

**Environmental and Labor Issues:**

**Environmental Classification and 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 this project are: 1) environmental management; 2) quality control and third-party certification; 3) liquid effluent treatment; 4) management and disposal of solid waste; 5) air emissions; 6) workplace safety and hygiene, fire prevention, and firefighting; and 7) labor practices and corporate social responsibility.

**Environmental Management:** Compañía Cervecería de Nicaragua has an environmental management plan in place for its industrial operations. It holds the operating permits required by local and national health, environmental, and occupational safety and hygiene regulations. For this purpose, CCN has programs run by employees trained to identify potential risks. These risks are assessed so that preventive, mitigating, or corrective action may be taken as needed, with regular follow-up to ensure compliance. Over the past few years CCN has implemented measures that have lowered its consumption of electricity, bunker fuel for the boilers, and water, based on good international practices for the sector. These measures include investing in process and control equipment to save electricity, fuel, and water and installing a new compressed air system; more efficient motors; boilers and combustion control systems; a boiler to burn methane gas from the wastewater treatment plant; a system that uses treated water to irrigate landscaped areas on the company's site; automatic packing and cleaning equipment; water gauges throughout the plant; and workgroup training focused on decreasing water consumption.

**Quality Control and Third-Party Certification:** CCN follows strict quality controls for its products, and the entire company is ISO 9000:2001 certified. There is an on-site laboratory that performs physical-chemical and microbiological tests for product quality monitoring purposes. The production area has a Hazard Analysis and Critical Control Point (HACCP) quality control system that tracks quality from inputs (raw materials, packing materials, and supplies) to the end product, both for beer and for bottled water. Process water is drawn from wells in the company's facilities and is treated appropriately before use. The quality of the bottled water that CCN produces complies with international standards as set out in the U.S. Food and Drug Administration standards. CCN's facilities and brewing processes are audited regularly by specialists from the Technical University of Munich-Weihenstephan.

**Liquid Effluent Treatment:** Since 2001 CCN has had its own industrial and domestic wastewater treatment plant, designed not only to ensure that its liquid effluents meet domestic standards and international guidelines but also to generate biogas as a renewable source of calorific energy in the form of process steam. Industrial effluents are treated principally by physical-chemical and biological processes to remove solids in suspension and the biodegradable organic substances dissolved in the process and domestic wastewater. For the biological process the company has an anaerobic reactor that generates biogas (mainly methane) to fuel a 50 HP boiler that generates steam for the facilities and enables CCN to save on bunker fuel consumption. Bunker fuel is the main fuel used to operate the four other, larger-capacity boilers that are the primary source of process steam. The treatment plant effluents test within domestic quality requirements. Nevertheless, CCN has decided to expand the existing wastewater treatment plant in view of its existing treatment capacity and the need to increase industrial output in the future. This will enable the company to remain in compliance with Nicaraguan environmental standards and international guidelines. CCN will also assess how to optimize the anaerobic biological process to maximize the generation of biogas and step up its use for generating steam or even electricity, using biogas as a renewable energy source. IIC technical assistance funds will be sought to help CCN engage a consultant to carry out the wastewater treatment plant expansion feasibility study.

**Handling and Disposal of Solid Waste:** CCN follows good practices for handling and disposing of solid waste at its facilities. Waste is temporarily stored in containers, and the company has engaged the services of an authorized local contractor for collecting nonhazardous solid waste and transporting it for disposal. CCN has permission from the office of the mayor of Managua to dispose of its nonhazardous solid waste (landscaping trimmings, biodegradable waste from the cafeteria, etc.) at the disposal site authorized by the city government. Wastewater treatment plant sludge is dewatered in a filter press and used as a soil conditioner on the company's grounds. Malt and rice hulls and dust from the crushing process, as well as the residue from filtering the extract (bran), are sold to third parties as cattle feed. Recyclable materials (such as glass, metal, aluminum cans, and cardboard) are also stored temporarily in special warehouses and subsequently sold to third parties for marketing. CCN is building a materials storage and recycling center that is expected to begin operations next year.

**Air Emissions:** The air emissions from CCN's facilities are chiefly combustion gases from the four boilers that run on bunker fuel. Emissions are minimized by monitoring boiler operations regularly and making adjustments as necessary. CCN is starting to use biogas instead of bunker fuel to generate steam, both to cut operating costs and to reduce air emissions. Malt and rice hull dust and particles are generated in the mill area but are not released into the air because they are captured by collectors for storage and subsequent sale as cattle feed.

**Workplace Safety and Hygiene, Fire Prevention and Firefighting:** CCN has a safety, hygiene, and environmental manager who is in charge of such matters in conjunction with the production, engineering, projects, and human resources areas. Workers receive the requisite personal protection equipment free of charge, and use of this equipment is enforced. There is an occupational safety and health training plan for all of CCN's workers. The plan has three modules: basic safety, occupational health, and special risks. Each module can have different courses based on target groups and area-specific risks. For on-site health care and disease prevention there is a clinic headed by a physician with two staff nurses; they are also in charge of regular worker medical examinations. The tanks for storing hazardous substances (acids, bases, bunker fuel) have appropriate safety signs and leak containment dikes. The underground bunker fuel storage tank in the gas station area has been tested for tightness; there are no fuel leaks. Nevertheless, CCN is planning to build a new gas station this year and replace the underground tank with an above-ground one with a containment dike. The company also has process carbon dioxide and ammonia leak detectors. These gases are used in the industrial process. The fire prevention and firefighting measures in place consist of smoke detectors, hydrants, hoses, an alarm, and extinguishers, as well as fire brigades. The system complies with National Fire Protection Association (NFPA) standards. The administrative areas and the industrial facilities have safety signage and evacuation routes. CCN has been working on implementing international occupational health and safety standard OHSAS 18001 and expects to become certified next year.

**Labor Practices and Corporate Social Responsibility:** CCN is in compliance with domestic labor laws and International Labour Organization (ILO) guidelines. Mandatory core labor standards include social security benefits, freedom of association, organization of workers' unions, prohibition of forced labor and exploitative and abusive child labor, and nondiscrimination in the workplace. There is a labor union, as well as a collective work agreement and company work regulations. CCN's social responsibility policy commits the company, above all, to further the education of low-income young people in the neighboring communities. For this purpose, CCN has a technical school where these young people receive support for associate degrees in the areas of industrial mechanics and business management. CCN's technical school is accredited by the Ministry of Education.

**Monitoring and Compliance:** CCN will continue to implement its environmental management plan covering the environmental protection, safety, and labor issues discussed herein. The company will

submit an annual report summarizing tracking data on liquid effluent treatment, handling and disposal of solid waste, air emissions, workplace safety and hygiene, fire prevention and firefighting, and labor practices. During the life of the project, the IIC will monitor ongoing compliance with its own environmental and labor review guidelines by evaluating monitoring reports submitted annually to the IIC by the company and by conducting periodic site visits as part of the project supervision process.