Environmental impacts

Reducing the impact on the environment

UPM focuses on reducing the impact on water, air, soil and groundwater.

All production operations impact the environment both directly and indirectly. 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. Indirect impacts arise mainly from transportation and the procurement of raw materials, chemicals, fuels and power.

Water

Water is an essential resource for pulp and paper making. At UPM, water reduction is an ongoing target. All wastewater from the pulp and paper process is treated in primary and secondary effluent treatment plants before being released into watercourses.

At UPM, effluent treatment plants remove 85–90% of the chemical oxygen demanding material (COD) – this is essentially the organic load of the effluents. The decomposition of the organic material in effluent consumes oxygen, and this impact is measured as COD. Effluents can also carry traces of nutrients, mainly nitrogen and phosphorus, into watercourses and thus contribute to nutrient increases or eutrophication. Wastewaters from bleached chemical pulp mills contain small amounts of chlorinated organic compounds, also measured as adsorbable organic halogen compounds (AOX).

Emission levels in effluents are regularly monitored and reviewed. The potential harmful effects of effluent on fish and other aquatic organisms are also assessed regularly by conducting comprehensive receiving water studies in association with expert biologists and ecologists.

Air

Energy generation causes air emissions. The main emissions are carbon dioxide, sulphur dioxide and nitrogen oxides originating from the incineration of fossil fuels. Sulphur and nitrogen oxides may cause acidification i.e. acid rain. Carbon dioxide emissions increase the greenhouse effect that scientists have linked to global warming and climate change. Almost 60% of fuels used by UPM's power plants are biofuels that do not contribute negatively to the greenhouse gas (GHG) effect because they are considered CO_2-neutral. Power boiler emissions are minimized through efficient purification, by the choice of fuels and by controlling the combustion conditions in the boilers.

Chemical pulp production generates malodorous sulphur compounds – TRS or total reduced sulphur – that can be detected even at very low concentrations. These TRS emissions are reduced by collecting and burning.

The most significant airborne emissions from UPM's Converting factories are VOC (volatile organic compounds) that come primarily from solvent-based adhesives or printing inks. VOC emissions increase the formation of ozone in the lower layers of the atmosphere. These emissions have continuously decreased because it has been possible to replace solvent-based substances with more environmentally sound alternatives.

Soil and groundwater

Solid waste consists mainly of coating colour waste, green liquor dregs, and fly ash from power plants. An increasingly large proportion of solid waste is reused, e.g. in the construction industry and in soil improvement. Almost all organic process waste such as bark, sludge and fibre waste is used as fuel by UPM's power plants. All remaining solid waste is taken to engineered landfill sites. Only minimal amounts of hazardous wastes are generated, and these are delivered to hazardous waste treatment plants.

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