



Stora Enso in brief

Stora Enso is a global paper, packaging and forest products company producing newsprint and book paper, magazine paper, fine paper, consumer board, industrial packaging and wood products.

The Group has 32 000 employees and 85 production facilities in more than 35 countries worldwide, and is a publicly traded company listed in Helsinki and Stockholm. Our customers include publishers, printing houses and paper merchants, as well as the packaging, joinery and construction industries.

Our annual production capacity is 12.7 million tonnes of paper and board, 1.5 billion square metres of corrugated packaging and 6.9 million cubic metres of sawn wood products, including 3.2 million cubic metres of value-added products. In 2008, our sales were EUR 11.0 billion, with an operating profit of EUR 388.4 million.

Stora Enso's company mission is to use and develop its expertise in wood to meet the needs of its customers and many of today's global raw materials challenges. Wood is a renewable resource with a wide range of commercial applications. Our products provide a climate-friendly alternative to many products made from competing non-renewable materials, and have a smaller carbon footprint. Therefore, our solutions based on wood have wide-reaching benefits for us as a business, a people and a planet. Sustainability – meaning economic, social and environmental responsibility – underpins our thinking and our approach to every aspect of doing business.

In the future, Stora Enso will focus more on growth markets in China, Latin America and Russia, and fibre-based packaging, plantation-based pulp and selected paper grades. Fibre-based packaging offers steady long-term growth in most segments and has vast innovation opportunities, offering sustainable new solutions for our customers. Plantation-based pulp allows us to secure low-cost fibre for production.



Foreword **3**

Stora Enso Oyj Veitsiluoto Mill and companies operating at the mill site **4**

Environmental policy **5**

Important environmental impacts **5**

The pulp and paper production processes **6**

Sustainability policy **6**

Veitsiluoto Mill's Environmental Principles **7**

Consumption of principal raw materials, energy and water **8**

Cleaning methods, emissions and significant permit conditions **10**

Environmental loads and targets at Veitsiluoto Mill **12**

Generation, recycling and other recovery of waste **13**

Emissions compared with corresponding mills **13**

Environmental performance and monitoring of the area affected by Veitsiluoto Mill **14**

Other environmental impacts **15**

Complaints and penalties imposed **15**

Development projects and targets with respect to environmental protection **16**

Environmental and safety management systems and labels **17**

Investment costs and operating costs **17**

Corporate social responsibility **18**

Pine needles as a bioindicator around pulp and paper mills **20**

Verification of environmental report **21**

Contact information **21**

Date of next report **21**

Glossary **22**

Facts and figures of Veitsiluoto mill in 2008

Personnel 1319

Turnover EUR 730 million

Production capacities per year:

- Bleached sulphate pulp 400 000 t
- Document paper 560 000 t
 - Sheets 510 000 t
- Magazine paper 440 000 t
- Sawn goods 170 000 m³ in two shifts
- Veitsiluoto power plant's capacity for thermal energy generation is 439 MW.



Winder of Paper Machine 5.

Foreword

Stora Enso Oyj's Veitsiluoto Mill has a long tradition in the management of environmental issues: the first programme covering the principles applied in environmental protection was published in 1973. Veitsiluoto Mill's first environmental statement in compliance with the EMAS regulation was published in 1997. This statement is the eleventh consecutive one.

The products of Veitsiluoto Mill are manufactured in accordance with the principles of sustainable development, the conservation of raw materials and energy, and imposing the least possible impact on the environment. Emissions from the mill have been considerably reduced during the past few years and, in 2008, most of the emission demands set by the EU for the best available techniques were fulfilled. The environmental load during the life cycle of the products was estimated in 2008 by means of life cycle analysis.

Since 1997, the mill units have applied an environmental management system certified according to ISO 14001, thereby creating a sound basis for holistic environmental management. Continuous improvement in

protecting the environment is one of the basic premises of our activities. Continuous improvement will be secured through environmental targets and action programmes, set each year for the individual units on the basis of environmental evaluations.

The certified PEFC and FSC chain-of-custody systems related to forest certification are in use at the pulp mill and paper mill as well as the certified PEFC chain-of-custody system at the saw mill. The origin of all the raw wood is known.

At the pulp mill, the electrostatic precipitator nr. 2 of the recovery boiler was renewed in summer 2008. A new data collection and reporting system was fully introduced at the pulp mill and in the power plant. The Northern Finland Environmental Permit Authority granted a new environmental permit to Veitsiluoto Mill in spring 2007. The permit included several notification obligations, which were met during 2008.

Veitsiluoto Mill met all the permit conditions and reached most of the environmental targets set for the year 2009 already in 2008.

Stora Enso Oyj
Veitsiluoto Mill
Management Team

Jari Kärkkäinen, chairman
Olli-Pekka Ahonen
Simo Kannelsuo
Mika Kuusela
Hannu Myllykoski

Juha Mäkimattila
Hannu Nurmesniemi
Pasi Pihlajaniemi
Jouko Suomalainen
Juhani Tolvanen



Stora Enso Oyj Veitsiluoto Mill and companies operating at the mill site

The production companies operating at Veitsiluoto Mill are Stora Enso Oyj Fine Paper Veitsiluoto Mill, Stora Enso Oyj Magazine Paper Veitsiluoto Mill and Stora Enso Timber Oy Ltd Veitsiluoto Sawmill. Maintenance, servicing and repairs at the mill were mainly carried out in 2008 by Fortek Oy, which is a subsidiary of Stora Enso Oyj. Stora Enso Oyj has a 75 % interest in Fortek Oy, and the remaining 25 % is owned by ABB Service Oy. EMAS registration covers the above-mentioned units. In future, maintenance, servicing and repairs at the mill will be carried out by Efora Oy.

Veitsiluoto power plant, which belongs to Stora Enso Fine Paper Veitsiluoto Mill, is responsible for the generation of thermal energy and a part of the electricity consumed by the mill. Omya PCC Finland Oy's PCC plant and Opplax Oy's packaging pallet factory are also located at the site.

Production data and general information

Stora Enso Oyj Veitsiluoto Mill produces pulp, uncoated fine papers, coated printing papers and sawn goods. The pulp mill is fully integrated into the paper mill, and a considerable proportion of the paper produced is cut into sheets at the sheeting plant. Production of the mill units at Stora Enso Oyj Veitsiluoto Mill are given in the table.

Oplax Oy's packaging pallet factory (with a capacity of 500 000 pcs/a) and Omya PCC Finland Oy's PCC plant (which produces precipitated calcium carbonate) are the mill units located at Veitsiluoto Mill. PCC is manufactured from burnt lime and carbon dioxide from the flue gases of the pulp mill. The plant has a capacity of 130 000 t/a.

Production	2008	2007
Stora Enso Fine Paper		
Veitsiluoto Mill		
• Bleached soft- and hardwood pulp	332 622 t	371 566 t
• Uncoated fine paper (PM 2 and PM 3)	486 832 t	514 388 t
• Sheeting	363 994 t	308 350 t
Stora Enso Magazine Paper		
Veitsiluoto Mill		
• Coated printing paper (PM 1 and PM 5)	382 635 t	394 779 t
Stora Enso Timber Oy Ltd		
Veitsiluodon saha		
• Sawn goods	142 430 m ³	149 566 m ³



Veitsiluoto Mill

Most of the production plants operate on a continuous three-shift basis, only stopping for repairs and on a few public holidays. Veitsiluoto Sawmill, on the other hand, operated in two shifts in 2008.

The net sales of Stora Enso Oyj's Veitsiluoto Mill's amounted to EUR 730 million in 2008, exports accounting for some 90 per cent. The mill's personnel numbered 1319 at the end of 2008.

Environmental policy

Stora Enso Oyj's Board of Directors has approved the sustainability policy (page 6) adopted throughout the Stora Enso Group. The sustainability policy covers environmental, social and economic responsibilities. Veitsiluoto Mill subscribes to Stora Enso Oyj's sustainability policy, which was accepted by the mill units when they approved the environmental principles of Veitsiluoto Mill at the local Management Team meeting, held on February 14, 2007 (page 7). These guidelines are available on request to all parties. Subcontractors and non-Stora Enso companies operating at the mill site are also expected to follow the principles of Stora Enso Oyj's sustainability policy in their own activities.

Stora Enso Wood Supply Finland has an ISO 14001 -based environmental management system in use and the unit has been entered in the EMAS register. Stora Enso Wood Supply Finland is also a holder of the PEFC and FSC chain-of-custody certificates related to forest certification, as well as the FSC controlled wood certificate.

Important environmental impacts

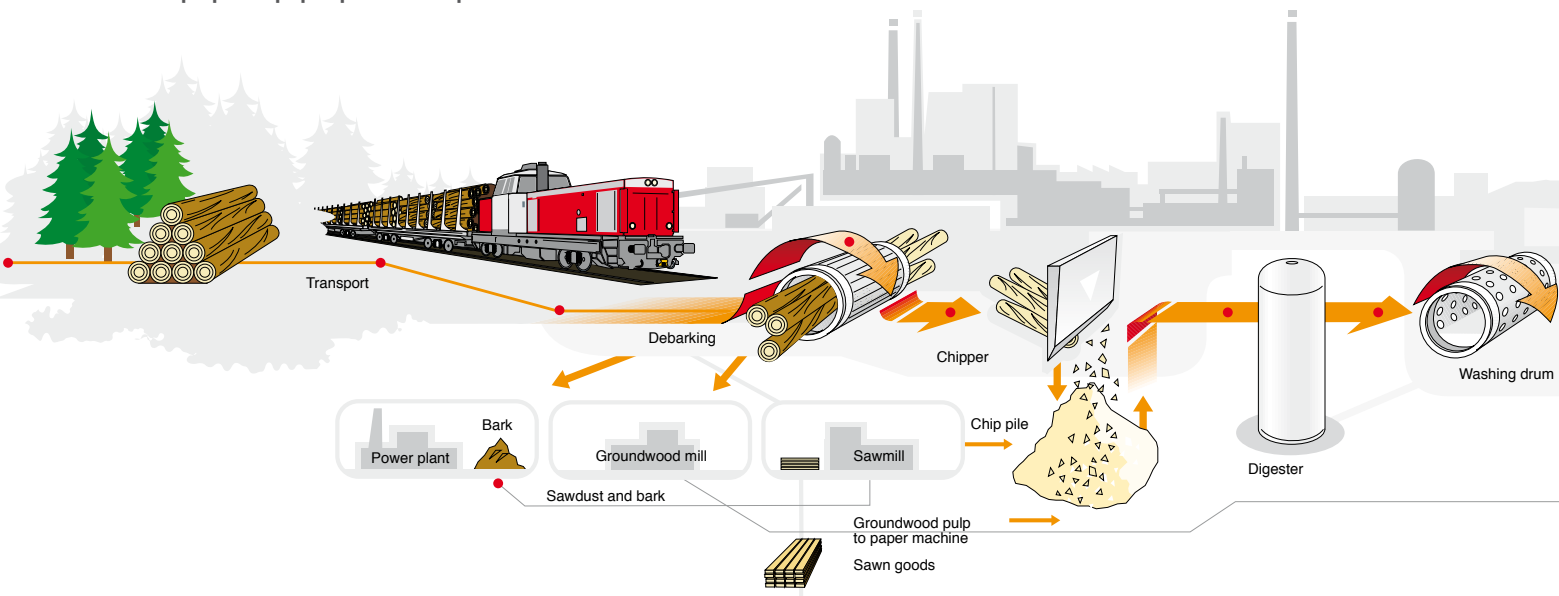
Veitsiluoto Mill's manufacturing processes generate emissions to the air, discharges to waters, and solid waste. The mill causes a certain amount of noise pollution in the neighbouring area.

Conversion of raw materials, timber harvesting and the transport and handling of raw materials and products also generate emissions (primarily to the air). The emissions originating from specific products have been estimated by conducting a life cycle analysis. The life cycle analysis was updated in 2008.

The main sources of discharges into waters are pulp and paper manufacture, while the most significant sources of airborne emissions are the pulp mill and the power plant. Most of the solid waste is generated by the paper mill, the power plant and the pulp mill. The major sources of noise are the debarking plant, the power plant and heavy goods traffic to and from the mill site.

Information on important environmental issues concerning Veitsiluoto Mill is available from the environmental statement, Stora Enso Oyj's sustainability report, the Internet, press releases, press conferences, training events and reports to the authorities.

The pulp and paper production processes



Stora Enso's Sustainability Policy

Stora Enso is committed to managing and developing its business in a sustainable manner. Balancing our economic, environmental and social responsibilities is necessary for sustainable business and beneficial to our stakeholders.

We strive to continually improve our sustainability performance. We are transparent in our communication and engage our stakeholders in active and constructive dialogue. We measure and publicly report our sustainability performance.

As a global company we operate according to our values, policies and principles everywhere; we respect different cultures, customs and values of the societies where we operate. We comply with and when necessary go beyond the requirements of national legislation and regulations.

We address sustainability throughout our value chain, and we expect our suppliers and partners to comply with Stora Enso's policies and principles related to sustainability.

Economic responsibility

We must be a profitable business and an attractive and trustworthy investment, employer, supplier and business partner. We strive to contribute to the economic well-being of the societies in which we operate.

Environmental responsibility

To minimise our impact on the environment, we consider a life cycle approach and use applicable control technologies. We use raw materials, energy and other resources efficiently. Our products are mainly produced from renewable raw materials, and they are recyclable and safe to use. We verify the origin of wood and fibre, procure them only from legal and acceptable sources and promote sustainable forestry.

Social responsibility

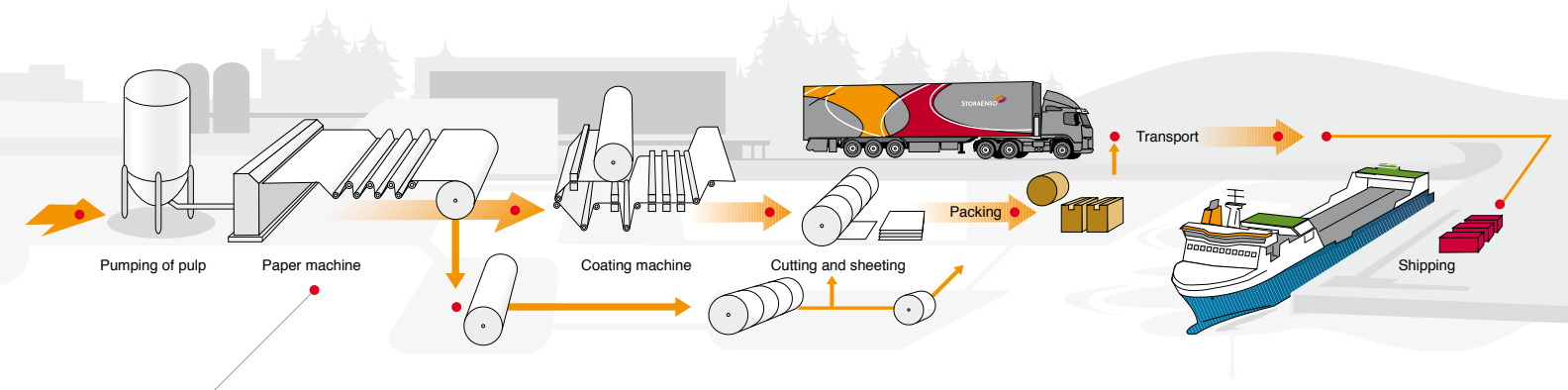
We adhere to ethical business practices in all our activities. We honour and support globally accepted human and labour rights, and we create a healthy and safe workplace for all of our employees. We are a responsible neighbour, and we do our part in supporting social development.

Management

Sustainability is a part of Stora Enso's corporate governance, and responsibilities are assigned throughout the organisation. We expect all of our employees to observe these commitments and responsibilities in their everyday work.

Veitsiluoto Mill verifies the origin of all the wood and fibre.





Veitsiluoto Mill's Environmental Principles

Veitsiluoto Mill complies with Stora Enso Oyj's sustainability policy. The mill units have applied certified environmental management systems creating a sound basis for holistic environmental management. Based on this policy and their environmental impacts, the mill units set their own environmental goals and develop an action programme to achieve them. The subcontractors operating in the mill area and external companies are expected to commit themselves to act according to Stora Enso Oyj's sustainability policy.

Sustainable Development as Basis

Veitsiluoto Mill's activities are adjusted to keep them in line with the environment and nature, and the mill complies strictly with environmental

The principles of sustainable development are emphasized in the training of the personnel.



protection laws and decrees as well as the rulings, regulations and instructions of the courts and authorities.

The products are manufactured in line with the principles of sustainable development, conserving raw materials and energy and placing the least possible impact on the environment. The paper products that the mill manufactures are recyclable and safe to use.

Stora Enso Wood Supply Finland is responsible for the mill's wood procurement. The principles applied in the wood procurement are to support sustainable forest management and promote forest certification. Environmental aspects are also respected in procuring other raw materials and chemicals.

Continuous Improvement

We employ the best available technology and expertise to continuously develop our products, production processes and business practices. The environmental impacts and risks of the mill's operations are assessed by life-cycle analyses of the products, risk analyses and safety surveys. The quality of environmental protection at the mill is monitored by means of regular internal inspections.

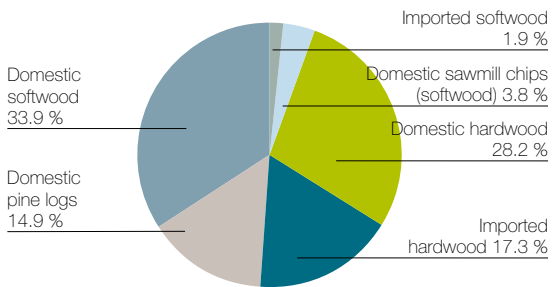
Training and Information

Personnel are trained to be aware of the importance of environmental protection and to act in such a way that environmental pollution is minimized. The company provides information freely and actively on issues and measures related to environmental protection. Stora Enso Oyj publishes an annual sustainability report concerning the whole group.

Environmental Responsibility

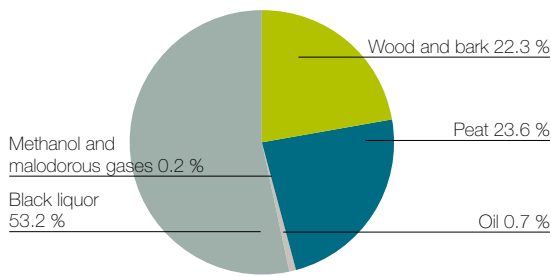
Each mill unit has the responsibility for implementing environmental protection action in an appropriate way and for fulfilling all its obligations. In addition to this, it is the obligation of every Veitsiluoto employee to ensure that all the work affecting the environment is handled responsibly.

Wood procurement in 2008



Wood consumption 2.2 million cubic metres

Energy generation and fuels in 2008



Heat generation 10 454 TJ

Consumption of principal raw materials, energy and water

Wood raw materials

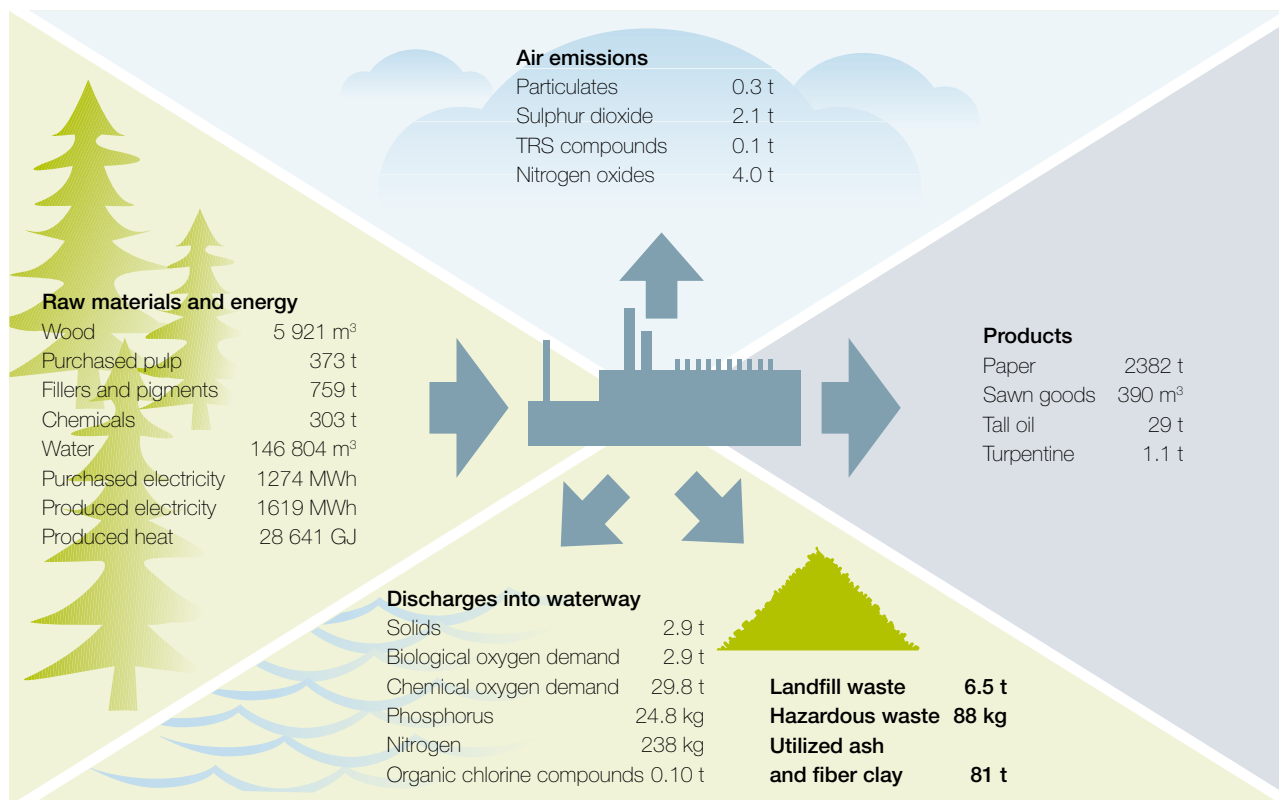
Stora Enso Wood Supply Finland (WSF) is responsible for the supply and transport of wood raw material to Veitsiluoto Mill. Wood Supply Finland is ISO 9001, ISO 14001, OHSAS 18001 certified and EMAS registered, and it also holds PEFC and FSC Chain-of-Custody certificates as well

as the FSC controlled wood certificate. The principles applied in wood procurement are to support sustainable forest management and to promote forest certification. For detailed information on policies, principles and practices, please visit [www.storaenso.com/wood & forest](http://www.storaenso.com/wood&forest).

The main sources of wood for Veitsiluoto Mill are Finland, the Baltic countries and Russia. The traceability systems cover 100 % of the wood supply. Stora Enso aims globally at maximising the volume of wood originating from third-party certified forests.

The mill's consumption of wood amounted to about 2.24 million cubic metres in 2008. The pulp mill used 0.40 million cu.m. of softwood, 0.94 million cu.m. of hardwood and 0.26 million cu.m. of sawmill chips. The groundwood plant used 0.33 million cu.m. of spruce pulpwood and the sawmill 0.31 million cu.m. of pine and spruce logs. Groundwood

Daily average consumption of raw materials and energy and daily average emissions at Veitsiluoto Mill in 2008



Main chemicals in 2008

	t*
Calcium carbonate	224 202
Kaolin	50 282
Starches	23 824
Sodium hydroxide	18 495
Sulphuric acid	12 917
Latexes	12 533
Oxygen	9 540
Chlorine dioxide	6 398
Optical brighteners	5 560
Hydrogen peroxide	2 537
<u>Total amount of all chemicals used</u>	<u>385 129</u>

*calculated as 100 % matter



Wood from the neighbourhood is delivered by trucks.

and logs are procured from Northern Finland, while about 20 % of the raw material for pulp was imported.

Already in 1999, a national certificate (under the Finnish Forest Certification Scheme – FFCS) was awarded to the forests in the Province of Lapland (Lappi) in Finland. The certificate covers 97 % of the forests (6.3 million hectares) in the area of the Lapland Forestry Centre. An equivalent certificate was awarded to the forests in Northern Ostrobothnia (96 %) at the end of 2000. FFCS is endorsed by the Programme for the Endorsement of Forest Certification Schemes (PEFC).

Other raw materials and chemicals

The chlorine dioxide used for bleaching chemical pulp is made from sodium chlorate, sulphuric acid and hydrogen peroxide at the pulp mill. Dithionite, which is used in bleaching groundwood pulp, is produced from Borino solution and sulphur dioxide at the groundwood mill. The PCC (Precipitated Calcium Carbonate) used as a filler in paper making is manufactured at the PCC plant from burnt lime and carbon dioxide recovered from the pulp mill flue gases. Other raw materials and chemicals are transported to the mill by road, rail or sea.

Energy

The chemicals used in the cooking liquor for chemical pulp are recovered and reused. The ligneous matter dissolved in the cooking liquor is burned in the soda recovery boiler and the generated heat is transferred to the power plant.

The power plant and the pulp mill together produce all the thermal energy needed by the mill, and the power plant generates more than one half of the electricity used by the mill. Most of the energy needed by the mill is generated by burning black liquor, wood and bark waste and peat.

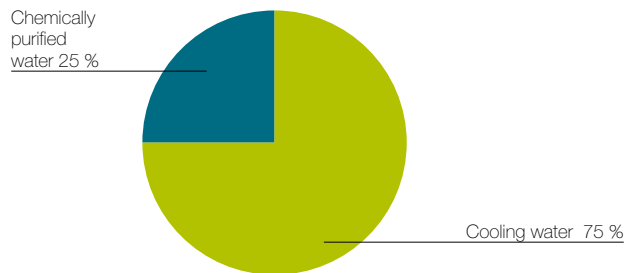
A new power plant was taken into use in September 1996 and, as a result, oil consumption was reduced to a fraction of the earlier level with a considerable fall in emissions. At the same time, the electricity production capacity increased, and the plant now produces nearly 60 % of the electricity consumed by the mill. In 2008, the power plant produced about 591 GWh of backpressure electricity. The amount of electricity purchased from outside sources was 465 GWh.

The Energy Market Authority of Finland awarded Stora Enso Veitsiluoto Mill an emission permit for the Kyoto emission trading period of 2008 – 2012. The annual emission allowances are about 7 % lower than the allowances in the EU emission trading period. Emission trading concerns only carbon dioxide emissions originating from fossil fuels. The fossil fuels used by the mill are liquefied petroleum gas, heavy and light fuel oil, and peat. In 2008, Veitsiluoto Mill had no need to buy extra emission allowances in addition to the allowances already provided in the emission permit.

Water consumption

Veitsiluoto Mill takes its raw water from the River Kemijoki, and it is stored in the so-called fresh water reservoir. The mechanically purified raw water is used for cooling, which means that the raw water does not normally come into contact with the actual production process. The chemically purified water used in the production processes is produced by treating mechanically purified water with chemicals and removing impurities either by sedimentation or flotation at the water purification plant. A part of the chemically purified water is passed through an ion exchange process to be used as supplementary water for the boilers. The drinking water required by the mill is also produced at the water purification plant.

Water consumption in 2008



Total consumption 53 583 600 m³



Biological wastewater treatment plant.

Cleaning methods, emissions and significant permit conditions

Wastewater treatment

Wastewater from Veitsiluoto Mill mainly originates from the pulp mill and paper mill. The wastewaters from the pulp mill and the groundwood mill, as well as from the disc filters of the paper machines, are cleaned biologically by the activated sludge method, while the other wastewaters from the paper mill are treated chemically by the flotation method. The wastewater load from the PCC plant is very small, and the effluent is treated by the paper mill's purification plant. The power plant produces only small amounts of wastewater, which is piped to the pulp mill's purification plant.

The laboratory of Stora Enso Magazine Paper Veitsiluoto Mill (ISO 9001) carries out the monitoring of operations and loads for water protection in compliance with an officially approved schedule, and the results are reported monthly to the relevant authorities. External laboratories are used for certain special analyses. At certain intervals, the authorities take samples at their own discretion for the purpose of comparison and inspection.

Treatment of flue gases

The airborne emissions from Veitsiluoto Mill originate from the pulp mill and the power plant. Particulates from the flue gases of the soda recovery boiler, lime kiln and fluidized bed boiler are separated by electrostatic precipitators. The high and low concentration malodorous gases from the pulp mill are burned in the recovery boiler. Some of the flue gases from the chemical pulp mill are fed into the PCC plant process, which reduces the amount of carbon dioxide in the flue gases.

The airborne emissions from the pulp mill and the power plant are measured annually by an external accredited company. The mill's emissions are reported monthly on the basis of process data and continuous and interval measurements. The pulp mill and power plant have an officially approved system for monitoring and reporting failures.

Veitsiluoto Mill's wastewater load and permit conditions

Wastewater load	2008			2007			Permit limit
	Pulp	Paper	Total	Pulp	Paper	Total	
Solids							
t/d	2.5	0.4	2.9	2.8	0.6	3.4	-
kg/t	2.7	0.2		2.7	0.3		
BOD₇							
t/d	1.1	1.8	2.9	1.2	2.1	3.3	-
kg/t	1.2	0.8		1.2	0.9		
COD_{Cr}							
t/d	20.3	9.5	29.8	24.3	9.9	34.2	50
kg/t	22.4	4.0		23.9	4.0		
Phosphorus							
kg/d	20.0	4.8	24.8	20.4	3.9	24.4	45
g/t	22.1	2.0		20.1	1.6		
Nitrogen							
kg/d	150	88	238	162	81	243	-
g/t	165	37		159	33		
AOX							
t/d	0.10	-	0.10	0.13	-	0.13	-
kg/t	0.11	-		0.13	-		

The limit values of wastewater permit are defined as monthly means. All limit values were met in 2008.

Emissions to the air

	Pulp mill		Power plant	
	2008	2007	2008	2007
Sulphur emissions				
t S/a	50.6	68	368	433
kg S/t	0.15	0.2		
Particulates				
t/a	98	107	7	13
kg/t	0.3	0.3		
NO_x emissions				
t/a (NO ₂)	732	480	733	652
kg/t	2.2	1.3		
Carbon dioxide				
(fossil fuels)				
t/a	845	0	350 593	379 489
kg/t	2.6	0		

The permit conditions for airborne emissions were met in 2008.

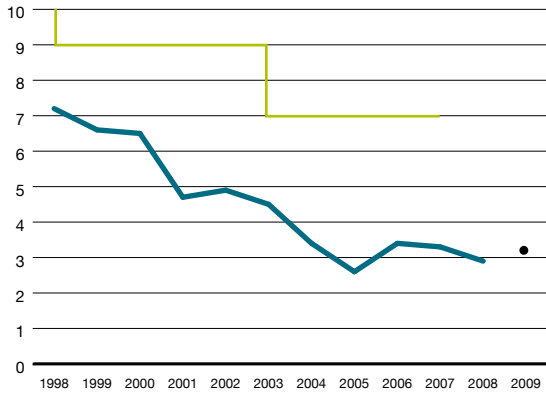
Permit conditions (air emissions)

	Limit value mg/m ³
Pulp mill	
Recovery boiler	
Particulates	50
Total reduced sulphur compounds (TRS)	20*
Lime kiln	
Particulates	50
Total reduced sulphur compounds (TRS)	40*
Chlorine emissions as Cl _{tot}	30
Power plant	
Boiler K7	
Particulates	30
Sulphur dioxide (SO ₂)	480
Nitrogen oxide (NO _x)	400
Oil-fired boiler K6 (standby boiler)	
Particulates	150

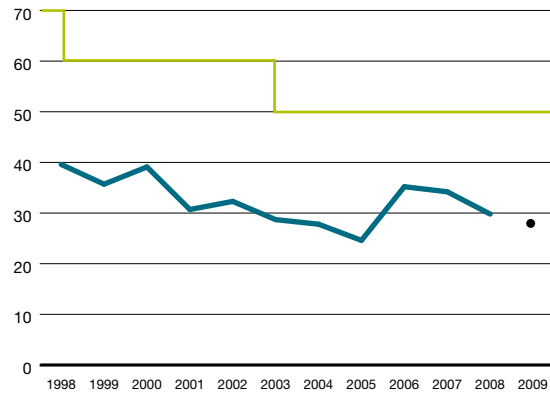
*Target emission level

Environmental loads and targets at Veitsiluoto Mill

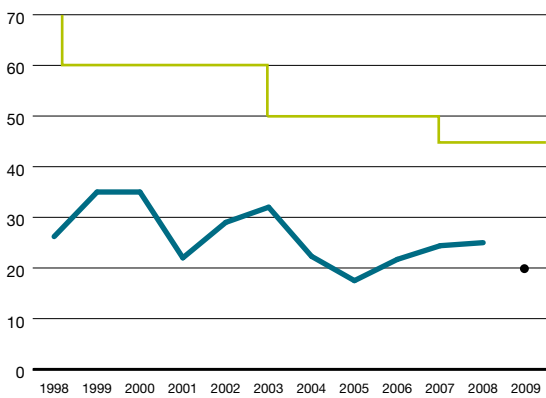
BOD₇-loading, t O₂/d



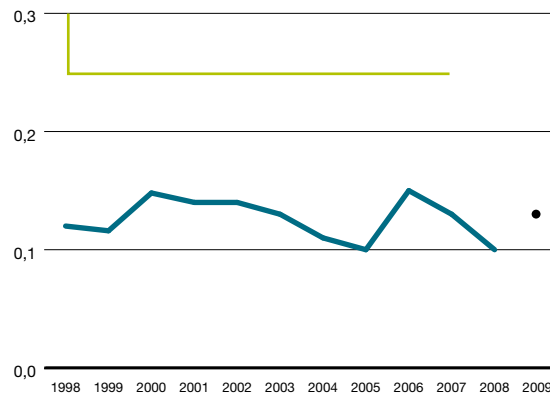
COD-loading, t O₂/d



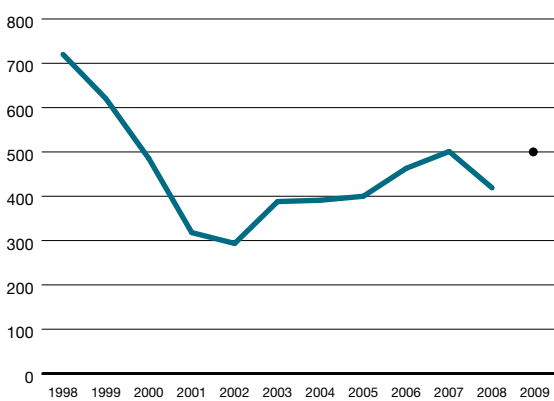
Phosphorus loading (P), kg/d



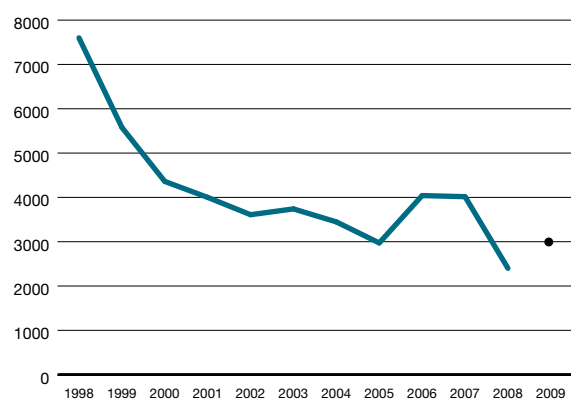
AOX-loading, t/d



Sulphur emissions to air, t S/a



Waste to landfill, t/a



- Limit value (monthly average)
- Realized load
- Target for 2009 set up in the beginning of 2007



Wood chips are used as a raw material for the chemical pulp and bark is incinerated for energy in the power plant.

Generation, recycling and other recovery of waste

Veitsiluoto Mill operated in full compliance with the valid waste permit during 2008. The present landfill situated in the mill area was taken into use in 1991. The suitability tests for all waste fractions to be disposed of in the landfill were carried out at the end of 2008.

Most of the waste generated at the mill was directed to reuse. Wood and bark waste, as well as sludge from the pulp mill's waste treatment plant, were burned and converted to energy at the power plant. Waste paper and board as well as plastic wrappers of paper reels were collected for recycling. The main part of the sludge from the paper mill's effluent treatment plant and 75 % of the fly ash were used for landscaping

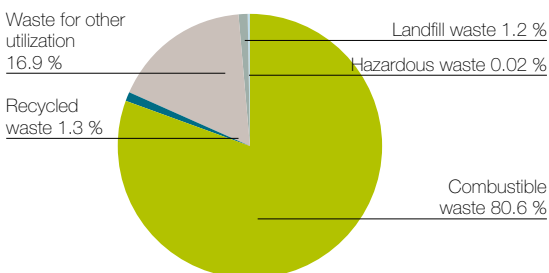
the ash basin. Three quarters of the green liquor dregs were used for neutralizing wastewater, and 25 % of the fly ash was utilized as a hardener in filling the excavated cavities in Outokumpu's Kemi chrome mine.

Emissions compared with corresponding mills

Sulphur emissions (0.15 kg S/t) from Veitsiluoto Pulp Mill are lower than the average emissions in the Finnish pulp industry, while the chemical oxygen demand of wastewater (22.4 kg/t) is higher than the average. The amount of particulates from the power plant is very low compared with other corresponding plants, whereas the sulphur emissions are on the average level. The amount of solid waste from the paper mill (0.2 kg/t) discharged into the waterway is lower than the average in the Finnish paper industry, but the oxygen consuming discharges (4.0 kg/t) are somewhat higher. The amount of landfill waste from the pulp and paper mill is clearly lower than the average in Finland.

Source: Environmental report 2008 of the Finnish Forest Industries Federation

Wastes in 2008



Total amount 202 785 t (as dry tonnes)

Environmental performance and monitoring of the area affected by Veitsiluoto Mill

The offshore waters at Kemi

During recent years, problems caused by odours have been extremely rare, and the oxygen status of the waters near Veitsiluoto Mill has been good in the summer months and at least satisfactory in the winter months. Slight eutrophication has been detected in Veitsiluoto Bay but, immediately outside the bay, the water has been classified as low in nutrients. Sea bottom organisms that thrive in clean waters are now widely found in Veitsiluoto Bay.

Monitoring the offshore waters of the City of Kemi is carried out by an external consultant in compliance with an approved schedule, which also covers Oy Metsä-Botnia Ab's pulp mill, Kemiart Liners Oy and the City of Kemi. The schedule includes annual monitoring of the water quality and biological follow-up studies at three-year intervals, as well as the monitoring of fishing in the area. In the beginning of 2008, a new monitoring program was taken into use, fulfilling the demands of the EU Water Framework Directive.

Air quality in the Kemi area

The air quality in the Kemi area has also improved during the past ten years. Sulphur dioxide emissions have fallen from about 4000 t/a to 900 t/a. A similar development has taken place with respect to malodorous sulphur compounds (TRS). In 2008, TRS emissions amounted to about 70 t S/a in Kemi and NO_x emissions were about 2600 t/a.

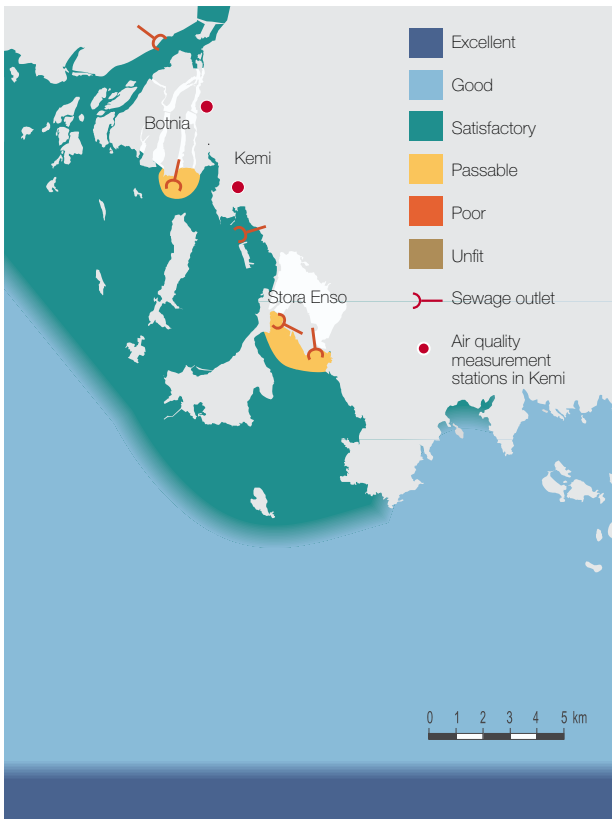
The most significant problem affecting air quality in the Kemi area is still the occurrence of malodorous sulphur compounds, which can cause a nuisance to the inhabitants of the area under certain conditions. The problem, however, decreased significantly when the Kemi pulp mills introduced the best available technique to treat also low concentration odorous gases in 2000. Sulphur dioxide and nitrogen oxide emissions are relatively low considering the amount of industrial activity in the area. There are no signs of damage to the natural environment caused by acidifying deposition. The values for all types of airborne pollution in the area affected by the Veitsiluoto Mill are well below the air quality guideline values.

The air quality in the Kemi area is subject to continuous monitoring. The monitoring system includes four measuring stations, all of which measure the SO₂ and TRS concentrations in the ambient air. A meteorological station is also located at one of the stations. The latest readings are displayed on the recovery line control room terminals at the pulp mill and on the terminals at the environmental protection department.

Veitsiluoto Island: groundwater status

There has been industrial activity on Veitsiluoto Island since the 1920's. In the past, unused sawmill waste was piled in the shore area, causing an increase in the organic load on the groundwater. The groundwater of Veitsiluoto Island does not come into contact with that on the mainland, and thus there is no risk of any pollutants spreading. Veitsiluoto Mill does not use the island's groundwater. All drinking and process water is taken from the River Kemijoki.

The quality of groundwater on Veitsiluoto Island is monitored in compliance with an approved monitoring programme by taking samples at seven different points.



Classification on the offshore waters of Kemi according to recreational use (Pöyry Environment Oy)



The high and low concentration malodorous gases are burned in the recovery boiler in order to minimize the problems of malodorous emissions from the pulp mill.

Other environmental impacts

Past activities

Earlier, Veitsiluoto Mill had a sulphite pulp mill, prefabricated house factory and an impregnation plant operating on the site. These have all been closed down. Soil analysis of the impregnation plant site was completed in 1997 and, on the basis of the results, the contaminated soil was capped at the landfill with material that is relatively impermeable to water.

Landscaping was carried out at the disused landfill site in the early 1990's. The ash basin is currently being landscaped with suitable waste screenings.

Present activities

A certain amount of disturbance is caused by noise from Veitsiluoto Mill's debarking plant, power plant and heat recovery fans in paper machines 2 and 3, and also by heavy goods traffic to and from the mill. The noise from the debarking plant has been reduced by building a noise barrier on the side of the plant facing the housing estate, and by developing improved working methods in the noisiest stages of the process. At the power plant, the noise caused by exhaust steam outlets has been reduced by installing sound dampers. According to the measurements carried out in 2008 and the results of model calculations,

in certain weather conditions the noise levels in the nearby housing estate caused by the mill can momentarily exceed the standards laid down in the environmental permit. The results of the noise survey will be taken into account in all future investments in order to minimize noise emissions.

The runoff and leachate waters from the landfill of the mill are treated in the biological treatment plant.

The Environmental Risk Analysis of Veitsiluoto Mill was updated in 2005. All the possible risks were identified and the necessary measures were taken to minimise these risks. The Risk Analysis will be updated in the future.

Complaints and penalties imposed

Veitsiluoto Mill receives very few external complaints. All the complaints are registered by the Environmental Manager. In 2008, Veitsiluoto Mill received four complaints about environmental disturbances, all related to malodorous gases emitted by the pulp mill.

No legal action has been instigated regarding the environmental aspects of Veitsiluoto Mill's activities, and no penalties have been imposed on personnel or companies operating at the site.

Development projects and targets with respect to environmental protection

Implemented and approved development projects

At the pulp mill, electrostatic precipitator nr. 2 of the recovery boiler was renewed in 2008, which reduced particulate emissions from the recovery boiler. A new data collection and reporting system was fully introduced at the pulp mill and in the power plant. This system will facilitate the monitoring and reporting emissions.

Targets and their implementation

In 2004, Stora Enso defined group-level environmental performance targets for Chemical Oxygen Demand (COD), sulphur dioxide (SO₂) and waste to landfill by 2009. These targets were reached in 2008. The new targets for the same parameters to be reached by 2013 from the baseline year 2007 were introduced in the beginning of 2009 (www.storaenso.com/sustainability). Stora Enso has also set a goal to reduce process water discharges by 10% by the year 2010 from 2005 and carbon dioxide (CO₂) intensity from pulp, paper and board mills by 20% by 2020 from the baseline year 2006.

At the beginning of the year 2007, Veitsiluoto Mill's new emission reduction targets were set for the period 2007–2009 (page 12). In addition

to this, at the end of 2007 Veitsiluoto Mill also set a target to reduce carbon dioxide emissions (CO₂) originating from fossil fuels per tonne of paper by 25 % of the level of 2006 by 2020. This target contains CO₂ emissions from the processes of Veitsiluoto Mill and from the purchased electricity. At the magazine paper mill, a project started at the end of 2007 with the target to raise the total efficiency of the paper machines during 2008–2009 by about 5 %, which will reduce specific consumption of raw materials and energy as well as emissions. The target of the pulp mill is to collect and incinerate odorous gases formed at the mill by the efficiency of 99 % at the minimum in order to minimize odour problems. Veitsiluoto Mill's own targets fully support the Group-level targets.

The environmental targets set for 2009 concerning biological oxygen demand (BOD₇) and organic chlorine compounds (AOX) in the wastewater as well as sulphur emissions (S) into the air and the amount of landfill waste were reached already in 2008 (page 12). The chemical oxygen demand (COD_{cr}) and phosphorus (P) load in the wastewater still exceeded the target level. Carbon dioxide emissions (CO₂) originating from fossil fuels decreased 4,5 % from the previous year's level per tonne of paper. In 2008, the production units concentrated especially on efficient usage of

The renovated electrostatic precipitator reduces particulate emissions from the recovery boiler.





After the enlargement of the sheeting plant, Veitsiluoto Mill became the biggest producer of document printing papers in Europe. All these papers have the right to use the Nordic Ecolabel and the European Union Ecolabel.

raw materials and minimization of losses. As a result, the amount of paper mill waste, comprising fillers, pigments and fibres treated in wastewater plant, decreased by ca. 20 % from the previous year's level. The efficiency to collect and incinerate odorous gases formed at the pulp mill was over 99 % in 2008 and the target was reached also in this respect.

Environmental and safety management systems and labels

The mill units of Stora Enso Oyj's Veitsiluoto Mill have certified ISO 14001 standard environmental management systems. The systems have, as far as possible, been built to supplement the ISO 9001 - based quality systems used at Stora Enso Fine Paper Veitsiluoto Mill, Stora Enso Magazine Paper Veitsiluoto Mill, Stora Enso Timber Oy Ltd's Veitsiluoto Sawmill and Fortek Oy's Northern Business Unit. Each unit has its own targets and management programme for achieving the targets in question.

At the end of 2003, the OHSAS 18001 Safety Management System of Stora Enso Fine Paper Veitsiluoto Mill and Stora Enso Magazine Paper Veitsiluoto Mill was also certified. In 2005, the same production units

received a PEFC chain-of-custody certificate, and in summer 2006 a FSC chain-of-custody certificate. Veitsiluoto Sawmill was granted a PEFC chain-of-custody certificate already in 2001 and the OHSAS 18001 Safety Management System of the mill was certified in 2007.

All Veitsiluoto Mill's document printing papers have the right to bear the Nordic Ecolabel (swan) and the European Union Ecolabel (flower), which presupposes low emission levels into waters and the air, sorting of waste at source, use of environmentally safe process chemicals, as well as quality and environmental management. Coated magazine papers have the right to be used for Swan-labelled printed matter.

Investment costs and operating costs

In 2008, electrostatic precipitator nr.2 of the recovery boiler was renewed at the pulp mill and a new data collection and reporting system was fully introduced. The total costs of the environmental investments were about EUR 0.3 million in 2008.

Veitsiluoto Mill's annual operating costs for environmental protection were EUR 5.5 million (EUR 5.1 million in 2007) in 2008. The major costs were the operating costs of the effluent treatment plants, which accounted for some 70 % of the total.

Corporate social responsibility

The Principles of Corporate Social Responsibility are a part of corporate responsibility, which also includes environmental and economical responsibilities. Veitsiluoto Mill follows the Principles of Corporate Social Responsibility and Business Practices Guidelines which were revised in autumn 2007. Veitsiluoto Mill expects the stakeholders to follow these principles.

Ethical business practices

We cooperate with our stakeholders in an honest, open-minded and non-discriminatory way.

Communications

Communication is based on credibility, responsibility, proactivity and interaction. These apply equally to all stakeholders. We advocate an open dialogue. In financial communications, we follow the limits set for listed companies. Internal communications aimed at the personnel employs several channels.

Community involvement

Veitsiluoto Mill is a responsible member of all the communities in which it is operating. The personnel are encouraged to participate in community activities. Veitsiluoto Mill supports association activities in the local area each year. The major part of the support is targeted at young people's freetime activities.

Responsible reduction in workforce

At Veitsiluoto Mill, all the necessary reductions in the workforce will be carried out with respect to individuals and sensitivity to employees' needs. Changes in staffing are informed at as early a stage as possible, and the required measures are agreed on together with the personnel.

Working conditions

Our employees are entitled to a safe and healthy workplaces. No employee shall be subject to any physical, psychological or sexual harassment, punishment or abuse.

Diversity of the personnel

We recognise personnel diversity as a strength. Since 2001, Veitsiluoto Mill has had the Equality Plan, which has been updated regularly, most recently in 2007. The objective of the plan is to make everyone in Veitsiluoto understand what equality means and how it is taken into consideration in practice.

Personnel as the result maker

The skills of our personnel affect both work satisfaction and profitability. When recruiting new staff we aim at upgrading the level of education, and those already working at the mill have personal or group-related development plans. Minimum levels of education have been defined for new recruits with respect to the tasks performed by both white-and

blue-collared employees. Furthermore, the organization and modes of individual operations are developed in order to ensure that the work tasks are varied, resulting in the development of personal skills and the promotion of working together.

Corporate Social Responsibility at Veitsiluoto Mill

During 2005, a Corporate Social Responsibility Seminar was held at Veitsiluoto Mill. This seminar dealt with the Group's Principles of Corporate Social Responsibility and ethical principles, on the basis of which a group of experts defined the most important points concerning Veitsiluoto and created a basis for the Corporate Social Responsibility action plan, which was approved in December 2005 by the Management Team of Veitsiluoto Mill. Veitsiluoto's Corporate Social Responsibility Coordinator takes care of implementing the plan and assists the units in developing their operations in compliance with the Principles of Corporate Social Responsibility. The Management Team of Veitsiluoto Mill follows the implementation of the action plan and updates it annually.

There are three principle themes:

- Safe and healthy working environment
- Supporting the local subcontracting and supplier network
- External communications and regional cooperation

Developing occupational safety is a part of the daily work

The target at Veitsiluoto Mill is 0 accidents. We are striving to reach this objective through, among others, the following measures:

- Safety training, the objective of which is to affect everybody's safety behaviour through attitude changes
- Thorough analysis of accidents and hazardous situation reports, as well as corrective measures
- Improving tidiness in the work environment
- Workplace evaluations and workplace mapping
- Eliminating dangerous worksites and work phases
- Using personal protection equipment
- Transparent information in safety matters

Both occupational health care and occupational safety organizations, together with occupational safety pairs, make regular investigations,

Cooperation with the Kemi Snow Castle has continued already for 14 years.





Swedish Hepp Film filmed a feature film called Practical Solution in Paper Machine 5.

checks and visits to the work places. A risk mapping, ASKELMA, has been made for every workpoint throughout the mill at Veitsiluoto.

Veitsiluoto's Department for Occupational Safety and the Fire Brigade of the mill take care of safety and safety training of the personnel. The quality of the work environment is controlled by e.g. the Occupational Safety Act, recommendations made by the occupational safety authorities and general norms. Occupational health care, occupational safety organizations and safety organizations regularly train the personnel. Examples of safety training given at Veitsiluoto Mill:

- Safety training for all the employees. The target is that all the workers of Veitsiluoto Mill possess a security card.
- Safety training for the external workforce: the external workforce must possess a security card. In addition to this, safety training with respect to the local conditions is given at Veitsiluoto Mill.
- Safety training for work guides
- Training occupational safety pairs
- Occupational safety card training
- First aid training according to the needs of the individual departments
- Various drills, such as exit drills and gas leak drills

Veitsiluoto Mill's cooperation in crisis situations is continuously being developed together with the local rescue operation units and the media. The aim of the training is to test the efficiency of communications between the authorities and the rescue plan of the mill. A large-scale training both in managing crisis situations and communication as well as in cooperation with the local authorities was implemented most recently in 2006.

Cooperation with stakeholders

The structural change in forest industry was discussed in various forums with different stakeholders. Closing down the Kemijärvi Pulp

Mill and Russia's plans to increase wood duties were the main topics e.g. at the annual meeting of Northern Finnish Journalists Association, whereupon the Stora Enso representatives informed about adapting the company's operations to the changing situation. The same topic came up with the media representatives also at the media background briefing arranged in May.

There were much less group visits in Veitsiluoto than in the previous years. During the year, 20 groups got acquainted with the mill, the number of participants totalling 507. Most of the group visitors came from upper secondary level institutions and from upper comprehensive schools all around Northern Finland. The most distant visitors arrived from Marseilles, France. The teachers of mathematics, physics, chemistry and informatics held their National Training Days in Kemi, visiting also Veitsiluoto during the same occasion.

The cooperation between the Unicef Kemi Department and Veitsiluoto Mill continued as during the previous years. Unicef arranged the Thirst Day happening in Veitsiluoto at the end of April. The happening was attended by a group of performers from Hepola School, the twin school of Veitsiluoto Mill. During the Energy Week of Comprehensive Schools in October, the 9th graders from Syväkangas and Hepola schools got acquainted with the Veitsiluoto Mill processes and use of energy as well as with production.

The Swedish production company Hepp Film shot a part of the feature film Practical solution in Veitsiluoto at the end of May. A film crew of ca. 50 persons with its internationally acclaimed actors and extras from Veitsiluoto succeeded in arranging the shot at the running mill without disturbing the production. The film will have its premiere in autumn 2009.

Veitsiluoto Mill supported the local operators in the fields of culture and sports as before. The most important cooperation partners were Kemi City Orchestra, Kemi Snow Castle, Kemi Kings football club and Veitsiluodon Kisaveikot sport club.



The sulphur concentration of pine needles in Kemi area has decreased nearly to the natural level.

Pine needles as a bioindicator around pulp and paper mills

All the chemical compounds or elements that are released into the atmosphere primarily as a result of human activities, and which can cause damage in living organisms, are considered air pollutants. Air pollution by gaseous sulphur compounds e.g. sulphur dioxide, and total reduced sulphur compounds (TRS compounds) such as hydrogen sulphide, methyl mercaptane, and methyl sulphides, is released into the ambient air from pulp and paper mills. These gaseous compounds impact the environment in the form of dry and wet deposition, and the spread of pollutants is dependent on the height they reach in the atmosphere and on local climate factors.

Air quality can be monitored by measuring the pollutant directly in the air or in deposition, by constructing models depicting the spread of pollutant, or by using biomonitors. Biomonitoring - monitoring the state of the environment through the performance of living organisms (bioindicators) - directly depicts the impact of environmental pollution on organisms, and can potentially detect the long-term exposure of a site to environmentally harmful pollutants.

Pine needles have proved to be suitable air quality indicators for pollutants, especially for gaseous sulphur compounds, and nowadays they are widely used for biomonitoring purposes in areas around point sources such as pulp and paper mills, steel works, municipal district heating plants etc. High concentrations of sulphur in the needles may be

the result of high sulphur emission levels. The environmental authorities have accepted them as a bioindicator for sulphur deposition. The use of pine needles as emission indicators around pulp and paper mills in Finland was first reported in the late 1960's.

Biomonitoring studies using Scots pine needles as a bioindicator have been conducted in Kemi every ten years. According to the first survey, carried out in 1979, the maximum sulphur concentration in Scots pine needles was 1430 mg/kg expressed on a dry weight (d.w.) basis in current year's needles and, correspondingly 1420 mg/kg (d.w.) in previous year's needles. In 1979, the average sulphur concentrations was 1150 mg/kg (d.w.) in the current year's needles and correspondingly 1145 mg/kg (d.w.) in the previous year's needles.

The last survey was conducted in the beginning of 2009, and then the maximum sulphur concentration was 1350 mg/kg (d.w.) in current year's needles and, correspondingly 1070 mg/kg (d.w.) in previous year's needles. In 2009, the average sulphur concentration in the current year's needles was 897 mg/kg (d.w.) and 920 mg/kg (d.w.) in the previous year's needles.

The decreasing trends for both the maximum and mean sulphur concentrations in Scots pine needles in Kemi seem to be reasonable in the light of the decreased sulphur emissions into the air.

Risto Pöykiö, Docent,
Environmental Manager, City of Kemi





Ympäristönsuojelupäällikkö Hannu Nurmesniemi

Verification of the environmental report (Finnish version)

DNV Certification Oy/Ab, as the accredited environmental verifier (FI-V-0002), has verified the internal procedures of Veitsiluoto Mill as well as the gathered data and documentation and, based on this, on April 17, 2009 it certified that the environmental policy, management programme, environmental management system, auditing methods and environmental report meet the requirements of the EU EMAS regulation (761/2001).

For further information on Veitsiluoto Mill's environmental protection, please contact:

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Date of the next report

Veitsiluoto Mill will publish its next verified environmental report at the latest by May 31, 2010.

Glossary

AOX

Adsorbable organic halogen compounds - A collective term for the amount of chlorine or other halogens bound to organic matter in waste water, for example.

BOD₇

Biological Oxygen Demand – A measure of the amount of oxygen consumed by micro-organisms as they break down organic matter in effluent during a certain period.

CO₂

Carbon dioxide – A gas formed during combustion and certain natural processes. Trees utilise carbon dioxide as they grow, through photosynthesis. Increasing concentrations of carbon dioxide in the atmosphere are widely believed to contribute to climate change.

COD

Chemical Oxygen Demand – A measure of the amount of oxygen required for the total chemical breakdown of organic substances in water by chemical oxygen-consuming substances.

EMAS

Eco-Management and Audit Scheme – A voluntary environmental management system applicable in Europe, based on EU regulations.

FFCS

Finnish Forest Certification System

FSC

Forest Stewardship Council - an international forest certification system

Green liquor dregs

Deposit generated in the pulping process, consisting of insoluble dregs, organic matter and insoluble inorganic salts.

ISO 14001

A global standard created for corporate environmental management systems by the International Organisation for Standardisation.

LCA

Life Cycle Assessment - A method for assessing the environmental impacts of a product "from cradle to grave".

Nitrogen

An element constituting a major part of the atmosphere. Excessive concentrations of nitrogenous compounds in water, together with phosphorus compounds and organic substances, can lead to increased biological activity in water through a process known as eutrophication.

NO_x

A collective term for the nitrogen oxides formed during combustion, which can contribute to the acidification of soil and water.

Particulates

Solid matter contained in airborne emissions

PEFC

Programme for the Endorsement of Forest Certification schemes

Phosphorus

An element. Excessive concentrations of phosphorus compounds in water, together with nitrogenous compounds and organic substances, can lead to increased biological activity in water, through a process known as eutrophication.

SO₂

Sulphur dioxide – A gas formed when fuels that contain sulphur, such as oil and coal, are burned. Sulphur dioxide contributes to the acidification of soil and water.

Solids

Solids indicate the amount of solid matter in wastewater.

TRS

Total Reduced Sulphur (TRS) compounds are generated in the production of sulphate pulp and they have a pungent smell, even in very small concentrations.

On the cover: Taisto Saari, Wire change in the paper machine.



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