



UPM Fray Bentos



# Environmental and societal responsibility 2024

# UPM Fray Bentos Pulp Mill

The pulp mill is located on the coast of the Río Uruguay, 5 km away from the city of Fray Bentos.

Construction of this state-of-the-art pulp mill began in 2005. The initial Environmental Authorization for Operation was granted by the authorities on November 8<sup>th</sup>, 2007. Until June 2020, the environmental authority in Uruguay was the Ministry of Housing, Territorial Planning and Environment (MVOTMA) through the National Direction for the Environment (DINAMA). From June 9<sup>th</sup>, 2020 the environmental authority is the Ministry of Environment through the National Direction for Quality and Environmental Assessment (DINACEA).

Through the use of modern techniques high quality pulp is efficiently produced, with a significant share destined for the Asian, European and North American markets.

The annual capacity of the mill is 1.3 million tons of bleached eucalyptus pulp. Wood procurement is under the responsibility of UPM Forestal Oriental, which has been pioneering the development of eucalyptus plantations in Uruguay for almost 35 years, since 1990. UPM has a 91% ownership of the Fray Bentos pulp mill and 100% in UPM Forestal Oriental. The UPM mill complex also accommodates the operations of four chemical plants responsible for supplying bleaching chemicals for the production process. The management of hydrogen peroxide and sodium chlorate is under the purview of Kemira, while the oxygen plant is managed by Linde. In January 2023, ownership of the chlorine dioxide plant was transferred from Kemira to UPM, and subsequently, UPM assumed responsibility for its operation.

Maintenance of pulp mill operations is outsourced to Andritz, which supplied most of the production equipment for the construction of the mill.



<b>Production capacity</b>	1,300,000 ADt
<b>Personnel</b>	233
<b>Products</b>	UPM Euca (bleached eucalyptus kraft pulp)
<b>Side-products</b>	Electricity
<b>Certificates</b>	EMAS - EU Eco-Management and Audit Scheme ISO 14001 - Environmental Management System ISO 9001 - Quality Management System ISO 50001 - Energy Management System ISO 22000 - Food Safety Management System ISO 45001 - Occupational Health & Management System PEFC Chain of Custody - Programme for the Endorsement of Forest Certification FSC® Chain of Custody - Forest Stewardship Council®  All certificates can be found from UPM's Certificate Finder (available at <a href="http://www.upm.com/responsibility">www.upm.com/responsibility</a> )
<b>Environmental labels</b>	EU Ecolabel Nordic Ecolabel  UPM pulp products have the approval for use in EU Ecolabel and Nordic Ecolabel paper products.



UPM Fray Bentos Environmental and Societal Responsibility 2024 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at [www.upm.com](http://www.upm.com)) and provides mill-specific environmental and societal performance data and trends for the year 2024. The annually mill supplements and the UPM Corporate Environmental and Societal Responsibility Statement together form the joint EMAS Statement of UPM Corporation. The next UPM Corporate Environmental Statement and also this supplement will be published in 2026.

UPM is a material solutions company, renewing products and entire value chains with an extensive portfolio of renewable fibres, advanced materials, decarbonization solutions, and communication papers. Our performance in sustainability has been recognized by third parties, including EcoVadis and the Dow Jones Sustainability Indices. We operate globally and employ approximately 15,800 people worldwide, with annual sales of approximately €10.3 billion. Our shares are listed on Nasdaq Helsinki Ltd.

UPM – we renew the everyday  
Read more: [upm.com](http://upm.com)



The mark of  
responsible forestry

For more information  
about FSC® certification  
visit [www.fsc.org](http://www.fsc.org)



Promoting  
Sustainable Forest  
Management

[www.pefc.org](http://www.pefc.org)

For more information  
about PEFC certification  
visit [www.pefc.org](http://www.pefc.org)

# Review of the year 2024

## Performance

UPM Fray Bentos pulp mill continued to achieve high level of capacity utilization in 2024 with steady operations, maintaining its reliability in pulp quality as well as high level of environmental performance.

One event with permit noncompliance occurred during the year. The sample collected on February 21, 2024, as part of monthly monitoring by an outsourced laboratory at the dioxide plant scrubber, indicated that the chlorine concentration in the emission exceeded the permissible limit of 0.6 mg HCl/Nm<sup>3</sup>, with the measured value reaching 0.8 mg HCl/Nm<sup>3</sup>. After analysing the event period, during which the dioxide plant remained stable with no abnormal situations, preventive actions were implemented at the operational level.

In 2024, the UPM Fray Bentos mill received two odor complaints from neighbours, one of which was channelled through DINACEA. The first complaint, received on March 1st, involved a neighbour contacting DINACEA to report an odor noticed over a few days. Upon investigation, it was found that a valve in the white liquor plant, which appeared closed in the DCS system, was leaking white liquor into the weak liquor tank. Due to an imbalance caused by a fibreline shutdown, the tank discharged its contents into the wastewater treatment plant. The leak caused the effluent's pH to rise to a point where even with the full capacity of acid dosing at the effluent treatment plant, pH control during the pumping of the affected effluent could not be maintained. Despite this, air quality monitoring stations did not register any abnormal TRS (Total Reduced Sulfur) values during the reported period. The second complaint was received on November 3rd. On that date, the production process and effluent treatment plant were operating under stable conditions. H<sub>2</sub>S detectors at the effluent treatment plant did not indicate any anomalies, and the air quality station closest to the city of Fray Bentos did not report any high TRS value either. Therefore, no specific cause for the reported odor could be identified.

The UPM Fray Bentos pulp mill is designed to be self-sufficient in terms of electricity consumption, generating its own power by burning black liquor. It is even capable of supplying excess energy to the national grid. External energy purchases are only required occasionally, such as during plant startups or specific unbalanced

situations caused by maintenance activities. Since February 2024, an agreement with the Ministry of Energy has allowed UPM's pulp mills in Uruguay to sell and purchase energy between each other via the national grid infrastructure. As a result, the Fray Bentos mill only draws additional energy from the grid when the Paso de los Toros mill is not producing a surplus sufficient to cover its needs. Consequently, the vast majority of electricity purchased by the Fray Bentos mill is free of fossil fuel emissions.

In 2024, air emissions were maintained at very good levels, and the management of malodorous gases was within internal targets.

The mill's emissions were within the ranges associated to Best Available Techniques (BAT) as established in the European Commission Implementing Decision of 26 September 2014.

## Environmental monitoring

UPM Fray Bentos mill is exhaustively monitored with more than 130 control parameters covering the Uruguay river (water and biology), air, soil, fauna, groundwater, noise, among others.

Environmental monitoring activities, overseen by UPM Fray Bentos and executed by multiple external experts, continue to show, even seventeen years after its start-up, that there is no negative impact on the environment related to the operation of the pulp mill.

## Transparency

In 2024, UPM's mill in Uruguay welcomed over 1,450 visitors, engaging with more than 50 groups from diverse backgrounds. These

included 10 primary school groups, 25 technical and secondary school groups, and 12 delegations from universities and research institutions. The mill also hosted 8 groups made up of customers, business leaders, trade associations, and foreign government representatives, reflecting UPM's ongoing commitment to transparency, education, and collaboration with stakeholders at all levels.

During 2024 no sessions of the followup commission (composed of representatives from national ministries, local governments, the operating companies and up to seven civil society representatives) have been convened by the authorities.

In 2024, 12 inspections were carried out by the Scientific Committee (integrated by Uruguayan and Argentinian members) of the Uruguay River Administrative Commission (CARU), reaching 158 in total by December 2024. Results of the monitoring carried out during these inspections are available in [CARU's website](#).

Results of the environmental monitoring plan requested by Uruguayan environmental authorities are available in UPM's webpage.

Additional information on compliance with legal requirements can be found on both [UPM's corporate website](#) and the [official webpage of the Ministry of Environment](#).

Press releases regarding events that may be perceived by nearby communities are shared with the local press, follow up commission, Uruguayan environmental authorities as well as published on UPM's corporate website.

The revised environmental product declaration for Fray Bentos pulp has been released and is accessible to our customers.



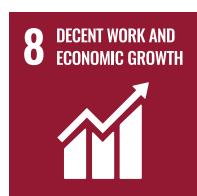
A handwritten signature in blue ink, appearing to read "Federico Mantiñan".

Federico Mantiñan  
General Manager



The UPM Environmental Team

# Contribution to UN Sustainable Development Goals in 2024



## Taxes

Total tax impact approx.

**USD 31 million**

related to Fray Bentos mill and forestry operations in Uruguay in 2024, including:

- Income taxes on salaries
- Corporate income taxes and Free Trade Zone fees
- Property taxes including real estate tax
- Value Added Tax cost



## Supply chain

**98%**

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



## Water

Reduction in specific nutrient discharge (per ton of pulp) in effluents during the last 10 years:

**50%**

Total Phosphorus

**20%**

Total Nitrogen

Both figures calculated comparing 2024 to 2014 performance.



## Waste

**9%**

of total process non-hazardous waste generated in 2024 returns to plantations, used as soil improver and 4% for other recycled uses.

**18%**

of total process non-hazardous waste generated in 2024 was disposed in landfill.

**69%**

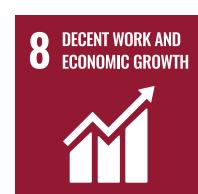
of total process non-hazardous waste generated in 2024 was used for energy recovery.



## Certified fiber

**94%**

of fibre used in pulp production was FSC® and/or PEFC certified. UPM's target is to use only certified fibre by 2030.



## Community

**9 Projects**

promoted by UPM Foundation in 2024

- 3 locations
- 16 NGOs in partnership
- over 183 participants
- over 42 institutions

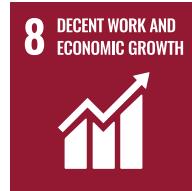


15 LIFE  
ON LAND

## Environment

**92** environmental observations

By actively doing environmental observations and taking needed actions beforehand, we efficiently prevent environmental deviations.



8 DECENT WORK AND  
ECONOMIC GROWTH

## Safety

Total Recordable Incident Frequency (TRIF):

**4.3** incidents

per million hours worked  
(Process areas: UPM employees & Contractors).

**8** environmental rounds

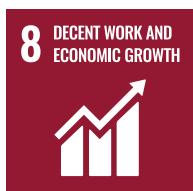
carried out with subcontractors working within UPM Fray Bentos mill premises.

**779**

Reported Safety Walks and Inspections. Safety walks are conducted with the aim of improvement.

**1,119**

Safety observations  
Observations covering both good safety practices and potential unsafe conditions or behaviors.



8 DECENT WORK AND  
ECONOMIC GROWTH

## Employment

UPM Fray Bentos employed

**233**

people directly.



13 CLIMATE  
ACTION

## Air

Reduction in TRS emissions per ton of pulp:

**20%**

Calculated comparing 2024 to 2023 performance.

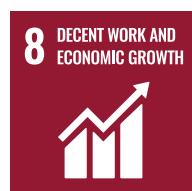


7 AFFORDABLE AND  
CLEAN ENERGY

## Renewable energy

**91.5%**

of the energy produced in UPM Fray Bentos during 2024 came from renewable sources.



8 DECENT WORK AND  
ECONOMIC GROWTH

## Health

**100%**

Workplace health risk assessments

**33%**

voluntary workers participated in the influenza vaccination program

**40%**

voluntary workers participated in the DETOX Nutritional program



15 LIFE  
ON LAND

## Biodiversity

UPM is the first private company in Uruguay to manage an area within the National System of Protected Areas.

**14,387 ha**

of formal conservation areas are managed by UPM, covering native forest, grasslands, wetlands, riparian zones and palm areas.



# Air

Emissions to the air remained at very good levels over all during 2024.

However, there was one permit exceedance recorded at the dioxide plant, specifically regarding the monthly chlorine analysis. On February 21, a sample collected by an external laboratory exceeded the permissible limit of 0.60 mg HCl/Nm<sup>3</sup>, recording a value of 0.80 mg HCl/Nm<sup>3</sup>. This new limit had come into effect in January 2024, based on a reference value previously included in the Environmental Operational Plan for the dioxide plant. The Ministry of Environment also mandated that results be reported in mg HCl/Nm<sup>3</sup>, rather than the measured units originally used by the laboratory. The need for the external laboratory to confirm the appropriate unit conversion contributed to a delay in reporting the results.

Upon review, no abnormalities were identified during the sampling period, and operations at the dioxide plant remained stable. Nevertheless, preventive measures were implemented at the operational level. Critical equipment related to emissions control, such as scrubbers and chillers, were thoroughly inspected. No issues were found with the scrubber, and as it was planned before the incident one chiller underwent maintenance, and the other was replaced with a new unit.

UPM subsequently requested a review of the permit limit, asserting that it did not align with the design guarantees of the mitigation equipment and that the reference value should be interpreted as a performance guideline rather than a strict regulatory threshold. In November 2024, the Ministry accepted these arguments and modified the permitted chlorine emissions limit for the dioxide plant to 5 mg HCl/Nm<sup>3</sup> as a monthly average limit, with an additional target limit of 0.60 mg HCl/Nm<sup>3</sup> as an annual average.

Handling of malodorous gases from production process was in accordance with 2024 internal targets.

Fuel oil consumption in 2024 was slightly higher compared to 2023, primarily due to increased usage during the months of February, April, and May. In February, the rise was attributed to the replacement of lime kiln bricks and the malfunction and subsequent replacement of a chemical mixer in the fiberline. In April, higher consumption was linked to the mill's startup following the general shut-

down, while in May, it was driven by specific operational events affecting the fiberline. This consumption is also reflected on the sulphur dioxide emission compared to 2023.

The UPM Fray Bentos mill received two odor complaints from local residents. The first complaint, reported on March 1<sup>st</sup>, a neighbour noticed a persistent odor over a few days. It was detected that a valve in the white liquor plant, although appearing closed in the automated monitoring and control system (known as a Distributed Control System, DCS, from this point forward), was conducting white liquor into the weak liquor tank. A fiberline shutdown caused a system imbalance, leading to an overflow from the weak liquor tank into the wastewater treatment plant (WWTP). This resulted in a significant increase in the effluent's pH and potentially allowing for the release of odours Total Reduced Sulfur (TRS) compounds into the air. Even with maximum acid dosing capacity, the plant was unable to maintain pH control during the pumping of the affected effluent. Once the condition was detected, immediate measures were taken to manage the contents of the equalization and safety basins, mitigating the impact on secondary treatment, and preventing further odor generation. Air quality monitoring stations did not register any abnormal levels of TRS during this period. The second complaint occurred on November 3<sup>rd</sup>. At that time, both the production process and the effluent treatment plant were operating under stable conditions. Hydrogen sulfide (H<sub>2</sub>S) detectors at the WWTP showed no unusual values, and neither did the air quality station nearest to Fray Bentos. No evidence or identifiable cause was found to link the reported odor to the mill's operations.



# Waste

The UPM Fray Bentos landfill is located within the mill premises. In 2024, it received a total of 20,383 tonnes of waste on a dry basis, representing 18% of the total non-hazardous waste generated at the site. Notably, green liquor dregs accounted for 91% of the total dry waste sent to landfill.

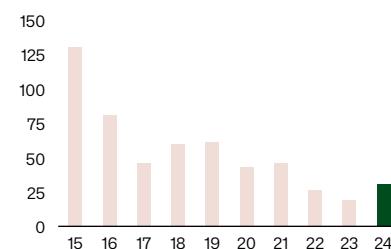
Efforts to minimize waste disposal to landfill continued throughout 2024. As part of this initiative, the dryers originally installed for drying biosludge were optimized, both operationally and through equipment upgrades, to enable stable processing of mixed sludge "PS" (Phosphorous and Secondary sludges). This mixed sludge is created by combining biosludge with P sludge, which is generated during the primary treatment stage of the wastewater treatment process when precipitating phosphorus from the incoming raw effluents. Since the only authorized disposal method for P sludge is landfilling, incorporating it into mixed PS sludge helps to reduce landfilled volumes.

While operational challenges remain, such as variability in P sludge characteristics and maintenance downtime on one of the dryers, the strategy has proven effective. In 2024, P sludge disposal to landfill was reduced by approximately 83% compared to 2023 and 2022.

The mixed sludge PS produced serves as an alternative fuel or soil amendment. In 2024, 7,929 tonnes (dry basis) of mixed sludge PS were produced, 76% of which was used for energy recovery in a cement plant, while the remaining 24% was applied as a soil amendment in plantations.

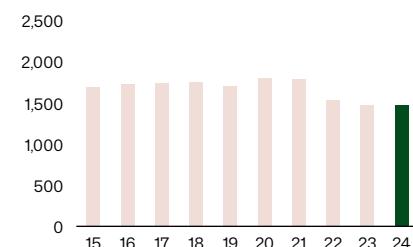
## Sulphur dioxide, SO<sub>2</sub>

t/y



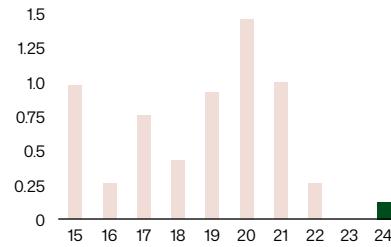
## Nitrogen oxides, NO<sub>x</sub>

t/y (measured as NO<sub>2</sub>)



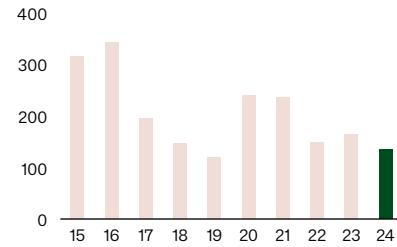
## Electricity supplied to the national grid

(relative to 2007)



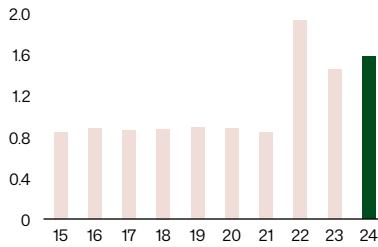
## Dust

t/y



## Fuel oil consumption

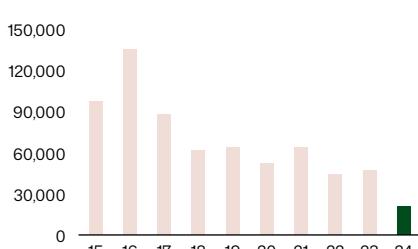
(relative to 2007)





# Water

## Solid waste to industrial landfill (wet t/y)



In addition, 2,583 tonnes of biosludge were generated in 2024. Of this, 63% was used as external fuel in a cement plant and the rest as a soil amendment in plantations.

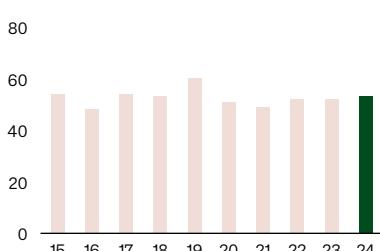
Wood waste management also remained efficient: 97.3% of wood waste (mostly bark and wood fines) was used for energy recovery, with 87.7% burned in the Paso de los Toros biomass boiler. A small portion, 0.6%, was returned to plantations as soil amendment together with primary clarifier sludge, and 2.1% was used for other recycling purposes, such as animal bedding or feed.

Since 2020, the Rio Negro city hall has operated a waste sorting facility through a social cooperative. In 2024, UPM Fray Bentos delivered 312 tonnes of recyclable materials (paper, cardboard, plastic, combustible waste) to this site for further commercialization.

Finally, in 2024, the generation of hazardous waste totaled 247 tonnes, making up only 0.22% of the total waste. Of this, 71% consisted of used oil and oil-water mixtures, primarily originating from maintenance activities.

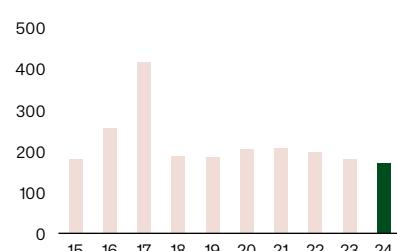
## Nitrogen (inorganic), N

t/y



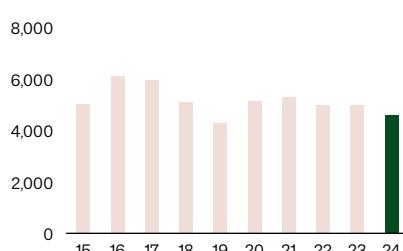
## Biological oxygen demand, BOD<sub>5</sub>

t/y



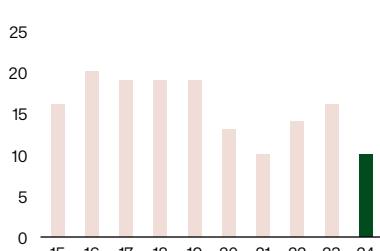
## Chemical oxygen demand, COD

t/y



## Phosphorus, P

t/y

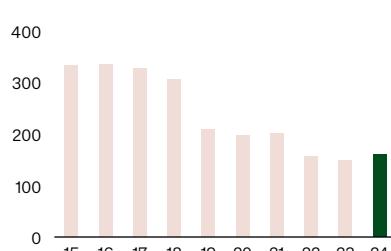


## Effluent flow (process wastewater)

1,000 m<sup>3</sup>

## Total suspended solids, TSS

t/y



compared to the reference zone since the start-up of the mill.

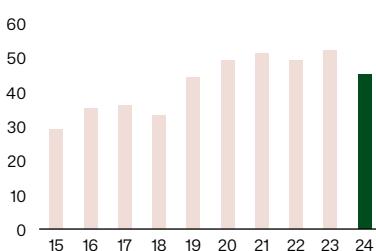
Additionally, chemical analyses of fish bile samples collected from 2005 through December 2023 have not detected levels of chlorophenolic substances, phytoestrogens, or resin acids that would indicate adverse effects on fish health indicators such as the gonadosomatic or hepatosomatic indices. Similarly, dioxin and polychlorinated biphenyl (PCB) concentrations in fish muscle have consistently remained low and well below international regulatory thresholds (e.g., Health Canada, 2010; CARU Digest, 2020).

In conclusion, the available data suggest that UPM Fray Bentos mill's effluents have had no appreciable impact on the diversity, abundance, or biomass of fish communities in the study area.

Furthermore, to date, there is no recorded evidence of negative effects on fish populations from pulp mills operating with Best Available Techniques (BAT) and the monitoring carried out in Uruguay river waters does not represent an exception.

## Adsorbable organic halogen compounds, AOX

t/y



# Management of critical issues and exceptional situations

At UPM Fray Bentos, environmental awareness is a fundamental part of the mill's operational culture. All employees are accountable for the environmental impacts related to their respective areas of work. The Production Manager holds overall responsibility for the mill's environmental performance, while the Environmental Manager coordinates environmental matters internally and externally – with regulatory authorities and other stakeholders.

As part of the Operational Environmental Management Plan, the mill maintains a contingency plan approved by Uruguayan environmental authorities. This plan outlines procedures to be followed in the event of environmental incidents, clearly defining responsibilities and including a communication flowchart.

Health and safety activities are managed by the Safety Manager, in coordination with the Safety Supervisor and the Fire Chief.

Together, they oversee health and safety efforts within the company and in collaboration with authorities and partners. The mill operates under a comprehensive safety plan and activity program that sets goals, targets, and specific actions to enhance workplace safety.

UPM Fray Bentos has a trained fire brigade composed of 70 brigadiers, including UPM personnel and technicians from on-site partner companies ((Andritz, Kemira, Linde). The brigade is organized into five shifts aligned with mill operations and receives

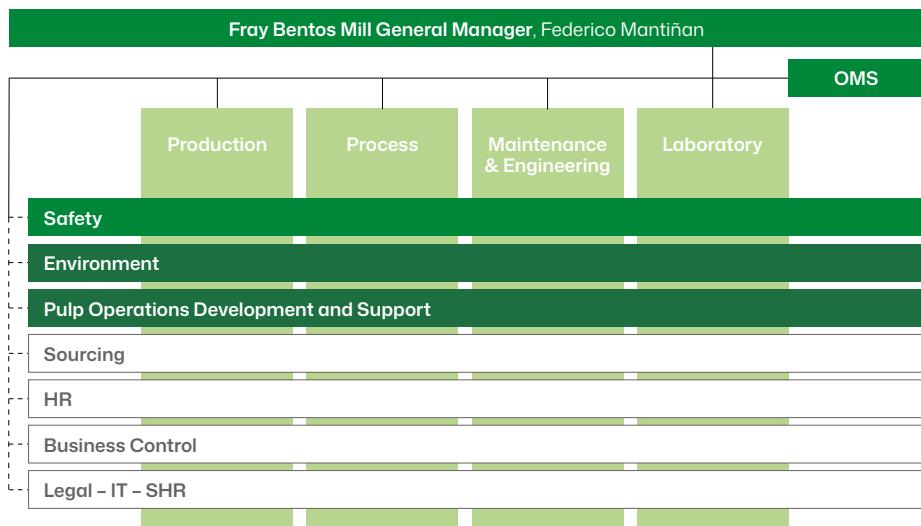
continuous training from qualified instructors.

In 2024, a total of 95 training sessions were conducted. Additionally, emergency drills were planned and carried out throughout the year.

These sessions addressed a wide range of critical scenarios, including fire suppression, rescue from heights, chemical incident response involving casualties, collapsed structure rescue, confined space operations, and the installation of river pumps.

The Fire Chief, along with one of the shift supervisors, attended a training session on Incident Command in Emergency Response held in Santiago, Chile. These types of trainings contribute to the professionalization of the fire brigade and strengthen their ability to respond effectively to complex emergency situations. Participating in international training sessions also allows for the exchange of best practices and reinforces a culture of continuous improvement and preparedness.

## Fray Bentos mill Organization



# Societal responsibility

The UPM Foundation was established over 16 years ago in Fray Bentos with the aim of supporting community development. As UPM's operations expanded, the Foundation evolved its vision to become a long-term driver of community empowerment. Its community engagement strategy is built on three key pillars: Dialogue, Impact Management, and Contribution to Development. In each area of operation, UPM identifies and collaborates with local communities of influence.

To this end, the Foundation promotes projects and offers educational scholarships across Uruguay. All initiatives are implemented in partnership with leading organizations in their respective fields. In 2024, the UPM Foundation carried out 22 projects in collaboration with 16 partner organizations across nine departments where UPM oper-

ates or has a direct influence. Notably, 75% of these projects were conducted in Durazno, Río Negro, and Paysandú, where UPM's mills and core forestry operations are located.

These projects benefited over 4,000 participants. Specifically, in the surrounding area of Fray Bentos, 9 projects were implemented, engaging more than 180 participants.

Some of the most notable initiatives included: a diploma course in didactic skills for teachers; "Co-creating Inclusion" for educators and school staff; a school management program for principals and leadership teams, a pedagogical workshop for teachers and educators.

In total, 98 educators earned diplomas through teacher training courses funded by the UPM Foundation.

Another highlight of 2024 was the foundation's ongoing support for rural communities near UPM's two pulp mills in Uruguay through the donation of infrastructure for the Carlos Reyes Agricultural School. The donation enabled the construction of classrooms, communal spaces, and dormitories to ensure access to education for youth from rural areas.

Initially, the school served 200 students aged 11 to 13, primarily from nearby rural communities. Due to growing demand, UPM donated an additional 20 modular units to build more classrooms and dormitories. By 2025, the school is projected to host 45 additional students, 29 of whom will board at the facility, coming from 19 different rural communities, significantly expanding the program's reach and impact.

# Biodiversity

In Uruguay, where plantations are primarily established on grasslands previously used for cattle grazing, biodiversity assessments are carried out before plantation development. UPM has implemented extensive biodiversity protection measures through its Global Biodiversity Program, which has been in place since 1998. Since 2020, this program has focused on three key targets: developing a network of conservation areas, maintaining and enhancing populations of endemic and threatened species, and controlling the spread of invasive woody species.

In 2022, UPM Uruguay strengthened these efforts by launching the UPM Global Forest Action Program, which aligns with regional forest management regulations, requirements, and guidelines. As part of this initiative, UPM added three new sites to its Natural Conservation Areas Network, bringing the total to 35 Conservation and High Conservation Value (HCV) Areas. These areas span over 14,000 hectares across various eco-regions where UPM operates in Uruguay. Conservation efforts are carried out in close collaboration with environmental organizations and independent experts, reinforcing the company's long-term biodiversity commitment.

One example of these efforts is the HCV area "El Retiro", a conservation site of approximately 1,000 hectares comprising forests, grasslands, and waterways along the left bank of the Queguay River. In 2024, UPM Forestal Oriental conducted the first fish biodiversity survey in El Retiro, under

the guidance of the Polo de Ecología Fluvial (River Ecology Hub) of CENUR-UDELAR (Centro Universitario Regional del Litoral Norte – Universidad de la República, Uruguay).

The study included two field campaigns that sampled three distinct aquatic environments within the area: the Queguay River's main channel, its tributary streams, and nearby lagoons. Each habitat type was sampled using tailored methodologies. The results revealed over 60 fish species from various families, indicating high species richness. Remarkably, each sampling site exhibited unique species compositions, even among similar habitat types, demonstrating strong ecological complementarity.

Among the most significant findings was the identification of at least five fish species previously unrecorded in the Queguay River basin. Additionally, three species were recognized as priorities for conservation within Uruguay's National System of Protected Areas (SNAP), while others were classified as high conservation priorities or commercially important. As a result of this initial effort, the number of recorded fish species in El Retiro increased by 30%. To date, El Retiro is home to 491 plant species, 202 tetrapod species, and 56 fish species, highlighting its ecological value.

To further advance biodiversity monitoring, UPM and the Clemente Estable Biological Research Institute (IIBCE), through its support foundation FAICE, have launched a joint research project focused on refining environmental DNA (eDNA) sampling techniques.

eDNA, found in soil, water, and sediments, reflects the presence of organisms in a given habitat and offers a powerful, non-invasive way to monitor biodiversity.

As scheduled, the first eDNA field sampling took place in September, collecting both environmental DNA and physical specimens. When combined with traditional sampling data gathered by Forestal Oriental during 2022–2023, the analysis identified 67 morphospecies of fish: 19 species (28%) were detected exclusively by Forestal Oriental, 24 species (36%) were found only in the new eDNA samples, 24 species (36%) were identified by both methods.

These findings represent approximately 25% of the fish species expected to inhabit the Uruguay River. Notably, this survey resulted in the first recorded presence in Uruguay of *Megaleporinus piavussu*, a type of Boga fish previously only found in the Paraná River.

These preliminary results highlight the importance of continued sampling to fully document species diversity and build a robust regional DNA reference library, especially considering seasonal variations.

Among the species identified in this first eDNA campaign were: Dientudo paraguayo (Paraguayan Pike Characin), Freshwater Eel, Mojarras, Boga, Armored Catfish, Chanchita (Banded Cichlid), Electric Fish, Tararira (Wolf Fish), Catfish, and Vieja del Agua (Water Cowfish).



# Environmental parameters

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

		2022	2023	2024
<b>Production capacity</b>	Pulp	1,300,000 t	1,300,000 t	1,300,000 t
<b>Raw materials and additives</b>	Wood Pulping and bleaching chemicals	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
<b>Energy<sup>1)</sup></b>	Biogenic fuels Fossil fuels	91% 9%	92% 8%	92% 8%
<b>Emission to air</b>	Carbon dioxide, CO <sub>2</sub> (on-site fossil emissions, scope 1) Carbon dioxide, CO <sub>2</sub> (fossil emissions from purchased energy, scope 2) <sup>3)</sup> Nitrogen oxides, NO <sub>x</sub> Sulphur dioxide, SO <sub>2</sub> Particulates Total Reduced sulphur, TRS	154,132 t 13,145 t 1,525 t 26 t 149 t 10 t	155,526 t 27,240 t 1,471 t 19 t 164 t 10 t	153,236 t 20 t 1,470 t 31 t 135 t 8 t
<b>Water intake</b>	Process and cooling water	30,500,127 m <sup>3</sup>	30,915,965 m <sup>3</sup>	30,004,283 m <sup>3</sup>
<b>Discharges to water</b>	Process wastewater Process wastewater quality indicators - Biochemical oxygen demand, BOD <sub>5</sub> <sup>4)</sup> - Chemical oxygen demand, COD - Suspended solids, TSS - Nitrogen, N (total) - Phosphorus, P (total) - Adsorbable organic halogen compounds, AOX	22,078,755 m <sup>3</sup> 229 t 4,949 t 156 t 51 t 14 t 49 t	21,677,934 m <sup>3</sup> 181 t 4,961 t 148 t 53 t 17 t 52 t	22,526,178 m <sup>3</sup> 169 t 4,563 t 159 t 53 t 10 t 45 t
<b>Waste<sup>2)</sup></b>	Non-hazardous waste  Waste to recycling, energy recovery and/or composting - Sludges - Bark and wood waste - Green liquor dregs - Metals - Others  Waste to landfill and incineration w/o energy recovery - Green liquor dregs - Sludges - Others  Hazardous waste	15,085 t 64,413 t 2 t 251 t 439 t  18,175 t 3,843 t 207 t  148 t	12,203 t 66,003 t 19.9 t <sup>7)</sup> 266 t 505 t  19,793 t 3,705 t 348 t  103 t	17,167 t 70,723 43 t 271 t 2,476 t  18,489 t 1,515 t 379 t  246 t
<b>Total use of land</b>	Total sealed area Total nature-oriented area on site Total nature-oriented area off-site <sup>5)</sup>	553 ha 53 ha 500 ha 1,550 ha	553 ha 53 ha 500 ha 1,550 ha	553 ha 53 ha 500 ha 1,550 ha

<sup>1)</sup> See UPM Corporate Environmental and Societal Responsibility Statement for more information.

<sup>2)</sup> Dry weight

<sup>3)</sup> In 2023 UPM purchased more energy than usual as a consequence of the turbine failure.

<sup>4)</sup> Fray Bentos permission reffers to BOD<sub>5</sub>. BOD<sub>7</sub> can be estimated (195 t for 2024).

<sup>5)</sup> Corresponds to Mafalda protected area, included in the National System of Protected Areas as a requirement for the mill's environmental authorization. This area is managed by UPM Forestal Oriental.



# Environmental objectives

Among the objectives set for 2024, the following can be highlighted:

- Continue transparent and effective proactive communication of environmental issues to all stakeholders.
- Contribute to UPM's corporate commitment to environmental responsibility.
- Promote environmental awareness within the mill, its main suppliers and partners, and all subcontractors working in mill area.
- Comply with the key environmental indicators defined for 2024 (see below).
- Renew the environmental authorization for operation (AAO)

## Performance against targets in 2024

	Target	Achievement*	
COD discharge to the river (annual average)	≤ 5 kg/ADt	Achieved	Stable operation
Effluent discharge to the river (annual average)	≤ 20 m <sup>3</sup> /ADt	Achieved	Stable operation
Total phosphorus discharge to the river (monthly average)	≤ 55 kg/d	Achieved	Optimization of phosphorous removal and stable operation
Availability of strong odorous gases handling (annual average)	≥ 99.9%*	Achieved	Stable operation
Availability of mild odorous gases handling (annual average)	≥ 99.5%	Achieved	Stable operation
Amount of permit exceedances	None	Not Achieved	One exceedance (see Air)

\* see page 6 for more details

## Targets for 2025

	Target	Focus actions
COD discharge to the river (annual average)	≤ 5 kg/ADt	Stable operations without significant disturbances
Effluent discharge to the river (annual average)	≤ 20 m <sup>3</sup> /ADt	Stable operations without significant disturbances
Total phosphorus discharge to the river (annual average)	≤ 55 Kg/d	Continue optimizing cleaning process, keeping good performance in phosphorous precipitation system
Phosphorus sludge disposal at landfill	≤ 250 t /month (annual average)	
Availability of strong odorous gases handling (annual average)	≥ 99.9%	Stable operation without significant disturbances
Availability of mild odorous gases handling (annual average)	≥ 99.5%	Stable operation without significant disturbances
Amount of permit exceedances	None	Stable operations



### Validation statement

As an accredited environmental verifier (FI-V-0001), Kiwa Sertifointi Oy has examined the environmental management system and UPM Fray Bentos Environmental and Societal Responsibility 2024 statement as well as the information concerning UPM Fray Bentos in the UPM Corporate Environmental and Societal Responsibility Statement 2024.

On the basis of this examination, the environmental verifier has herewith confirmed on 2025-05-22 that the environmental management system, the UPM Fray Bentos Environmental and Societal Responsibility 2024 statement and the information concerning UPM Fray Bentos in the UPM Corporate Environmental and Societal Responsibility Statement 2024 are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.



[upm.com](http://upm.com)

**UPM Fray Bentos**  
Ruta Vladimir Roslik Km. 307  
65,000 Fray Bentos  
Tel. +598 456 20100

For further information,  
please contact:  
Gervasio González  
Environmental Manager  
Tel. +598 99 789 400  
[gervasio.gonzalez@upm.com](mailto:gervasio.gonzalez@upm.com)

Marcelo Cardozo  
Communications Manager  
Tel. +598 99 108 316  
[marcelo.cardozo@upm.com](mailto:marcelo.cardozo@upm.com)