

## **Environmental Classification and Issues:**

**Environmental Classification:** This is a category III project according to the IIC's environmental review procedure because specific impacts may result which can be avoided or mitigated by adhering to generally recognized performance standards, guidelines and design criteria. The principal environmental and social issues related to this project include: wastewater treatment, solid waste, fire safety, and worker health and safety.

**Wastewater:** The plant generates both industrial wastewater and sewage. The plant's main contributor to the industrial wastewater stream is the processing of instant coffee, which includes a wet process. Dust, stones and other impurities from the coffee beans are removed in the washing stage, some wastewater is generated in the percolation stage, at the evaporation stage, and the agglomerator stage. In addition, a portion of the coffee grounds accumulates on the floor and is washed into the industrial wastewater collection system. The roasting of ground coffee, which involves a "dry process" (washing, roasting, grinding, and packaging) generates less wastewater. However, some of the roasted ground coffee products are formulated with caramelized sugar, and it is this caramelized sugar operation that generates wastewater with elevated BOD (biological oxygen demand) levels. The company completed a project to separate the industrial wastewater stream from the sewage waste and has been analyzing a variety of different proposals for installation of a wastewater pretreatment plant for industrial wastewater. The pretreatment plant will improve the effluent water quality required in order to be sent to the municipal wastewater treatment facility where BOD levels will be further reduced. It is anticipated that the municipal wastewater treatment facility, which is part of the government's plan to clean Lake Managua, will be operating by 2006. In addition to installing a treatment plant, the company will implement various other measures to reduce the generation of liquid contaminants that need to be treated. For instance, the company will invest in a "cleaning in place" project that will allow the recycling of cleaning liquids used (i.e. acid and caustic soda) for certain machinery used to make instant coffee, thereby reducing the use and discharge of these chemicals in the liquid effluent waste stream. They will also implement methods to remove the spent coffee grounds at the source to avoid them from falling to the floor and contributing to the elevated suspended solid levels in the wastewater.

**Solid Waste:** Solid waste generated at the facility consists primarily of office trash, spent coffee grounds, and residual plastic used for packaging the coffee. The domestic trash is collected by the local authorities, the plastic is sold to a company that recycles it, and, as a result of the IIC's recommendation, 100% of the spent coffee grounds are used as fuel in the boiler combustion chamber, thereby eliminating 30% of spent coffee grounds that previously needed to be placed in a landfill.

**Air Emissions:** The plant is connected to the municipal electricity grid, and an emergency back-up generator (750 Kw) that relies on fuel oil is rarely used. Café Soluble with the guidance of the Centro de Producción Más Limpia de Nicaragua conducted a study in May 2001 to analyze methods to increase energy efficiency at the plant. The Techaire roaster that roasts coffee with caramelized sugar has afterburners that significantly reduce smoke emissions typical when burning sugar is involved. Stack losses from the spray drier and agglomeration unit are small and do not appear to be a pollution consideration. However, the company will implement an annual monitoring program to ensure that emissions from the plant do not exceed international standards.

**Quality Control:** Café Soluble received the ISO 9002 certification in February 2002, and in September 2003, 100 workers attended a training course in Good Manufacturing Practices and Hazard Analysis and Critical Control Point (HACCP) system in order to identify and minimize all potential sources or points in the process where the coffee could potentially be contaminated. The well water used in the process and for drinking water on-site is tested and complies with the World

Health Organization Standards for potable water.

**Fire Safety:** The plant is equipped with a network of fire extinguishers, and fire hydrants with foam, water, and chemicals depending on the type of fire risk in different areas (i.e. from electrical faults, burning plastic, etc.), and in August 2003 the company installed an alarm system for emergency evacuation. Fire water for the plant is obtained from a 30,000 gallon tank of well water on site. Training with respect to fire fighting and related equipment is periodically offered, and emergency/fire drills are also performed.

**Occupational Health and Safety:** The company has an Occupational Health and Safety Operational Procedures/Policy (Plan Anual de Seguridad e Higiene) in which accident prevention measures are defined and risks specific to each of the different work areas in the plant (i.e. the toasting area, the boiler area, the packaging area, the electrical maintenance area, etc.) are addressed. Workers are provided with the appropriate protective equipment, health insurance, and first aid. All work-related accidents are recorded and analyzed continuously. The plant also has a clinic with a nurse and doctor available.

**Handling of Chemicals:** Methods for appropriately handling flammable substances are included in the company's Reglamento Técnico Operativo de Seguridad e Higiene Industrial. A very small amount of chemicals are used at the plant. The drums containing potentially flammable substances, such as fuel oil, have been appropriately labeled in order to better identify the risks associated with the chemical substance (i.e. flammable, reactive, corrosive). All chemicals stored on site are segregated, as well as labeled in a systematic way to ensure safe storage.

**Labor:** The Company has a policy that persons under 16 years of age are not permitted to work. Workers at the plant are members of a union formed by the workers of Café Soluble, and a Convenio Colectivo de Trabajo has been signed by the Manager of Human Resources of Café Soluble and the union of workers at the company (Sindicato de Empleados y Obreros). This agreement stipulates the obligations of Café Soluble to the union. For instance, the company agrees to maintain an office for the union on company grounds, offer transportation to and from the plant and grant loans to employees in times of emergency. Other benefits are outlined in the Convenio Colectivo de Trabajo.

**Miscellaneous Social Aspects:** The Company is currently offering classes so those employees that have not completed their primary education can do so. A variety of educational talks are also given to the employees and their families on topics such as AIDs, family planning, and managing personal finances. In addition, in January 2000 the company, in conjunction with donations from its employees, reconstructed a local primary school, upgrading it with bathrooms and new chalkboards, and is currently working to develop a library and playground for the school. The plant and its employees are also indefinitely providing additional financial assistance to teachers at the school.

**Monitoring and Annual Reporting:** The sponsor has developed an Environmental Management Plan (EMP), which includes a schedule for the implementation of environmental projects and a monitoring and reporting program to ensure that their facilities are complying with national laws and IIC's environmental guidelines. The EMP also includes an Environmental Management System (EMS) based on the ISO 14000 standards. The EMS describes who will be responsible for monitoring the implementation of environmental activities. The sponsors will continue to submit an annual report summarizing the monitoring data related to occupational health and safety, fire safety, accident reports, air emissions, wastewater discharge, solid waste disposal, hygiene and quality control, and labor related issues.