

WE LEAD.
WE LEARN.



UPM, KAJAANI
ENVIRONMENTAL PERFORMANCE IN 2007

UPM, Kajaani

Production capacity

- 640,000 tonnes of paper

Personnel

- 575

Products

- Uncoated magazine paper

UPM Smart

UPM Cat

UPM Lux

- Standard and improved newsprint

UPM Brite

UPM News

Certificates

- Quality Management System ISO 9001
- Environmental Management System ISO 14001
- Occupational Health and Safety Management System OHSAS 18001
- EMAS Eco Management and Audit Scheme
- Chain-of-Custody Standard PEFC (Programme for the Endorsement of Forest Certification schemes)



Promoting sustainable forest management
For further information,
please contact:
www.pefc.org

- UPM Smart, UPM Cat, UPM Lux and UPM Brite paper grades have the right to use the European Eco-label



UPM in Kajaani

UPM's Kajaani mill is located near the centre of the city of Kajaani in the Tihisenniemi industrial area. The paper machines produce uncoated magazine paper and standard and improved newsprint. The end uses of paper manufactured in Kajaani include magazines, newspapers, newspaper inserts, catalogues and various advertising materials.

The mill has three paper machine lines, a debarking plant, two grinders, two TMP plants and a biological effluent treatment plant. Also located on the mill site are the UPM Kajaani sawmill, as well as the UPM Forest Kajaani district and Kainuun Voima Oy's power plant, jointly owned by UPM and the city of Kajaani.

The Kajaani mill has its own landfill for industrial waste in Parkinmäki. It is also used by Kainuun Voima Oy and the UPM Kajaani sawmill, which operate in the Tihisenniemi industrial area.

Looking after the environment is part of everyday work at the mill. The products, production processes and activities of the mill are developed with the aim of minimising environmental impacts.



This publication, UPM, Kajaani Environmental Performance in 2007, together with the joint Environmental Report of the UPM pulp and paper mills forms the mills' environmental statement. The Environmental Report of the UPM pulp and paper mills is available at www.upm-kymmene.com. The Kajaani mill's next environmental supplement will be published in the spring of 2009.

Environmental objectives and achievements in 2007

The Kajaani paper mill set an all-time production record for the second year running in 2007. Despite the increase in production, the mill's discharges to water remained within the permitted limits and effluent treatment was effective. The paper mill received a new environmental permit decision in May 2006, but UPM has appealed against three permit conditions to the Vaasa Administrative Court. The new permit is not legally valid yet.

An expansion of the paper mill industrial landfill of Parkinmäki was completed and opened in early November. Closing and landscaping work continued at the old landfill site. The structures of the old and the new landfill contain as much recycled material as possible. Compressed sludge, i.e. fibre clay from the effluent treatment plant has been used for years in the structures of the mill's own landfill. Fibre clay was also used in the closing structures of the Majasaarenkangas landfill owned by the city of Kajaani.

Specification of the information system for the paper mill's wood handling, water station and biological effluent treatment plant was started in 2007. An additional compressor was installed to enhance oxidation during the treatment process. Energy efficiency was improved by changing the grinding degree of the mechanical pulp and by installing inverter controls. The set energy efficiency target was achieved.

Improved newsprint and magazine papers produced at UPM Kajaani mill were awarded the European Eco-label. The EU label does not cover standard newsprint.

The mill received one environmental query during the year, concerning the giant hogweeds growing at the Parkinmäki landfill. The plants that grow on the old landfill site will be covered as the landscaping of the site proceeds.

The Kajaani mill celebrated 100 years of operation in 2007. The paper mill has long traditions and innovative know-how. In 2008, the mill will start trial runs on using pine as a fibre raw material in papermaking. A new, innovative method enables the use of pine fibre in mechanical pulp processing.



Kati Ruohomäki
Environmental and Energy Manager

Jarmo Torvinen
Technical Director



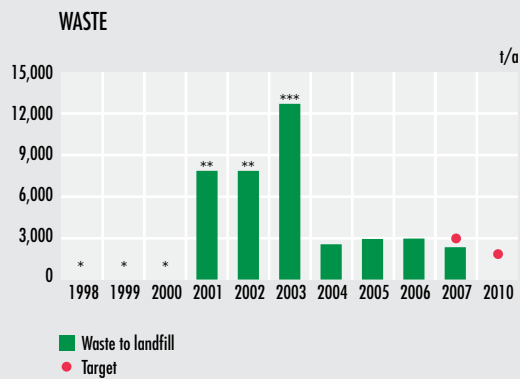
Air

Air emissions are stated in the material balance (p. 6), i.e. the paper mill's share of Kainuun Voima Oy's emissions.

Waste

Approximately 92% of the waste produced by the paper mill was utilised. For example, all of the compressed fibre clay sludge from the biological effluent treatment plant and the ash from Kainuun Voima Oy's power plant was used in the construction of the mill's landfill site and the city of Kajaani's landfill site. The total waste amount in relation to production was 45 kg/tonne of paper. The slight increase from the previous year (38 kg/tonne of paper) was caused by the increase in fibre clay sludge. The amount of landfill waste from the paper mill was 2,100 dry tonnes, clearly below the targeted amount of 3,000 tonnes.

As per the environmental permit, the use of the old industrial landfill of Parkinmäki was stopped and the new landfill was opened in early November. The closing of the old landfill site got under way as the biogas station was deployed and the water pipe network constructed. The biogas was burned in a furnace toward the end of the year. UPM has signed a preliminary agreement with a local greenhouse entrepreneur on utilising biogas in heating the greenhouses. Utilisation can start once the appropriate tight sealing layers have been constructed.



* No comparable data.

** Also includes demolition waste.

*** Due to a generator failure at the Kainuun Voima plant, combustible waste had to be taken to landfill for a period of several months.



Water

The mill's effluent treatment was effective. The effluent loads of COD and total phosphorus were clearly below environmental permit limits. The amount of process water as specific consumption was below the target and at the level of the Best Available Techniques (BAT) defined by the EU.

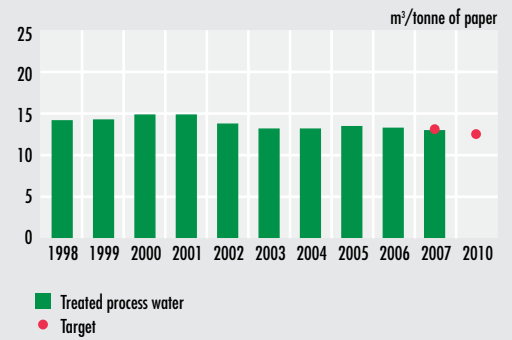
The mill aimed to keep the volume of water directed to the effluent treatment plant below 24,000 m³/d so that the effluent treatment process works as evenly as possible. The aim was largely met, i.e. during 90% of operational days. The occasional exceeding of the target limit did not affect the effluent treatment results.

The share of inorganic material in the aeration basin had increased in 2006 so the target was to reduce the solids content of the clear filtrate directed to the effluent treatment plant to below 150 mg/l by the end of 2007.

The target was not reached as the average solids content was approximately 170 mg/l. However, this was enough to improve the situation in the aeration basin. Aeration capacity was also improved by introducing one compressor and some aerators.



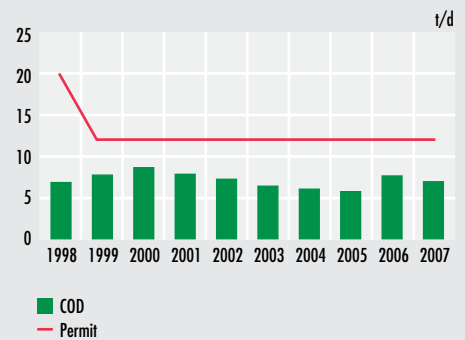
PROCESS WATER CONSUMPTION



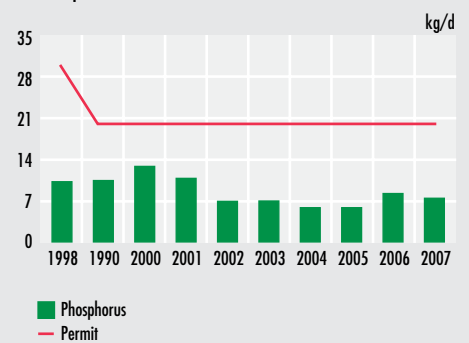
The target value for BAT is 12–20 m³/t

EFFLUENT LOAD

Chemical oxygen demand



Phosphorus



Material balance in 2007

Raw materials

Wood	1,400,000 m ³
Chemical pulp	20,000 t
Fillers	76,000 t

Energy

Electricity	1,500,000 MWh
Purchased heat	400,000 MWh

Water

14,000,000 m³

Emissions into air*

Sulphur dioxide (SO ₂)	140 t
Nitrogen oxides (NO ₂)	120 t
Fossil carbon dioxide (CO ₂)	120,500 t
Dust	35 t

* the paper mill's share of Kainuun Voima Oy's emissions



Main products

Paper 610,000 t

Waste

Reused**	
Fibre clay	16,000 t
Ash	7,200 t***
Energy waste	1,600 t***
Excess soil	800 t
Metal waste	300 t***
Other	1,300 t

to final disposal** process waste 2,200 t***

to separate treatment hazardous waste 80 t***

Discharges to water

Chemical oxygen demand	2,500 t
Phosphorus	3 t
Effluent	7,900,000 m ³
Cooling water	4,100,000 m ³

** waste calculated as dry weight

*** the paper mill's share of Kainuun Voima Oy's waste is included



Environmental focus areas and targets for 2008–2010

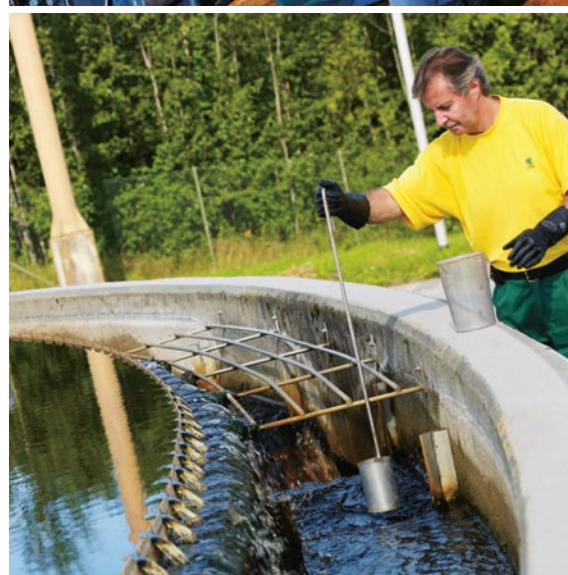
The UPM Kajaani paper mill selects environmental focus areas for development each year. The targets are set so as to ensure that the state of environmental issues improves every year or at least remains unchanged if production increases.

Environmental focus areas for 2008–2010

- Reduction of the amount of treated process water as specific consumption.
Target: The amount of treated process water will be 12.8 m³/tonne of paper in 2008 and 12.5 m³/tonne of paper in 2010.
- Trial run on using pine as a fibre raw material in papermaking.
Target: Environmental impact remains unchanged during the trial run.

Other environmental targets for 2008–2010

- Each monitored parameter will stay below the upper BAT level annually at the mill level.
- Volume of water entering the effluent treatment plant is below 24,000 m³/d every day. This cannot be considered a target for 2008 because PM 4 is not running from March to December 2008 due to markets and the amount of treated water will thus be less than during a normal year.
- Improving energy efficiency so that energy consumption is less than in 2007.
- Reducing the amount of landfill waste by improving the efficiency of sorting and recycling.
- Closing the old landfill site as planned.
- Development areas as required by the new environmental permit.



UPM Kajaani mills' environmental targets for 2007–2010

Environmental targets	Target 2007	Actual 2007	Target 2008	Target 2010
Treated process water, m ³ /tonne of paper	13.1	12.9	12.8	12.5
Amount of treated process water less than 24,000 m ³ per day	100% of days	90% of days	*	100% of days
Energy efficiency, MWh/tonne of paper		Target achieved	Less than the achieved amount in 2007	4% less than the achieved amount in 2007
Waste to landfill, dry tonnes (excluding Kainuun Voima Oy)	3,000	2,100	2,000	1,800

* Due to markets, PM 4 is not running from March to December 2008 so the volume of water will be under 24,000 m³/d each day



EMAS

**Validated
information**

REG.NO. FI-000045

Accredited verifier DNV Certification Oy/Ab (FIN-V-002) has audited the Finnish version of the joint Environmental Report 2007 of the UPM pulp and paper mills as well as the environmental management system of UPM's Kajaani mill and the information for the year 2007. On the basis of the audit, it was stated on 16 April 2008 that the environmental management system and the EMAS report comply with the requirements of the EU's EMAS Regulation (EC) No. 761/2001.

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