



Protecting aquatic ecosystems

In 2004, Stora Enso set a target to reduce Chemical Oxygen Demand (COD) discharges by 10% per unit of production by the end of 2009 from 2004 levels. Some investment in waste water treatment capacity will be needed to help achieve this target, primarily at Stora Enso's European mills.

Other opportunities to cut COD discharges involve reducing the loads of organic materials in waste water before treatment. When discharges have been reduced, it becomes increasingly important to operate systems optimally to avoid any unintended discharges. Trends in Stora Enso's COD discharges are shown on page 17.

COD is a measure of the oxygen-consuming capacity of organic and inorganic matter present in water or waste water, using a chemical measurement method. The higher the amount of COD present in treated waste water, the more oxygen the discharges will consume in the receiving water body. If the waste water discharges consume too much oxygen in the receiving water body, aquatic organisms can be adversely affected.

More efficient treatment

After water is used in pulp and paper-making processes, it is carefully treated and returned back to the natural water system. Waste water treatment is an important part of Stora Enso's water management, and a lot of attention has been paid to waste water treatment at the mills over the years.

Two examples from Sweden illustrate what Stora Enso's mills are doing to further improve the efficiency of their waste water treatment plants.

Nymölla Mill is increasing the aeration capacity of the activated sludge process at the mill's waste water treat-

ment plant. The increased oxygen content in the aeration basin will improve the settling of sludge in the clarifiers, and increase the uptake of phosphorus and nitrogen by microorganisms, resulting in lower discharges into the sea. The new aeration equipment will be taken in operation in the spring of 2005.

Kvarnsveden Mill is increasing the capacity of its waste water treatment plant in order to meet the mill's future needs in conjunction with the investment in a new paper machine and the increased production of mechanical pulp. The upgrading of the waste water treatment plant will involve switching from a trickling filter system to a Moving Bed Biofilm Reactor (MBBR) system, and the installation of a new flotation stage to increase sludge separation capacity. The upgraded plant will be taken into operation during 2005.

of the Group's water use in 2004. The total amount of groundwater used by Stora Enso was further reduced in 2004. Water from lakes and rivers is particularly widely used in North America and in the Nordic countries, where surface water resources are abundant. In Continental Europe, where surface water resources are scarcer, process water is supplemented with groundwater to a higher degree.

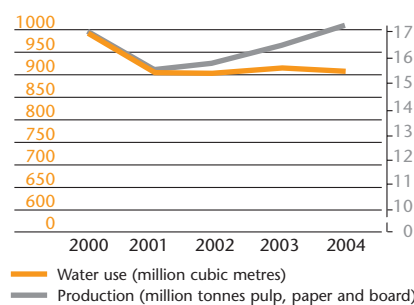
One example of a mill that has reduced its use of groundwater is **Corbehem Mill**. Since April 2004, Corbehem Mill has phased out the use of groundwater, and instead used more water from the River Scarpe in compliance with local regulations. The mill's power plant previously used about 400 000 m³ of groundwater annually to produce purified water for steam production. The mill began to take water from the river after the completion of a new power plant fuelled by natural gas.

Using less

Stora Enso's overall aim is to reduce the total use of water, and to use water more efficiently. Over the last ten years the Group's specific water use per tonne of production has decreased 15%.

At **Kimberly Mill**, for instance, practical improvements have reduced specific process water use by 31% since 2000.

Water use 2000–2004



Reduced use of groundwater

Almost all the water that Stora Enso uses for pulp, paper and board manufacturing is taken from rivers and lakes. Surface water sources accounted for 97%