

The project is a category III project according to the IIC's environmental review procedures because specific impacts may result which can be avoided or mitigated by adhering to generally recognized performance standards, guidelines and design criteria. The environmental and labor issues associated with this project include liquid effluent treatment, solid wastes/land-fill management, storage of fuel and hazardous chemicals, occupational health and safety, fire protection and emergency response. During the appraisal Santher provided information relating to all of its new projects, including the outsourcing of the liquid effluent treatment of its Penha plant, its sludge management program in all of its plants, and the relevant environmental permits and studies.

Compliance with Brazilian Environmental Law: In the State of Sao Paulo environmental issues are managed by Companhia de Tecnologia de Saneamento Ambiental (CETESB). CETESB grants permits for the design, construction and operation of facilities (manufacturing and waste treatment). Santher has all of the permits that it requires from CETESB for its projects at Bragança Paulista and Penha. At Bragança Paulista, occupational health and safety management is controlled by the Prefeitura Municipal which has granted Santher an operating license. In the State of Minas Gerais the Fundação Estadual do Meio Ambiente (FEPAM) manages environmental issues and has granted Santher all of the licenses that it requires to operate its Governador Valadares plant. In the state of Rio Grande do Sul the FEPAM regulates environmental matters and has granted Santher's Guaiba plant all of the licenses that it needs to operate.

Liquid effluent treatment: At each of Santher's plants there is a liquid effluent treatment plant that meets international treatment standards. The plants all have sludge de-watering plants and include polishing lagoons before effluents are discharged into surface waters. These systems will continue except at Penha where a private company, Sabesp, will begin receiving its effluents in January 2002. The paper-recycling project at Bragança Paulista includes equipment to reduce the moisture in the sludge, thereby maintaining at the same volumen the mass of sludge that has to be managed, despite the increased utilization of recycled paper.

Water: Santher obtains its process water from surface sources. In all cases the rivers are very polluted and require treatment before it can be used. Santher also produces potable water by further filtration and disinfecting with chlorine. Given the cost of winning water Santher maximizes the recycling of water at its plants. Santher does not use free chlorine in its bleaching process.

Solid waste: At each of Santher's plants solid waste is separated using color-coded receptacles which are colored depending on the type of waste. Each waste has a defined treatment and final disposition plan. Process scrap is recycled and a specified contractor collects domestic waste. Sludges are generated from the de-watering units at Santher's effluent treatment plants. The sludges are nontoxic and consist of unrecoverable fiber and ash from the recycled paper. Santher has proved the applicability of its sludge as an additive in the manufacture of clay bricks and encourages local ceramic companies to use it. Solid waste from secondary fiber processing is disposed of at the respective municipal landfills. During firing the sludge is burnt, leaving void and increasing the thermal insulating properties of the bricks. Sludge from Santher's Guaiba plant is currently being land farmed by a third party. The Guaiba plant, however, is developing a composting process with a local university with the intention of selling the product. The Governador Valadares (GV) plant is constructing its own engineered deposit for its sludge, which will be approved by FEPAM. The unsold sludge from the Bragança Paulista plant is sent to a municipal landfill.

Storage of fuels and chemicals: All chemicals and fuels at Santher's plants are stored in appropriate facilities, which have spill containment. A specified distance separates the fuel depots from the main facilities for safety. A new LPG facility is being installed at Braganca Paulista, to provide gas to the paper drying hoods and save energy. The LPG storage compound is fenced, separated by more than

50 meters from any other building and has detection and fire fighting equipment.

Occupational health and safety, fire safety and emergency response: Santher has company-wide health and safety policies, which are managed by a group safety officer with staff at each facility. Employees are provided with the appropriate equipment (earplugs, gloves, boots, hard hats, etc.), and with training in their use for their job. Periodic monitoring is performed to establish that working conditions are satisfactory. Santher provided records of its safety performance that revealed a significant reduction in accidents since implementing the group-wide safety system. Each plant has a health unit staffed by nurses, which is visited periodically by doctors, providing first aid services. At GV the clinic also provides dental care and general health services to the employees and their dependants. All of the plants have well placed safety signs. All of the plants except Guaiba have fire detection systems with alarms and panic buttons connected to a central monitoring console that indicates the location of the incident. Additionally, the plants have hydrant systems with dedicated water supplies and emergency pumps. One component of the project is to bring the Guaiba plant, most recently acquired, up to the standard of the other plants, by September this year. Each plant has trained fire and emergency brigades for each shift, which carry out periodic simulations with the local fire and emergency brigades and which have specialized equipment relating to the nature of the emergency.

Air emissions: All of Santher's steam boilers are operating at less than 5 tons/hour except one which in general operates below that level. The boilers use No. 6 fuel with less than 2% sulfur except in São Paulo where they are required to use low less than 1% fuel oil. Santher's emergency generators use fuel oil with less than 2% sulfur.

Labor: The project will comply with IIC's labor requirements, regarding freedom of association, the right to organize and collective bargaining, abolition of forced labor and harmful child labor, and non discrimination in employment and occupation. Santher has collective agreements at each of its plants. Staff benefits include medical and life insurance plans, food baskets, subsidized cafeteria, transportation, and social loans. Santher's compensation/benefits compare favorably when benchmarked against industry standards.

Monitoring and Annual Reporting: The sponsor will develop an Environmental Management Plan (EMP), which will include a schedule for the implementation of environmental projects (Penha waste water treatment outsourcing, GV sludge deposits, Guaiba composting and fire system) and a monitoring and reporting program to ensure that the project is complying with Brazilian laws and IIC's environmental guidelines. The EMP will also include an Environmental Management System describing who will be responsible for monitoring the implementation of Santher's environmental and safety activities and provide current information on the status of the relevant environmental and safety permits at each plant. Santher will submit an annual report summarizing the monitoring data related to wastewater discharge, solid waste disposal, status of the sludge programs at GV and Guaiba, health and safety training, and accident reports.