

Abstract

The pulp and paper industry holds a reputation in the public eye for being a large consumer of water. This dissertation analyses water usage within the industry with a particular application to the South African pulp and paper industry.

Unlike in other paper-producing countries, water in South Africa is a scarce commodity with a wide range of consumers. Faced with this, it is important for the leaders of the paper industry to have a tool with which to manage water consumption.

This dissertation analyses the water usage aspects (including volumes needed and water quality needed) of the different processes, as well as the impact of different products, describing the reasons for water usage in each process. The application of best available technologies for water reduction is discussed.

A theoretical or expected range and norm for water usage for each of seventeen South African mills is derived, based on each mill's particular processes, capacities and products. The actual water usage by each mill was surveyed by personally interviewing personnel at each mill. Comparisons are made between expected and actual water usage, and the total daily water consumption of the industry is derived.

Only two mills operate below the expected norm level, most smaller mills operate close to the norm level, while five of the larger mills need to apply various techniques to reduce their water usage. The approximation of mill water usage to the predicted or expected norm clearly supports the hypothesis that water usage can be predicted by analysing process and capacity, and indicates that this dissertation can be used as a tool to manage water usage within the industry.