framework;
- Making enquiries of employees from various organisational levels of the Company with regards to whether the reporting has been prepared in accordance with the UPM-Kymmene Corporation Green Finance Framework;
- Performed substantive testing on a sample basis from original documents and systems to test the existence and accurate allocation of green bond proceeds per eligible assets as disclosed in the table Allocated Proceed and Impact of the Green Bond Report 2021;
- Evaluating the evidence obtained.

This report, including our conclusions, has been prepared solely for the Board of Directors of UPM-Kymmene Corporation and the green bond investors in accordance with the agreement between us, to assist the Board of Directors in reporting on UPM’s green bond performance and activities. We permit this report to be disclosed in the UPM-Kymmene Corporation’s Green Bond Report 2021 in respect of the reporting period ended 31 December 2021, to assist UPM-Kymmene Corporation in responding to their governance responsibilities by obtaining an independent assurance report in connection with the Selected Information.

Helsinki 7 April 2022

PricewaterhouseCoopers Oy
Authorised Public Accountants

Tiina Puukkoniemi
Partner, Authorised Public Accountant (KHT)
Sustainability Reporting and Assurance Lead

Appendix 1: Impact calculation methodology

Accounting of impacts

More detailed information of all our responsibility indicators are disclosed in our Annual Report 2021 and in our [GRI content index](#) which are available on our website.

We follow sustainability reporting standards published by the Global Reporting Initiative (GRI) to measure and report on corporate responsibility at the Group level. Our corporate responsibility reporting in 2021 has been prepared in accordance with the GRI Standards: Core option.

In addition to GRI Standards, we have included a few additional indicators to the assurance scope, such as UPM biodiversity indicators.

Standard disclosures for 2021 in English with a reference to external assurance in the GRI content index have been externally assured by an independent third party PricewaterhouseCoopers Oy. Furthermore, we are committed to the principles of inclusivity, materiality and responsiveness, as defined in the AA1000 AccountAbility Principles Standard (2008).

Forest indicators

Sustainable forest management indicator is based on hectares certified by the PEFC and/or by the FSC™ by third party auditors. Certificates can be downloaded from [UPM Certificate finder](#).

UPM has commissioned carbon calculations of its own and leased forests in Finland and Uruguay. The calculations are based on internationally approved calculation models and they are executed by Natural Resources Institute Finland (Luke). The same methods are used in international greenhouse gas inventories.

The calculations include the carbon balance of both trees and soil and cover the protected areas. In Finland, tree carbon balance is calculated as increment minus drain. In Uruguay, tree carbon balance is calculated as the difference in carbon stored in growing stock between

two years. Soil CO₂ balance is calculated in both countries with Yasso07 model. The model uses litter fall quantity and quality, weather data and initial soil carbon stock as input values.

In 2021, soil carbon accounting models for Uruguayan plantations were developed. Due to the developed calculation method, the published figures are not comparable with the previous years' figures. The Climate science develops fast and we are actively supporting the work to create more reliable and accurate methods to calculate the carbon impact of forestry together with climate science experts.

> [Luke](#)

The indicator on carbon sink per EUR 1 million (see page 4) has been calculated based on the results of the carbon sink calculations for Uruguay and Finland (five years annual average carbon sink of 3.8 million tonnes) for the year 2021 divided by the proceeds of the first and second bond in the area of sustainable forest management (EUR 893 million).

Biodiversity indicators have been developed by UPM in co-operation with various third parties. More about indicators here:

> [UPM Biodiversity indicators](#)

> [UPM Biodiversity Indicators in Uruguay](#)

Indicator for climate-positive products and solutions

A solid patent portfolio boosts our competitive edge. The number of patents and trademarks which generated costs during a certain time period and for certain businesses is used as an indicator. The number is reported by UPM IPR.

We are committed to a climate-positive product portfolio. Many of our products are already proven to be climate-positive. In the future, we aim to scientifically verify the climate impacts of all our products. Towards the end of 2020, we initiated a study on climate-related substitution and the carbon storage effects of our products with two research

institutes, the German IFEU and the Finnish Environment institute (SYKE). The study will be finalised and published in the second quarter of 2022.

To assess the environmental performance of products of the future biorefinery in Leuna, Germany, a Life Cycle Assessment (LCA) study has been carried out. The LCA study conducted by UPM covers all the products from the biorefinery and enables UPM to provide environmental footprint data for the customers of the biorefinery, and to further develop the products and processes. LCA is a scientific method for analysing the environmental impacts of products. The LCA study was carried out in accordance with ISO standard 14040 and 14044, and the latest CML impact assessment methods were applied. A cradle-to-gate system boundary has been applied. The data collection is based on supplier design, process simulation and pre-commercial trials data and represent current best knowledge of the UPM's biorefinery process. Part of the production process is the uptake of biogenic carbon during growth of the feedstock beech wood. This removal is taken into account in the CO₂ footprint calculation including biogenic carbon. A critical review with independent party DEKRA Assurance Services GmbH, has been conducted.

Appendix 2: Green Finance Framework categories

Related SDGs



Sustainable forest management

Our business is based on sustainable forest management. We grow and harvest wood to produce renewable and recyclable materials and products.



Climate positive products and solutions

We are developing innovative, high-quality products from wood-based biomass. Many of our products offer sustainable alternatives for fossil raw materials and energy, for example replacing fossil plastics in consumer products, steel and cement in construction or fossil fuels in traffic, aviation and electricity markets.



Pollution prevention and controls, including waste management

We have ambitious targets to cut our fossil CO₂ emissions and acidifying flue gases in our own operations. We promote circular bioeconomy thinking by recycling and reusing production waste.



Water and wastewater management

We aim to use water in a way that is environmentally sustainable, socially equitable and economically beneficial. All the water we use is circulated and reused to a maximum extent and the effluents are cleaned.



Energy efficiency

We are constantly seeking new solutions to minimise our environmental impact by selecting optimised energy sources and generation methods, and by improving energy efficiency.



Renewable energy

We favour the use of renewable and other carbon-neutral energy sources. Biomass-based fuels account for 70% of our fuel usage.

We act through emissions

We act through products

We act through forests



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