

UPM CORPORATE ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY STATEMENT 2022



ABOUT THIS REPORT

EMAS reporting at UPM pulp and paper mills

All of UPM's European pulp and paper mills (except Caledonian in UK), as well as the Fray Bentos pulp mill in Uruguay and the Changshu paper mill in China are registered with the EU Eco-Management and Audit Scheme (EMAS), a voluntary environmental management system for companies and other organisations to improve, evaluate and report on their environmental performance on an annual basis.

UPM Corporate Environmental and Societal Responsibility Statement together with the Environmental and Societal Responsibility reports of each pulp and paper mill of UPM comprise the global EMAS statement of UPM Corporate. The statement has been done according to the European Commission regulation (EC) No 1221/2009.

Since 2018 societal responsibility indicators are part of all the mill supplements. UPM considers it important to report all the impacts generated at the mill locations, whether it is environmental or societal.

Information within the corporate part concerning the sites mentioned here as well as the information used for calculation of UPM Corporate level EMAS core indicators has been assessed and verified by the respective national EMAS auditor.

The present EMAS corporate part is the update of the UPM Corporate Environmental and Societal Responsibility Statement 2021. Both documents as well as the mill supplements are available at [upm.com](https://www.upm.com).

The next Corporate Environmental and Societal Responsibility Statement will be published in 2024.

Corporate responsibility reporting at UPM

At UPM, the environmental and corporate responsibility reporting is integrated with the company's annual reporting. The UPM Annual Report 2022 follows the framework and disclosures of the Global Reporting Initiative's (GRI) Sustainability Reporting Standard and meets the requirements of the Core option. For the Annual Report and GRI content index table, please order a printed copy of the report or visit [upm.com/responsibility](https://www.upm.com/responsibility).

Scope of the report

This statement forms the corporate part of the environmental and societal responsibility statement, which has been verified in accordance with the EU's Eco-Management and Audit Scheme (EMAS). The following sites are included in the EMAS scope:

UPM Communication Papers:

- UPM Augsburg
- UPM Ettringen
- UPM Hürth
- UPM Kaukas
- UPM Kymi
- UPM Nordland Papier
- UPM Plattling
- UPM Rauma
- UPM Schongau
- UPM Steyrermühl

UPM Specialty Papers:

- UPM Changshu
- UPM Jämsänkoski
- UPM Tervasaari

UPM Pulp:

- UPM Fray Bentos
- UPM Kaukas
- UPM Kymi
- UPM Pietarsaari

Corporate registration number: FI-000058

Information about sites without EMAS registration

The UK site UPM Caledonian as well as the non-European site UPM Blandin are not EMAS registered. The information concerning these sites has not been assessed or verified within EMAS context.

UPM

UPM delivers renewable and responsible solutions and innovates for a future beyond fossils across six business areas: UPM Fibres, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. As the industry leader in responsibility, we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 17,200 people worldwide and our annual sales are approximately EUR 11.7 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils.

[upm.com](https://www.upm.com)

UPM **BIOFORE-BEYOND** FOSSILS

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All process water is treated in mechanical and biological effluent treatment plants before being released into watercourses.



Environmental targets show direction







UPM's Biofore strategy guides us in the achievement of our responsibility targets for 2030 and contributes positively to achieving the UN Sustainable Development Goals (SDGs).

In order to guide our responsibility activities, we have established a set of responsibility focus areas with targets and key performance indicators which are reviewed every year based on a materiality analysis. We have also identified the SDGs where we can have the greatest impact, either by minimising our negative impacts or by increasing our positive impacts. Those most relevant SDGs for UPM are aligned with the responsibility focus areas.

In terms of environmental responsibility, the focus areas are forests and biodiversity, climate, water, waste and product stewardship. In terms of social responsibility, the focus areas are

continuous learning and development, responsible leadership, diversity and inclusion, fair rewarding, safe and healthy working environment and community involvement. See details in UPM Annual Report.

UPM's environmental focus areas, key performance indicators and current Group-level performance in relation to the relevant targets can be seen in the table below. The annual target-setting of UPM's pulp and paper mills is published in the mill supplements. The mill-level targets reflect UPM's long-term targets at a local level. In addition, the mill-level targets focus on the specific local development areas.

ENVIRONMENTAL	KEY PERFORMANCE INDICATOR	2030 TARGET	2022 RESULT	
Forestry Ensuring sustainable land use	<ul style="list-style-type: none"> Climate-positive land use in UPM's own and leased forests Share of certified fibre¹⁾ 	<ul style="list-style-type: none"> Forests as carbon sinks (continuous) 100% 	<ul style="list-style-type: none"> Five-year annual average carbon sink was approx. 2.3 mt (3.8 mt) of CO₂ equivalents 86% (84%) 	 <p>Goal 6: Clean water and sanitation (Target: 6.3)</p>
Biodiversity Enhancing biodiversity	<ul style="list-style-type: none"> Positive impact on forest biodiversity and developing a monitoring system³⁾ Obstacle-free streams⁴⁾ 	<ul style="list-style-type: none"> Positive development (continuous) 500 km 	<ul style="list-style-type: none"> Overall positive development measured in Finland and in Uruguay 174 km reached 	 <p>Goal 7: Affordable and clean energy (Targets: 7.2 and 7.3)</p>
Climate Creating climate solutions and working towards carbon neutrality	<ul style="list-style-type: none"> Fossil CO₂ emissions from UPM's on-site combustion and purchased energy (Scope 1 and 2), compared to 2015 Coal and peat usage in on-site energy generation Annual energy efficiency improvement Share of renewable fuels Acidifying flue gases (NO_x/SO_x) for a UPM average product, compared to 2015 	<ul style="list-style-type: none"> -65% 0 1% (continuous) 70% (continuous) -20% 	<ul style="list-style-type: none"> -34% compared to 2015 and -11% compared to 2021 3% increase compared to 2021 Not achieved 65% (70%) -28% (-27%) 	 <p>Goal 8: Decent work and economic growth (Targets: 8.2, 8.5 and 8.8)</p>
Water Using water responsibly	<ul style="list-style-type: none"> Chemical oxygen demand (COD) for a UPM average product, compared to 2008²⁾ Wastewater volume for a UPM average product, compared to 2008²⁾ Nutrients used at effluent treatment from recycled sources²⁾ 	<ul style="list-style-type: none"> -40% -30% 100% 	<ul style="list-style-type: none"> -39% (-38%) -13% (-18%) 33% (35%) 	 <p>Goal 12: Responsible consumption and production (Targets: 12.2, 12.4 and 12.5)</p>
Waste Promoting material efficiency and circular bioeconomy – reduce, reuse, recycle and recover	<ul style="list-style-type: none"> Process waste sent to landfills or to incineration without energy recovery 	<ul style="list-style-type: none"> 0 	<ul style="list-style-type: none"> 40% decrease compared to 2021, 90% (89%) of UPM's process waste recovered or recycled 	 <p>Goal 13: Climate action (Target: 13.1)</p>
Product stewardship Taking care of the entire lifecycle	<ul style="list-style-type: none"> Climate-positive product portfolio Development of new products and services with contribution to the SDGs Share of applicable products eligible for ecolabelling out of UPM sales 	<ul style="list-style-type: none"> Continuous Continuous 100% 	<ul style="list-style-type: none"> Scientific study on substitution and storage effect finalised Implementation of sustainable product design concept started 87% (84%) 	 <p>Goal 15: Life on land (Targets: 15.2 and 15.5)</p>

¹⁾ Forest management certification

³⁾ Covers UPM's own forests in Finland and UPM's land in Uruguay

²⁾ Relevant for pulp and paper production

⁴⁾ Relevant for Finland

Environmental development – Pulp

Our annual pulp production capacity of 3.7 million tonnes is produced in Finland and in Uruguay. In 2022, the construction of a new world-class pulp mill near Paso de los Toros in Central Uruguay continued. Besides the 2.1 million-tonne greenfield eucalyptus pulp mill, the total investment of USD 3.47 billion included a pulp terminal in Montevideo as well as investments in local facilities in Paso de los Toros.

In 2022, the good demand for tissue and hygiene products as well as for packaging materials supported global pulp demand. However, market demand started to slow down towards the end of the year and overseas competition returned after a two-year absence.

In 2022, our production in Finland was affected by a nearly four-month strike. In addition, operations at three of our four pulp mills were affected by scheduled maintenance shutdowns. This led to an overall improved environmental performance when looking at the development of absolute figures compared to 2021, e. g. reduction in landfill waste and energy use. However, the performance per tonne of pulp is adverse in most cases. Depending on the environmental parameter, also Russia’s war in the Ukraine and its

implications as well as our continuous improvement measures impacted the environmental performance in both, positive and negative direction.

Fibre

In 2022, 80% of wood used in pulp production was from FSC® and/or PEFC certified forests with the remainder coming from controlled sources.

Energy

UPM’s pulp mills are more than self-sufficient in energy usage and providing surplus heat for the integrated paper mill or to external parties and providing surplus electricity to the grid. The share of renewable energy remained on a good level at 92%.

Air

In 2022, specific emissions of fossil carbon dioxide from own fuel usage (scope 1) and from purchased electricity (scope 2) increased from 2021. In line with UPM’s commitment to reduce fossil CO₂ emissions (scope 1 and 2) by 65% until 2030 a road map to achieve this target has been drawn and its implementation is in progress.

Nitrogen oxide and sulphur dioxide stayed in the same good level as well as emissions of particulates and total reduced sulphur. UPM’s target is to reduce acidifying flue gases (NO_x and SO₂) by 20% from 2015 levels by 2030. Progress for UPM Pulp since 2015 has been 12%.

Water

In 2022, specific waste water volume increased from 30.7 m³ per tonne of pulp to 35.2 m³ per tonne of pulp. COD load per tonne of pulp increased slightly from 9.4 kg in 2021 to 10.0 kg in 2022. However, since 2008 the waste water volume per tonne of pulp has decreased by 18% and COD per tonne of pulp has decreased by 44%, which is the base year of our targets. All mills have roadmaps for reducing water use and effluent load to achieve the 2030 targets.

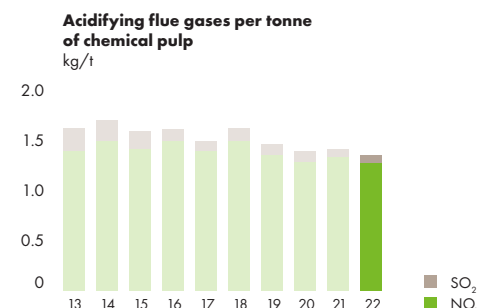
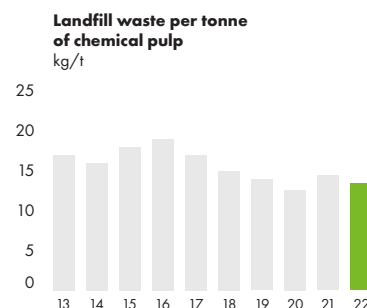
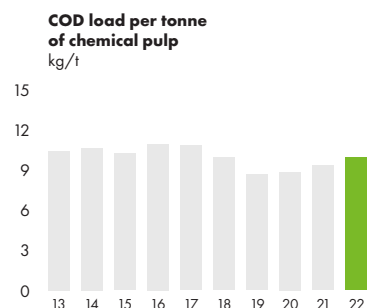
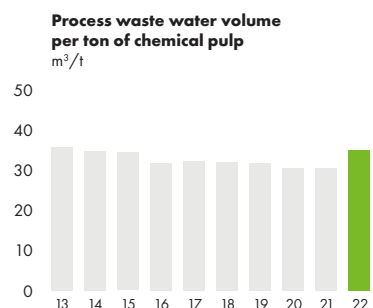
Waste

The amount of waste sent to landfills decreased from 14.4 kg per tonne of pulp in 2021 to 13.4 kg per tonne of pulp in 2022, back to the level reached in 2020 after an exceptional increase in 2021. Over the last ten years the amount of waste sent to landfills has decreased by 21%. Green liquor dregs are one of the most challenging side streams of UPM’s pulp, and we are currently developing several innovative processes for utilising this material in Finland and Uruguay.

Biodiversity

Mills report their land-use with regards to biodiversity. In 2022, there was approx. 2,300 hectares of nature-oriented areas on site and off site that pulp mills and integrated pulp and paper mills own or manage. That consists mainly of the Mafalda protection area in Uruguay managed by Fray Bentos.

Read more at upmpulp.com



Environmental development – Communication Papers

In 2022, we achieved strong earnings in a highly uncertain market environment. Input costs increased significantly, particularly in energy and fibres, but they were successfully offset by higher sales prices and active margin management. Demand for graphic papers in Europe was 12% lower than in 2021. Still, the demand and supply balance in Europe remained tight and we were able to strengthen our position with strategic customers.

In 2022, our production in Finland was affected by a nearly four-month strike. This led to an overall improved environmental performance when looking at the development of absolute figures compared to 2021, e. g. reduction in landfill waste and energy use. However, the performance per tonne of paper is adverse in most cases. Depending on the

Figures in this page include UK site UPM Caledonian and US site UPM Blandin which are not EMAS registered. The information concerning these sites, and therefore neither summary figures in this page, have not been verified within EMAS context. On this page and the next, the whole of UPM Nordland is included in Communication Paper's figures, and the whole of UPM Jämsänkoski is included in Specialty Paper's figures, even though in both of those mills there is one paper machine belonging to the other business.

environmental parameter, also Russia's war in the Ukraine and its implications, the sales of UPM Shotton paper mill in 2021 as well as our continuous improvement measures impacted the environmental performance in both, positive and negative direction. In the second quarter 2022, we signed an agreement to sell the UPM Steyrermühl site to the HEINZEL GROUP.

Commitment to sustainability remains high on our agenda. We invest in sustainable energy supply, which supports the transformation of energy systems in Germany and Finland. UPM Nordland Papier's new combined heat and power plant enables us to reduce dependency on the energy grid and actively participate in the German electricity market. UPM Hürth's biomass boiler, installed by E.ON, will supply carbon-neutral heat and electricity to the mill and the public power grid from 2023 onwards.

Fibre

In 2022, 33% of all fibre used in UPM Communication papers' paper production was recycled fibre. In 2022, 90% of the fibres used in paper production originated from FSC® or PEFC certified sources, the remainder came from controlled sources.

Water

In 2022 specific waste water volume increased slightly from 10.3 m³ per tonne of paper to 11.0 m³ per tonne of paper. Also COD load slightly increased from 4.0 kg per tonne of paper to 4.1 kg per tonne of paper. Water intake increased from 21 m³ per tonne of paper to 23 m³ per tonne of paper. All mills have prepared a road map in order to reach their targets for reducing water use and effluent load by 2030.

Air

In 2022, emissions of NO_x and SO₂ per tonne of paper increased slightly. Specific fossil carbon dioxide emissions from purchased electricity (scope 2) also increased slightly from 2022. However, specific emissions of fossil carbon dioxide from own fuel usage (scope 1) decreased slightly from 2021.

Energy

The electricity consumption per tonne of paper remained on the same level as in 2022, being 1,300 kWh. In 2022, 33% of fuels used for on-site energy generation were based on biomass. For purchased electricity, the renewable share was 16% in 2022.

Waste

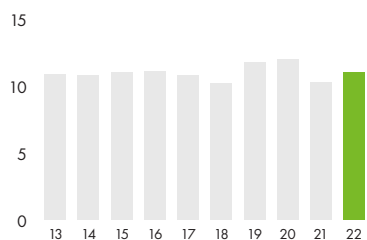
In 2022 the amount of landfilled waste increased from 2.2 kg per tonne of paper in 2021 to 3.0 kg per tonne of paper in 2022, which was mainly due to lower production levels at Blandin mill. The biggest waste fraction for UPM's paper mills is ash, which results from energy generation at the mills. Overall for UPM's Communication Papers paper mills in 2022, over 94% of waste was recycled or recovered as energy.

Biodiversity

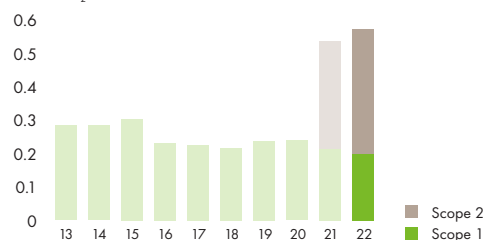
Mills report their land-use with regards to biodiversity. In 2022 there was in total 580 hectares of nature-oriented areas on site and off site that paper mills and integrated pulp and paper mills own or manage. A "nature-oriented area" is an area dedicated primarily to nature preservation or restoration.

Read more at upmpaper.com

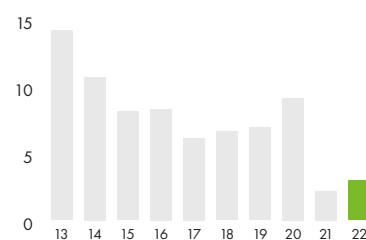
Process waste water volumes per tonne of paper
m³/t



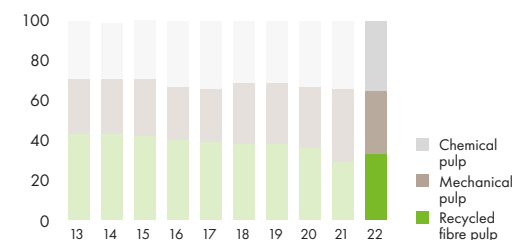
Fossil carbon dioxide emissions per tonne of paper
CO₂ t/t



Landfill waste (incl. Incineration without energy recovery) per tonne of paper
kg/t



Fibre raw materials
%



Environmental development – Specialty Papers

In 2022, we achieved a good performance despite historically high raw materials prices, the Finnish Paper Union’s strike at the beginning of the year and a volatile market environment. Demand for label papers, release base papers and packaging papers was good in all markets and sales prices increased compared to the previous year. Market demand became softer towards the end of the year. For fine paper, demand was impacted by the COVID-19 lockdowns and containment measures in China. Fine paper sales prices increased compared to the previous year.

In 2022, our production in Finland was affected by a nearly four-month strike. This led to an overall improved environmental performance when looking at the development of absolute figures compared to 2021, e. g. reduction in landfill waste

On this page and on the previous page, the whole of UPM Nordland is included in Communication Paper’s figures, and the whole of UPM Jämsänkoski is included in Specialty Paper’s figures, even though in both of those mills there is one paper machine belonging to the other business.

and energy use. However, the performance per tonne of paper can be adverse in some cases. Depending on the environmental parameter, also Russia’s war in the Ukraine and its implications as well as our continuous improvement measures impacted the environmental performance in both, positive and negative direction.

In China, our consistent track record for being a leader in sustainability was further strengthened. We were recognised as a 2022 Green Development Leading Company in Jiangsu Province for being a leader in producer responsibility and preventing pollution. We also achieved China’s national “Water Efficiency Frontrunner” award for the third time, serving as a benchmark for the industry and leading the promotion of water efficiency in China.

Fibre

In 2022, 88% of the fibres used in Specialty Papers’ paper production originated from FSC® or PEFC certified sources, the remainder came from controlled sources.

Water

In 2022, specific waste water volume decreased slightly from 9.51 m³ per tonne of paper to 9.20 m³ per tonne of paper. Also COD load decreased from 1.2 kg per tonne of paper to 0.9 kg per tonne of paper. In addition, good development continued regarding the use of fresh water, as water intake decreased from 20 m³ per tonne of paper to 17 m³ per tonne of paper. All mills have prepared a road map in order to reach their targets for reducing water use and effluent load by 2030.

Air

Both specific emissions of fossil carbon dioxide from own fuel usage (scope 1) and from purchased electricity (scope 2) decreased from 2021. This was mainly due to lower production levels caused by the strike. In 2022, emissions of NO_x and SO₂ per tonne of paper slightly decreased.

Energy

The electricity consumption per tonne of paper remained on a stable level of 1,100 kWh in 2022. In 2022, 27% of fuels used for on-site energy generation were based on biomass. For purchased electricity, the renewable share was 11% in 2022.

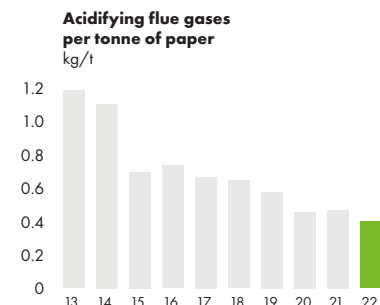
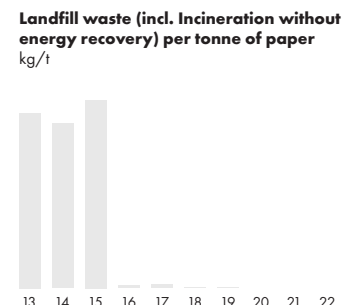
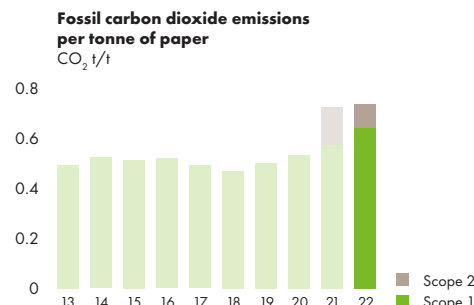
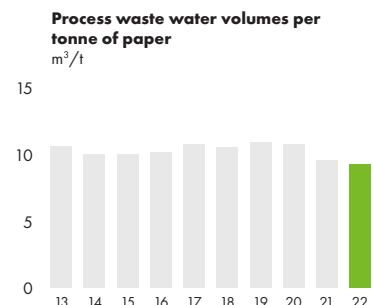
Waste

In 2022, there was no landfilled waste from Specialty Papers’ mills, i.e. 100% of the mills’ process waste was recovered or recycled. The biggest waste fraction for UPM’s paper mills is ash, which results from energy generation at the mills. Ash can be used in various applications, such as in soil stabilisation, road construction or the cement industry.

Biodiversity

Mills report their land-use with regards to biodiversity. In 2022 there was in total 200 hectares of nature-oriented areas on site and off site UPM’s Specialty paper mills. A “nature-oriented area” is an area dedicated primarily to nature preservation or restoration.

Read more at upmspecialtypapers.com



Environmental development – Common topics for pulp and paper

Supplier assessments and requirements

The UPM Supplier and Third Party Code defines the minimum requirements concerning social, environmental and economic responsibility that apply to all our suppliers and third party intermediaries (e.g. agents, joint venture partners and distributors acting on behalf of UPM). It is additionally expected that our suppliers advance the same requirements in their own supply chains.

In addition to conducting risk assessments as part of our supplier selection, we carry out continuous risk assessments covering our entire existing supplier base. Risk assessments are an integral part of our supplier management activities. We utilize them to reveal possible shortcomings in supplier performance and compliance.

Clean Run

Clean Run is a global, holistic concept to manage the daily environmental performance all over UPM. It brings additional value to the ISO 14001 environmental management system which is a basis for all our environmental operations globally. Clean Run is also a tool to manage environmental risks and to continuously develop the controls. Sharing best practises between the sites is an essential part of the Clean Run concept.

Clean Run is continuous improvement of environmental performance towards zero deviation target. The concept offers a framework for all sites to plan the actions to improve their environmental performance.

Clean Run categorises environmental incidents from 0–5 based on the severity of environmental impact: Environmental walks and discussions, observations (Category 0), near misses (Category 1–2) and deviations (Categories 3–5).

In 2022, no serious environmental incidents occurred at UPM's pulp and paper mills. However, 22 (2021: 25; 2020: 17) minor temporary deviations from permit limits occurred in total in whole UPM. Those were immediately reported to authorities and corrective measures were taken to prevent similar situations from occurring again.

Best Available Techniques (BAT)

Industry-specific reference documents are developed by the European IPPC Bureau. The conclusions for the pulp and paper industry were published by the EU Commission in September 2014. The BAT conclusions are now the reference for setting permit conditions for installations covered by the EU's Industrial Emissions Directive. The implementation period is four years. UPM is benchmarking its production lines against the BAT levels.

Environmental core indicators 2022

UPM PAPER MILLS						
Scope: all UPM Communication Papers' mills						
Production	2020		2021		2022	
	4,820,000 t		5,430,000 t		4,620,000 t	
	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper
Energy efficiency						
Total direct energy consumption						
Electricity consumption	6,200 GWh	1,300 kWh/t	6,800 GWh	1,300 kWh/t	5,800 GWh	1,300 kWh/t
Steam consumption	5,500 GWh	1,100 kWh/t	6,000 GWh	1,100 kWh/t	5,300 GWh	1,200 kWh/t
Total renewable energy consumption						
Electricity consumption	1,100 GWh	230 kWh/t	1,300 GWh	240 kWh/t	1,000 GWh	230 kWh/t
Steam consumption	2,200 GWh	460 kWh/t	2,300 GWh	420 kWh/t	2,200 GWh	490 kWh/t
Material efficiency						
Chemical pulp	1,070,000 t	220 kg/t	1,300,000 t	240 kg/t	1,070,000 t	230 kg/t
Mechanical pulp	1,000,000 t	210 kg/t	1,210,000 t	220 kg/t	992,000 t	220 kg/t
Recycled fibre pulp	1,180,000 t	250 kg/t	1,040,000 t	190 kg/t	1,010,000 t	220 kg/t
Minerals	1,260,000 t	260 kg/t	1,510,000 t	280 kg/t	1,110,000 t	240 kg/t
Binder	145,000 t	30 kg/t	178,000 t	33 kg/t	147,000 t	32 kg/t
Water						
Water intake	122,000,000 m ³	25 m ³ /t	114,000,000 m ³	21 m ³ /t	106,000,000 m ³	23 m ³ /t
Process waste water	57,800,000 m ³	12 m ³ /t	56,200,000 m ³	10 m ³ /t	50,300,000 m ³	11 m ³ /t
COD ¹⁾	20,000 t	4 kg/t	21,500 t	4 kg/t	18,700 t	4 kg/t
TSS ¹⁾	1,600 t	0.3 kg/t	1,600 t	0.3 kg/t	1,600 t	0.4 kg/t
Side-products ²⁾						
Ash	153,000 t	32 kg/t	154,000 t	28 kg/t	136,000 t	30 kg/t
Wood residues	106,000 t	22 kg/t	99,900 t	18 kg/t	90,100 t	20 kg/t
Others	45,600 t	9 kg/t	53,300 t	10 kg/t	45,800 t	10 kg/t
	1,200 t	0.2 kg/t	780 t	0 kg/t	0 t	0 kg/t
Non-hazardous waste ²⁾						
Recycling, energy recovery, composting	366,000 t	76 kg/t	291,000 t	54 kg/t	290,000 t	64 kg/t
Ash ³⁾	322,000 t	67 kg/t	279,000 t	51 kg/t	280,000 t	61 kg/t
Sludges	59,500 t	12 kg/t	47,300 t	9 kg/t	46,900 t	10 kg/t
Others	203,000 t	42 kg/t	167,000 t	31 kg/t	173,000 t	38 kg/t
Intermediate storage	58,900 t	12 kg/t	64,400 t	12 kg/t	57,700 t	13 kg/t
Ash	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Landfill, incineration without energy recovery	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Ash ³⁾	44,100 t	9 kg/t	12,100 t	2 kg/t	13,700 t	3 kg/t
Sludges and pulp rejects	19,400 t	4 kg/t	170 t	0 kg/t	0 t	0 kg/t
Others	9,200 t	2 kg/t	11,500 t	2 kg/t	12,500 t	3 kg/t
Others	15,600 t	3 kg/t	430 t	0 kg/t	1,200 t	0.3 kg/t
Recycling rate		88%		96%		94%
Hazardous waste ⁴⁾	3,600 t	0.7 kg/t	2,300 t	0.4 kg/t	2,200 t	0.5 kg/t
Emissions to air						
CO ₂ fossil	1,160,000 t	240 kg/t	1,170,000 t	220 kg/t	911,000 t	200 kg/t
CO ₂ fossil from purchased electricity			1,760,000 t	330 kg/t	1,720,000 t	380 kg/t
NO _x as NO ₂	1,500 t	0.3 kg/t	1,300 t	0.2 kg/t	1,300 t	0.3 kg/t
SO ₂	160 t	0.03 kg/t	130 t	0 kg/t	150 t	0.03 kg/t
Particulates	14 t	0.003 kg/t	15 t	0.003 kg/t	12 t	0.003 kg/t
Land use ⁵⁾						
Total use of land			940 ha		940 ha	
Total sealed area			630 ha		630 ha	
Total nature-oriented area on site			300 ha		300 ha	
Total nature-oriented area off site			280 ha		280 ha	

¹⁾ Includes the load before effluent treatment in AUG, HÜR and CAL (waste water is treated externally).

²⁾ Reported in dry tonnes.

³⁾ Including ash, which is considered as hazardous waste in the UK.

⁴⁾ Total tonnes.

⁵⁾ Incl. paper mills and integrated pulp and paper mills.

Environmental core indicators 2022

UPM PAPER MILLS

Scope: EMAS-registered UPM Communication Papers' mills

Production	2020		2021		2022	
	4,290,000 t		4,990,000 t		4,190,000 t	
	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper
Energy efficiency						
Total direct energy consumption						
Electricity consumption	5,300 GWh	1,200 kWh/t	6,000 GWh	1,200 kWh/t	5,000 GWh	1,200 kWh/t
Steam consumption	4,600 GWh	1,100 kWh/t	5,300 GWh	1,100 kWh/t	4,600 GWh	1,100 kWh/t
Total renewable energy consumption						
Electricity consumption	750 GWh	180 kWh/t	940 GWh	190 kWh/t	600 GWh	150 kWh/t
Steam consumption	1,600 GWh	370 kWh/t	1,900 GWh	390 kWh/t	1,800 GWh	440 kWh/t
Material efficiency						
Chemical pulp	1,010,000 t	240 kg/t	1,230,000 t	250 kg/t	1,000,000 t	240 kg/t
Mechanical pulp	856,000 t	200 kg/t	1,000,000 t	200 kg/t	789,000 t	190 kg/t
Recycled fibre pulp	1,000,000 t	230 kg/t	1,040,000 t	210 kg/t	1,010,000 t	240 kg/t
Minerals	1,150,000 t	270 kg/t	1,370,000 t	280 kg/t	976,000 t	240 kg/t
Binder	133,000 t	31 kg/t	162,000 t	32 kg/t	131,000 t	32 kg/t
Water						
Water intake	110,000,000 m ³	26 m ³ /t	102,000,000 m ³	20 m ³ /t	96,900,000 m ³	23 m ³ /t
Process waste water	47,300,000 m ³	11 m ³ /t	47,500,000 m ³	10 m ³ /t	41,600,000 m ³	10 m ³ /t
COD ¹⁾	16,300 t	4 kg/t	16,400 t	3 kg/t	13,700 t	3 kg/t
TSS ¹⁾	1,400 t	0.3 kg/t	1,300 t	0.3 kg/t	1,300 t	0.3 kg/t
Side-products ²⁾						
Ash	153,000 t	36 kg/t	154,000 t	31 kg/t	136,000 t	33 kg/t
Wood residues	106,000 t	25 kg/t	100,000 t	20 kg/t	90,100 t	22 kg/t
Others	45,600 t	11 kg/t	53,300 t	11 kg/t	45,800 t	11 kg/t
	1,200 t	0.3 kg/t	780 t	0 kg/t	0 t	0 kg/t
Non-hazardous waste ²⁾						
Recycling, energy recovery, composting						
Ash	267,000 t	62 kg/t	238,000 t	48 kg/t	239,000 t	58 kg/t
Sludges	265,000 t	62 kg/t	240,000 t	48 kg/t	238,000 t	58 kg/t
Others	36,800 t	9 kg/t	39,000 t	8 kg/t	39,300 t	10 kg/t
	194,000 t	45 kg/t	167,000 t	34 kg/t	173,000 t	42 kg/t
	33,500 t	8 kg/t	32,000 t	6 kg/t	25,500 t	6 kg/t
Intermediate storage						
Ash	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Landfill, incineration without energy recovery						
Ash	2,600 t	0.6 kg/t	63 t	0 kg/t	280 t	0.07 kg/t
Sludges and pulp rejects	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	0 t	0 kg/t	31 t	0 kg/t	5 t	0 kg/t
	2,600 t	0.6 kg/t	32 t	0 kg/t	280 t	0.07 kg/t
Recycling rate		99%		100%		98%
Hazardous waste ³⁾	2,400 t	0.6 kg/t	2,300 t	0.5 kg/t	2,100 t	0.5 kg/t
Emissions to air						
CO ₂ fossil	2,470,000 t	320 kg/t	1,040,000 t	210 kg/t	788,000 t	190 kg/t
CO ₂ fossil from purchased electricity			1,500,000 t	300 kg/t	1,470,000 t	350 kg/t
NO _x as NO ₂	2,800 t	0.4 kg/t	1,000 t	0.2 kg/t	930 t	0.2 kg/t
SO ₂	600 t	0.1 kg/t	95 t	0 kg/t	120 t	0.03 kg/t
Particulates	34 t	0.004 kg/t	10 t	0.002 kg/t	8 t	0.002 kg/t
Land use ⁴⁾						
Total use of land			900 ha		900 ha	
Total sealed area			620 ha		620 ha	
Total nature-oriented area on site			280 ha		280 ha	
Total nature-oriented area off site			280 ha		280 ha	

¹⁾ Includes the load before effluent treatment in AUG and HÜR (waste water is treated externally)

²⁾ Reported in dry tonnes.

³⁾ Total tonnes.

⁴⁾ Incl. paper mills and integrated pulp and paper mills.

Environmental core indicators 2022

UPM PAPER MILLS						
Scope: all UPM Specialty Papers' mills						
Production	2020		2021		2022	
	2,200,000 t		1,870,000 t		1,560,000 t	
	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper	Total amount per year	Indicator per tonne of paper
Energy efficiency						
Total direct energy consumption						
Electricity consumption	3,000 GWh	1,400 kWh/t	2,200 GWh	1,100 kWh/t	1,700 GWh	1,200 kWh/t
Steam consumption	3,000 GWh	1,300 kWh/t	2,500 GWh	1,300 kWh/t	1,900 GWh	1,200 kWh/t
Total renewable energy consumption						
Electricity consumption	460 GWh	210 kWh/t	400 GWh	210 kWh/t	270 GWh	180 kWh/t
Steam consumption	1,100 GWh	520 kWh/t	850 GWh	450 kWh/t	520 GWh	340 kWh/t
Material efficiency						
Chemical pulp	1,192,000 t	540 kg/t	1,120,000 t	600 kg/t	977,000 t	630 kg/t
Mechanical pulp	400,000 t	180 kg/t	224,000 t	120 kg/t	34,800 t	22 kg/t
Recycled fibre pulp	89,200 t	41 kg/t	180 t	0.1 kg/t	0 t	0 kg/t
Minerals	477,000 t	220 kg/t	409,000 t	220 kg/t	353,000 t	230 kg/t
Binder	59,500 t	27 kg/t	63,500 t	34 kg/t	52,000 t	33 kg/t
Water						
Water intake	43,500,000 m ³	20 m ³ /t	33,100,000 m ³	20 m ³ /t	26,000,000 m ³	17 m ³ /t
Process waste water	23,500,000 m ³	11 m ³ /t	17,800,000 m ³	10 m ³ /t	14,300,000 m ³	9 m ³ /t
COD	3,600 t	2 kg/t	2,200 t	1.2 kg/t	1,400 t	0.9 kg/t
TSS	370 t	0.2 kg/t	300 t	0.2 kg/t	230 t	0.2 kg/t
Side-products ¹⁾						
Ash	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Wood residues	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others ³⁾	4,300 t	2 kg/t	4,000 t	2 kg/t	3,600 t	2 kg/t
Non-hazardous waste ¹⁾						
Recycling, energy recovery, composting						
Ash	131,000 t	60 kg/t	103,000 t	55 kg/t	88,800 t	57 kg/t
Sludges	116,000 t	53 kg/t	89,300 t	48 kg/t	76,700 t	49 kg/t
Others	3,300 t	1 kg/t	4,000 t	2 kg/t	5,900 t	4 kg/t
Intermediate storage						
Ash	11,300 t	5 kg/t	10,000 t	5 kg/t	2,100 t	1 kg/t
Others	0 t	0 kg/t	0 t	0 kg/t	4,000 t	3 kg/t
Landfill, incineration without energy recovery						
Ash	0 t	0 kg/t	0 t	0 kg/t	4,000 t	3 kg/t
Sludges and pulp rejects	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Recycling rate	30 t	0.01 kg/t	72 t	0.04 kg/t	0 t	0 kg/t
	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
	30 t	0.01 kg/t	72 t	0.04 kg/t	0 t	0 kg/t
	100%		100%		95%	
Hazardous waste ²⁾	490 t	0.2 kg/t	380 t	0.2 kg/t	250 t	0.2 kg/t
Emissions to air						
CO ₂ fossil	1,177,000 t	540 kg/t	1,100,000 t	580 kg/t	1,000,000 t	640 kg/t
CO ₂ fossil from purchased electricity			283,000 t	150 kg/t	145,000 t	93 kg/t
NO _x as NO ₂	810 t	0.4 kg/t	670 t	0.4 kg/t	500 t	0.3 kg/t
SO ₂	210 t	0.1 kg/t	200 t	0.1 kg/t	130 t	0.08 kg/t
Particulates	15 t	0.007 kg/t	13 t	0.007 kg/t	14 t	0.009 kg/t
Land use						
Total use of land			360 ha		360 ha	
Total sealed area			160 ha		160 ha	
Total nature-oriented area on site			200 ha		200 ha	
Total nature-oriented area off site			6 ha		6 ha	

¹⁾ Reported in dry tonnes
²⁾ Total tonnes
³⁾ Ammonium sulfate

Environmental core indicators 2022

UPM CHEMICAL PULP MILLS						
Scope: all UPM pulp mills						
Production	2020		2021		2022	
	3,640,000 t		3,760,000 t		2,750,000 t	
	Total amount per year	Indicator per tonne of chemical pulp	Total amount per year	Indicator per tonne of chemical pulp	Total amount per year	Indicator per tonne of chemical pulp
Energy efficiency						
Total direct energy consumption						
Electricity consumption	2,100 GWh	570 kWh/t	2,200 GWh	580 kWh/t	1,700 GWh	620 kWh/t
Steam consumption	13,700 GWh	3,800 kWh/t	13,700 GWh	3,700 kWh/t	9,900 GWh	3,600 kWh/t
Total renewable energy consumption						
Electricity consumption	1,900 GWh	510 kWh/t	1,800 GWh	480 kWh/t	1,300 GWh	490 kWh/t
Steam consumption	12,800 GWh	3,500 kWh/t	12,900 GWh	3,400 kWh/t	9,100 GWh	3,300 kWh/t
Material efficiency						
Wood	15,900,000 m ³	4 m ³ /t	16,600,000 m ³	4 m ³ /t	11,900,000 m ³	4 m ³ /t
Process chemicals ¹⁾	442,000 t	120 kg/t	455,000 t	120 kg/t	302,000 t	110 kg/t
Water						
Water intake	214,000,000 m ³	59 m ³ /t	249,000,000 m ³	66 m ³ /t	191,000,000 m ³	69 m ³ /t
Process waste water	112,000,000 m ³	31 m ³ /t	115,000,000 m ³	31 m ³ /t	96,800,000 m ³	35 m ³ /t
COD	32,400 t	9 kg/t	35,300 t	9 kg/t	27,600 t	10 kg/t
TSS	1,200 t	0.3 kg/t	1,200 t	0.3 kg/t	1,100 t	0.4 kg/t
AOX	270 t	0.1 kg/t	280 t	0.1 kg/t	210 t	0.1 kg/t
Residues ²⁾						
Tall oil	71,000 t	19.0 kg/t	78,000 t	21.0 kg/t	50,700 t	18 kg/t
Turpentine	69,000 t	19.0 kg/t	77,000 t	20.0 kg/t	49,700 t	18 kg/t
Others	1,500 t	0.4 kg/t	1,400 t	0.4 kg/t	930 t	0.3 kg/t
Side-products ³⁾						
Green liquor dregs	1,200 t	0.3 kg/t	7,200 t	1.9 kg/t	7,200 t	3 kg/t
Lime	120 t	0.03 kg/t	1,300 t	0.36 kg/t	390 t	0.1 kg/t
Others	1,100 t	0.3 kg/t	5,900 t	1.6 kg/t	6,800 t	2.5 kg/t
Non-hazardous waste ³⁾						
Recycling, energy recovery, composting	146,000 t	40 kg/t	153,000 t	41 kg/t	144,000 t	52 kg/t
Sludges	98,400 t	27 kg/t	92,400 t	25 kg/t	96,100 t	35 kg/t
Bark and wood waste	17,500 t	5 kg/t	17,400 t	5 kg/t	17,500 t	6 kg/t
Others	66,100 t	18 kg/t	63,700 t	17 kg/t	67,100 t	24 kg/t
Intermediate storage						
Bark and wood waste	14,800 t	4 kg/t	11,300 t	3 kg/t	11,500 t	4 kg/t
Lime	1,900 t	1 kg/t	6,400 t	2 kg/t	10,800 t	4 kg/t
Construction waste	540 t	0.1 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	720 t	0.2 kg/t	2,000 t	0.5 kg/t	0 t	0 kg/t
Landfill						
Green liquor dregs	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Sludges	670 t	0.2 kg/t	4,300 t	1.1 kg/t	10,800 t	4 kg/t
Lime	46,000 t	13 kg/t	54,300 t	14 kg/t	37,000 t	13 kg/t
Others	38,500 t	11 kg/t	46,400 t	12 kg/t	32,800 t	12 kg/t
Recycling rate	4,900 t	1 kg/t	6,100 t	2 kg/t	3,800 t	1 kg/t
Landfill	0 t	0 kg/t	0 t	0 kg/t	0 t	0 kg/t
Others	2,600 t	1 kg/t	1,700 t	0 kg/t	310 t	0 kg/t
Hazardous waste ⁴⁾						
Recycling rate	540 t	67%	250 t	60%	310 t	70%
Emissions to air						
CO ₂ fossil	540 t	0.1 kg/t	250 t	0.1 kg/t	310 t	0.1 kg/t
CO ₂ fossil from purchased electricity	277,000 t	76 kg/t	265,000 t	71 kg/t	291,000 t	110 kg/t
NO _x as NO ₂	114,000 t	30 kg/t	114,000 t	30 kg/t	199,000 t	72 kg/t
SO ₂	4,700 t	1 kg/t	5,000 t	1 kg/t	3,500 t	1 kg/t
Particulates	390 t	0.1 kg/t	300 t	0.1 kg/t	220 t	0.08 kg/t
TRS	650 t	0.2 kg/t	990 t	0.3 kg/t	520 t	0.2 kg/t
Other	92 t	0.03 kg/t	59 t	0.02 kg/t	66 t	0.02 kg/t
Land use ⁵⁾						
Total land use on site			1,300 ha		1,250 ha	
Total sealed area on site			570 ha		570 ha	
Total nature-oriented area on site			680 ha		680 ha	
Total nature-oriented area off site			1,600 ha		1,600 ha	

¹⁾ Main chemicals used: oxygen gas, sodium hydroxide, sodium chlorite or chlorate, sulphuric acid, limestone, hydrogen peroxide

²⁾ Sold volumes

³⁾ Reported in dry tonnes

⁴⁾ Total tonnes

⁵⁾ Incl. pulp mills and integrated pulp and paper mills

SOCIETAL PERFORMANCE

Societal development..... 13

Volunteers at the UPM Changshu Mill in China spread green awareness and social wellbeing through youth-driven projects. Wang Feng has been regularly visiting local schools to educate kids about low-carbon living and energy saving as part of the UPM Green Future project.



UPM plays a significant role in contributing to societal development

Transparent reporting on all the aspects of responsibility, including environmental, social and economic is very important in UPM. In 2017 we expanded our EMAS reports to cover local societal impacts in addition to the traditionally reported environmental performance. With “societal” we refer both to the socio and economic impacts.

Each mill presents its most important societal impacts in its mill supplement. Many issues are similar to all the mills. The mill supplements provide e.g. information on our contribution to employment, health and safety of employees, tax income and responsible sourcing as well as co-operation with the communities.

Employment

EMAS mills employed directly around 7,500 people in 2022. In addition, significant indirect employment impacts are generated by use of raw materials and services. UPM wants to ensure fair, equitable and competitive rewarding for all employees globally. Our new social responsibility focus area for fair rewarding has two targets related to living wage and gender pay equity.

We are committed to ensuring that all employees’ pay meets at least their local living wage and that the situation is assessed annually. If the assessment shows unexpected wage gaps, they are corrected. We work with an independent third party and they provide us with benchmark data on the countries and cities in which we operate. The next step is to start promoting living wages with our suppliers.

We are also committed to ensuring gender pay equity to all employees. The annual review enables the monitoring of possible gender pay gaps and to make pay adjustments respectively. In 2022, we conducted the company-wide review and implemented the pay adjustments for unexplained gaps.

This commitment to fair rewarding is exceptional and shows our strong dedication to fair treatment of all employees on both a national and global scale.

Health and safety

Our goal in UPM is to be the industry leader in health and safety. Our employees, as well as business partners and their employees, are required to adopt safe work practices and to comply with the rules and standards we have established.

In 2022, in the entire UPM, the total recordable injury frequency (TRIF, total injuries per one million hours worked) was 5.9 (7.2 in 2021) for UPM workforce including contractors. Lost time accident frequency (LTAF, lost-time accidents per one million hours worked) was 3.3 (3.5 in 2021). The TRIF includes LTA cases as well as cases of modified duties and accidents requiring medical treatment. The frequency of accidents excluding contractors was 6.4 (TRIF) and 3.2 (LTAF) in 2022. The mill specific safety figures can be found in the mill supplements.

Our safety work is based on long-term planning, effective safety communications and leadership. Safety is integrated in all our new and ongoing projects, and proactive safety is well-integrated in project plans and site practices. For us, good quality means thorough investigation and effective risk management, and this has played an important role in making our operations safe. We have utilised cross-learning to improve safety in our units: Sharing safety observations and best practice on safety have allowed us to learn from each other and improve safety in our units.



UPM’s economic impact spreads not just on the corporate or country level but also in the local communities.

Tax impact

Tax income generated by our business operations is an essential part of our societal impact as the tax income strengthens the vitality of the local community and supports public services. UPM pays corporate income taxes in the countries where added value is created and profit is generated. Based on UPM's corporate and operational structure, UPM reports and pays its corporate income taxes mainly in countries where production activity takes place and where innovations are developed. In 2022, UPM's corporate income taxes paid and property taxes were approximately EUR 349 million in total (EUR 306 million in 2021).

In addition to the taxes on income, UPM's various production inputs and outputs are also subject to taxation, which is either paid by UPM (e.g. energy taxes and real estate/property taxes) or collected by UPM (e.g. VAT, payroll taxes and social security contributions). Taxes are paid in accordance with the local tax legislation and regulations of the country in question.

The mills' operations benefit the local community in many ways. Municipal share of corporate income taxes and real estate taxes paid by UPM support the economy of the local community. In addition, the income taxes on salaries and social security contributions paid by UPM employees have also a significant local impact. Local tax impact figures are presented in the EMAS mill supplement for China, Austria, Uruguay and Finland. Those nine EMAS mills in their respective municipals/countries generated in total approximately EUR 209 million local tax impact in 2022 (when including e.g. the above mentioned local taxes). EMAS mills in Germany have not published their local tax footprint in 2022 mill supplements, but in Germany, the 6 EMAS mills generated in total around EUR 113 million local tax impact including income taxes on salaries and social security contributions, municipal trade taxes and real estate taxes.

Co-operation with communities

We are committed to developing the vitality of the communities close to our operations through active co-operation and open dialogue with local stakeholders as well as, for example, through sponsorships and employee volunteering under the umbrella of our Biofore Share and Care programme. The focus areas of UPM's Biofore Share and Care programme are: Reading & learning, Engaging with communities and Beyond fossils initiatives.

The mills' engagement with the local communities are for example cases in which support has been given to the local educational institutions and associations or community consultation via regular roundtables with local stakeholders. Details about the mills' engagement activities can be found from the mill supplements.

Responsible sourcing

UPM is committed to responsible sourcing practices throughout the entire supply chain. We work closely with our suppliers to ensure that our suppliers understand and meet all of the company's requirements. UPM requires its suppliers to comply with the UPM Supplier and Third Party Code that defines suppliers' minimum requirements in terms of responsibility with regard to matters such as environmental impact, human rights, labour practices, health and safety, product safety, corruption and bribery.

UPM's target is to have 100% of raw material spend and 80% of all spend covered by UPM Supplier and Third Party Code by 2030. In 2022, 96% of UPM's raw material spend and 88% of all spend was covered by UPM Supplier and Third Party Code.

Glossary

Activated sludge process

The activated sludge process is a biological treatment under controlled conditions that seeks the development of specific microbes and protozoa capable of aerobically oxidizing wastewater's organic matter.

AOX, Adsorbable organic halogen compounds

AOX represents the total amount of chlorine bound to organic compounds in waste water. Such compounds occur naturally, but are also formed in conjunction with the bleaching of chemical pulp. AOX should be limited to a level where it has minimum environmental impacts.

BAT, Best available techniques

The best available technology that allows for solutions that are technically, economically and environmentally the most efficient and advanced.

BOD, Biological oxygen demand

COD, Chemical oxygen demand

The effluent, or waste water of pulp and paper mills includes organic substances which consume oxygen during biodegradation. Low oxygen content in fresh and sea water can have an adverse effect on plant and animal life. BOD refers to the amount of oxygen consumed in the biological decomposition of organic compounds. COD refers to the amount of oxygen consumed in the complete chemical oxidation of organic compounds.

CO₂, Carbon dioxide

Combustion product of carbon. Fossil carbon dioxide emissions arise from fossil fuels like coal, oil and petrol.

Scope 1 CO₂ emissions

Direct fossil CO₂ emissions from on site fuel usage.

Scope 2 CO₂ emissions

Indirect fossil CO₂ emissions from the generation of purchased electricity, steam, heating and cooling.

CHP, Combined heat and power technology

Combined heat and power (CHP) production (or cogeneration) is when both electricity and heat are produced at a thermal power plant. The heat is used, for example, in industry or district heating, or as process steam.

Chain of Custody (COC)

An unbroken trail of documentation to guarantee the identity and integrity of the data used as, for example, in demonstrating the origin of wood.

Chemical pulp

Generic name for wood-based fibres separated from each other by "cooking" wood chips or plants in hot alkaline or acidic solutions of various chemicals.

Consumption impact

Consumption through net income generated by employees working at the plant and employees working at the value chain of the plant (typically working in other industries). Calculated using a model build by The Research Institute of the Finnish Economy (Etlä).

Deinking

The process whereby the ink and impurities are removed from recovered paper.

Deinked pulp: see recycled fibre pulp.

EMAS, Eco-Management and Audit Scheme

Voluntary environmental management system for companies and other organisations to improve, evaluate and report on their environmental performance on an annual basis. The environmental review is approved by a third-party accredited EMAS verifier.

Forest certification

An independent review process that determines whether a forest is managed in a responsible manner. There are two global forest certification schemes: FSC® (Forest Stewardship Council®) and PEFC (Programme for the Endorsement of Forest Certification).

Graphic recovered paper

Mainly white paper collected from households, e.g. newspapers, magazines, catalogues and copy paper.

ISO 9001

Quality management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

ISO 14001

Environmental management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

ISO 22001

Food Safety management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

ISO 45001

Occupational Health and Safety management system standard published by the International Organisation for Standardisations (ISO). This is a voluntary, international and third-party certified system.

ISO 50001

Energy management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

Lost-time accident frequency (LTAF)

Lost-time accidents per million hours worked. Calculation is as follows: (The number of accidents at work resulting in absence or disability one or more days)/(Actual hours worked) * 1,000,000. Lost time accident type excludes modified duties, medical treatments and first aid cases, but includes fatal accidents. UPM reports separately for workforce (including UPM employees and supervised workers) and contractors.

Mechanical pulp

Generic name for wood-based fibres separated from each other mechanically.

N, Nitrogen**P, Phosphorus**

N and P are chemical elements essential for plant and animal life. Both substances occur naturally in wood and are often added as a nutrient in biological treatment plants. Excessive levels released into watercourses can cause nutrient enrichment, i.e., eutrophication, which accelerates the growth of algae and other vegetation.

NO_x, Nitrogen oxides

These gases are produced during combustion. In moist air, nitrogen oxides can form nitric acid which, in turn, is precipitated as "acid rain". This nitrogen-containing rain also has a fertilising effect, i.e. eutrophication.

Recycled fibre pulp

Fibres and fillers retrieved from recovered paper. If the recovered paper is deinked, the processed pulp is also called deinked pulp.

SO₂, Sulphur dioxide

This gas is generated by burning sulphur-containing fuels. On contact with moist air, SO₂ forms sulphuric acid, which contributes to "acid rain" and acidification.

Supplier Qualification

UPM suppliers are qualified against the UPM Supplier and Third Party Code that defines suppliers' minimum compliance requirements in terms of responsibility with regard to matters such as environmental impact, human rights, labour practices, health and safety, and product safety. Supplier spend in EMAS mill supplements covers all UPM business-to-business spend excluding wood and wood-based biomass sourcing. Wood sourcing figures are not currently available for each mills, but only for regions.

Sustainable forest management

In the longterm, a sustainably managed forest means that it is not harvested more than it grows. Sustainably managed forests maintain their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil (now and in the future), relevant ecological, economic and social functions, at local, national and global levels without damaging other ecosystems.

Total Recordable Injury Frequency (TRIF)

Recordable injuries per million hours worked. Calculation is as follows: ('LTA at work excluding contractors (number of LTAs which are one or more days)'+ 'Modified duty'+ 'Medical treatment')/ 'Actual hours worked (UPM)' * 1,000,000. Total Recordable Injury type excludes first aid cases. UPM reports separately for workforce (including UPM employees and supervised workers) and contractors.

TRS, Total reduced sulphur

Reduced sulphur compounds that usually cause odour problems and that are released, for example, during chemical pulp production.

TSS, Total suspended solids

TSS are solid materials, including organic and inorganic, that are suspended in the water.

Validation statement



As accredited or licensed environmental verifiers,

- Inspecta Sertifiointi Oy (FI-V-0001) for UPM Changshu, UPM Fray Bentos, UPM Jämsänkoski, UPM Kaukas, UPM Kymi, UPM Pietarsaari, UPM Rauma and UPM Tervasaari
- Quality Austria Trainings, Zertifizierungs und Begutachtungs GmbH (AT-V-0004) for UPM Steyermühl
- TÜV NORD CERT Prüf- und Umweltgutachtergesellschaft mbH (DE-V-0263) for UPM Augsburg, UPM Ettringen, UPM Hürth, UPM Nordland, UPM Plattling and UPM Schongau

have examined the environmental management systems of each mill mentioned above, the information contained in the Environmental and Societal Responsibility 2022 statements, the information in the corporate part, as far as it concerns the respective mills, as well as the information used for the calculation of UPM Corporate level EMAS core indicators.

Following these examinations and the examination of the Updated UPM Corporate Environmental and Societal Responsibility Statement 2022 on 14/11/2023 Inspecta Sertifiointi Oy as the coordinating environmental verifier of this common EMAS validation herewith confirms that the environmental management systems and the Updated UPM Corporate Environmental and Societal Responsibility Statement 2022 together with the Environmental and Societal Responsibility 2022 statements comply with the requirements of the EU's EMAS regulation (EC) No. 1221/2009.

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