Information about EMAS reporting

Scope of the report
This statement forms the corporate part of the environmental statement, which has been verified in accordance with the EU’s Eco-Management and Audit Scheme (EMAS). The following sites are included in the EMAS scope:

– UPM Augsburg
– UPM Caledonian
– UPM Chapelle Darblay
– UPM Docelles
– UPM Ettringen
– UPM Fray Bentos
– UPM Hürth
– UPM Jämsä River Mills
– UPM Kaukas
– UPM Kymi
– UPM Nordland Papier
– UPM Pietarsaari
– UPM Plattling
– UPM Rauma
– UPM Schongau
– UPM Schwedt
– UPM Shotton
– UPM Steyrermühl
– UPM Stracel
– UPM Tervasaari.

Corporate registration number: FI-000058

Information about sites without EMAS registration
The non-European sites UPM Blandin, UPM Changshu and UPM Madison are not EMAS registered. The information concerning these sites has not been assessed or verified.

EMAS reporting at UPM paper and pulp mills
In addition to the corporate part, each mill publishes its own annual supplement with mill-specific information. This UPM Corporate Environmental Statement together with the Environmental Performance reports of each mill of UPM comprise the global EMAS statement of UPM Corporate.

Information within the corporate part concerning the sites mentioned here as well as the information used for calculation of UPM Corporate level EMAS core indicators has been assessed and verified by the respective national EMAS auditor. The final UPM Corporate level EMAS core indicators have been verified by Inspecta Sertifointi Oy, the coordinating auditor of the corporate registration.

The corporate part will be checked and updated annually. The UPM Corporate Environmental Statement with mill supplements are available at www.upm.com. The next global EMAS statement will be published in the spring of 2013.
Contents

Foreword ............................................. 3

UPM in brief ........................................ 4

UPM’s paper and pulp mills .......... 5

Products ..................................... 7

Environmental parameters .............. 8

Environmental targets .................. 10

Environmental management ............. 11

Integrated management system ...... 12

Organisation ................................ 12

Continuous improvement .............. 13

Risk management ................. 13

Environmental communication ....... 13

Manufacture of paper ................. 14

Manufacture of mechanical pulp .... 15

Manufacture of chemical pulp ....... 16

Manufacture of deinked pulp ....... 17

Manufacture of paper .......... 17

Overview ...................................... 18

Raw materials and energy .......... 19

Wood procurement and
forest management ............... 20

Fibre raw materials .......... 21

Pigments and additives .... 22

Energy ..................................... 23

Environmental impacts ............ 24

Impact assessment .............. 25

Water ...................................... 26

Air ........................................... 27

Waste ...................................... 28

Logistics .................................... 29

Appendices ................................. 30

Environmental rules .......... 31

Glossary ................................... 33

Validation statement ............... 34

Contacts ................................... 35
The year 2011 was declared the International Year of Forests by the United Nations to raise awareness and strengthen the sustainable development and management of forests.

At UPM, we marked the International Year of Forests by participating in various industry-wide projects and, more importantly, by making significant advances in our own environmental performance.

Alongside the Myllykoski integration, UPM introduced its group level environmental targets, including sharing best practices in environmental performance. We carried out several studies and assessments with external stakeholders including a Water Footprint study and an Environmental Footprint study. In addition, we introduced a new eco-design concept for our product design processes.

All of UPM’s European pulp and paper mills are now certified in accordance with the EU Eco-Management and Audit Scheme (EMAS). The Fray Bentos pulp mill in Uruguay is the first non-European mill to be included in UPM’s multi-site EMAS corporate registration.

**Long-term focus and commitment**

In addition to the long-term environmental targets for 2020, relevant and measurable key performance indicators have been used to define the framework and prerequisites for UPM’s environmental work. The key areas are: sustainable products, climate, water, forest and waste.

The range of UPM products that carry the EU Ecolabel has increased significantly. In fact, UPM is the largest producer of EU Ecolabel graphic and copying papers.

In 2011, 81 per cent of UPM’s paper was produced using fibre that meets the criteria of either the FSC or the PEFC forest certification schemes.

UPM has continued to invest in renewable energy sources and is now the second-largest biomass-based electricity provider in Europe. Biomass-based fuels make up approximately 80 per cent of the fuels used by UPM in Finland and approximately 63 per cent of those used worldwide.

The scarcity of water resources is one of our environmental concerns for the immediate future. In 2011, UPM examined the scarcity of its water resources using the Water Scarcity Index tool. According to the results, UPM mills are situated in areas where water is abundant and scarcity is not a problem.

In 2011, UPM carried out several projects aimed at improving water management in co-operation with its partners. The Water Footprint study performed at the Nordland paper mill in 2010 was extended to include a water use sustainability assessment. The study was conducted together with the Water Footprint Network.

UPM has worked systematically to increase the amount of certified wood it uses. In 2011, UPM was the first company in Finland to receive certification for compliance with the new FSC standard. UPM’s forests have already been awarded a PEFC certificate.

UPM also actively participated in WWF’s New Generation Plantations Project during 2011.

**Every decision counts**

To further improve the performance of our mills, UPM has started a group-wide Clean Run campaign. As part of the Clean Run campaign, all employees are encouraged to observe, anticipate and act to avoid situations that may lead to any environmental deviation from the normal situation. We believe that every choice counts and can make a difference.

This is the sixth corporate environmental statement published jointly by UPM’s pulp and paper mills worldwide. I hope that it will provide our stakeholders with a comprehensive review of UPM’s environmental work and performance.
UPM is the world’s leading producer of graphic papers

UPM is The Biofore Company and creates value from renewable and recyclable materials.

Our vision is clear: as the frontrunner of the new forest industry, UPM leads the integration of bio and forest industries into a new, sustainable and innovation-driven future. We reshape markets through cost leadership, change readiness and leading innovation.

UPM consists of three Business Groups: Energy and Pulp, Paper and Engineered Materials. In 2011, our sales totalled €10.1 billion. Fibre-based businesses continue to form the foundation of our strategy. Energy-related businesses, high value added materials and new markets will broaden our line of business.

**Paper**
The Paper Business Group offers a wide range of papers including magazine papers and newsprint as well as fine and speciality papers. The customers are mainly publishers and printers as well as merchants and paper converters.

Magazine papers and newsprint are used in magazines, newspapers, newspaper supplements, printed advertising materials and catalogues. Fine paper is used in applications such as direct advertising products, magazines and copier and non-impact printing. UPM’s range of speciality papers includes face and release papers for label materials and various packaging papers.

UPM is the world’s biggest producer of graphic papers. In magazine papers, the company is the world’s leading supplier. UPM’s combined annual paper production capacity is 12.7 million tonnes.

UPM paper is a sustainable choice. In paper production UPM uses mostly bioenergy and nearly one third of fibre raw material is recycled fibre.

**Pulp**
The Pulp business area produces high-quality chemical pulp for the global market. UPM’s annual chemical pulp production capacity is 3.2 million tonnes from four modern and efficient pulp mills in Uruguay and Finland. All pulp mills are more than self-sufficient in energy supply. Sustainable wood sourcing and plantation operations form the basis of UPM’s pulp business.
### Profiles of UPM paper and pulp mills

<table>
<thead>
<tr>
<th>Mill site</th>
<th>Country</th>
<th>Paper machines</th>
<th>Paper grades</th>
<th>Chemical pulp grades</th>
<th>On-site raw material processing</th>
<th>Effluent treatment plant</th>
<th>Power plant and/or boiler</th>
<th>Fuels</th>
<th>Fossil</th>
<th>Renewable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augsburg</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>2</td>
<td>IWC, SC</td>
<td>–</td>
<td>x x municipal</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blandin</td>
<td>USA</td>
<td>– x x x x x x</td>
<td>2</td>
<td>IWC</td>
<td>–</td>
<td>x – municipal</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coledonian</td>
<td>Great Britain</td>
<td>x x x x x x x</td>
<td>1</td>
<td>IWC</td>
<td>–</td>
<td>x – municipal</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changshu</td>
<td>China</td>
<td>– x x x x x x</td>
<td>2</td>
<td>fine (WFC, WFP)</td>
<td>–</td>
<td>– – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapelle Darblay</td>
<td>France</td>
<td>x x x x x x x</td>
<td>2</td>
<td>newsprint</td>
<td>–</td>
<td>– x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docelles</td>
<td>France</td>
<td>x x x x x x x</td>
<td>1</td>
<td>fine (WFU)</td>
<td>–</td>
<td>– – own</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ettringen</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>2</td>
<td>SC</td>
<td>–</td>
<td>– x own</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fray Bentos</td>
<td>Uruguay</td>
<td>x x x x x x x</td>
<td>–</td>
<td>–</td>
<td>hardwood pulp</td>
<td>– – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hurrh</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>1</td>
<td>newsprint</td>
<td>–</td>
<td>– x external</td>
<td>x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jämsä River Mills</td>
<td>Finland</td>
<td>x x 20 x x</td>
<td>7</td>
<td>SC, IWC, MFC, newsprint, label, packaging</td>
<td>–</td>
<td>x x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaukas11</td>
<td>Finland</td>
<td>x x x 20 x x</td>
<td>2</td>
<td>IWC</td>
<td>softwood and hardwood pulp</td>
<td>x – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kymi11</td>
<td>Finland</td>
<td>x x x x x x x</td>
<td>2</td>
<td>fine (WFC, WFP)</td>
<td>softwood and hardwood pulp</td>
<td>– – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Madison</td>
<td>USA</td>
<td>– x – – x x x</td>
<td>1</td>
<td>IWC</td>
<td>–</td>
<td>x – own</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nordland Papier</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>4</td>
<td>fine (WFC, WFP)</td>
<td>–</td>
<td>– – own</td>
<td>x x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pietarsaari11</td>
<td>Finland</td>
<td>x x x x x x x</td>
<td>1</td>
<td>packaging</td>
<td>softwood and hardwood pulp</td>
<td>– – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platting</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>3</td>
<td>SC, IWC</td>
<td>–</td>
<td>x x own</td>
<td>external – x –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rauma</td>
<td>Finland</td>
<td>x x x x x x x</td>
<td>4</td>
<td>IWC, SC</td>
<td>–</td>
<td>x – joint</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schongau</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>3</td>
<td>SC, newsprint</td>
<td>–</td>
<td>x x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schwebt</td>
<td>Germany</td>
<td>x x x x x x x</td>
<td>1</td>
<td>newsprint</td>
<td>–</td>
<td>– x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shotton</td>
<td>Great Britain</td>
<td>x x x 20 x x</td>
<td>2</td>
<td>newsprint</td>
<td>–</td>
<td>– x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steyermüh11</td>
<td>Austria</td>
<td>x x x x x x x</td>
<td>2</td>
<td>SC, newsprint</td>
<td>–</td>
<td>x x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storacel</td>
<td>France</td>
<td>x x x x x x x</td>
<td>1</td>
<td>IWC</td>
<td>–</td>
<td>– x own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tervasaari</td>
<td>Finland</td>
<td>x x x 20 x x</td>
<td>3</td>
<td>packaging, label and envelope</td>
<td>–</td>
<td>x – own</td>
<td>x x x</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Information about other production units on-site in the mill’s supplement.
2) OHSAS system in place, but not certified.
3) Joint with Metsä Fibre’s Rauma mill and Rauma Town.

Note: UPM Myllykoski and UPM Albbrook were closed in December 2011 and in January 2012, respectively. Therefore they are not included in the table.

LWC: light-weight coated paper
SC: supercalendered paper
WFC/WFP: woodfree coated/woodfree uncoated

Numbers of personnel and capacity can be found in the mill supplements (available at www.upm.com).
The main raw material for all UPM’s paper products is wood fibre – a renewable natural resource. Paper can easily be recycled and used again. UPM uses significant amounts of recovered paper as raw material and has invested heavily in the use of recycled fibre in printing paper production.

The choice of raw material used is based on the requirements of the end product. The production of different grades is optimised as much as possible according to the availability of raw materials in close proximity to UPM mills. Fresh wood is a natural raw material for grades made, for example, in Finland, and recycled fibre is used at the central European mills where recovered paper is easily available.

**End uses of UPM Papers**

<table>
<thead>
<tr>
<th>Product group</th>
<th>Examples of end uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazine papers</td>
<td>Magazines, advertising material, catalogues</td>
</tr>
<tr>
<td>Newsprint</td>
<td>Newspapers, newspaper inserts, supplements</td>
</tr>
<tr>
<td>Fine papers</td>
<td>Copying, magazines, books, advertising material</td>
</tr>
<tr>
<td>Speciality papers</td>
<td>Face and release papers for self-adhesive labels, sack, kraft and envelope papers</td>
</tr>
</tbody>
</table>

**Paper Profile**

Paper Profile is an environmental product declaration. It is a common initiative set up by a group of major paper companies and launched in 2001 (www.paperprofile.com). Paper Profiles are available for all UPM paper machine lines. The figures are annual averages for the whole paper machine line. Since 2008, UPM has also published detailed Carbon Footprint Information together with the Paper Profile.

**Environmental labels**

Most of UPM paper grades fulfil the criteria for main eco-labels. UPM aims to give customers the possibility to use the label of their choice by offering a number of different eco-labels. Criteria of these labels can focus on one part of the supply chain only (for example FSC® and PEFC forest certification labels), or span a range of criteria from raw materials, through the production process to the final product (for example the EU eco-label ‘EU flower’).

Please see the respective mill supplement for up-to-date information about availability of eco-labels.

**Product safety**

All UPM paper products are manufactured from elementary chlorine free (ECF) or total chlorine free (TCF) pulps.

They also fulfil the requirements of the European Packaging and Packaging Waste Directive 94/62/EC and its amendment Directive 2004/12/EC, as well as the RoHS directive 2001/95/EC concerning heavy metal content.

Ensuring product safety starts with purchasing chemicals. UPM has launched the UPM Restricted Chemical Substance List (UPM RSL) to guarantee that our chemical suppliers are compliant with UPM’s high sustainability standards and to ensure that our products are safe and clean.
Environmental parameters 2011

Core indicators

UPM PAPER MILLS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Total amount per year</th>
<th>Indicator per tonne of paper</th>
<th>Total amount per year</th>
<th>Indicator per tonne of paper</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope: all UPM paper mills</td>
<td>12,002,726 t</td>
<td>244 kg/t</td>
<td>2,188,829 t</td>
<td>221 kg/t</td>
</tr>
<tr>
<td>Scope: EMAS-registered mills</td>
<td>9,892,390 t</td>
<td>221 kg/t</td>
<td>2,069,470 t</td>
<td>209 kg/t</td>
</tr>
<tr>
<td><strong>Energy efficiency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity consumption</td>
<td>16,110 GWh</td>
<td>1,342 kWh/t</td>
<td>12,988 GWh</td>
<td>1,313 kWh/t</td>
</tr>
<tr>
<td>Steam consumption</td>
<td>15,401 GWh</td>
<td>1,283 kWh/t</td>
<td>12,692 GWh</td>
<td>1,283 kWh/t</td>
</tr>
<tr>
<td>Own energy generation</td>
<td>55% renewable share</td>
<td></td>
<td>59% renewable share</td>
<td></td>
</tr>
<tr>
<td>Purchased energy</td>
<td>25% renewable share</td>
<td></td>
<td>26% renewable share</td>
<td></td>
</tr>
<tr>
<td><strong>Material efficiency</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical pulp</td>
<td>2,925,967 t</td>
<td>244 kg/t</td>
<td>2,188,829 t</td>
<td>221 kg/t</td>
</tr>
<tr>
<td>Mechanical pulp</td>
<td>2,648,531 t</td>
<td>221 kg/t</td>
<td>2,069,470 t</td>
<td>209 kg/t</td>
</tr>
<tr>
<td>Recycled fibre pulp</td>
<td>2,571,782 t</td>
<td>214 kg/t</td>
<td>2,069,470 t</td>
<td>209 kg/t</td>
</tr>
<tr>
<td>Minerals</td>
<td>2,956,515 t</td>
<td>246 kg/t</td>
<td>2,069,470 t</td>
<td>209 kg/t</td>
</tr>
<tr>
<td>Binders</td>
<td>270,064 t</td>
<td>23 kg/t</td>
<td>214,659 t</td>
<td>22 kg/t</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water intake</td>
<td>304,150,975 m³</td>
<td>25.3 m³/t</td>
<td>244,178,403 m³</td>
<td>24.7 m³/t</td>
</tr>
<tr>
<td>Process wastewater</td>
<td>136,438,096 m³</td>
<td>11.4 m³/t</td>
<td>107,824,726 m³</td>
<td>10.9 m³/t</td>
</tr>
<tr>
<td>COD**</td>
<td>37,599 t</td>
<td>3.2 kg/t</td>
<td>35,124 t</td>
<td>3.6 kg/t</td>
</tr>
<tr>
<td>TSS</td>
<td>4,401 t</td>
<td>0.4 kg/t</td>
<td>4,118 t</td>
<td>0.4 kg/t</td>
</tr>
<tr>
<td><strong>Waste</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste, total of which:</td>
<td>1,177,900 t</td>
<td>98 kg/t</td>
<td>972,072 t</td>
<td>98 kg/t</td>
</tr>
<tr>
<td>ash*</td>
<td>647,459 t</td>
<td>54 kg/t</td>
<td>519,916 t</td>
<td>53 kg/t</td>
</tr>
<tr>
<td>sludge</td>
<td>306,455 t</td>
<td>26 kg/t</td>
<td>281,696 t</td>
<td>28 kg/t</td>
</tr>
<tr>
<td>other</td>
<td>223,986 t</td>
<td>19 kg/t</td>
<td>170,460 t</td>
<td>17 kg/t</td>
</tr>
<tr>
<td>Recycling rate</td>
<td>95%</td>
<td></td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Hazardous waste</td>
<td>2,164 t</td>
<td>0.2 kg/t</td>
<td>1,840 t</td>
<td>0.2 kg/t</td>
</tr>
<tr>
<td><strong>Emissions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO₂ fossil</td>
<td>4,047,032 t</td>
<td>337 kg/t</td>
<td>2,629,482 t</td>
<td>266 kg/t</td>
</tr>
<tr>
<td>NO₂</td>
<td>6,461 t</td>
<td>0.54 kg/t</td>
<td>4,510 t</td>
<td>0.46 kg/t</td>
</tr>
<tr>
<td>SO₂</td>
<td>3,924 t</td>
<td>0.33 kg/t</td>
<td>1,118 t</td>
<td>0.12 kg/t</td>
</tr>
<tr>
<td>Particles</td>
<td>200 t</td>
<td>0.02 kg/t</td>
<td>42 t</td>
<td>0.004 kg/t</td>
</tr>
</tbody>
</table>

* Including ash which is considered as hazardous waste in the UK.
** COD not measured in Madison
*** Reported in dry tonnes

Development

Due to the acquisition of Myllykoski with its six paper production sites, all total amounts increased as compared to last year. Production data for the entire year from Myllykoski’s operations have been included in UPM’s figures for 2011.

The high share of fossil fuels used at the new sites is the reason that the renewable share slightly decreased and fossil CO₂ emissions per tonne of paper increased. However, effluent related indicators remain at the same low level as last year. The amount of landfill waste could be further reduced. The use of recycled fibre increased significantly.

For the core indicators of 2010, please check last year’s environmental statement.

As an indicator for biodiversity, please check the mill supplements where information about the mill area is included.

All publications are available at www.upm.com.
Core indicators

UPM CHEMICAL PULP MILLS

Scope: all UPM pulp mills

<table>
<thead>
<tr>
<th>Production</th>
<th>Total amount per year</th>
<th>Indicator per tonne of pulp</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,996,504 t</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Energy efficiency

- Electricity consumption: 1,825 GWh, 609 kWh/t
- Steam consumption: 11,033 GWh, 3,682 kWh/t
- Own energy generation: 93% renewable share
- Purchased energy: all energy is generated internally

Material efficiency

- Wood: 13,491,756 m³, 4.5 m³/t
- Process chemicals*: 411,683 t, 137 kg/t

Water

- Water intake: 170,683,553 m³, 57.0 m³/t
- Process wastewater: 104,030,158 m³, 34.7 m³/t
- COD: 34,847 t, 11.6 kg/t
- TSS: 1,508 t, 0.5 kg/t
- AOX: 296 t, 0.1 kg/t

Waste**:

- Waste, total of which: 123,607 t, 41 kg/t
- sludge: 15,825 t, 5 kg/t
- green liquor dregs: 51,268 t, 17 kg/t
- other: 56,514 t, 19 kg/t
- Recycling rate: 57%
- Hazardous waste: 231 t, 0.1 kg/t

Emissions

- CO₂ fossil: 241,973 t, 81 kg/t
- NOₓ: 4,873 t, 1.63 kg/t
- SO₂: 479 t, 0.16 kg/t
- Particles: 356 t, 0.12 kg/t
- TRS: 79 t, 0.03 kg/t

1) Since 2012 all pulp mills are EMAS-registered.
2) Main chemicals used: oxygen gas, sodium hydroxide, sodium chlorite or chlorate, sulphuric acid, limestone, hydrogen peroxide.
3) Reported in dry tonnes

For the core indicators of 2010, please check last year’s environmental statement.

As indicator for biodiversity, please check the mill supplements where information about the mill area is included.

All publications are available at www.upm.com.

Development

Process wastewater amount and load could be reduced further. Over the last ten years the amount per tonne of chemical pulp decreased by 30%. Also, the average AOX load per tonne of bleached chemical pulp was reduced significantly, especially due to the new hardwood pulp mill in Uruguay.

Green liquor dregs are the most relevant waste fraction for landfill waste. Research for reuse options is ongoing.
In 2010, UPM set long-term environmental targets for 2020 and defined indicators to measure performance in key areas on Group level. UPM aims to continuously reduce the environmental impacts over the entire lifecycle of its products, and an annual performance evaluation is based on these indicators.

The environmental targets are part of UPM’s corporate responsibility agenda. This agenda is based on key areas of responsibility, measures and targets that create the framework of responsibility for all UPM operations. The principles reflect UPM’s approach to view corporate responsibility from a holistic perspective that covers economic, social and environmental aspects. A commitment to continuous improvement and transparency is embedded into the responsibility targets.

UPM’s targets and current Group level performance in relation to the environment can be seen in the table below. The annual target setting of UPM’s pulp and paper mills is published in the mill supplements. The mill-level targets reflect UPM’s long-term targets, if relevant, at a local level. In addition, the mill-level targets focus on the specific local development areas.

### ENVIRONMENTAL TARGETS

<table>
<thead>
<tr>
<th>Key area of responsibility</th>
<th>Measure</th>
<th>Target*</th>
<th>Achievement 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRODUCTS</strong>&lt;br&gt;Taking care of the entire lifecycle</td>
<td>• Renewable raw materials&lt;br&gt;• Recyclable or biodegradable products&lt;br&gt;• High share of certified products&lt;br&gt;• Third-party environmental eco-labels&lt;br&gt;• Lifecycle assessment</td>
<td>• Environmental management systems certified in 100% of production units by 2020&lt;br&gt;• Environmental declarations for all product groups by 2020&lt;br&gt;• 25% growth in the share of ecolabelled products by 2020</td>
<td>• A few small production sites are not yet certified&lt;br&gt;• Environmental declarations developed for timber products&lt;br&gt;• The share decreased in 2011 due to the acquisition of new paper mills.</td>
</tr>
<tr>
<td><strong>CLIMATE</strong>&lt;br&gt;Creating climate solutions</td>
<td>• Improve energy efficiency&lt;br&gt;• Maximise use of carbon-neutral energy&lt;br&gt;• Increase biobased energy</td>
<td>• 15% reduction in fossil CO₂ by 2020</td>
<td>• No improvement in 2011 due to the acquisition of new paper mills.</td>
</tr>
<tr>
<td><strong>WATER</strong>&lt;br&gt;Using water responsibly</td>
<td>• Best-in-class water footprint and effluent quality&lt;br&gt;• Net water consumption</td>
<td>• 15% reduction in waste water volume by 2020&lt;br&gt;• 15% reduction in COD load by 2020</td>
<td>• Reduction in waste water volume in line with the target.&lt;br&gt;• Reduction in COD load in line with the target.</td>
</tr>
<tr>
<td><strong>FOREST</strong>&lt;br&gt;Keeping forests full of life</td>
<td>• Maximise share of certified fibre and meet UPM biodiversity programme targets for managed forests</td>
<td>• 80% share of certified fibre by 2020</td>
<td>• 78% share of certified fibre reached.</td>
</tr>
<tr>
<td><strong>WASTE</strong>&lt;br&gt;Reduce, reuse and recycle</td>
<td>• Minimise solid waste to landfill&lt;br&gt;• Reuse waste</td>
<td>• 25% reduction in waste to landfill by 2020</td>
<td>• Reduction in landfill waste in line with the target.</td>
</tr>
</tbody>
</table>

* Baseline year 2008
Environmental management

Integrated management systems .......... 12
Organisation .................................... 12
Continuous improvement ................. 13
Risk management ............................ 13
Environmental communication .......... 13
Environmental management based on continuous improvement

At UPM, environmental management is guided by our corporate values – trust and be trusted, achieve together and renew with courage – as well as by our Code of Conduct and Environmental Rules.

Integrated management systems
The mills’ certified management systems are the practical tools used for environmental management. These systems embrace the principles of continuous improvement by target setting and monitoring of the implementation. All mills work with integrated management systems, which include quality management, environmental protection and health and safety issues. All mills have obtained certification to ISO standards 9001 for quality and 14001 for environmental management systems. In addition, all mills either already are or will be registered in the EU’s Eco-Management and Audit Scheme (EMAS). Additionally, health and safety issues are included in the mills’ management systems and at many mills such systems are certified to the OHSAS 18001 specification. The Chain of Custody system for monitoring the origin of wood is also part of the mills’ integrated management systems.

Competencies, responsibilities and procedures relating to quality, environment or occupational health and safety are described in the mills’ management manual and the accompanying process and work instructions documentation. Internal audits and management review are carried out at the mills in accordance with the requirements of the standards. Existing warning and protection systems, compliance with relevant legal and statutory requirements and the control of measuring equipment are all firmly integrated in the mills’ management systems.

Organisation
The mills are responsible for ensuring that external obligations are met and that targets established internally are reached. The mills’ environmental managers or management appointee act as experts and handle practical aspects, development, co-ordination of environmental matters and reporting. The Vice President, UPM Environment, is responsible for Group-wide environmental issues.

Environmental issues are part of the day-to-day work of the entire personnel. Environmental competence is essential and respective training is organised with, for example, regular training for chemical handling, safety and risk management or general introduction for new employees.

Indirect environmental impacts arising, for example, from raw material procurement and transportation, are also taken into consideration. The mills co-operate with the functions responsible for these issues within the Group.
Continuous improvement process
Environmental management is based on continuous identification of the environmental impacts of the operations. Environmental impacts are a starting point for annual target setting and development of detailed environmental programmes with measures, schedules and responsibilities. Implementation of targets is monitored regularly.

In addition to the specific targets outlined by the individual mills, the Group sets common long-term goals that apply to all sites, such as increasing the proportion of certified wood, decreasing water consumption and increasing the reuse of waste.

Management of environmental risks
All mills have taken specific actions to prevent environmental hazards. Environmental risk assessments have been carried out to identify potential risks. The most significant risks at the paper and pulp mills relate to process malfunctions and to the transportation, storage and handling of chemicals at the mills. The results of the risk assessments are documented at the mills. This data is updated if any changes are made to the process. To reduce the identified risks, the mills provide guidance and training and carry out process modifications and investments when needed.

In the event of accidents or emergencies, the mills have taken precautions to prevent or mitigate harmful environmental impacts. Most mill sites have their own fire department or fire crews who are trained in such a way that they are also able to intervene in case of chemical accidents.

The mills’ effluent treatment plants are equipped with a containment basin to deal with process malfunctions and chemical accidents. The water contained in these basins, can be cleaned in a controlled manner without jeopardising the treatment plant’s operation.

Environmental communication
In accordance with its principles, UPM informs all stakeholders about its environmental activities openly and actively. The aim is to ensure a rapid and accurate flow of information to the Group’s personnel, residents in the mill locations and other stakeholders. Separate guidelines have been drawn up for exceptional situations.
Manufacture of paper

Manufacture of mechanical pulp ........... 15
Manufacture of chemical pulp .............. 16
Manufacture of recycled fibre pulp ........ 17
Manufacture of paper ....................... 17
Overview ........................................ 18
From raw material to paper

The raw materials used in papermaking are mechanical and chemical pulp made from fresh wood fibre, and recycled fibre pulp. In addition to fibre raw materials, the process requires water, and some paper grades require mineral fillers and coating pigments, adhesives and binders. Different process chemicals are used during pulp processing and to improve the paper’s runnability on the paper machine and the quality of the end products.

The process flowchart and descriptions on the following pages present the main stages of pulp and paper manufacture.

**Manufacture of mechanical pulp**

**Debarking**

Mechanical pulp is produced from fresh spruce logs. The logs are passed through a debarking drum; the bark is burned in a bark boiler to produce electricity and heat, or otherwise re-used. Chips produced as by-products at sawmills are also used.

**Manufacture of mechanical pulp**

Wood fibres are separated from each other by mechanical pressure. Frictional forces transform the mechanical effort into heat, which softens the lignin acting as a binder between the wood fibres and thus breaks the interfibre bonds.

In the manufacturing process of refiner mechanical pulp, wood is chipped and the chips are refined into pulp in refiners. In thermomechanical pulping (TMP), pressure and heat are used to speed up the separation of the fibres, and part of the heat generated is recovered and used for paper drying.

In the manufacture of groundwood pulp, entire spruce logs are pressed against a rotating grindstone. Pressure and heat may be used to boost the grinding process.

As lignin is still present in the finished mechanical pulp, wood pulp yield in mechanical pulp production is twice the yield obtained in the chemical pulping process. However, mechanical pulp production requires a lot of electricity.

**Bleaching**

Mechanical pulps are bleached using hydrogen peroxide or dithionite. Furthermore, auxiliary chemicals are used in bleaching to regulate the acidity of the process and to ensure the desired effect of the bleaching chemicals.

**Properties of mechanical pulp**

Mechanical pulp is used in the manufacture of printing papers on account of its economic advantages and its optical characteristics. It is used in products that are not archived, because the lignin, i.e. the binder contained in the pulp, turns yellow due to the effect of UV light.
Manufacture of chemical pulp

Pulps prepared from different species have different properties. Long fibre softwood pulp is used to increase the paper’s strength and to improve its runnability on the paper machine. Short fibre hardwood pulp improves the paper’s printing properties. Bleached chemical pulp preserves its properties and its brightness even when printed products are archived for a long period.

Debarking

Pine, spruce, birch and eucalyptus are the raw materials used for the production of sulphate pulp. The pulp preparation process begins with the debarking of the logs in the debarking drum. The bark is burned in a bark boiler to produce electricity and heat.

Chipping

The debarked wood is chipped and screened. Additionally, chips produced from slabs and sticks and created as sawmill by-products are used.

Cooking

In the manufacture of chemical pulp, wood fibres are separated from each other by dissolving the lignin, i.e. the substance acting as a binder between fibres, by means of chemicals and heat.

In the sulphate process, chips are cooked in a liquor containing sodium hydroxide and sodium sulphate as chemical agents. This mixture is called white liquor. During the cooking, about half of the wood raw material is dissolved in the cooking liquor. For this reason, the yield is only about half of that obtained in mechanical pulping.

Washing

The cooked pulp is washed with hot water. The used waters are directed in a countercflow direction to the digester to be used as washing waters. The washing water leaves the digester in the form of diluted black liquor containing the dissolved wood and the used cooking chemicals and enters the evaporation stage.

Bleaching

After cooking, sulphate pulp is brown. It is then bleached in a multistage process. The bleaching agents used at UPM’s mills are oxygen, hydrogen peroxide and chlorine dioxide. The washing waters from the bleaching stages, after the oxygen stage, are pumped to the effluent treatment plant.

Evaporation

In evaporation, water is removed from the black liquor in several stages, so that the resulting high concentration black liquor contains only about one-fifth water.

Soda recovery boiler

Black liquor is burned in the soda recovery boiler to recover energy in the form of heat and electricity. The chemical pulp mill produces energy not only for its own needs but also for the paper mill. From the soda recovery boiler, the cooking chemicals are recovered as soda liquor.

Causticising

In causticising, the sodium carbonate contained in the soda liquor is reconverted into sodium hydroxide by means of burned lime. This way, the soda liquor is reconverted into white liquor. Causticising transforms the burned lime into calcium carbonate, i.e. lime-sludge.

Lime-sludge kiln

The lime-sludge is separated from the white liquor and washed and reconverted into burned lime in the lime-sludge kiln.
**Manufacture of recycled fibre pulp**

**Pulping**
The production of recycled fibre pulp begins by processing the recovered paper in a drum pulper, in which the stock is diluted to form a pulp-water slurry. Plastic, metal, and other impurities contained in recovered paper are removed by screening and reused when possible or taken to a landfill. When using old corrugated cardboard for the production of speciality papers no further process steps are needed. When using recovered graphic paper for the production of new graphic paper the following process steps are needed to produce so-called deinked pulp.

**Flotation**
In flotation, soap is added and air is blown into the pulp/water mixture to remove the printing ink. The hydrophobic printing ink particles adhere to the ascending air bubbles, and the foam formed on the surface is removed.

**Screening and washing**
After the flotation, the pulp is screened to remove any remaining impurities. Finally the pulp is washed.

**Deinking residues**
About 70–80 per cent of the recovered paper delivered to the mills can be used to produce new paper. Losses are mainly so-called deinking sludge from the flotation process (too short and brittle fibres, pigments and printing inks). The fibrous sludge generated is dried and burned at the mill’s power plants to produce electricity and heat, or dispatched to be used in other applications.

**Manufacture of paper**

**Paper stock**
Fibres (mechanical, chemical and/or deinked pulp), fillers and additives are mixed to form a slurry consisting of more than 99 per cent water.

**Wire section**
The pulp slurry is spread on the wire, i.e. the plastic fabric on which the paper web is formed as the water drains away through it by means of suction. A dry matter content of about 20 per cent is achieved at the wire section.

**Press section**
The wet paper web is pressed between felts and rolls to obtain a dry matter content of some 45 per cent.

**Dryer section**
In final drying, a dry matter content of 90 to 95 per cent is achieved by dewatering the web through evaporation using hot cylinders. The heat used for drying is recovered and the water vapour is discharged into the air. The “plume” emitted from the exhaust stacks of a paper mill consists of this water vapour.

**Coating, calendering and finishing**
The quality and properties of paper can be finished on a calender placed either on or off the machine and/or by coating the paper. The calender smoothes the surface of the paper by passing it once or several times through a series of nips. Paper can be coated several times. The coater unit is used for applying a coating colour, after which the paper web is dried. The machine or parent reel is cut into smaller rolls that are more suitable for further processing, or into sheets.
Raw materials and energy

Wood procurement and forest management .................. 20
Fibre raw materials ............................................. 21
Pigments and additives .......................................... 22
Energy ............................................................... 23
Knowing that wood originates from a sustainable source

Wood is UPM’s most important raw material. UPM is committed to sustainable forest management and monitors the origin of wood to ensure it is sustainably and legally sourced. Certified chain of custody systems have been implemented in all UPM’s mills.

At UPM pulp and paper mills, wood is used for the manufacture of chemical and mechanical pulp. UPM’s Forest and Timber business area is responsible for wood sourcing to these mills, and the sustainable management of forests comes under its responsibility. UPM is committed to forest management and harvesting practices based on the internationally accepted principles of sustainable forest management.

UPM’s wood fibre is sourced mainly from private forests and company-owned forests in Northern Europe, Central Europe, USA and Uruguay. Forest certification, chain of custody origin of wood tracking systems and the company’s global biodiversity programme are just some of the many tools UPM uses to safeguard sustainable and legal wood sourcing.

Forest certification
All of UPM’s forests have been certified according to a credible, internationally recognised forest certification scheme, namely PEFC or FSC. The certificate provides independent third-party verification of the quality of forest management in relation to the criteria of a local sustainable forest management standard.

Chain of custody
All UPM’s forest units and pulp and paper mills have third-party certified chain of custody systems according to the two main international standards – PEFC and/or FSC. Chain of custody is a tool that enables the monitoring and reporting of the volumes of certified wood supplied to its mills. This information plus product labelling is a valuable tool for verifying sustainable and legal forestry practices to customers and other stakeholders. Chain of custody requirements also ensure that non-certified wood originates from controlled sources.

Origin of wood
UPM monitors the origin of wood it receives and has set strict requirements on its suppliers for the delivery of sustainable and legal wood fibre. These requirements are implemented through a variety of tools. Two good examples are the chain of custody systems described above and the award winning tracing system for wood in Russia and the Baltic countries, which requires that all deliveries be accompanied by a statement of origin showing a map grid reference for the location of the logging area. UPM carries out supplier audits and logging site checks to ensure that suppliers’ operations meet UPM’s requirements.

Biodiversity
UPM has developed a global biodiversity programme for company forests. The programme aims to maintain and increase biodiversity in forests as well as promote best practices in sustainable forestry. The programme identifies six key elements important for forest biodiversity: native tree species, forest structure, deadwood, water resources, valuable habitats and natural forests. UPM has set a global target for each key element that will be implemented through country level targets and local action plans.

More information is available at UPM’s webpages.
www.upm.com/responsibility
www.upmforestlife.com
A balance between fresh wood and recovered paper

The primary raw material of paper is wood, a renewable resource. The finished product is recyclable; fibres in paper products can be reused several times to make new paper. In fact, nearly one third of UPM's fibre raw material is recycled fibre. And UPM is the world's largest user of recovered paper for graphic papers.

Papemaking starts with fibres – either fresh wood fibres in the form of chemical and mechanical pulp or recycled fibres obtained from recovered paper. The availability of raw material and paper's quality requirements largely determines the type and proportions of the different fibres used.

**Fresh wood**

UPM procures fresh wood for the production of mechanical and chemical pulp. Mechanical pulp – refined or groundwood – is usually produced at the respective paper mill site. Sawmill residues and small diameter logs, e.g. from forest thinnings, are used for mechanical pulp processing. Chemical pulp is produced at UPM's pulp mill in Uruguay as well as at the integrated pulp and paper mills in Finland in which the pulp is used at the site or delivered to other paper mills.

Chemical pulp is also sourced from external pulp suppliers. All chemical pulp suppliers are required to comply with UPM's environmental principles including tracing the origin of wood and sustainable forestry. Pulp suppliers also have to supply information on the environmental performance of their operations on a yearly basis. In addition, UPM regularly monitors and audits its pulp suppliers.

**Recovered paper**

UPM is the world's largest user of recovered paper for the production of graphic papers, consuming about 3.8 million tonnes of recovered fibre annually. UPM uses recovered paper at its European mills, which are located in highly populated regions. This ensures that recovered paper is available in sufficient amounts close to the paper mills. Due to transportation distances, a high level of recovered paper use is not economically and ecologically favourable in regions with small populations. For example, UPM's Finnish paper mill Kaipola is already using almost all the recovered graphic paper available in Finland.

Wood fibres can be reused several times before they are no longer suitable for paper production. UPM utilises mainly graphic recovered paper from household collections, e.g. newspapers, magazines, catalogues and advertising supplements.
Pigments improve the paper’s printing properties

Mineral fillers, coating pigments and binders are also important raw materials for paper. Furthermore, chemicals are needed in stock preparation and bleaching as well as in process management.

Chemicals enhance products and processes. All stages of the papermaking process require certain additives – from raw material preparation to the formation of the paper web to the coating of the finished paper sheet. It is an ongoing task to fully optimise the use of chemicals. Responsible action is required from all suppliers of raw materials, goods and services with regards to both environmental and social issues. These issues are carefully assessed during the supplier selection process.

<table>
<thead>
<tr>
<th>Category</th>
<th>Products</th>
<th>Use</th>
</tr>
</thead>
</table>
| Pigments            | kaolin, ground calcium carbonate (GCC), talc, precipitated calcium carbonate (PCC) produced from lime and carbon dioxide | • as mineral fillers to fill the cavities between the individual fibres in order to reduce the amount of fibre needed  
• as coating pigments applied to the surface of the paper web in order to improve the paper’s optical properties  
• part of the pigments in paper are recovered together with the fibres |
| Binders             | starch derived from cereals or potato, synthetic latex                    | • make the coating pigment adhered to the paper surface             |
| Chemical pulping agents | cooking chemicals: sodium hydroxide, sodium sulphide  
bleaching chemicals: oxygen, hydrogen peroxide, chlorine dioxide | • sodium hydroxide and sodium sulphide are recovered and reused in the process  
• no chlorine gas is used at UPM                           |
| Deinking agents     | fatty acid, caustic soda and water glass                                 | • used for deinking recovered paper                                 |
| Bleaching agents    | hydrogen peroxide and sodium dithionite or hydrosulphite               | • used for bleaching mechanical and recycled fibre pulp             |
| Further additives   | alum                                                                      | • to prevent impurities from forming deposits  
• to make fibres and pigments bond together                   |
| retention, fixing and anti-foaming agents |                                                                         | • to keep the process clean  
• to ensure runnability  
• to help web formation (support fibres and fines to be retained on the wire) |
| Slime control agents, e.g. biocides |                                                                         | • necessary for the nearly closed-loop water circuits  
• to prevent microbial growth in pipes and tanks               |
| Optical brighteners, dyes and chelating agents |                                                                         | • product and process critical chemicals  
• used only at ppm level                                       |
Focus on energy efficiency and biofuels

UPM is a major energy user. Most of the electrical and thermal energy is used for paper and mechanical pulp production. UPM favours the use of renewable and other CO₂-neutral energy sources as well as of natural gas and strives to improve its energy efficiency.

UPM's paper and pulp mills use electrical and thermal energy. Mill operations that require the most electricity are those involved in the manufacture of mechanical pulp, paper machines and water and stock pumping. Thermal energy is needed to maintain process temperatures and to dry the paper.

At all pulp and almost all paper mills, steam and electricity are generated simultaneously by combined heat and power (CHP) plants. Some mills only produce steam on-site. At some mills, all or part of the energy is produced by external power plant companies. In the case of Finnish mills, UPM is a shareholder in these power plant companies. Electricity is also obtained from the company's own hydropower plants and, additionally, in Finland from associated companies. The balance of the electricity needed is procured from regional electricity markets.

Due to a high self-sufficiency rate in energy, UPM has been able to focus on energy solutions that produce less fossil carbon dioxide. Where possible, fossil fuels are substituted by renewable fuels. Where fossil fuels are needed, natural gas is the first choice, dependent upon availability in the region. More than half of the fuels used by UPM are CO₂-neutral biofuels. In 2004, the law of emission trading of climate change gases came into force in the EU. All European mills belonging to UPM have the relevant permit as granted by national authorities for the 2008–2012 period. The UPM Energy business area is responsible for emission trading on behalf of all UPM units.

CHP plants burn renewable fuels like bark, forest residues, fibre residues and solid residues from deinking and effluent treatment plants. Additionally, fossil fuels like natural gas or light fuel oil are used at CHP plants and steam boilers. Coal is used as an energy source only in mills where there is no other alternative fuel source. Chemical pulp mills combust waste liquor – black liquor – that is formed during the pulping process. Chemical pulp mills are almost self-sufficient in energy.

Part of the heat resulting from production processes is recovered by means of heat exchangers and reused. At the mills producing thermomechanical pulp (TMP), part of the electricity needed can be recovered as steam and this covers a large part of the mill's steam needs.

Electricity is produced at UPM's own facilities or at associated company plants. Part of the power requirement is covered by purchases from the open market. Power generation methods vary from country to country. The UPM portfolio includes mill site CHP, wind power, hydro, nuclear and thermal sources. UPM is a shareholder in a power company that has a stake in nuclear power plants in Finland.

The multi-fuel boilers are mostly modern and efficient fluidised bed boilers that are particularly well suited for burning wood-based fuels. The high pressure and temperature at the boilers ensure efficient energy production. The modern combustion and cleaning technologies result in low specific emissions.

At all of UPM's paper and pulp mills, audits have been carried out to improve energy efficiency. The mills have identified areas where energy could be saved and used more effectively. Many measures have been implemented, but major changes are usually made in connection with other investments, such as paper machine line modernisations.
Environmental impacts

Impact assessment .................................. 25
Water .................................................. 26
Air ...................................................... 27
Waste .................................................. 28
Logistics .............................................. 29
All UPM’s operations impact the environment both directly and indirectly. The impact is minimised by using modern techniques and sustainable operations. Forest management influences landscape, structure and biodiversity. Production processes release emissions into watercourses and into the air. Solid waste is generated at the production facilities and, in some cases, significant levels of noise and odour are also generated. Indirect impacts arise mainly from transportation and the procurement of raw materials, chemicals, fuels and power.

An environmental load is the infiltration into the environment of substances that cause changes in the environment. The substances can be of a kind that have not previously occurred in the environment, or may be naturally occurring substances which, in large concentrations, cause changes, i.e. have an environmental impact. The main environmental load from paper and pulp manufacture is to air and water.

UPM’s mills have successfully implemented measures to reduce air and water emissions. Improved effluent treatment has significantly enhanced the quality of cleaned wastewater. Airborne emissions have been reduced by the use of low-sulphur fuels, changes in energy generation methods and environmental investments.

Environmental impact assessments are carried out at each site. An overview about key environmental aspects and its environmental impact can be seen in the following table.

UPM regards all environmental aspects as substantial. At the mill sites, special emphasis is on the environmental aspects of water, air, energy, waste and local phenomena such as noise or odour. Emergency situations, for which crisis management procedures are in place, are also taken into consideration. The mills’ environmental targets cover all areas where there is currently need for action or potential for improvement.

### Key environmental aspect | Main environmental impact | Measures
---|---|---
Wood raw materials | Use of the forest ecosystem (biodiversity, products and services from forest ecosystems, land use aspects); Indirect environmental impact by chemical pulp suppliers. | Use of wood from certified sustainable forestry [chain-of-custody verification]; assessment of chemical pulp suppliers. |
Chemicals | Indirect environmental impact by suppliers; pollution due to inappropriate handling or storage. | Supplier audits; requirement for certified environmental management systems; choice of environmentally-sound products. |
Fossil fuels | Use of finite resources; climate change. | Cogeneration of heat and power; maximise use of renewable fuels; efficient energy use. |
Airborne emissions from power plants | Acidification of the soil (NOx, SO2); air pollution (particles); climate change [from CO2 from fossil fuels]. | Compliance with limit values; continuous improvement; use of renewable fuels and natural gas; emission trading. |
Emissions to water | Eutrophication (nitrogen, phosphorus); oxygen demand (COD, BOD); adsorbable organic compounds (AOX) for chemical pulp mills. | Compliance with limit values; continuous improvement; modern elementary chlorine-free chemical pulp production. |
Solid waste to landfills | Use of landfill sites and municipal waste incineration plants. | Increase or maintain high recovery quota. |
Noise | Adverse effects on personnel and local area. | Compliance with limit values; continuous improvement. |
Odours | Adverse effects on local area. | Optimised operation of production facilities and effluent treatment plants. |
Transport | Indirect environmental impact (energy consumption; airborne emissions; noise). | Use of appropriate means of transport; dual-purpose transport; electric fork lift trucks. |
Products | Environmentally-sound disposal after use. | Recycling [recovered paper processing]. |
Soil | Acidification of the soil by airborne and water emissions; risk of pollution by landfill sites or by chemicals and oil-containing equipment. | Best practices for the storage and handling of chemicals; compliance with landfill permits and legislation [landfill insulation; gas collection and treatment, leachate water treatment]. |

* The purpose of limits for waste water load, airborne emissions and noise specified in the operation permits is to prevent any significant environmental impact.
Environmental impacts on water

Only a small portion of the water used in production leaves the process as effluent and has to be replaced with fresh water. All effluents are cleaned before being released into watercourses.

Water is an essential resource for pulp and paper production and is also needed for cooling machinery. In production it is used as a diluting agent and transport medium. Fibres, fillers and additives have to be strongly diluted in order to form a smooth sheet of high quality paper. Compounds from wood fibres dissolve during manufacturing and a small proportion of the chemicals and other raw materials used in the process remain in the water. Cooling water is not contaminated at all and can be discharged directly into the river or used in production.

Water reduction is an ongoing target for all UPM mills. Using less water also means using less electricity, chemicals and thermal energy. Process water is used several times and only a small portion of the water ends up as effluent, which has to be replaced with fresh water. The fresh water is purified water from rivers and lakes or groundwater taken from wells. A small quantity of water is used for steam production at the power plants and purified in order to meet stringent purity requirements.

All wastewater is treated in primary and secondary effluent treatment plants before being released into watercourses. Most mills have their own effluent treatment plants or the wastewater is led to a municipal effluent treatment plant. The biological treatment stage is an excellent controller of wastewater quality, because the organisms in the biological treatment stage are sensitive to harmful compounds. Biological treatment also removes harmful compounds from wastewater.

Emission levels in wastewaters are regularly monitored and reviewed, both internally and by relevant authorities. In some regions, the potential harmful effects of effluent on fish and other aquatic organisms are also assessed by conducting comprehensive receiving water studies.
Energy generation as main source for air emissions

The majority of airborne emissions from paper and pulp mills are caused by energy generation. The choice of fuels, combustion technology and flue gas purification are ways to reduce these emissions.

Quantity and quality of air emissions depend on the amount of steam produced at power plants or boilers, on the operating rate of the paper machines and the fuels used. More than 60% of fuels used by UPM’s power plants are CO2-neutral biofuels that do not contribute to the greenhouse effect. Boilers using biofuels, oil and coal are equipped with filter systems. Compliance with permit limits is continually measured at all power plants and the reliability of these measurements is verified by a third party. Results and emission calculations are reported to the relevant authorities. Possible TRS emissions from chemical pulp mills are usually caused by shutdowns and startups.

<table>
<thead>
<tr>
<th>Possible air emissions</th>
<th>Source</th>
<th>Reduction measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide, sulphur dioxide, nitrogen oxides, small amounts of particles and organic compounds</td>
<td>energy generation at power plants; emission parameter depends on used fuels</td>
<td>• minimised by efficient purification, by the choice of fuels and by controlling the combustion conditions in the boilers</td>
</tr>
<tr>
<td>Odour from malodorous sulphur compounds TRS (total reduced sulphur)</td>
<td>chemical pulp production</td>
<td>• reduced by collecting and burning</td>
</tr>
<tr>
<td>Odour from decomposing of organic substances</td>
<td>closed-circuit water systems (e.g. through high temperature and anaerobic conditions)</td>
<td>• measures taken at mill sites when needed</td>
</tr>
<tr>
<td>Noise</td>
<td>production facilities, e.g. wood handling, debarking, suction pumps</td>
<td>• controlled at the source or along its propagation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• minimised at the stage when new equipment is being acquired and new facilities constructed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• older plants systematically refitted with sound insulation systems</td>
</tr>
</tbody>
</table>
Waste management aims at increasing the re-use

Reducing the amount of solid waste and increasing re-use are key objectives at all UPM mills.

All the mills have made efforts to reduce the volume of solid waste and to improve their handling by sorting the waste at source. A large part of the process waste is utilised either as raw material or in energy generation. The volume of solid waste taken to landfill sites has decreased significantly over the past years as a result of higher efficiency in production processes and increased opportunities for reuse. UPM is constantly developing new re-use opportunities.

Landfill sites for depositing solid waste account for the most significant environmental impact in waste management. The Finnish paper mills have their own landfill sites. The environmental impacts from mill landfill sites are being monitored in accordance with permits and regulations issued by the relevant authorities.

<table>
<thead>
<tr>
<th>Main waste fractions</th>
<th>Source</th>
<th>Usage or disposal</th>
</tr>
</thead>
</table>
| Ash                  | power plants | • most of the ash utilised in the cement and brick industry, in earthwork operations or as a fertiliser  
|                      |         | • the remainder is taken to landfills |
| Organic process waste as bark and fibre residues and fibre sludge | wood and recovered paper processing, effluent treatment | • mainly used as fuel by mill power plants  
|                      |         | • fibrous residues which are not incinerated are re-used, for example, composted or used in soil construction |
| Other process waste as coating colour waste and green liquor dregs | coating of paper, chemical pulping | • large proportion reused, e.g. in the construction industry and in soil improvement  
|                      |         | • the rest is mainly landfilled |
| Other solid waste    | recovered paper processing, packaging of incoming materials (mainly metal, board or plastic waste) | • sorted and utilised whenever possible  
|                      |         | • nonreusable waste fractions taken to landfill sites or municipal waste incineration plants |
| Hazardous wastes     | maintenance (mainly oil or oil contaminated equipment) | • forwarded to licensed hazardous waste treatment facilities  
|                      |         | • compliance with relevant statutory requirements documented |
Global logistics operations

The transportation of raw materials and finished products places a load on the environment. The impacts can be reduced through sensible routing and by favouring rail and ship transportation and low-emission fuels.

Each year UPM’s mills receive several million tonnes of raw materials, additives and operational supplies. Delivering end-products to customers also results in a high traffic volume. Another thousand tonnes of solid waste is transported to recovery and disposal facilities. UPM uses road, rail or ship transport – depending on distance, connection and delivery time.

Logistics’ sub-contractors are required to comply with UPM’s Cargo Handling Manual which includes instructions for cargo handling, storage, transportation and occupational health and safety.

Most of UPM’s haulage is handled by long-term contract partners. Emissions arising from transportation can be influenced through the choice of fuel and by switching to rail and sea transport as much as possible. Total emissions can also be reduced by ensuring that capacity is fully utilised and by balancing outbound and inbound deliveries.
Appendices

Environmental rules ........................................... 31
Glossary ....................................................... 33
Validation statement ......................................... 34
Contacts ......................................................... 35
UPM Paper Business Group environmental rules

The UPM Code of Conduct has recognised environmental practices to be an important focus area for long-term sustainable business. The UPM Paper Business Group environmental rules must be complied with by all Paper BG units and by their employees. These environmental rules will also be implemented in all new investments and production units acquired in the future.

Competitiveness in quality and cost are important considerations in the development of UPM’s Paper products and their production processes. These considerations must not conflict with UPM’s Environmental Principles. All UPM Paper BG units shall carry out their business in compliance with all applicable legal requirements, codes of practice and other guidelines as a minimum standard, implementing best practice in environmental matters throughout the company.

Sustainable Sourcing
UPM requires that its suppliers comply with local legislation and statutory regulations. UPM expects continuous progress in its suppliers’ environmental performance. All environmentally significant suppliers must be systematically and regularly assessed for environmental responsibility by UPM Sourcing. The environmental risks shall be evaluated and corrective measures taken based on potential risks. In all purchasing practices the UPM Forestry and Wood Sourcing Rules, Chemical Pulp Purchasing Guidelines and UPM Sourcing Rules shall be complied with.

UPM is a frontrunner in the implementation of methods for tracing the origin of wood, and accepts only legally and sustainably sourced wood fibre. UPM does not source wood from protected areas where harvesting is prohibited by the authorities, or from any other area harvested contrary to the authorities’ instructions. UPM expects suppliers to demonstrate a commitment to promoting biodiversity.

UPM promotes good forest practices through forest certification and recognises and utilises all credible forest certification schemes as described in UPM Forest Certification Guidelines.

UPM procures chemical pulp from its own mills, partially-owned mills and external pulp mills. Partially-owned and external mills shall meet the same principles concerning wood procurement and production processes as the company’s own operations. Only elemental-chlorine-free and totally-chlorine free bleached chemical pulp are produced and used at UPM mills.

UPM promotes the use of recovered paper and shall take into account the quality, environmental and economic aspects of fibre use. Both primary fibre and recycled fibre are essential raw materials for UPM papers.

Energy efficiency
UPM aims to reduce its impact on climate change in energy production, procurement and use. This shall be ensured by promoting and investing in energy efficiency to reduce our carbon footprint. Internal energy audits are conducted regularly in all UPM pulp and paper mills, to identify opportunities for improved energy efficiency, to benchmark performance and to provide information for mill and company target-setting. The mills shall take corrective measures and implement targets based on the audit results.

Minimising the environmental loads and impacts of production
One of the key focus areas of all the mills and R&D is production efficiency improvements by reducing the waste and energy to produce high quality paper. Minimising the environmental impacts of production shall be achieved by reducing emissions into the air and water, reducing process water use and the total amount of process waste generated, as well as reducing the amount of waste to landfill. A lifecycle approach is used to assess the environmental impacts of UPM paper products.

All pulp and paper mills report key environmental parameters on a regular basis. Deviations from environmental permit limit values are reported on a monthly basis. The environmental performance of the pulp and paper mills is benchmarked annually and compared to the performance levels defined in the European BAT Reference Document. The results of benchmarking as well as the regulatory conditions are the basis for annual target setting and also for environmental technology investment decisions. All the mills must have an environmental management system certified to ISO 14001.
Environmental quality of products
All UPM paper grades are recyclable and non-toxic to the environment and human health. The chemical composition of the products shall be monitored on a regular basis by UPM R&D in order to ensure that there are no hazardous substances arising from minerals or other materials used, which exceed the established limit values. This evaluation can also be done based on reliable supplier’s certificates, where available. UPM strives to continually reduce the environmental impacts of its paper products and of the overall value chain over the life cycle.

Controlling the impacts of logistics
The environmental impacts of logistics shall be controlled by encouraging the use of eco-efficient modes of transport and by careful planning of routes and optimising capacity utilisation. Only reliable logistics partners are chosen. UPM Sourcing Rules shall be obeyed by all UPM units and functions involved.

Environmental communication
UPM has positioned itself as the Biofore Company which leads the integration of bio and forest industries into a new, sustainable and innovation-driven future. Biofore stands for sustainable solutions and excellent environmental performance. UPM’s Code of Conduct and corporate values (trust and be trusted, achieve together and renew with courage) are applied in all our operations, including external and internal communications. Stakeholders and the public must promptly receive accurate information on UPM’s environmental performance.

Organisation for environmental matters
Environmental affairs shall be an integral part of everyday operations in the mills, functions and sales companies. Environmental performance and continuous improvement are recognised as competitive factors and are key elements in the divisions’ strategy, target-setting and action plans.

The management personnel of UPM Paper BG take an active stand on environmental performance and support the mills towards advanced environmental management. The mills shall implement the UPM Environmental Strategy by means of environmental management systems. Environmental target-setting is done both at the Group and mill levels.

The UPM Environment function gives input to target-setting and decision-making at the corporate and mill level, and gives operational network support to mills, functions and sales companies.

Managers at UPM must ensure that all relevant employees are trained in environmental matters and are able to assess the environmental load of various work tasks and develop a sense of responsibility for the environment.

Referenced documents:
• Code of Conduct
• UPM Environmental Principles
• UPM Forestry and Wood Sourcing rules
• Chemical pulp purchasing guidelines
• UPM Sourcing rules
• UPM Forest Certification Guidelines.
• EU BAT reference document
• UPM Environmental Strategy
• UPM Environment Function
Glossary

Activated sludge process
A three stage biological effluent treatment method.

AOX, Adsorbable organic halogen compounds
AOX represents the total amount of chlorine bound to organic compounds in wastewater. Such compounds occur naturally, but are also formed in conjunction with the bleaching of chemical pulp. AOX should be limited to a level where it has minimum environmental impacts.

BAT, Best available techniques
The best available technology that allows for solutions that are technically, economically and environmentally the most efficient and advanced.

BOD, Biological oxygen demand
COD, Chemical oxygen demand
The effluent, or wastewater of pulp and paper mills includes organic substances which consume oxygen during biodegradation. Low oxygen content in fresh and sea water can have an adverse effect on plant and animal life. BOD refers to the amount of oxygen consumed in the biological decomposition of organic compounds. COD refers to the amount of oxygen consumed in the complete chemical oxidation of organic compounds.

CO2, Carbon dioxide
Combustion product of carbon. Fossil carbon dioxide emissions arise from fossil fuels like coal, oil and gasoline.

CHP, Combined heat and power technology
Combined heat and power (CHP) production (or cogeneration) is when both electricity and heat are produced at a thermal power plant. The heat is used, for example, in industry or district heating, or as process steam.

Chain of Custody (COC)
An unbroken trail of documentation to guarantee the identity and integrity of the data used as, for example, in demonstrating the origin of wood.

Chemical pulp
Generic name for wood-based fibres separated from each other by “cooking” wood chips or plants in hot alkaline or acidic solutions of various chemicals.

De-inking
The process whereby the ink and impurities are removed from recovered paper. De-inked pulp: see recycled fibre pulp.

EMAS, Eco-Management and Audit Scheme
Voluntary environmental management system for companies and other organisations to improve, evaluate and report on their environmental performance on an annual basis. The environmental review is approved by a third-party accredited EMAS verifier.

Forest certification
An independent review process that determines whether a forest is managed in a responsible manner. There are two global forest certification schemes: FSC and PEFC.

Graphic recovered paper
Mainly white paper collected from households, e.g. newspapers, magazines, catalogues and copy paper.

ISO 9001
Quality management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

ISO 14001
Environmental management system standard published by the International Organisation for Standardisation (ISO). This is a voluntary, international and third-party certified system.

Mechanical pulp
Generic name for wood-based fibres separated from each other mechanically.

N, Nitrogen
P, Phosphorus
N and P are chemical elements essential for plant and animal life. Both substances occur naturally in wood and are often added as a nutrient in biological treatment plants. Excessive levels released into watercourses can cause nutrient enrichment, i.e., eutrophication, which accelerates the growth of algae and other vegetation.

NOx, Nitrogen oxides
These gases are produced during combustion. In moist air, nitrogen oxides can form nitric acid which, in turn, is precipitated as “acid rain”. This nitrogen-containing rain also has a fertilising effect, i.e. eutrophication.

OHSAS 18001
Specifications for an Occupational Health and Safety Management System.

Recycled fibre pulp
Fibres and fillers retrieved from recovered paper. If the recovered paper is de-inked, the processed pulp is also called de-inked pulp.

SO2, Sulphur dioxide
This gas is generated by burning sulphur-containing fuels. On contact with moist air, SO2 forms sulphuric acid, which contributes to “acid rain” and acidification.

Sustainable forest management
In the long term, a sustainably managed forest means that it is not harvested more than it grows. Sustainably managed forests maintain their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill (now and in the future), relevant ecological, economic and social functions, at local, national and global levels without damaging other ecosystems.

TRS, Total reduced sulphur
Reduced sulphur compounds that usually cause odour problems and that are released, for example, during chemical pulp production.

TSS
TSS are solid materials, including organic and inorganic, that are suspended in the water.
Validation statement

As accredited or licensed environmental verifiers,
- BSI (UK-V-0002) for Caledonian
- DNV Certification Oy/Ab (FI-V-0002) for Rauma
- Ecopass (FR-V-0010) for Chapelle Darblay, Docelles and Stracel
- Inspecta Sertificointi Oy (FI-V-0001) for Fray Bentos, Jämsä River Mills, Kaukas, Kymi, Pietarsaari and Tervasaaari
- NQA (UK-V-0012) for Shotton
- TÜV AUSTRIA (A-V-0008) for Steyrermühl
- TÜV NORD CERT Umweltgutachter GmbH (DE-V-0263) for Augsburg, Ettringen, Hürth, Nordland Papier, Plattling, Schongau and Schwedt

have examined the environmental management system of each mill mentioned above, the information contained in the Environmental Performance Reports, the information in the corporate part as far as it concerns the respective mill as well as the information used for calculation of the UPM Corporate level EMAS core indicators.

Following these examinations and examination of the UPM Corporate Environmental Statement 2011 on 15/06/2012 Inspecta Sertificointi Oy, as coordinating environmental verifier of this common EMAS validation, herewith confirms, that the environmental management systems and this UPM Corporate Environmental Statement 2011 together with the Environmental Performance 2011 reports comply with the requirements of the EU’s EMAS regulation (EC) No. 1221/2009.
Mill contacts
(environmental manager or management appointee)

UPM, Augsburg
Eva Winkler
Georg-Haindl-Strasse 4
86153 Augsburg
GERMANY
Tel. +49 821 3109 249
eva.winkler@upm.com

UPM, Augsburg
Eva Winkler
Georg-Haindl-Strasse 4
86153 Augsburg
GERMANY
Tel. +49 821 3109 249
eva.winkler@upm.com

UPM, Blandin
Nathan Waech
115 SW First Street
Grand Rapids
MN 55744-3699
USA
Tel. +1 218 327 6269
nathan.waech@upm.com

UPM, Blandin
Nathan Waech
115 SW First Street
Grand Rapids
MN 55744-3699
USA
Tel. +1 218 327 6269
nathan.waech@upm.com

UPM, Caledonian
Tom Dunn
Meadowheard Road
Irvine
Ayrshire KA11 5AT
Scotland
UK
Tel. +44 1294 314 220
tom.dunn@upm.com

UPM, Caledonian
Tom Dunn
Meadowheard Road
Irvine
Ayrshire KA11 5AT
Scotland
UK
Tel. +44 1294 314 220
tom.dunn@upm.com

UPM, Changshu
Jin Lisheng
Washi, Xingang, Changshu,
Jiangsu Province,
P.R. CHINA 215536
Tel. +86 512 5229 5066
jin.lisheng@upm.com

UPM, Changshu
Jin Lisheng
Washi, Xingang, Changshu,
Jiangsu Province,
P.R. CHINA 215536
Tel. +86 512 5229 5066
jin.lisheng@upm.com

UPM, Chapelle Darblay
Karima Chakri
UPM, Stracel
4, rue Charles Friedel
BP 76
67016 STRASBOURG Cedex
Tel. + 33 (0)6 32 00 79 02
karima.chakri@upm.com

UPM, Chapelle Darblay
Karima Chakri
UPM, Stracel
4, rue Charles Friedel
BP 76
67016 STRASBOURG Cedex
Tel. + 33 (0)6 32 00 79 02
karima.chakri@upm.com

UPM, Docelles
Philippe Pinard
1, rue du Grand Meix
88460 Docelles
FRANCE
Tel. +33 3 29 33 81 00
philippe.pinard@upm.com

UPM, Docelles
Philippe Pinard
1, rue du Grand Meix
88460 Docelles
FRANCE
Tel. +33 3 29 33 81 00
philippe.pinard@upm.com

UPM, Ettringen
Martin Heinrich
Fabrikstrasse 4
B6833 Ettringen
GERMANY
Tel. +49 8248 802 340
martin.heinrich@upm.com

UPM, Ettringen
Martin Heinrich
Fabrikstrasse 4
B6833 Ettringen
GERMANY
Tel. +49 8248 802 340
martin.heinrich@upm.com

UPM, Fray Bentos
Gervasio Gonzalez
Ruta Puente Puerto Km. 307
Fray Bentos, 65 000
URUGUAY
Tel. +598 4562 0100
gervasio.gonzalez@upm.com

UPM, Fray Bentos
Gervasio Gonzalez
Ruta Puente Puerto Km. 307
Fray Bentos, 65 000
URUGUAY
Tel. +598 4562 0100
gervasio.gonzalez@upm.com

UPM, Hürth
Guido Clemens
Bertramstrasse 49
50354 Hürth
GERMANY
Tel. +49 2233 200 6107
guido.clemens@upm.com

UPM, Hürth
Guido Clemens
Bertramstrasse 49
50354 Hürth
GERMANY
Tel. +49 2233 200 6107
guido.clemens@upm.com

UPM, Jämsä River Mills
Eija Pohjonen
Tehtaankatu 1
42220 Jämsä
FINLAND
Tel. +358 2041 67683
eija.pohjonen@upm.com

UPM, Jämsä River Mills
Eija Pohjonen
Tehtaankatu 1
42220 Jämsä
FINLAND
Tel. +358 2041 67683
eija.pohjonen@upm.com

UPM, Kaukas
Minna Maunus-Tiihonen
53200 Lappeenranta
FINLAND
Tel. +358 204 15 4001
minna.maunus-tiihonen@upm.com

UPM, Kaukas
Minna Maunus-Tiihonen
53200 Lappeenranta
FINLAND
Tel. +358 204 15 4001
minna.maunus-tiihonen@upm.com

UPM, Kymi
Päivi Hyvärinen
Selluntie 1
45700 Kuusankoski
FINLAND
Tel. +358 204 15 2514
paivi.hyvarinen@upm.com

UPM, Kymi
Päivi Hyvärinen
Selluntie 1
45700 Kuusankoski
FINLAND
Tel. +358 204 15 2514
paivi.hyvarinen@upm.com

UPM, Madison
Daniel Mallett
1 Main Street, Madison
Maine 04950-0129
USA
Tel. +1 207 696 1116
daniel.mallett@upm.com

UPM, Madison
Daniel Mallett
1 Main Street, Madison
Maine 04950-0129
USA
Tel. +1 207 696 1116
daniel.mallett@upm.com

UPM, Nordland Papier
Barbara Küster
Postfach 1160
26888 Dorpen
FINLAND
Tel. +49 4963 401 1608
info.nordland@upm.com

UPM, Nordland Papier
Barbara Küster
Postfach 1160
26888 Dorpen
FINLAND
Tel. +49 4963 401 1608
info.nordland@upm.com

UPM, Pietersaari
Kari Saari
P.O. Box 42
68601 Pietersaari
FINLAND
Tel. +358 204 16 9770
kari.saari@upm.com

UPM, Pietersaari
Kari Saari
P.O. Box 42
68601 Pietersaari
FINLAND
Tel. +358 204 16 9770
kari.saari@upm.com

UPM, Plattling
Wolfgang Haaser
Nicolastrasse 7
94447 Plattling
GERMANY
Tel. +49 9931 89606 505
wolfgang.haaser@upm.com

UPM, Plattling
Wolfgang Haaser
Nicolastrasse 7
94447 Plattling
GERMANY
Tel. +49 9931 89606 505
wolfgang.haaser@upm.com

UPM, Rauma
Eerik Ojala
P.O. Box 95
26101 Rauma
FINLAND
Tel. +358 2041 43143
eerik.ojala@upm.com

UPM, Rauma
Eerik Ojala
P.O. Box 95
26101 Rauma
FINLAND
Tel. +358 2041 43143
eerik.ojala@upm.com

UPM, Schongau
Ute Soller
Friedrich-Haindl-Strasse 10
86706 Schongau
GERMANY
Tel. +49 88 61 213 442
info.schongau@upm.com

UPM, Schongau
Ute Soller
Friedrich-Haindl-Strasse 10
86706 Schongau
GERMANY
Tel. +49 88 61 213 442
info.schongau@upm.com

UPM, Schwedt
Gilbert Pauch
Kuhleide 1
16303 Schwedt/Oder
GERMANY
Tel. +49 3332 281 351
gilbert.pauch@upm.com

UPM, Schwedt
Gilbert Pauch
Kuhleide 1
16303 Schwedt/Oder
GERMANY
Tel. +49 3332 281 351
gilbert.pauch@upm.com

UPM, Shotton
Peter Walmsley
Weightbridge Road
Shotton, Deeside
Flintshire CH5 2LL
UK
Tel. +44 1244 284 394
peter.walmsley@upm.com

UPM, Shotton
Peter Walmsley
Weightbridge Road
Shotton, Deeside
Flintshire CH5 2LL
UK
Tel. +44 1244 284 394
peter.walmsley@upm.com

UPM, Steyerermühl
Christian Polzinger
UPMKymmene Austria GmbH
Fabrikplatz 1
4622 Steyerermühl
AUSTRIA
Tel. +43 7613 89 00 509
info.steyerermuhl@upm.com

UPM, Steyerermühl
Christian Polzinger
UPMKymmene Austria GmbH
Fabrikplatz 1
4622 Steyerermühl
AUSTRIA
Tel. +43 7613 89 00 509
info.steyerermuhl@upm.com

UPM, Tervasaari
Harri O. Hiltunen
P.O. Box 39
37601 Valkeakoski
FINLAND
Tel. +358 2041 62643
harri.o.hiltunen@upm.com

UPM, Tervasaari
Harri O. Hiltunen
P.O. Box 39
37601 Valkeakoski
FINLAND
Tel. +358 2041 62643
harri.o.hiltunen@upm.com

For general environmental questions, please contact
UPM Environment.
environment@upm.com