

Environmental and Labor Issues: This is a category III project according to the IIC's environmental and labor review procedure because it could produce certain effects that may be avoided or mitigated by following generally recognized performance standards, guidelines, or design criteria. The main environmental and labor considerations related to the project are liquid effluent management, solid waste management, occupational health and safety, fire safety and emergency response.

Papelería Nacional (Panasa) is the major producer of medium corrugated and test liner in Ecuador. Panasa principally supplies its products to cardboard box producers associated with the banana sector. The plant is located in the Canton Marcelino Maridueña (also known as San Carlos) in the Province of Guayas. The plant is located adjacent to the San Carlos sugar refinery. There are also sugar cane and banana plantations located in the project area. The project will allow more of the recycled paper processed in the plant to be used (since more of the fiber can be recovered with the new equipment purchased), which will not only result in a reduction of the quantity of waste generated but will also mean that more waste paper in Ecuador will be collected for recycling rather than disposed of in landfills.

Background/ Compliance with Ecuadorian Environmental Law: Panasa is committed to environmental and health and safety issues and has obtained international certification in ISO 14001 (Environmental Management Systems) and ISO 9000 for Quality Control. The company is currently preparing an Environmental Impact Assessment of the expansion project. Panasa has also developed an Environmental Management Plan and is in compliance with the requirements of the Subsecretaría de Gestión Ambiental Costera.

Liquid effluent treatment: Panasa's plant has a liquid effluent treatment system consisting of a physical-chemical process using a Krofta clarification system, primarily to remove suspended solids from the wastewater. Sludge removed from the system is used for compost, as it is nontoxic and consists primarily of nonrecoverable fiber from the recycled paper. The compost is used to fertilize Panasa's garden. The wastewater is then routed to sedimentation lagoons and then discharged during seven months of the year to an adjacent sugar cane plantation for irrigation. According to laboratory tests conducted by an independent certified lab, the quality of the treated wastewater is in compliance with Ecuadorian standards for water to be used for irrigation. During the remaining five months of the year, the treated wastewater from the lagoons is discharged to a stream (Estero Saraguayo). The wastewater is in compliance with both local and international standards for discharge to surface waters for most parameters, with the exception of biochemical oxygen demand (BOD) levels, which slightly exceed local standards. Panasa is currently working on a solution to further reduce BOD levels in the lagoons prior to discharge, including potential options such as increasing the retention time in the lagoons as well as additional aeration. The current wastewater treatment plant and lagoons have sufficient capacity to treat the additional wastewater to be produced as a result of the project to increase the plant's production capacity. Currently, 670 gallons/minute of wastewater are treated by the wastewater treatment system, and the project will result in an increase to 850 gallons/minute that will need to be treated. However, given that the Krofta clarification plant has the capacity to treat up to 1,500 gallons/minute, it is anticipated that the plant will be able to handle the additional wastewater.

Water: Panasa obtains its process water from two wells and has the necessary permits. The company has significantly reduced the amount of water used in the process over the past few years, from 960 gallons/minute to 763 gallons/minute. This was mainly achieved by recovering water within various parts of the process for reuse.

Solid waste: Panasa's solid waste is separated using clearly identified receptacles or storage areas depending on its nature. Each waste has a defined treatment and final disposition plan. The majority

of the solid waste from the plant is recycled. For instance, the metal wires used to bundle the recycled cardboard/paper brought into the plant to be used in the process, are collected and sold. Construction debris is also collected and sold or donated. Ash from the boilers is placed in properly identified bags and is stored temporarily in the storage area for used oil. Used oil is sent for incineration and the ash from the boilers is added to the sludge that comes from the treatment plant. The sludge collected from the treatment plant is nontoxic and consists of unrecoverable fiber and ash from the recycled paper. This sludge is composted and used to fertilize Panasa's garden and plantation near the wastewater treatment system.

Storage of fuels and chemicals: All chemicals and fuels at Panasa's plants are stored in appropriate facilities, which have the required spill containment areas. Chemicals used at the plant are located in areas with a roof that are well labeled and locked such that only authorized personnel can enter. Drainage in areas where fuels are stored and handled also has oil/water separators and is directed to the wastewater treatment system.

Occupational health and safety, fire safety and emergency response: Panasa has company-wide health and safety policies, including an emergency plan. Employees are provided with the appropriate equipment (ear plugs, gloves, boots, hard hats, etc.) and training in its use for their job. Periodic monitoring is performed to establish that working conditions are satisfactory, and a safety committee (comite de seguridad) meets on a weekly basis to review working conditions and safety issues. Panasa provided records of its safety performance that revealed a low number of accidents. The plant has a health unit staffed by a doctor and an ambulance permanently on site and it has an agreement with the local hospital to take care of emergencies.

The quality of the conditions for the workers in the plant has recently improved significantly, as enclosed air-conditioned cabins have been constructed in each area of the plant, such that the workers can rest, also reducing exposure time to noise and heat. In addition, the roofs in various parts of the plant have recently been changed to roofs that do not retain as much heat, thereby reducing ambient air temperatures within the plant; translucent panels have also been put in place in many roofs thereby increasing natural light in the plant and reducing the need for as many lightbulbs, also resulting in energy savings. The plant has trained fire and emergency brigades and carries out periodic drills with the neighboring plants and local fire and emergency brigades. The plant has a system of 16 fire hydrants and 146 fire extinguishers, as well as a dedicated water supply of 41,000 gallons and emergency pumps. In addition, in an emergency the process water can be connected to hydrants and used to combat fires. The plant has a fire detection system with alarms and panic buttons connected to a central monitoring console that indicates the location of the incident.

Air emissions: All of Panasa's boilers use fuel oil with sulfur content of less than 3% and according to monitoring data, air emissions at the plant are in compliance with local regulations. Fugitive dust or particulate levels are also monitored periodically throughout the plant and are in general compliance with Ecuadorian ambient air quality standards, with the exception of two areas within the plant, which have slightly elevated dust levels that will be reduced by paving the road adjacent to the plant in those areas.

Labor: The project complies with IIC's labor requirements regarding freedom of association, the right to organize and collective bargaining, and nondiscrimination in employment and occupation. The minimum work age at Panasa is 18 years old. Panasa has a collective work agreement (contrato colectivo de trabajo) with a comité de empresa comprising a group of 17 employees. Staff benefits for all workers include medical insurance plans for the employees and their families, transportation, and educational subsidies for employee's children.

Monitoring and Annual Reporting: The sponsor has developed an Environmental Management Plan (EMP), which it will expand upon as per the IIC's request to include a schedule for the implementation of environmental projects (such as upgrading the wastewater treatment system) and a monitoring and reporting program to ensure that the project is complying with Ecuadorian laws and IIC's environmental guidelines. The EMP will also include an Environmental Management System that describes who will be responsible for monitoring the implementation of Panasa's environmental and safety activities and provide current information on the status of the relevant environmental and safety permits at each plant. Panasa will submit an annual report summarizing the monitoring data related to wastewater discharge, solid waste disposal, air emissions, health and safety training, and accident reports.