

UPM Schongau

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2018



UPM Schongau

UPM Schongau is sited on a bend on the Lech river in the Southern German town of Schongau.

The site was founded in 1887. In 1962, one of the world's first flotation deinking systems went on line in Schongau. This processing technology was a major breakthrough for the recycling of used graphic paper into new printing paper.

Today, UPM Schongau produces printing paper in reels for newspapers, newspaper supplements, advertisers, brochures, magazines and catalogues on three paper machines. Recovered paper is in terms of volume the most important raw material at the site. Other raw materials used include sawmill residues and pigments as fillers. Pigments are partly made on the premises by the local supplier SMI.

The mill's energy generation plants were modernised. Power and steam are generated in combined heat and power plants. The existing power plants were complemented with a modern, highly efficient gas and steam turbine, increasing the mill's share of self-generated electricity.

A small part of the power consumption is covered with hydropower.

The wastewater from the production process is treated in the on-site effluent treatment plan



UPM Schongau Environmental and Societal Responsibility 2018 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 2018. 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 UPM Corporate Environmental and Societal Responsibility Statement and also this supplement will be published in 2020.

We deliver 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. We employ around 19,000 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

Production capacity	Up to 740,000 tonnes per annum
Personnel	579 (total heads as at 31 December 2018)
Products	Standard and improved newsprint as well as supercalendered uncoated paper: UPM Brite UPM News UPM ReCat UPM Eco UPM EcoPrime UPM EcoBasic UPM Book
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System ISO 50001 – Energy Management System OHSAS 18001 – Occupational Health and Safety 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 CertificateFinder (available at www.upm.com/responsibility)
Environmental labels	EU Ecolabel for all paper grades Blue Angel (RAL-UZ 14 or 72) for UPM News, UPM Eco H/G, UPM ReCat and UPM EcoBasic



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



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



EU Ecolabel : FI/011/001



www.blauer-engel.de/uz72

Review of year 2018

Environmental protection has been an important topic at the Schongau site for many years. The continuous reduction of energy and water requirements, a high raw material yield for waste reduction and the use of environmentally compatible chemical additives in the production process are the focus areas of the continuous improvement process, which has been steered by management systems for the environment, quality, energy and occupational safety since the plant has been certified in accordance with international standards.

As a company of the Finnish UPM Group, we acknowledge our responsibility towards the environment and are committed to minimising the impacts of our operations on the environment and our employees.

Production and environment

As one of the first paper recyclers in Germany, we have been contributing to a circular economy for more than 40 years.

We support sustainable forestry when purchasing wood chips for fresh fibre production by working according to the PEFC and FSC Standards

Environmental performance

We are reporting on our environmental performance in a Group-wide database. Here, deviations are recorded according to predefined categories, from 1 (not significant) to 5 (serious environmental damage). As in previous years, there were no deviations in 2018 with off-site effects (Cat. 3 or higher).

In accordance with the specifications of our integrated management system for quality, environment, energy and

occupational safety, we evaluate environmental impact through internal and external audits.

Papermaking is very energy-intensive process. This is why we have made great efforts in recent years to improve the mill's energy efficiency.

In spite of several measures to save electricity (optimisation of pumps and agitators), specific electricity consumption increased in 2018, mainly as a result of higher fresh fibre production.

Lower efficiency of the production plants led to higher specific steam consumption, which could not be offset by several steam-saving projects.

The amount of specific wastes and by-products was further reduced.

Boiler ash was used as a product for the most part. Applications include use as a soil stabiliser, as an additive for construction materials and as a replacement for soda lye in our own production plants.

Another recovery option for ash was developed in co-operation with a filler

supplier. Ash products shall be used in future to replace part of the burnt lime necessary for making calcium carbonate.

A catalytic converter was installed in the CHP plant in order to reduce the amount of formaldehyde in the flue gas. In order to ensure a safe and stable operation of the effluent treatment plant, further steps were taken to reduce chemical consumption, homogenise effluent volume and coordinating the production programme accordingly.

In 2018, one complaint was received for paper debris in the street, one for noise pollution and one for odour nuisance.

As a fire prevention measure, nine fire drills were held to teach a total of 475 participants the correct handling of the fire extinguishers.

Both our own employees and employees of contractors are trained annually in the handling of chemicals. The risk assessments for chemicals were revised.

Wolfgang Ohnesorg
General Manager

Ute Soller,
Manager OHS/Environment/Management Systems

Martin Heinrich,
Management System Representative

Responsibility figures 2018

Water



Specific load of organic matter in cleaned wastewater (tonne COD per tonne of paper) was reduced by

9%

from 2009–2018

Specific load of nitrogen in cleaned wastewater (tonne nitrogen per tonne of paper) was reduced by

25%

from 2009–2018

Air



Specific emissions of nitrogen oxides from power plant have been reduced by

45%

from 2009–2018



Energy

Specific power consumption (kWh per tonne of paper) was reduced by

2%

from 2009–2018

District heating to city of Schongau was increased by

11%

from 2009–2018

Safety



Number of accidents with lost time have been reduced by

75%

(4 in 2009, 1 in 2018)

In 2017 our employees conducted

857

Safety walks.

Certified fibre



The share of wood chips from sustainable, certified forests (PEFC + FSC) was

68%

in 2018

76%

share of recycling fibers in the produced papers.

Health



Participation in health trainings

1.547

participant hours 2018

Employment



Currently

26

apprentices at UPM Schongau site
8 paper technologists
7 automation electronics technicians
7 industrial mechanics

Air



In 2018, airborne emissions remained largely constant on a low level. Energy generated from the incineration of process residue and used wood reduced our natural gas usage. The high proportion of mostly renewable fuels contributes to cutting fossil CO₂ emissions.

The mean emission concentrations of nitrogen oxides and particulates from our fluidised bed boiler are clear below the limits.

In the emissions from the fluidised bed boiler, there were two deviations from half hourly mean value permit limits (2 x CO-carbon monoxide), which were mainly caused by disruptions of solid fuel supply. However, the half-hourly mean value concentrations were in line with the permit limits for 99.99% of the time.

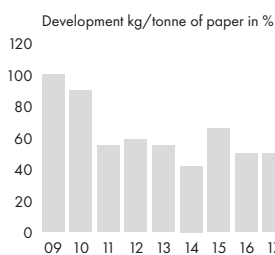
EMISSIONS FROM THE COMBINED HEAT AND POWER PLANT 2018

	Limit value (mg/Nm ³)	Mean value of measurements (mg/Nm ³)
Fluidised bed boiler/Continuous measurement		
CO	50	17
Particulate matter	5	1.6
SO ₂	50	2.1
NO _x	150	118
Hg _{tot}	0.03	0.002
HCl	10	1.34
Fluidised bed boiler/One-time measurement		
C _{tot}	10	n.d
HF	1	n.d
Cd,Tl	0.05	n.d
Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, Sn	0.5	0.008
PCDD/F	0.1 ng/Nm ³	0.004 (ng/m ³ Ntr)
Gas-powerplant/Continuous measurement		
CO ⁽¹⁾	100–50	20
NO _x ⁽¹⁾	75–100	31

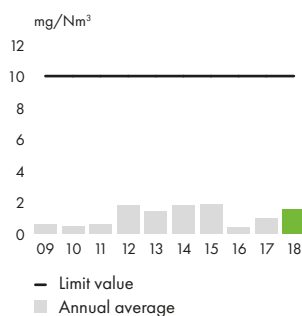
n.d. = not detectable

⁽¹⁾ The gas-powerplant has different values according to operating mode. The first value is valid for the gasturbine, the second value for the recovery boiler. When both are in operation a mixed calculation is done.

Nitrogen oxides, NO_x



Particulates



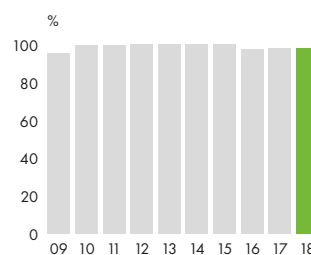
Waste



UPM Schongau's fluidised bed boiler is operating on solid fuels. The major part of the ash (82,087 t) resulting from the energy generation process is classified as ash product (in accordance with the German Closed Cycle Management Act) and used for construction materials and in the cement industry. However, the recovery rate is subject to seasonal cyclical fluctuations and thus, in 2018, 99.6% of the ash was used as a product and 0.4% was re-used, but as waste. Furthermore, also sawdust (3,391 t) is classified as side-product which is 100% re-used. In 2018, the recycling rate for non-hazardous waste and side-products was 98%. For part of the bed ash from the combined heat and power plant no recycling options could be identified. The majority of hazardous waste is bag filter ash from the combined heat and power plant.

Recovery rate

(non hazardous waste and side-products)



Water



A considerable amount of water from the Lech river is required to cool power stations, steam turbines, production machinery and heat recovery systems. Cooling water is not contaminated during use and can be discharged back directly into the river. The heat discharged into the river is continuously monitored. The process water used in paper production is bank filtrate from the Lech river. Only a fraction of the water is discharged as wastewater after it has been recycled within the process several times.

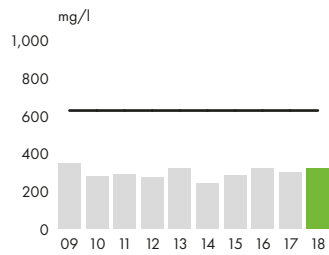
The capacity of the on-site multi-stage effluent treatment plant corresponds to that of a treatment plant for 420,000 people.

Effluents are first cleaned in a chemical-mechanical treatment stage and then in an anaerobic IC reactor. Finally, they are treated aerobically in an activated sludge tank and a clarifier tank.

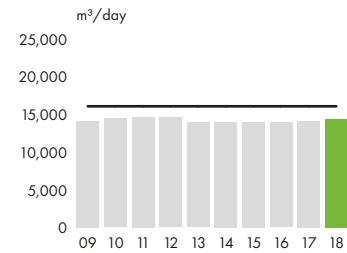
The quality of the treated effluents is continuously monitored, both internally and by the authorities in charge.

The nitrogen limit value in the effluent of the wastewater treatment plant was exceeded once on 01.01.18 after a production shutdown. All other limit values were complied with.

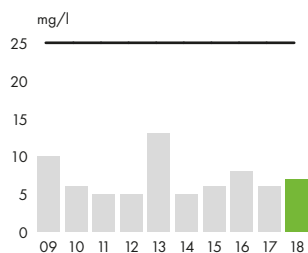
Chemical oxygen demand, COD



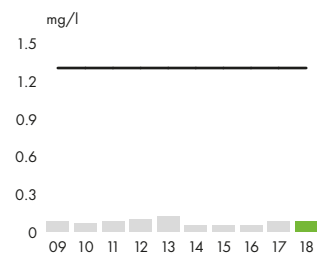
Effluent volume



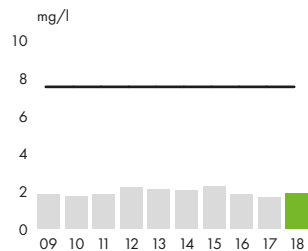
Biological oxygen demand, BOD₅



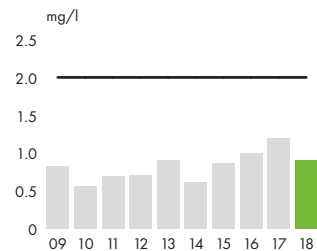
Adsorbable organic halogen compounds, AOX



Nitrogen (inorganic), N



Phosphorus, P



— Limit value
■ Annual average

Organisational structure and emergency organisation

Operators in charge are appointed for environmentally relevant production plants and ancillary facilities. As required by law, appointed officers advise the mill management and the specialist departments in the following areas: immission control, water protection, waste, hazardous goods, radiation protection and internal rail operations. In addition,

there are designated representatives responsible for the integrated management system (quality, environment, energy) and for occupational safety, fire protection and data protection. Comprehensive emergency plans have been defined for emergencies of all kinds, such as fire, industrial accidents and environmental incidents. From aler-

ting to immediate action and follow-up, there are guidelines to minimise the effects of an emergency as far as possible. At the emergency center (factory gate), detailed flow charts are available for different types of emergencies. For emergencies of a larger scale, there is an emergency staff who decides on any further action to be taken.

Social responsibility

Well-functioning stakeholder dialogue is a key component for success for UPM. We are committed to developing the vitality of the communities close to our operations through active co-operation and open dialogue with various stakeholders as well as, for example, through sponsorships and employee volunteering.

We impact local communities and societies in many 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. We apply several precautionary measures to mitigate and remedy potential negative environmental and social impacts on our surrounding communities.

Occupational safety

At UPM, we aim to be the industry leader in occupational health and safety. Our clear goal is zero fatal and serious accidents.

We are working to reduce or eliminate accidents in our sphere of influence through continuous improvement and effective risk management.

Before entering any of UPM's production sites, contractors must attend a UPM safety training course that introduces and explains general safety measures. In addition, depending on the task to be performed, there are also special safety instructions and work permits.

Overall, the accident frequency (number of accidents with at least one lost day per one million working hours) decreased from 6.9 in 2012 to 1.2 in 2018. However, we have not yet reached our goal. We will continue to work towards reducing our accident frequency rate and completely avoid serious accidents.

Occupational healthcare

We spend a large portion of our lives at the workplace, whose conditions can affect our health positively or negatively. Therefore, we want to create a work environment that is conducive to our employees' good health and to deepen their health awareness to promote and maintain their job satisfaction and motivation.

We have therefore implemented a corporate health management scheme comprising a variety of offers:

- We implemented a bicycle leasing system to which many employees have signed up
- There are weekly back training, aqua gymnastics and yoga classes
- A workplace health day was held where we offered eye screening and introduced a colon cancer prevention programme
- Psychological risk assessments were carried out to find out how the employees' health is impacted by their work duties.

Community involvement

UPM Schongau supports associations, kindergartens and schools as well as sporting and cultural events, making it a reliable partner in the region. Last year, the Schongau paper mill again supported numerous local projects: From major sporting events, such as the Schongau Triathlon, to the annual medieval market, where interested visitors could make paper just like 100 years ago.

As part of the Schongau summer holiday programme, UPM Schongau offered a discovery tour of the paper mill for children between 10 and 17 years of age. The boys and girls learned how paper is made and were then able to admire the large machines on site. During the guided tour of the mill and the subsequent snack in the

canteen, the children asked thoughtful questions. At the end, each child received a small present as a memory of this interesting day.

Since 2018, UPM Schongau has been involved in the Natura 2000 species protection programme "Lebensraum Lechtal" with approximately 2 hectares. This measure serves to protect endangered animal and plant species that occur in this area and to restore the biotope network along the Lech and is part of a long-term concept for the eco-logical upgrading of this area. Grass and bushes will be kept short by grazing cows, enabling weakly competitive plants such as gentian, oxeye and lady's slipper to thrive.





Cooperation with schools and education

At the Schongau site, we are currently training automation electronics technicians, industrial technicians and paper technologists. These careers were presented at professional education fairs in Peiting, Weilheim and Schongau, as well as during mill tours for schools from the local district. At the hAMMERsound

festival in Peißenberg, the Schongau mill's apprentices promoted UPM's vocational training offering to young festival visitors. At the UPM stand, the trainees provided information about the training opportunities. In addition to a competition, UPM also offered a game of skill in which also the District Administrator tried her hand.



Photo: H. Verbeek

As "landscape conservationists on four legs" these cows help to preserve the sparse forest in the Sperberau near Birkland as a habitat for endangered species such as orchids and butterflies.

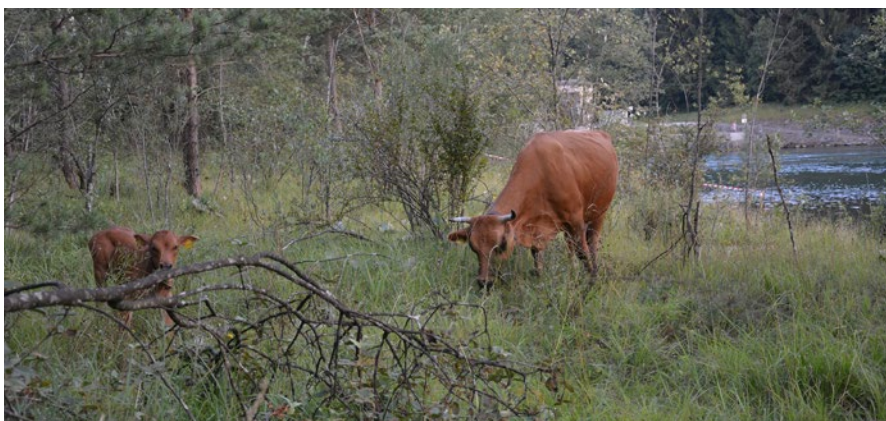


Photo: S. Jüstl

Environmental parameters 2018

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.

Production capacity	Paper	Up to 740,000 t (3 paper machines)
Raw materials and additives	Recovered paper Wood chips Process chemicals Operating supplies	See UPM Corporate Environmental and Societal Responsibility Statement for more information
Energy	Renewable fuels Fossil fuels Purchased power Hydropower	27% 73% See UPM Corporate Environmental and Societal Responsibility Statement for more information
Emissions to air	Carbon dioxide, CO ₂ (fossil) ** Nitrogen oxides, NO _x Sulphur dioxide, SO ₂ Particulates Carbon monoxide, CO	276,453 t 187 t 1.2 t 3.9 t 60 t
Water intake	Process, cooling and drinking water – of which cooling water – of which drinking water	28,100,124 m ³ 22,161,331 m ³ 22,617 m ³
Discharges to water	Effluent volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P Nitrogen (inorganic), N Adsorbable organic halogen compounds, AOX	5,217,390 m ³ 1,667 t 36 t 5 t 7 t 0.4 t
Waste and side-products*	Side-products – ash – sawdust Waste for recycling – fluidised bed sand – metal – construction waste – paper + board – other Waste disposal – fluidised bed sand Hazardous waste Recovery rate	82,087 t 3,391 t 2,890 t 1,148 t 199 t 314 t 230 t 1,389 t 1,535 t 98%
Size of mill area	Built on or sealed	35 ha

* incl. moisture

** The combined power plant is operated depending upon the cost of electricity and feeds the gen-erated power into the public grid. The mill's electricity requirements are largely covered with power from the public grid. The CO₂ emissions reported for UPM Schongau are the actual fossil CO₂ emissions from the site, excluding flows of electricity.



Performance against targets in 2018

TARGET	TARGET ACHIEVED?
1 Energy – Start-up of TMP (wood chips) after rebuild on 30.12.17 to reduce specific power consumption per tonne of TMP by 2.3% – Create concept to save process steam by heat recovery – Reduce condensation steam in power plant 3 by 2%	– Target achieved. Specific energy consumption per tonne of TMP reduced by 5.1% – Target achieved. Three measures implemented within the framework of the concept. Working group “heat” continues. – Target achieved. NDU portion of condensation steam reduced by 40% on average
2 Water Maintain voluntarily reduced (control value by 20%) COD concentration discharged from the treatment plant to the river for the whole year	Yes, target achieved
3 Waste Reduce losses from secondary flotation by 0.3% (precondition invest approved).	Target not achieved. “Cascade” project implemented successfully. Yield not increased due to very bad quality of incoming recovered paper.
4 Air emissions Project to reduce formaldehyde emissions from block heat and power plant.	Target achieved. Formaldehyde limit value (30 mg/Nm ³) complied with at all times.
5 Environmental incidents – Clean Run category 3, 4 and 5 Cut in half the number of incidents (2017: 4; 2018: 2). Analyse incidents from last years, define and train measures for waste water treatment and power plant	Yes, target achieved

Explanation: Environmental incidents are reported on Group level as so-called “CleanRun” incidents in a database. Here, deviations are recorded according to defined categories, from 1 (insignificant) to 5 (serious environmental damage).

Targets for 2019

TARGETS AND MEASURES	DEADLINE	DEPARTMENT RESPONSIBLE
1 Energy Develop additional concepts for efficient use of waste heat to cover the mill’s heat requirements	31.12.2019	Manager Process development
2 Water 2019 product range (MaxS, ReCat, book papers) with high bleaching requirements will increase incoming load in the inlet to the treatment plant – stable operation and good treatment performance required to reduce COD by 20% throughout the year (COD concentration in comparison with limit value)	31.12.2019	Manager Effluent treatment plant
3 Waste Replace part of the burnt lime used for making calcium carbonate by ash product. Recover Elurit as a filler with 3,500 t/a of Elurit	31.12.2019	Manager Deinking plant
4 Air emissions Reduce air emissions by having BCTMP and wood pulp delivered by rail – possible through increase of storage capacity of PM 8 building (2018: 24 lorries)	31.12.2019	Manager logistics
5 Environmental incidents – Clean Run category 3, 4 and 5 Cut in half the number of incidents (2019: 1)	31.12.2019	Manager Effluent treatment and Power Plant



Environmental verifier’s declaration on verification and validation activities

Environmental verifier, Astrid Günther (DE-V-0357), acting for TÜV NORD CERT Umweltgutachter GmbH, licensed for the scope NACE Code 17.12 (papermaking), declares to have verified whether the site UPM GmbH, Schongau mill, Friedrich-Haindl-Strasse 10, 86956 Schongau, Germany, as indicated in the Environmental Statement 2018 of the mentioned site (registration no. FI-000058), meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS).

By signing this declaration, I declare that:
 – the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,
 – the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
 – the data and information of the Environmental Statement 2018 of UPM

GmbH, Schongau mill, reflect a reliable, credible and correct image of all the activities of UPM GmbH, Schongau mill, within the scope mentioned in the Environmental Statement 2018.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Essen, 17.04.2019

Astrid Günther
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 Environmental verifier
 DE-V-0357
 TÜV NORD CERT Umweltgutachter GmbH



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