



UPM Kaukas

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2023



UPM Kaukas

The mills of UPM Kaukas are located on the shore of Lake Saimaa in Lappeenranta. A pulp and paper mill, a biorefinery and a sawmill operate at the mill site. UPM's largest research and product development centre, UPM Forest's Eastern Finland wood-sourcing management and the Lappeenranta forest service office are also based at Kaukas.

The Kaukas mills form a unique integrated bioforestry industry unit where pulp, magazine paper, sawn timber, biofuels, biochemicals and energy are produced from renewable raw materials. In addition to UPM's mills, Kaukaan Voima Oy's biopower plant operates at the site, producing heat and electricity for Kaukas' mills and the inhabitants of the local area. Approximately 90% of the energy produced by Kaukaan Voima is made from renewable biomass.

Having several operations in the same area has many benefits. Integrated production can be controlled efficiently, from the viewpoint of environmental protection. The short distance between the mills improves cooperation, decreases the need for transport and enables the processing of effluents by a shared biological purification plant. Sustainably sourced raw wood material, the integrated mill unit's high level of energy self-sufficiency and the recycling of by-products into raw materials are the cornerstones of our operation.

This EMAS report covers the environmental aspects of the Kaukas pulp and paper mill. Social responsibility is addressed with regard to the entire integrated mill unit.



Production capacity	300,000 tonnes of coated magazine paper 770,000 tonnes of softwood pulp 380,000 m ³ of pine timber 130,000 tonnes of renewable diesel and renewable naphtha
Personnel	Paper mill 245, pulp mill 270, sawmill 119, biorefinery 97, UPM Forest 24 and NERC 188. Overall, around 1,000 people work at UPM Kaukas in Lappeenranta.
Products	Magazine papers: (MWC, LWC): UPM Star, UPM Ultra, UPM Sol Pulp: UPM Conifer Wood products: UPM Timber, UPM Plus Biofuels: UPM BioVerno diesel, UPM BioVerno naphtha Biomedical products: GrowDex®, FibDex®
Side products	Lime fractions and sludge
Residues	Pitch oil (biorefinery), turpentine and tall oil (pulp mill)
Bioenergy	Heat energy and electricity
Certificates	EMAS – (EU Eco-Management and Audit Scheme – (paper and pulp mill) ISO 14001 – Environmental management system (paper and pulp mill, sawmill, biorefinery) ISO 50001 – Energy Management System (pulp mill) ISO 9001 – Quality management system (paper and pulp mill, sawmill) ISO 45001 – Occupational health and safety management system (paper and pulp mill, sawmill) ISO 22000 – Food Safety Management System (pulp mill) PEFC wood origin monitoring system – Programme for the Endorsement of Forest Certification (paper and pulp mill, sawmill) FSC® wood origin monitoring system – Forest Stewardship Council® (paper and pulp mill, sawmill) ETJ+ – Energy efficiency scheme (paper mill, biorefinery) ISCC (International Sustainability and Carbon Certification) (biorefinery) RSB (Roundtable on Sustainable Biomaterials) (biorefinery)
	All certificates can be found at the UPM's Certificate Finder www.upm.fi/vastuullisuus
Environmental labels	UPM pulp products have the approval for use in EU Ecolabel and Nordic Ecolabel paper. EU Ecolabel FI/11/001 for paper products More about PEFC products: www.pefc.org More about FSC products: http://fi.fsc.org



UPM Kaukas Environmental and Societal Responsibility 2023 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at www.upm.com) and provides mill-specific environmental and societal performance data and trends for the year 2023. The annually updated mill supplements and the UPM Corporate Environmental and Societal Responsibility Statement together form the joint EMAS Statement of UPM Corporation. The next Updated UPM Corporate Environmental Statement and also this supplement will be published in 2025.

We deliver renewable and responsible solutions and innovate 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 16,600 people worldwide and our annual sales are approximately EUR 10.5 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com



The mark of responsible forestry

For more information about FSC certification visit www.fsc.org



For more information about PEFC certification visit www.pefc.org



Review of the year 2023

The year 2023 was already more normal than the previous year, but the effects of Russia's war of aggression were still being felt. The pulp mill had a maintenance shutdown of almost two months in the autumn and Kaukaan Voima was shut down for a longer period in the summer than before. The paper mill ran according to demand.

The environmental impact of the UPM Kaukas integrated mill unit remained mostly at the same level throughout the 2000s. The performance of the wastewater treatment plant was good throughout the year. The raw material change at the pulp mill in August 2022 was reflected in the operation of the treatment plant in terms of lower treatment efficiencies for COD and solids.

Production continued to be material efficient, raw materials were carefully utilised and all waste generated in the process was recovered, except for the green liquor dregs from pulp production.

Increased electricity generation capacity of the pulp mill in the previous year was utilised and the other operators in

the integrated mill had more surplus pulp electricity than before, thus increasing energy self-sufficiency. The electric boiler project was completed. The boiler will start producing steam in 2024, which will reduce fossil carbon dioxide emissions.

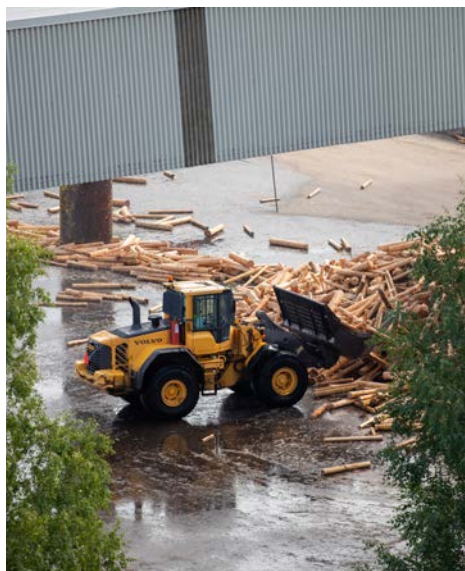
Overall, the operations were in compliance with the environmental permit obtained in 2018. Monitoring of waste water and water bodies was increased from the beginning of 2023, in accordance with the decision of the Regional State Administrative Agency in autumn 2022. The environmental permit limit was exceeded once, due to particulate matter from the recovery boiler. Half of the electrostatic precipitators in the recovery boiler were thoroughly repaired during the autumn shutdowns, bringing the particulate concentration below the permit limit.

The environmental performance met the obligations of the Best Available Techniques (BAT) document. The target value of water consumption per tonne of product for the pulp and paper mill was not achieved.

Of the 25 stakeholder reports received during the year, 17 were related to various odour situations and five related noise. There were also feedback of waste being dropped from a truck, lime spillage through a chimney and a low-hanging cloud of smoke, one for each. Feedback was responded to quickly.

Continuous improvement will be pursued to meet UPM's 2030 emissions reduction targets. Improvement of energy efficiency and reduction of fossil carbon dioxide emissions, and water consumption, were the environmental objectives of Kaukas for 2023. In addition, the pulp mill aimed to reduce specific emissions and total phosphorus discharges to water. 52% of the nutrients used in the treatment plant were recycled. The paper mill aimed to improve material efficiency by reducing fibre emissions.

The energy efficiency targets were met partially. The pulp mill was over self-sufficient in steam and electricity, whereas the paper mill did not reduce its specific energy consumption because of its low operating rate. The emission



- targets were largely met. Fossil carbon dioxide emissions decreased as the use of natural gas decreased. The pulp mill's specific emissions to water decreased. Water use also decreased from the previous year, but is still too high and requires action. Although phosphorus emissions were higher than those in the previous year, the summer load was kept under control by placing bundles of trees in the outfall of the treatment plant. The material efficiency of the paper mill was improved and the target for fibre emissions was achieved.

The control of invasive alien species in the integrated mill and the Tuosa landfill site was initiated in accordance with the 10-year plan drawn up the previous year. Giant hogweed has been controlled for years, but the plan now covers other invasive species. Lupin and rugosa rose control measures started in the summer of 2022. Controls were extended to giant balsam, and different types of knotweeds in 2023.

During 2023, three liquid fuel dispensing stations where the woodyard contractor refuels the machines were renovated in the integrated mill. The construction work considered the protection of groundwater and soil. The pulp mill also renewed chemical discharge points.

Toward 365 safe days

Zero accidents is UPM's goal. During the year, there were six lost time accidents in the integrated mill, four of which involved external operators. Of the two lost time accidents involving our personnel, one occurred at the biorefinery and one at the research centre. None occurred at the pulp mill, paper mill or sawmill.

As precautionary safety measures, all UPM employees and contractors are required to report all near-miss situations and safety and environmental observations in the global One Safety reporting tool. These reports are reviewed daily, and corrective measures are taken without delay. In addition, safety discussions are actively held at the workplaces, for example, between supervisors and subordinates, and safety tours are conducted throughout the mill.

Value from responsibility

Sustainability is at the heart of UPM Biofore strategy. The impact of our work extends from the local level to the wider society. We source our raw materials from responsibly managed forests and process them into climate positive products, changing the world of materials



by providing sustainable alternatives to fossil-based products.

One of the largest employers in the city, UPM employs approximately 1,000 people and approximately 170 summer interns. The tax revenue generated by UPM's operations has a significant social impact. UPM's local tax impact in the Lappeenranta area was approximately 19 million euros in 2023. UPM

also supports local vitality through sponsoring local projects which, in 2023, focused on learning, reading and sports activities for children and youth. Study visits, mill visits and participation in various events are used to educate young people about sustainable development, working life and society. In addition, schoolchildren, kindergarten-aged children and other interest group representatives are taken on forest trips.



Minna Maunus-Tiihonen
Environmental Manager

Ville Karvonen
General Manager of the Kaukas
Integrated Unit and Pulp Mill

Management of crises and exceptional situations

The following matters are specified under the management of crises and emergency situations, and communications at the mill properties and sites of Kaukas:

- Serious accidents and hazardous situations (major fires, explosions, chemical accidents)
- Environmental damage
- Serious work accidents (also on the way to or from work), traffic accidents at the mill site
- Serious production disruptions
- Other exceptional situations such as sabotage, demonstrations, work health and safety risks, risks that could harm UPM's reputation, cyber threats and network destruction, and threatening situations not within Kaukas e.g. at other industrial plants.

Co-operation with local actors

Rescue operations are always led by the rescue authorities. The mill's organisation is responsible for technical prevention and directs the extinguishing and rescue operations of its own personnel. The representatives of the production department are responsible for operational management, taking care of the controlled shutdown of production and



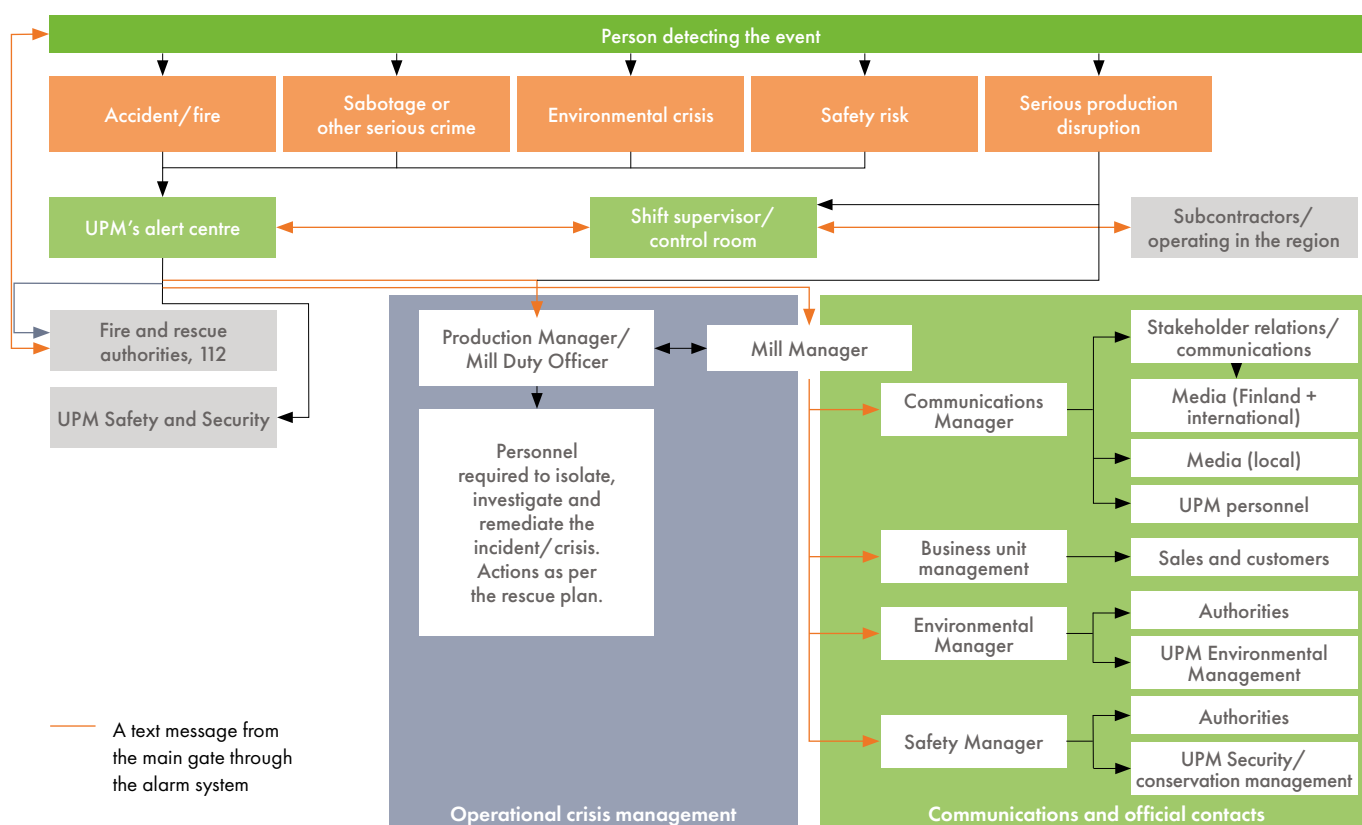
Major disaster exercise: chemical accident.

other measures to bring the exceptional situation under control. Investigation of the incident and the flow of information will proceed in accordance with the organisation's chain of command and agreed roles. The crisis communication group either consists of members of the mill's management group or is agreed on separately on a case-by-case basis. Exceptional situations relating to Kaukaan Voima Oy and projects at the Kaukas mill site will be dealt with in accordance with the Kaukas integrated unit's guidelines and the organisation's actions. Other external companies

located at the mill site will act according to their own guidelines, however all alerts will be made to the UPM Kaukas mills' emergency number as well as to the general emergency number.

We actively cooperate with the rescue services. All possible major incident situations at the pulp mill were discussed with the South Karelia Rescue Department's shifts. Local contract firefighters were actively visiting and training at the mill site. Kaukas mill's own fire brigade trained almost weekly to maintain operational readiness.

Crisis communication organisation chart



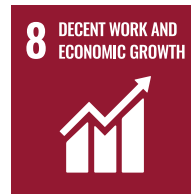
Contribution to UN Sustainable Development Goals in 2023



Air

Fossil carbon dioxide emissions decreased

11%



Taxes

The intergrate's tax impact approx.

EUR 19 million

Property taxes: EUR 0.98 million

Estimated municipal taxes

on personnel salaries:

EUR 0.98 million*

Estimated corporate income tax:

EUR 17.1 million based on the number of employees**

*The tax impact on wages, and therefore the overall tax impact, will be significantly lower than in previous years (7.5 million euros in 2022). This is due to the introduction of social welfare regions. Welfare regions are financed by the state, which means that the municipal tax rates on wages are lower than in the past.

**Share for all the municipalities approx. 24%. Each municipality receives a share of this depending on the ratios calculated based on business and forest operations in the municipality.



Safety

1,813 days

without lost time accidents at the paper mill at the end of the year, an all-time record. Proactive safety work has been actively pursued. The pulp and paper mill has recorded 2,115 observations/incident reports. There have been 2,721 safety rounds and discussions.



Energy

Of the energy used at the site,

97%

was produced from biofuels.



Certified fibre

PEFC and/or FSC certified fibres account for

81%

of paper and

70%

of pulp production

UPM aims to have all fibres used certified by 2030.



Health

Kaukas' own sports club
Kaukas Lyly's gym had about

22,000 visitors

in 2023.



Water

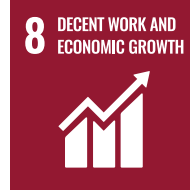
Nutrient loads
(nitrogen and phosphorus)
to water decreased by

5%

Of the nutrients used in
the treatment plant

52%

were recycled nutrients.



Community

In a work placement or apprenticeship,
there were

83 apprentices

and

19 thesis
workers

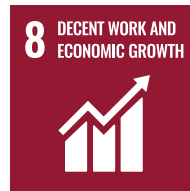
Cooperation was active between
different schools and educational
institutions.



Waste

0 t

process waste was sent to
a landfill from the paper mill.
The only waste fraction taken
to landfill was green liquor
dregs.



Employment

UPM Kaukas directly employed

958 people

and about

170 summer
workers

Furthermore, an average of
516 workers from contractors
worked at the site daily.



Supply Chain

approx.

88%

of raw material spend covered by
UPM Supplier and Third Party Code
(wood not included).



Biofuels such as bark and black liquor accounted for 97% of the energy used on the site. Bark removed from the wood at the pulp and paper mills and sawmills was used at the Kaukaan Voima power plant. The pulp mill's recovery boiler used black liquor, a by-product of the pulp production process, as fuel. The fossil fuels used were natural gas, peat and light fuel oil.

In 2023, the pulp mill ran its planned production until August, when the mill had an extended maintenance shutdown. The mill, which started up in mid-October, ran steadily at the end of the year. Kaukaan Voima's long summer shutdown began in May and ended at the end of September. During the shutdown of the pulp mill, the rest of the integrate's heat demand was produced by burning natural gas in the auxiliary boiler plant. In recent years, air emissions have been affected by abnormal operating hours, and the years are not comparable.

Fossil carbon dioxide emissions were lower than in the previous year. Less natural gas was used as a fuel than in the previous year. However, the lime kiln's carbon dioxide emissions increased, as pitch, a renewable fuel used in previous years, could not be used for the time being. The use of light fuel oil, which had started the previous year, continued at the beginning of the year, but natural gas was the main fuel used. The pulp mill's fossil-free steam generation capacity was increased through an investment in an electric boiler, which will be commissioned in 2024.

The specific emissions to air from the pulp mill were at BAT level.

Until the autumn, the high levels of particulate emissions from the recovery boiler exceeded the environmental permit limit. The situation improved during the autumn

shutdown, when half of the electrostatic precipitators in the recovery boiler were thoroughly refurbished. After the refurbishment, particulate emissions from the recovery boiler were within the permit limits.

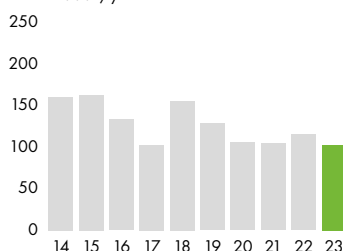
Nitrogen oxide emissions to air were higher than those in the previous year, but emissions per tonne of pulp product decreased from the previous year. A continuous nitrous oxide meter was installed in the flue gas boiler. Sulphur dioxide emissions in total and per tonne of pulp produced decreased.

In air quality measurements in the city of Lappeenranta, emissions of sulphur

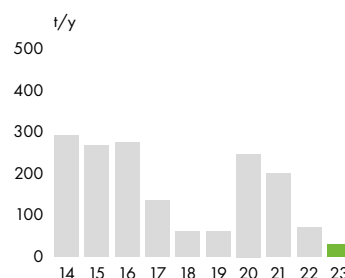
dioxide or reactive sulphur compounds (TRS) were below the daily limit values. TRS emissions consist of TRS compounds in the odorous gas from the recovery boiler, the odorous gas boiler and the lime kiln, fugitive emissions and emissions during abnormal situations. The diffuse emissions of waste water treatment and sludge treatment are not included in the figures.

The total emissions into the air from the pulp and energy production of the mills of UPM Kaukas are presented in the following graphs describing annual emission amounts. These figures also include UPM's share of the total emissions of Kaukaan Voima.

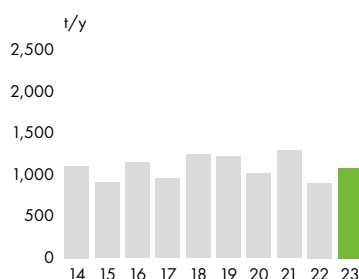
**Carbon dioxide (fossil), CO₂,
scope 1**
1 000 t/y



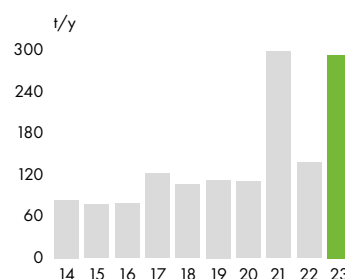
Sulphur dioxide, SO₂
t/y



Nitrogen oxides, NO_x
t/y



Particulates, TSP
t/y



In addition to the emissions of UPM Kaukas, the atmospheric emissions include the share of the energy used by the integrated unit from Kaukaan Voima.



Waste



In the past year, pulp and paper production generated around 34,600 tonnes of waste in dry material. The majority of this, 23,800 tonnes, consisted of process waste, 9,500 tonnes of soil and asphalt from earthmoving operations at the mill site, and the remainder of separately collected waste. The figures include UPM's share of Kaukaan Voima's waste.

3,779 tonnes of waste was deposited at the Tuosa landfill, which was almost the same as in the previous year. The remaining waste was diverted for beneficial use either directly or through intermediate storage. In 2023, the share of reuse was 89% of the total amount of waste. Green liquor dregs, along with fly ash and bottom ash from Kaukaan Voima, was used as raw material for earthworks. Bark sand and sewage treatment plant sludge were used as composting and raw materials. Only the green liquor dregs created in the chemical cycle of pulp were disposed of at the Tuosa landfill, a part of which was utilised, mixed with ash, in the field structures used for the storage of wood and fuels. Crushed asphalt demolished from the mill site was used as the surface material for the field structure. The green liquor dregs landfill site at Tuosa was closed in 2023. The closure project of the landfill utilized slightly contaminated soils and compost made from sludge and peelings.

Much of Kaukas' green liquor dregs have already been used in field construction. A new project between UPM's pulp mills and an external operator is exploring the use of green liquor in new products. The first mill test runs were carried out in spring 2023 and further plans are underway.



One of UPM's global 2030 sustainability targets is to recycle or reuse all its process waste. One of the most difficult by-products to recycle is green liquor dregs, for which UPM has long sought resource-efficient circular economy solutions.

Waste to the Tuosa landfill



The tonnes in the graph are given as dry weights.

Noise



Noise into the surrounding area is caused by the operations of the Kaukas mills. According to the environmental permit, the noise level in outdoor areas of the residential area in the vicinity of the mill site may not exceed 55 dB in the daytime and 50 dB at night. A calculated noise model has been established for the area affected by the mill site, and its accuracy is monitored by an external measurer at least every three years. The noise model is updated in conjunction with investments and significant process changes.

The noise monitoring continued on a regular basis. The next time an external company will measure noise will be in 2025. Five noise-related contacts were received from the area south of the mill site. Noise sources were identified and measures were taken to combat noise in the drying section of the pulp mill.



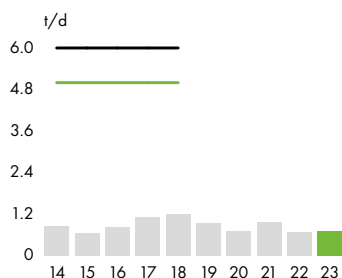


The Kaukas mill used a total of 79.7 million cubic metres of water in the manufacture of pulp and paper in 2023. 45% of this was process water that was purified at the biological purification plant. The rest of the water was cooling water for processes, among other things.

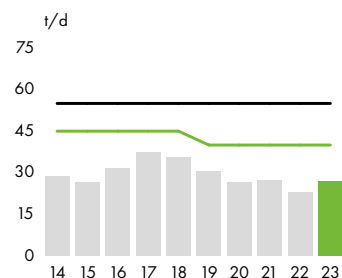
The change in raw materials from the previous year was still reflected in water consumption and consumption per tonne of pulp produced remained almost at the previous year's level. The process was optimised, but the water consumption was still too high. The paper mill invested in water reduction measures, which significantly reduced water consumption in the paper mill. Overall, however, the mill's water consumption per tonne of paper produced increased slightly from the previous year due to the low operating rate.

Waste water treatment worked effectively all year long. The change in raw materials in 2022 will also continue to affect waste water treatment. Waste-water from conifer production contains more persistent compounds and purified less well than birch-derived wastewater. This is particularly visible in the reduction of the chemical oxygen demand (COD) separation efficiency. The separation efficiency of the purification plant was good with regard to all load components. 99% of the BOD load directed to the purification plant was removed, 78% of the COD load, 86% of phosphorus, 67% of nitrogen and 72% of organic halogen compounds. A record 52% of the nutrients required by the treatment

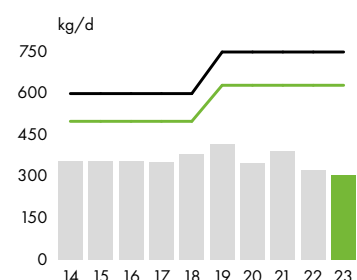
Biological oxygen demand, BOD₅



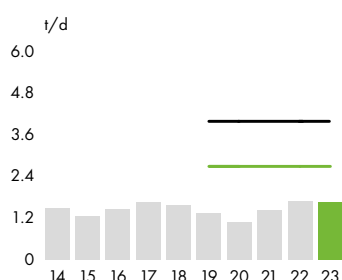
Chemical oxygen demand, COD



Nitrogen, N

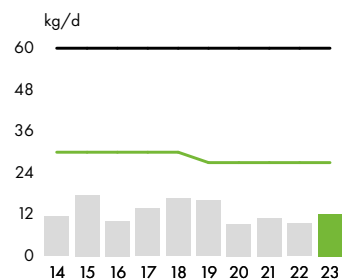


Total suspended solid (TSS)

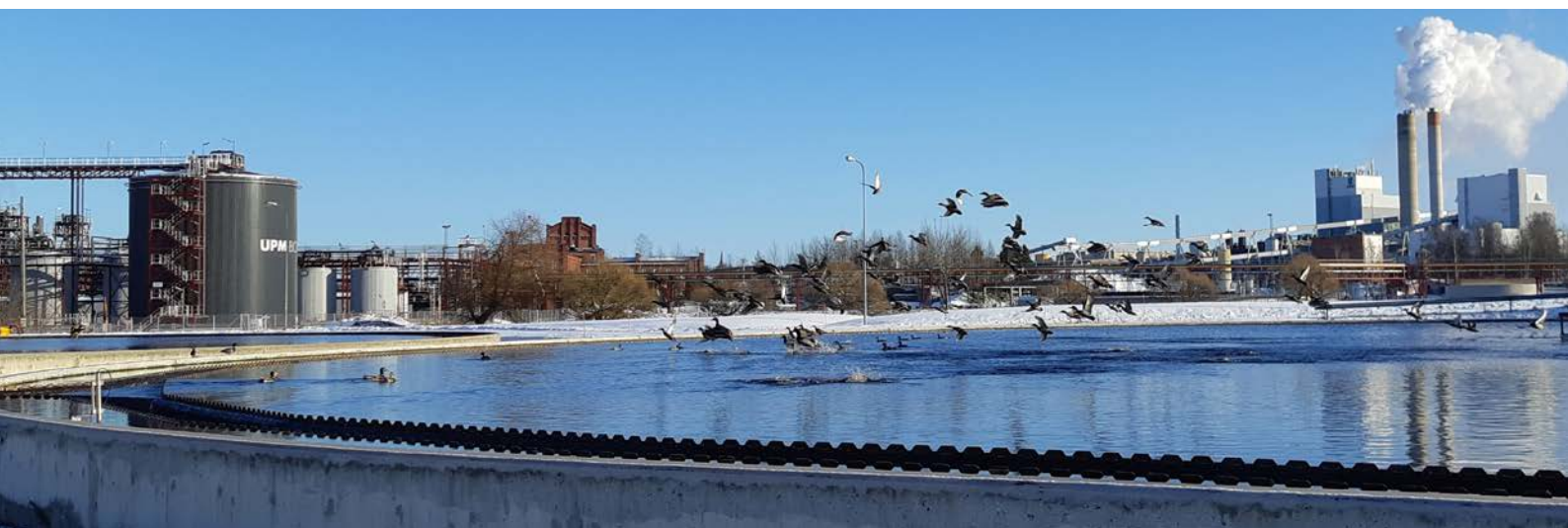
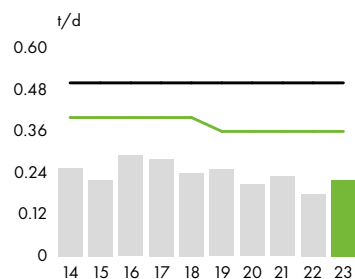


— Monthly limit — Annual permit

Phosphorus, P



Halogenated organic compounds, AOX



plant were replaced by recycled nutrients, up 28% on the previous year.

The typical summer increase in phosphorus emissions was moderate, partly due to the use of a chemical for proactive odour sequestration and partly due to the continued nutrient sequestration activities of the tree trunks in the Pappila pond. To prevent odours, chemicals were introduced into the wastewater treatment pond, which had previously presented challenges. The chemicals also precipitate phosphorus, reducing the amount of phosphorus so less of it ends up in the lake. The tree tops placed in the Pappila pond in 2020 further reduced nutrient loads during the growing season. The vegetation growing on the surface of the wood material used the nitrogen and phosphorus dissolved in the effluent water from the treatment plant as food, consuming it out of the effluent water and reducing the nutrient load of the plant.

The load to Saimaa increased for almost all measured variables compared to the previous year, which was expected due to the long strike the previous year. The level of emissions was in the same range as in the first years of the 2020s, except for nitrogen emissions, which were lower than before. The effluent load from the pulp mill was at BAT levels, except for water consumption, which was above the BAT level, and phosphorus load, which was below the minimum BAT level. In paper production, waste water loads were at BAT levels, except for water consumption above BAT levels.



Societal responsibility

Our goal in UPM is to be the industry leader in health and safety. Safety is an inseparable part of our daily activities and is not seen as secondary to anything else. We strive to reduce and eliminate accidents through continuous improvements and effective risk management. We require all of UPM's employees and contractors to report any environmental and safety observations.

We continuously train our staff on safety. For example, we organise hot work licence and occupational safety card training, emergency first aid courses and defibrillator training for our staff. The sawmill decided that all its employees would in future complete a hot work licence training card.

Before access to UPM's production sites, contractors participate in UPM safety training, which presents the basic safety requirements. This is complemented by job-specific safety induction and a work permit.

In the spring, Kaukas celebrated a safety and wellbeing week, during which staff were able to participate in a varied programme. The staff had the opportunity to learn about different types of safety equipment, listen to lectures on safety and health, take part in a break exercise, learn about the activities of our own sports club Kaukaan Lyly, and measure body composition and compression strength, among other things.

Forklift courses are organised regularly.



Promoting personnel mobility and physical activity

Kaukaan Lyly, Kaukas' own sports club, offered several well-being services to its staff. The gym was in active use, with around 22,000 visits in 2023. In particular, group exercise classes such as crosstraining, kettlebell and fascia got the Kaukas employees, their family members and Kaukas pensioners moving. Inter-unit floorball and volleyball ▶





- tournaments were also held in the hall. Tennis has always been played in Kaukas, but especially in the last couple of years the use of the tennis hall has increased.

In addition to the wide range of activities on offer at the gym, there was also orienteering, ice hockey, beach volleyball and golf. Lyly organised several family events such as sports competitions, a Christmas party for children and an activity day in Rauha, which attracted a record number of participants from Lyly.

As an extra to the services offered by their own sports club, the employees were able to use their ePassi employee benefit for various sports, cultural and wellness services worth 250 euros. All personnel also have access to online services, that offer break exercise, well-being challenges and personalised programmes, as well as remote exercise at home, at work or even at the cottage.

Working with local communities

Well-functioning dialogue with stakeholders is a key factor for our success. We are committed to promoting the vitality of the communities near our sites through active collaboration and open dialogue with different stakeholders, as well as through different sponsorship projects, for example.

Kaukas offers a wide range of jobs for people with skills in different fields. Our aim is to raise awareness of jobs in the sector and encourage young people to consider the industry. We participated in recruitment events organised by local educational institutions and other events such as the Finnish Forest Products Engineers' Association Roadshow tour.

We also participated in the LUT University's Help Earth Breathe event, where students planted a tree sapling for every student who started their studies last academic year. We organised a day to introduce 9th graders in the region to the activities and workplaces of Kaukas. Guest lectures in the region's schools and educational institutions were an integral part of our activities.

We are involved in many collaborative projects, mainly focused on the well-being of the local community. Most of our sponsorship cooperation focused on supporting reading, physical activity and learning for children and young people in 2023. We work together with many local associations and clubs. With our help, they organised, for example, sports activities for schoolchildren, summer holiday activities, after-school clubs and free sporting events for children.

We provided timber from our sawmill for the traditional Myllysaari Midsummer bonfire built by Lions Club Lappeenranta Saimaa. We had a stand in Lappeenranta's Enterprise Village, where children learned about opportunities in the forest industry, international activities and how products are made and sold. We supported the work against school bullying by participating in the Lions Club Lappeenranta Weera's Playing Together – Discovering South Karelia project.

In September, we organised a forest trip for 270 sixth-grade pupils. Students from 14 different classes in Lappeenranta joined us to learn about the forest and its products in cooperation with the Finnish Forestry Association. On the excursions, pupils and teachers





visited expert-led activity trails to learn about tree growth and the carbon cycle, the forest as a hobby and forest regeneration. In addition, every pupil got a chance to plant a sapling that will become a part of the forest of the future and children had packed lunch by a campfire. The aim of the forest trips was to provide pupils with a positive forest experience and increase their knowledge of the use of Finnish forests. According to the feedback we received, we did this well.

Economic prosperity in the region

We affect the communities and societies around us in many ways. We are a major employer, taxpayer and partner of local entrepreneurs, which has a positive impact on the local economy of South Karelia. We generate a significant amount of tax revenue. The property taxes paid and the municipal share of corporate income taxes support the local economy. In addition, the municipal taxes and social security contributions that the employees pay from their wages have a significant local impact. Furthermore, the purchasing power of UPM's employees and subcontractors maintains and enhances the vitality of local communities. Our local tax impact in the region was around 19 million euros in 2023. In 2023, UPM's corporate income taxes paid and property taxes

were approximately 221 million euros in total (349 million euros in 2022).

As the largest private employers in Lappeenranta, UPM Kaukas employed nearly 1,000 skilled workers in 2023. We hired approximately 170 summer workers, mainly from local educational institutions. During the year, we offered internships to 83 students/trainees and conducted 19 thesis projects.

We use over five million cubic metres of wood at our mills, most of which is sourced from nearby areas. In addition to forest owners, this provides work and a livelihood to tree harvesters and timber truck drivers, loggers and other forestry professionals.



Environmental parameters

The figures related to production as well as raw material and energy consumption are published as aggregated figures at the group level in the UPM Corporate Environmental and Societal Responsibility Statement.

		2021	2022	2023
Production capacity	Magazine paper	300,000 t	300,000 t	300,000 t
	Pulp,	770,000 t	700,000 t	700,000 t
	–softwood	440,000 t	500,000 t	700,000 t
	–birch	330,000 t	200,000 t	
Raw materials	Wood, cooking chemicals, bleaching chemicals, filler and coating pigments, paper manufacturing pigments	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Energy	Biomass-based fuels	91%	88%	90%
	Fossil fuels	9%	12%	10%
	Purchased electricity ¹⁾			
Emissions to air include UPM's share of Kaukaan Voima's emissions	Fossil carbon dioxide, CO ₂ (scope 1) ²⁾	104,304 t	114,780 t	102,273 t
	CO ₂ (scope 2) ³⁾		49,461 t	47,336 t
	Nitrogen oxides, NO _x	1,294 t	903 t	1,084 t
	Sulphur dioxide, SO ₂	201 t	72 t	31 t
	Dust particles	318 t	147 t	313 t
	Odorous sulphur compounds, TRS	31 t	16 t	32 t
Water intake	Process and cooling water	98.3 million m ³	73.5 million m ³	79.7 million m ³
Discharges to water	Wastewater	38.3 million m ³	30.3 million m ³	36.0 million m ³
	BOD ₇	303 t	253 t	263 t
	COD	9,962 t	8,390 t	9,748 t
	Total suspended solid (TSS)	519 t	619 t	610 t
	Phosphorus, P	4.1 t	3.4 t	4.4 t
	Nitrogen, N	140 t	118 t	110 t
	Organic halogen compounds, AOX	84 t	66 t	80 t
Side products	Lime sludge and lime			11,423 t
Waste⁴⁾	Taken to landfill for disposal	6,127 t	3,806 t	3,779 t
	– green liquor dregs	6,103 t	3,806 t	3,779 t
	– mixed waste	24 t	0 t	0 t
	Reused waste	21,603 t	18,796 t	17,486 t
	– bark sand and stones	1,189 t	638 t	1,268 t
	– green liquor dregs	4,207 t	4,531 t	3,949 t
	– lime sludge and limestone calcines	1,057 t	1,672 t	477 t
	– ash from the power plant	719 t	6,947 t	5,020 t
	– recycled cardboard and paper	752 t	336 t	409 t
	– metals	516 t	501 t	616 t
	– construction waste	1,016 t	17 t	36 t
	– other separately collected waste	287 t	212 t	225 t
	– waste water treatment sludge	2,955 t	1,840 t	5,485 t
	To interim storage	3,160 t	2,102 t	9,508 t
	– lime fertiliser	727 t	0 t	0 t
	– soil	2,433 t	1,006 t	6,772 t
	– asphalt and concrete		1,096 t	2,736 t
	Hazardous waste	265 t	53 t	396 t
Land use	Total land use	232 ha	232 ha	232 ha
	Area impermeable to water	203 ha	203 ha	201 ha
	Area directed towards nature conservation	29 ha	29 ha	31 ha
	Area directed towards nature conservation outside the place of business	68 ha	68 ha	68 ha

¹⁾ See the Group's Environmental and Social Responsibility Statement for more information (e.g. energy indicators).

²⁾ Fossil emissions from own energy production, scope 1.

³⁾ Fossil emissions from purchased energy, scope 2.

⁴⁾ Waste quantities are given in dry weight, excl. hazardous waste.



Performance against targets in 2023

TARGET	ACHIEVEMENT	COMMENT
Zero accidents	Yes	The pulp and paper mill did not have any accidents resulting in absenteeism among its own personnel. LTAF pulp and paper 0.
Active precautionary safety activity	Yes	Precautionary safety measures were carried out well. There were 1,262 observations and incident reports at the paper mill and 853 at the pulp mill. There were 544 safety rounds and discussions at the paper mill and 2,177 at the pulp mill.
Paper mill material efficiency	Yes	Fibre emissions decreased and were on target.
Reducing specific emissions at the pulp mill compared to the previous year	Yes	Specific emissions decreased for both COD and AOX.
Reducing the amount of wastewater	Partly	The amount of wastewater decreased slightly, but was still too high.
Phosphorus emission control	Partly	Phosphorus discharges to the lake were higher than in the previous year, but were well controlled during the summer period.
Reducing fossil carbon dioxide emissions	Yes	The use of natural gas decreased compared to the previous year.
Improving energy efficiency	Partly	Pulp was overconsuming electricity and steam. The specific energy consumption of the paper mill did not decrease.
Raising environmental awareness	Yes	Environmental permit training for pulp mill staff was held in autumn 2023.

Targets for 2024

TARGETS	SCHEDULE	INDICATORS AND KEY MEASURES
Zero accidents or serious incidents	2024	Pulp: TRIF < 5.5 (including contractors). Paper: TRIF < 6.5. Maintaining a safety culture and implementing the planned programme.
Active precautionary safety activity	2024	Safety observations: pulp 936, paper 1,000. Safety rounds and discussions: pulp 1,080, paper 500
Paper mill material efficiency	2024	Fibre emissions <5.0 t/d Improving paper machine operability.
Reducing specific emissions at the pulp mill compared to the previous year	2024	COD and AOX kg/Adt < 2023, optimisation of fibre line processes.
Reducing the amount of wastewater	2024	Pulp: < the 2023 level Paper: < 15 m ³ /t.
Phosphorus emission control	2024	Phosphorus discharges to the lake < 10 kg/d, continuation of the wood chip experiment and use of a chemical in summer if necessary.
Reducing fossil carbon dioxide emissions	2024	Using the electric boiler to control the steam distribution network.
Improving energy efficiency	2024	Pulp: ensuring energy self-sufficiency. Paper: reducing specific consumption of energy.
Raising environmental awareness	2024	A safety watch on an environmental theme during the year.



Validation Statement

As an accredited environmental verifier (FI-V-0001), Inspecta Sertifiointi Oy has examined the environmental management system and UPM Kaukas Environmental and Societal Responsibility 2023 statement as well as the information concerning UPM Kaukas in the Updated UPM Corporate Environmental and Societal Responsibility Statement 2023.

On the basis of this examination, the environmental verifier has herewith confirmed on 2024-04-03 that the environmental management system, the Finnish UPM Kaukas Environmental and Societal Responsibility 2023 statement and the information concerning UPM Kaukas in the Finnish Updated UPM Corporate Environmental and Societal Responsibility Statement 2023 are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.



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