

UPM Rauma

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2019



UPM Rauma

UPM Communication Papers Oy's Rauma mill is located by the sea on the west coast of Finland, near Rauma's city centre. Metsä Fibre Oy's pulp mill, Forchem Oy's tall oil distillation plant and Rauman Biovoima Oy's biofuel power plant are also based at the mill site. UPM Communication Papers Oy produces the raw and chemically treated water used at the site, and is responsible for the treatment of the site's industrial and municipal wastewater. The companies collaborate closely for energy production, and Rauman Biovoima supplies the city of Rauma's required district heating power. The operations of Rauman Biovoima and the Rauma paper mill support the city's Hinku project on carbon neutrality.

UPM-Kymmene Corporation changed its corporate structure in the summer of 2016. The Rauma mill, with the exception of Rauma Cell, is part of UPM Communication Papers Oy, which is one of the subsidiaries of UPM-Kymmene Corporation. RaumaCell continues to be part of UPM-Kymmene Corporation.

Currently, the Rauma mill has two paper machine lines, a fluff pulp line, a twin-line debarking plant, a grindery, two TMP plants, a surface water treatment plant, a biological effluent treatment plant and a landfill site for industrial waste. Paper Machine 2 – used for producing SC paper – was closed in November 2019.

The paper machines produce coated LWC papers used in magazines. The paper made in Rauma is used in magazines, sales catalogues and advertising products. In addition to paper, RaumaCell produces fluff pulp for the production of hygiene and tabletop products.

Also located at the UPM Communication Papers Oy mill site is Rauman Biovoima Oy's biofuel power plant, which procures its operation, maintenance and environmental services from UPM Communication Papers Oy. Approximately 88% of the energy produced by Rauman Biovoima Oy for UPM is produced using renewable fuels. As the power plant is a separate company, its operations have only been included in this annual report with regard to vicarious liability.



Production capacity	935,000 tonnes of paper 100,000 tonnes of fluff pulp
Personnel	593
Products	Coated magazine paper: UPM Star, UPM Ultra, UPM Cote, UPM Valor, UPM Cote Silk, UPM Ultra Matt, UPM Star Silk
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System OHSAS 18001 – Occupational Health and Safety System PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council® ETJ+ Energy Efficiency System All certificates can be found from UPM's Certificate Finder tool (available at www.upm.com/responsibility)
Environmental labels	EU Ecolabel



UPM Rauma Environmental and Societal Responsibility 2019 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 2019. 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 2021.

UPM offers renewable and responsible solutions and innovate for a future beyond fossils across six business areas: UPM Biorefining, 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 18,700 people worldwide and our annual sales are approximately EUR 10.2 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 fsc.org



For more information about PEFC certification visit pefc.org



EU Ecolabel : FI/011/001

Review of year 2019

In 2019, process run practices were developed further in order to improve the energy efficiency of paper production. The investments to save energy included measures to improve heat recovery. An investment was also implemented to reduce water consumption.

The performance in 2019 was poorer than in 2018 in terms of both the specific consumption of electricity, steam and water and the solids losses. High solids losses and water consumption can be explained by issues with running the paper machines. Such issues were ultimately eliminated at the end of 2019. The increased electricity consumption is due to the increased production of mechanical pulp. Despite the issues with running the paper machines, the mill is in compliance with the BAT limits in terms of specific emissions; in other words, the level of the emissions is similar to the level that can be cost-effectively achieved with the modern best available technology.

After Paper Machine 2 was shut down, most of the chemicals used in PM2 are no longer stored at the mill. Some of PM2's chemicals share a storage container with PM1, which is why not all chemicals used by PM2 have been removed from the mill. In accordance with the Chemicals Act, the Rauma mill is considered to be an operator engaging in extensive industrial handling and storage of chemicals, and therefore it is a facility supervised by the Finnish Safety and Chemicals Agency (Tukes) and it has prepared an operational principle document. The operational principle document was updated in 2018. Chemical safety is based on Finnish law and UPM's internal chemical handling standard.

Active preventative safety work with regard to environmental matters continued in 2019. There were no severe environmental non-conformances. The number of moderate Cat 2-level non-conformances was 5.

The causes of the Cat 2-level environmental non-conformances varied. In the first incident, a hand valve had been left open during the paper machine cleaning performed during the outage, resulting in mild lye being released into the fibre channel. Personnel detected the error and alerted the wastewater treatment plant, where the situation was corrected by increasing the final acidification. The second case involved the release of kaolin-based water into rainwater. The duration and quantity of the discharge were minor and the non-conformance did not have any environmental impact. In the third and fourth cases, mild reject was fed into the reject channel during the paper machine shutdown and from there to the wastewater treatment plant. Neither case caused any impacts on the operation of the wastewater treatment plant. In the fifth

case, a hole on the intake side of the slurry pump resulted in a temporary flow of mass into to the stormwater sewer. The mass was allowed to settle in the overflow pool of the stormwater sewer.

It should be noted that personnel have been encouraged to make observations and submit non-conformance notifications concerning the environment. According to the personnel safety objectives, at least one notification per year should be related to the environment.

The Rauma production facility for the meat company HKScan became operational at the end of 2017, and its wastewaters have also been purified at the co-treatment plant as planned. All wastewater directed from the meat company's production facility thus far has been processed at the wastewater treatment plant without incident.

In 2019, noise prevention work mainly focused on preventive maintenance. The mill received one external notification concerning a non-conformance related to noise with no clear source – the safety supervisor did not detect anything abnormal during their rounds. The noise was not caused by the operations of UPM Communications Paper Oy. There were no other notifications. We also voluntarily carried out monitoring of sources of noise and reported the results to the authorities. Based on the results, noise caused by the forest industry facilities is below permitted limits. A joint noise modelling was also conducted in the forest industry in Rauma with an external supplier in 2019. As PM2 was shut down, the modelling is updated during the first months of 2020.

Construction continued at the Sampaanalampi field. The work continued with the stabilisation of the basin masses. The mass

stabilisations continued at the beginning of 2020. Power-plant ash and cement were used as the binders in the mass stabilisation. During 2019, dredging masses from the port expansion were used as basin masses and stabilised during the autumn.

There were no significant changes in the treatment of waste in 2019, compared to 2018. Since 2017, mill waste has not been deposited in the Suiklansuo landfill, although in the permit sense, the Suiklansuo landfill is still in operation. After the shut-down of PM2, the total quantity of waste will be reduced in the mill area.

The paper mill has shifted to a Multisite model (ISO certificates, ETJ+) in a quality management system certification, which covers all paper mills in Finland. Both internal and external audits are essential parts of the Multisite model. Internal audits are conducted by auditors from other units, which also gives us a solid perspective into the development of our operations. Kiwa Inspecta is responsible for the external audits.

Review applications for the environmental permit for the mill, the port and the wastewater co-treatment plant were submitted for processing in 2015. This was based on the requirement in section 80 (1) of the Finnish Environmental Protection Act to apply for environmental permit review, due to new BAT conclusions. The environmental permit had to also be reviewed due to changes in operations. The new environmental permit for the Rauma paper mill and the port became legally binding with the Vaasa Administrative Court's decision on 20 September 2018. The processing of the new environmental permit for the wastewater co-treatment plant is still pending in the Vaasa Administrative Court.



Timo Suutarla

Timo Suutarla,
General Manager



Pasi Varjonen

Pasi Varjonen,
Safety and Environmental Manager

Responsibility figures 2019

Waste



Reused ash

100%

Safety



33%

less lost time accidents (LTAs)
resulting in absences than in 2018.

Energy



Percentage of biomass-based fuels at the mill

88%

Taxes



Mill's local tax impact approx.

EUR 17 million

Real estate taxes EUR 0.5 million

Estimated municipal tax on salaries EUR 5.5 million

Estimated corporate income tax EUR 11 million
based on the number of employees*

* Approximately 30% of this goes to municipalities,
which is split between each municipality according
to their share of business activities and forest operations

Water



Percentage of recycled nutrients
in the effluent treatment plant

99.4%

Consumption impact



Mill's consumption impact in the region approx.

EUR **29** million

In Finland approx.*

EUR **56** million

* Generated through the private consumption of commodities from internal and indirect employees' net wages.

Health



Total absences

4.4%

Stakeholder collaboration



Collaboration with educational institutions

38 people

This number consists of apprenticeships, diploma students and on-the-job learners

Supply chain



99%

of raw materials spend qualified against UPM Supplier and Third Party Code (wood suppliers not included)

Employment



Workforce of the mill

593 people

Indirect impact on local employment

630 people

Summer workers and trainees

79 people

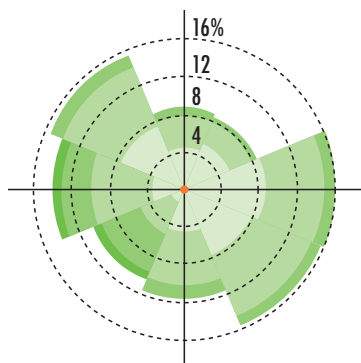
Air



In 2019, sulphur emissions were slightly lower than in 2018. Nitrogen oxide emissions also decreased slightly compared to 2018, as did fossil CO₂ emissions. The reduced airborne emissions were caused by the decreased amount of energy obtained from Rauma Biovoima. Renewable fuels were the source of 77% of all of UPM Rauma's CO₂ emissions.

The air-quality measurement point nearest to the Rauma mill is located in Sinisaari, approximately 0.5 kilometres (towards the city) from the mill.

The wind rose shows the direction of the wind.

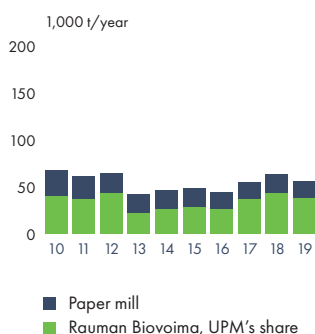


Wind rose, m/s

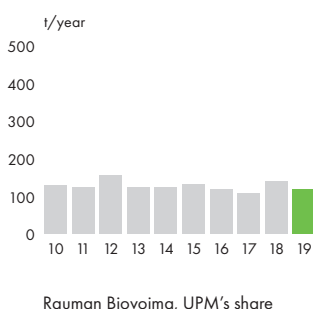
- Calm
- 0.5-3
- 3-5
- 5-7
- >7

Source: Finnish Meteorological Institute, Monitoring air quality in Sinisaari, Rauma, during the period of 1 January-31 December 2019.

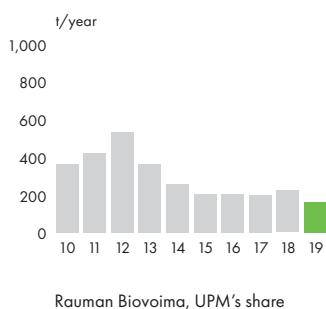
Fossil carbon dioxide, CO₂



Sulphur dioxide, SO₂



Nitrogen oxides, NO_x



Waste

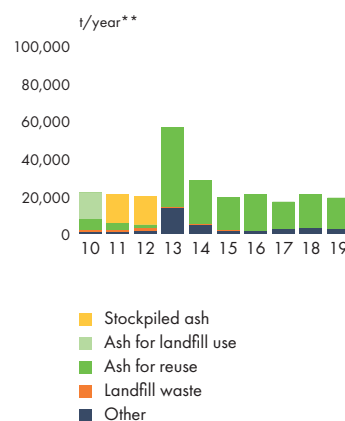


Ash from the power plant was reused in the construction at the Sampaanalanlahti field, as in previous years. The rest of the generated waste was mill waste, recycled fibre, metal and hazardous waste, and combustible waste.

All solid waste is reused as materials or energy. Ash is generated at the Rauman Biovoima power plant, and all of the ash was reused as building material for the Sampaanalanlahti field. In 2020, our goal is to continue to use ash and other recycled materials from the forest industry, potentially in surface structures for landfill sites and in the construction of storage areas, etc. We are also looking into new ways of reusing materials in earthworks. Ash will be used to replace other construction materials, such as cement.

The use of the Suiklansuo landfill area ended as early as 2017. The last deposits to the site before it was closed down were green liquor dregs from Metsä Fibre Oy and mill waste from UPM.

Waste and reuse*



* ash, Rauman Biovoima's share
** calculated as dry weights

Water

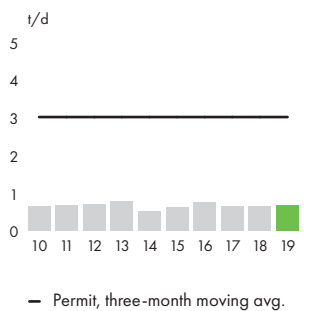
An operational committee made up of representatives from UPM Communication Papers Oy, Metsä Fibre Oy and the city of Rauma is in charge of developing the co-treatment and monitoring its success. UPM Communication Papers Oy continues to bear the responsibility for wastewater treatment.

The wastewater treatment results were at the normal, good level. In 2019, no

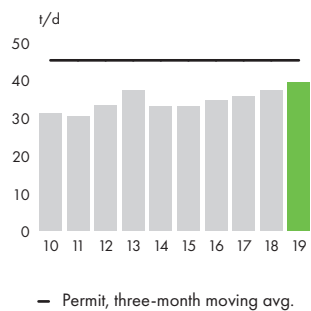
permit limits were exceeded. The treatment plant started feeding additional oxygen into the effluent immediately in the spring, which helped improve the oxygen content, and the COD permit limit was not exceeded, as happened in 2018. The only significant non-conformance happened in September, causing a deviation with the level in the other months. In September, the BOD and solids levels were considerably

higher than normal primarily due to the emptying related to the annual maintenance of the pulp mill. The annual total discharges were in compliance with BAT levels. The wastewater effluent load from the forest industry and the joint treatment plant is now so low that the state of the sea water can no longer be significantly improved by making treatment more efficient.

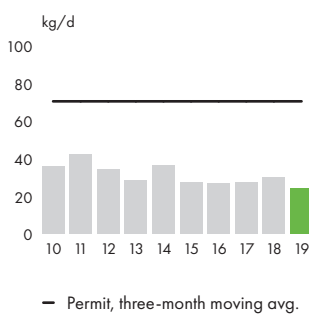
Biological oxygen demand, BOD₇



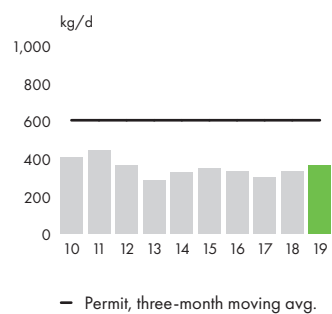
Chemical oxygen demand, COD_{Cr}



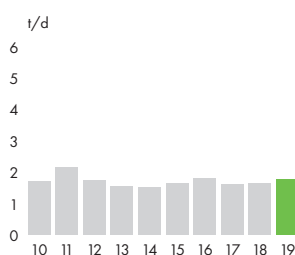
Phosphorus, P



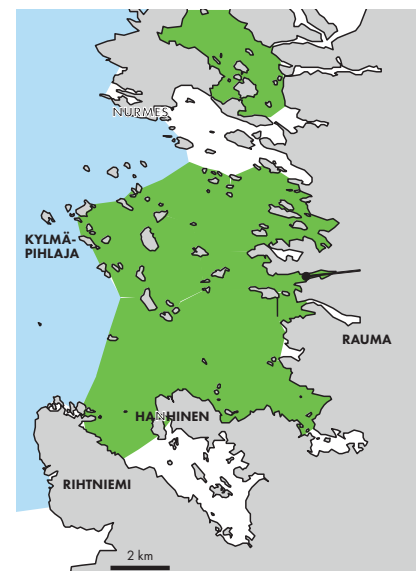
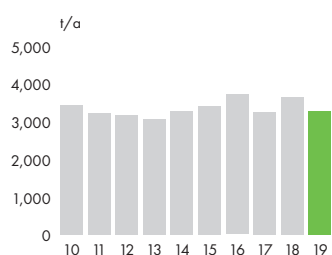
Nitrogen, N



Suspended solids into the sea



COD load into the sea, UPM's share



- Excellent
- Good
- Satisfactory
- Passable
- Poor

The general usability of the Rauma sea area in 2019.

The classification is based on the phosphorus and chlorophyll content and the amount of E. coli bacteria in the production layer between June and September. The classification was determined based on the weakest quantity.

Source: Lounis-Suomen vesi- ja ympäristötekniikka Oy

Social responsibility

Well-functioning dialogue with stakeholders is key to our success. We are committed to promoting the vitality of the communities in the vicinity of our facilities through active collaboration and open dialogue with different stakeholders, as well as through different sponsorship projects and employee volunteering.

We create economic well-being

We impact local communities and societies in various ways. Understanding the impact that we have is an essential component of our business success. In many locations, we are a significant employer, taxpayer and partner to local entrepreneurs, making positive contributions to the local economy. UPM Communication Papers Oy has a significant employment effect in the Rauma area, and the mill's employment impact is equivalent to 630 people. We apply several precautionary measures to mitigate and remedy potential adverse environmental and social impacts on our surrounding communities.

Tax revenue generated by UPM's business operations is an essential part of our social impact. UPM pays corporate income taxes in the countries where we create added value and generate profit. Due to our corporate and operational structure, we mainly report and pay our corporate income taxes in the countries of production and in the countries where innovations are being developed. In addition to the taxes we pay on income, our various production inputs and outputs are also subject to taxation. Taxes are paid in accordance with the local tax legislation and regulations of the country in question.

In 2019, UPM (Group) paid approximately EUR 211 million (EUR 283 million in 2018) in total in corporate income taxes and real estate taxes.

The mills' operations also benefit local communities in many ways. Real estate taxes and the municipal share of corporate income taxes paid by UPM support the local economy. In addition, the taxes and social security contributions that UPM employees pay on their wages have a significant local impact. Furthermore, the purchasing power of UPM employees and subcontractors maintains and enhances the vitality of local communities.

We support sustainable development and promote the financial and psychological well-being of the communities around us by participating in numerous community projects as a company. Our work in this arena is clearly connected to our Biofore Strategy and responsibility targets. It is co-ordinated under the umbrella of our Biofore Share and Care programme.

The Biofore Share and Care programme comprises three forms of support: sponsorships, donations and employee volunteering. The support can be a monetary contribution, products, materials or concrete work in projects agreed on locally. The Rauma mill has supported local sports clubs financially. Local sponsorship projects comprise target-oriented, long-term involvement in the communities where UPM operates.

Our focus is on activities and projects that are relevant to our business, support innovation and sustainability, or promote local vitality and well-being. The four focus areas of the Biofore Share and Care programme are reading and learning, engaging with communities, responsible water use and boosting bioinnovations.

Responsible sourcing

UPM is committed to responsible sourcing practices throughout the supply chain. We work closely with our suppliers to ensure that they understand and meet all of the company's requirements for sustainability and responsibility.

We require all suppliers to uphold the UPM Supplier and Third Party Code, which lays out our minimum requirements for corporate responsibility relating to 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 qualified against UPM Supplier and Third Party Code by 2030 (Qualified spend). In 2019, 94% of UPM's raw material spend and 84% of all spend was qualified against the UPM Supplier and Third Party Code.

Suppliers' environmental and social performance is tracked through regular data collection and analysis. Based on the annual risk assessments, we select the suppliers whose performance we want to study more closely. If any non-conformity is found, the supplier is obligated to take corrective actions. We actively keep track of the results of these actions and are ready to support our suppliers with our knowledge in order to help them enhance their performance.

We want to be the industry leader in safety

Our goal at UPM is to be the industry leader in occupational health and safety. Our target is zero serious and fatal accidents. Safety is fully integrated into our daily activities and is not seen as secondary to any other consideration. We strive to reduce and eliminate accidents under our control through continuous improvement and effective risk management.

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 that we have established.

Before accessing UPM production sites, contractors participate in UPM safety training, which presents and demonstrates the basic safety requirements. This is complemented by job-specific safety inductions and work permits.

We are committed to the surrounding society

The Rauma mill operates closely with society. UPM Communication Papers Oy supplies the raw water for the city and forest industry. The wastewater co-treatment plant simultaneously purifies the wastewaters of both the forest industry and the community. The operation started in 2002, and the results have been completely positive. The Rauma production facility for the meat company HKScan became operational at the end of 2017, and since then, its wastewaters have also been purified at the co-treatment plant as planned.



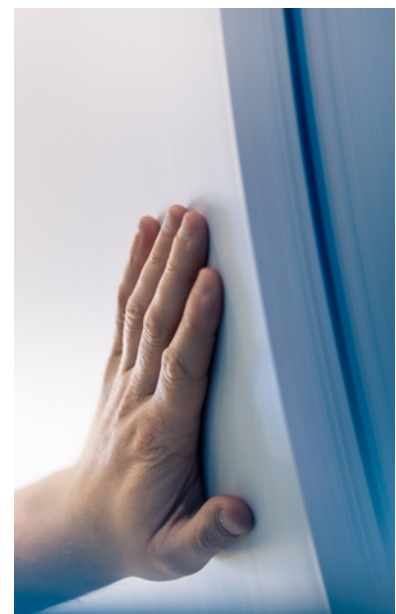
Rauman Biovoima provides the paper mill with all of the process steam needed and, in practice, all of the district heating power used by the city of Rauma. More than 88% of the fuel used for producing energy is entirely bio-based.

The deepening of the southern Rauma channel started in 2016. The work included dredging, spoil depositing and safety device alteration work related to the channel markings. This project is the Finnish Transport Agency's first sea-way project where all of the clean dredge spoils were deposited in a dredge-spoil basin built in connection with the project. Contaminated soils were deposited in a separate dredge-spoil basin in Sampaanalanlahti, an area owned by UPM Communication Papers Oy, where they were stabilised to form part of the field base.

In 2019, the mill's total wood usage was 1.10 million cubic metres, which mainly came from the adjacent areas.

Active preventive safety work

With regard to occupational safety, two minor lost time accidents happened to UPM personnel at the mill site in 2019. The activity level for the preventive safety work conducted was good. Personnel reported a total of 1,557 safety observations and hazardous situations. In addition, 1,152 safety discussions and rounds were conducted. The personnel were largely very active. In 2019, we organised personnel training on crisis communication and carried out evacuation drills.



Management of crises and exceptional situations

Prevention of exceptional situations and management of crises at the Rauma mill is the responsibility of the mill management, safety and environmental organisation as well as the fire-fighting and mill safety organisation. Both guidelines for exceptional situations and rescue and fire extinguishing plans have been prepared for the Rauma mill.

A crisis management group has been established for the management of exceptional situations, who is responsible for the operative management of excep-

tional situations. The crisis management group is led by the general manager and they have two deputies. In addition, members have been appointed to the crisis management group from different parts of the mill organisation.

An exceptional situation refers to an unforeseen chain of events that has a powerful impact on the functions of the organisation and escalates quickly. Exceptional situations include serious accidents (large fires, explosions and chemical and traffic accidents on the

mill site), environmental damage, serious work-related injuries, cyber security threats and information attacks. The operations of the mill safety organisation cover expert duties in occupational safety, mill guarding, firefighting and rescue operations, and the control of hazardous substances. Drills related to exceptional situations are an important part of preventive safety work. Firefighting and rescue operations are always led by the rescue authorities.

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.

		2017	2018	2019
Production capacity	Paper	960,000 t	940,000 t	935,000 t
	Rauma Cell	150,000 t	150,000 t	100,000 t
Raw materials	Pulp and chemicals	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Energy	Biomass-based fuels	79%	86%	88%
	Fossil fuels	21%	14%	12%
	Purchased electricity (UPM) ¹⁾			
Emissions to air	Particulates	3 t	4 t	6 t
	Sulphur dioxide, SO ₂	108 t	139 t	117 t
	Nitrogen oxides, NO _x	207 t	232 t	172 t
	Fossil, CO ₂	54,490 t	62,477 t	55,687 t
Water intake	Process and cooling water	14,054,555 m ³	16,487,690 m ³	13,752,283 m ³
Discharges to water	Clean cooling water and rainwater in the area	507,410 m ³	175,314 m ³	247,363 m ³
	Process effluent	12,187,869 m ³	13,167,883 m ³	12,947,778 m ³
	Biological oxygen demand, BOD ₇	86 t	92 t	91 t
	Chemical oxygen demand, COD _{cr}	3,244 t	3,630 t	3,256 t
	Solids	210 t	221 t	233 t
	Phosphorus, P	3.6 t	4.1 t	3.2 t
	Nitrogen, N	39 t	45 t	48 t
Waste²⁾	Landfill waste	³⁾	0 t	0 t
	Recycled waste			
	– Ash		17,802 t	14,275 t
	– Metal, electronic waste, etc.		1,212 t	694 t
	– Energy waste		669 t	572 t
	– Recycled fibre, etc.		615 t	689 t
– Others		121 t	50 t	
	Hazardous waste		31 t	64 t
Size of mill area		216 ha	216 ha	216 ha
Includes landfills maintained by the mill				

¹⁾ See UPM Corporate Environmental and Social Responsibility Statement for more information (e.g. energy indicators)

²⁾ Waste amounts given as dry weight

³⁾ Reporting of waste data was changed in 2018



Performance against targets in 2019

TARGET	ACHIEVEMENT	COMMENTS
Preventing environmental non-compliance and achieving the "Clean Run" objectives	Yes	No permit limits exceeded
Solids loss from paper machines was less than 1.41% for the treatment plant	Partially	Achieved rate 2.25% Test run operations in order to reduce solids losses have been launched
Paper-machine water consumption was less than 11.6 m ³ /t	Partially	Changes were implemented to connections to reduce water consumption
Further improvement of energy efficiency	No	Energy efficiency decreased slightly compared to 2018
Ash re-use rate over 100%	Yes	

Targets for 2020

TARGET
Preventing environmental non-compliances and achieving the "Clean Run" objectives by ensuring disturbance-free operation of the wastewater treatment plant
Reducing water consumption and solids loss by implementing changes to water connections on the paper machine <ul style="list-style-type: none"> - water consumption less than 11.7 m³/t - solids loss less than 1.45% of production
Further improving energy efficiency by identifying and implementing energy-saving measures
100% reuse of ash by using ash in the construction of storage areas



Revalidation statement

As an accredited environmental verifier (FI-V-0001), Inspecta Sertifiointi Oy has examined the environmental management system and updated UPM Rauma Environmental and Societal Responsibility 2019 report as well as the information concerning UPM Rauma in the Updated UPM Corporate Environmental Statement 2019.

On the basis of this examination, the environmental verifier has herewith confirmed on 2020-04-02 that the environmental management system, the updated UPM Rauma Environmental and Societal Responsibility report and the information concerning UPM Rauma in the Updated UPM Corporate Environmental Statement are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.

We reduce the world's reliance on fossil-based materials by developing renewable and responsible products and solutions in all our businesses. **UPM Biofore – Beyond fossils.**



www.upm.com

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Rauma**

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