

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: (1) compliance with local legislation; (2) biodiversity conservation and sustainable natural resource management; (3) reduction in air emissions as a result of the project; (4) wastewater and solid waste management; (5) community health, safety and security; (6) social issues; (7) occupational health and safety; and (8) labor.

Environmental Regulatory Framework

A preliminary environmental impact assessment (EIA) was prepared for the project and was reviewed and approved by the Consejo Nacional de Electricidad (CONELEC) in February 2008. Subsequently, the EIA was disclosed to the local communities in the project area of influence and once the comments were received they were incorporated in to the final version of the EIA (detailed and final EIA dated March 10, 2011). The project also obtained the required water rights from the Secretaría del Agua (SENAGUA) on March 6, 2012. SENAGUA's permit authorizes a design flow of 30 m³/s for 48.07 MW. The EIA for the transmission line is currently being prepared and will be submitted to CONELEC for review and approval.

In addition to requiring environmental impact assessments and an environmental management plan (EMP), which is needed to obtain the environmental license for the project, the IIC has requested the project sponsor to furnish a variety of additional information and analyses to complement the information included in the original studies. The objective of this additional information is to further strengthen the environmental and social impact assessment and mitigation measures developed for the project. As requested by the IIC, the project sponsor will be required to develop the following: a comprehensive social impact matrix that identifies and assesses the main impacts (positive and negative) to be expected in each of the directly affected communities; detailed action plans to mitigate specific impacts on directly affected communities, as indicated in the social impact matrix; and an updated land acquisition matrix with socioeconomic information about owners and properties already purchased and pending acquisition for both the hydroelectric project and the transmission line.

In addition to the existing EMP for the project, the IIC will require the project sponsor to develop an environmental and social action plan (ESAP) to ensure that the project not only complies with local environmental standards but is also in line with the IIC's environmental and social requirements.

Biodiversity Conservation and Natural Resource Management

The infrastructure for the project will be located on land consisting primarily of a mix of land used for cattle grazing and crop production, as well as patches of secondary vegetation. Evaluations of the project area indicate that the project will have a limited impact on the vegetation, particularly as it is a run-of-the river project. No protected areas are located within the direct project area.

Regarding local fauna, no endemic species are reported for the direct project area. A total of 15 mammal species were identified, however the majority were registered outside the project's direct area of influence and are associated with altered habitats. None of these species are listed as threatened or endangered.

In addition, the following were reported for the general project area (direct and indirect project area): 35 bird species, 15 mammal species, and 19 reptile and amphibians species, and 48 fish species. One of the 35 species of birds registered is categorized as vulnerable: *Rupicola peruviana* "gallo de la peña". However, it is considered to be at low risk. One of the reptiles/amphibians is categorized as nearing threatened status, *Potamites cochranae* (Cochran's Neusticurus lizard).

The project's minimum ecological flow is established between 4.0 m³/s (during the dry season) and 8.1 m³/s (during the rainy season) depending on the natural flow conditions, and the average monthly flow of the river is 49.3 m³/s. A baseline assessment of aquatic ecology and hydrology was conducted to evaluate potential project impacts and was taken into consideration in establishing the minimum ecological flow. In order to determine the appropriate ecological flow values, a modeling methodology of physical habitats was applied taking into consideration the preferred hydrology and viable habitats of various invertebrate aquatic species that are characteristic of the Río Negro River. The project will be required as per the ESAP to conduct monitoring activities during the operational phase to ensure that sufficient ecological flow is being maintained and avoid any negative impacts on the aquatic ecology or other related flora or fauna in the Río Negro river system.

In addition to a minimum ecological flow being maintained in the affected portion of the river (5.6 km long), flows from three micro watersheds that meet the Río Negro (from the Tayuya Grande River, Santo Domingo River, and Tayuya Chico River systems) will reduce the impact of the decrease in flow along the affected section of the river between the intake structure and the powerhouse. The company is also in the process of designing a fish passage to be implemented in order to protect certain species of aquatic resources that are used occasionally by local communities for recreational fishing.

As part of the ESAP, Hidrosanbartolo S.A. will develop a water quality and aquatic ecology monitoring plan and a watershed management plan, including a reforestation program, which will aim to identify, avoid, mitigate, compensate, and/or, if needed, eventually offset any significant degradation of the habitat detected as a result of the project's construction and/or operation.

Air Emissions

The project will have minimal air emissions, as it is a renewable energy project that will indirectly result in the reduction of greenhouse gases and is anticipated to be a Clean Development Mechanism project under the Kyoto Protocol. The project is expected to result in the avoidance of approximately 167,011 tons per year of CO₂ emissions assuming a total generation of 310,460 MWh/year. The contractor will also ensure that trucks are well maintained to minimize engine emissions and ensure safe operation on roadways. In addition, the trucks used to transport excavated materials will be covered during transport to reduce fugitive dust emissions.

Wastewater/Water Quality

Soil erosion and runoff into local waterways due to vegetation removal and earthmoving will be minimized using standard methods, such as creating vegetative barriers and stabilizing slopes; disturbed areas will also be replanted with native vegetation as soon as possible. In addition, contractors will be barred from dumping excavated soil and rock into streams and other waterways

or within riparian areas. During the operational phase, sanitary wastewater will be discharged to a properly designed septic system.

Solid Waste Management

All contractors will be required to comply with the solid and effluent waste management plan (Programa de Manejo de desechos, residuos y efluentes) included in the EMP. The operational phase of the plant will not generate significant amounts of waste, other than domestic waste that will be disposed of in licensed facilities. Nonhazardous solid waste from the construction phase (such as wood, metal, and food scraps) will be separated for recycling or disposed of in legally authorized municipal landfills. Hazardous materials, such as fuel, lubricants, and paint will be stored in containers to prevent their accidental release into soil and groundwater. Workers will be trained in how to respond to accidental fuel, lubricating oil, or hydraulic oil leaks.

Community Health, Safety, and Security

The project sponsor will implement a series of measures to minimize risks to the health and safety of the community, related primarily to traffic and pedestrian safety from the transport of construction materials and equipment to and from the construction site. Drivers will also be closely monitored to ensure observance of speed limits. Local communities will be notified of potential traffic safety hazards, and residents along transport routes will be given a contact to relay any concerns or grievances.

The intake diversion structure will be protected insofar as possible from public access with warning signs and fencing to discourage and prevent unauthorized access. Hidrosanbartolo S.A. will also develop an emergency preparedness plan (Programa de Contingencias) for the project in the event of flooding or other natural disasters or emergencies.

Social Issues

The project is located in the province of Morona-Santiago (Santiago canton, Copal parish). The project's general area of influence (direct and indirect) consists of the seven communities of Copal parish, which includes a total of 480 inhabitants in: Copal, la Dolorosa, San Bartolo, La Delicia, Nuevo Triunfo, Yuvimi, and Partidero. The project's direct area of influence consists primarily of three communities, which includes San Bartolo, La Dolorosa, and Copal. The land acquisition for the project will not require the resettlement of people and has not affected houses or required physical or economic displacement of the population. The land that has been purchased to date has had a minimal impact on landowners.

The project's environmental and social consultants have actively engaged the local communities and its representatives and have sound participatory mechanisms and community engagement plans in place. As required for the environmental approval process, the final EIA was presented to the communities in a meeting organized by CONELEC. The meeting was held on December 28, 2011, and took place in the Casa Comunal de la Dolorosa. In this meeting, questions regarding the project and the EIA and EMP were answered and the meeting notes were included in the final version of the EIA. In addition to this meeting, the company has been proactive early in the project design phase meeting with local communities to discuss their needs and address questions and concerns about the project. To evidence broad community support of the project, the company has signed agreements with all seven communities, where the project company commits to a series of specific actions to improve conditions in the communities, which will be carried out prior to and during construction. To further enhance the participatory approach and to assist with the distribution and allocation of

the social investments to assist the communities in the direct and indirect area of influence of the project, the company aims to establish a management and monitoring committee (Comité de Gestión y Seguimiento - CGS). At the IIC's request, representatives from the seven communities in the project area of influence are to be included on that committee. In addition, the project's sponsor will set up a grievance management system for the project to ensure that any concerns or grievances are effectively resolved.

Occupational Health and Safety

The project's sponsor will require that all contractors and subcontractors follow the occupational health and safety plan (Programa de Salud Ocupacional y Seguridad Industrial) and training plan (Programa de Capacitación Ambiental) included in the environmental management plan for the project. They will also require that contractors train their employees in how to identify and prevent workplace risks, including the use of personal protective equipment, the handling of hazardous materials, and emergency response. The project sponsors will routinely monitor construction activities to ensure compliance with the EMP's health and safety requirements.

Labor Issues

The project's sponsors will ensure that the contractors and subcontractors have adequate human resources/internal labor policies that are in compliance with Ecuadorian labor laws. The company will also ensure that contractors and subcontractors recognize employees' freedom of association and the prohibition of discrimination against employees or potential employees. The IIC will require that a grievance mechanism be in place to receive and process any complaints from employees on work-related conflicts or issues.

Monitoring and Annual Reporting

The company's monitoring procedures are described in the EMP. The company will submit an annual report to the IIC summarizing the monitoring data related to the implementation of its EMP. However, the IIC is also requesting that Hidrosanbartolo S.A. develop and implement an environmental and social action plan (ESAP), which will include additional activities that the company will implement to ensure compliance not only with local requirements, but international environmental and social requirements, such as those specified by the IIC.