

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: soil and water impacts, impacts on local flora and fauna, solid and liquid waste management, personal safety and emergency response, labor practices, and social and community issues.

The environmental impact statement (EIS) for the hydroelectric project and primary 22.9 kV transmission line were approved by the Regional Bureau of Energy and Mines (DREM), a subagency of the Ministry of Energy and Mines (MINEM), in June 2012. The project has also obtained the pertinent Absence of Archeological Remains Certificate (CIRA) from the Ministry of Culture and the certificate of compliance with the pre-operational study for connection to the SEIN from the National Electrical Grid System's Economic Operations Committee (COES SINAC).

The project will cover an area of 234 hectares, located entirely on the communal lands of the Canchayllo farming community. The community is ceding part of its communal lands to the project under a concession agreement registered with the National Bureau of Public Records (SUNARP). The term agreed on for the concession of use and creation of easements is 30 years. The farming community's lands are located in the Nor Yauyos Cochis scenic reserve. The area under concession for use by the hydroelectric plant is classified as a special use or buffer zone, which implies the existence of human activities that predate the establishment of the scenic reserve, where the land may be used for crop and livestock production, human settlements, and other purposes, including water use, damming, and electricity generation. Notwithstanding, this project does not involve damming the river. The town of Canchayllo is located approximately 4 km from the future site of the plant's powerhouse, downstream on the Pachacayo River.

During the project evaluation phase, the project team conducted interviews with the Board of the Canchayllo farming community, the Mayor of Canchayllo, and personnel from the Ministry of the Environment's National Service for State-Protected Natural Areas (SERNANP). Since the Canchayllo project is the only one approved for the Pachacayo River watershed, there are no cumulative effects with other hydroelectric or river development projects.

The EIS calls for an environmental management plan to determine and adopt measures for the prevention, mitigation, and monitoring of environmental impacts that could materialize at any stage as a result of project activities so as to ensure that the quality of the environment remains within permissible limits. This plan considers a package of programs with their respective actions to ensure that the project is carried out with the least possible environmental impact. The objectives of the proposed programs are to meet the standards for acceptable environmental quality and ensure optimal occupational safety and health.

The company is working to register the project with the United Nations to secure Certified CO2 Emissions Reduction certificates (CERs) through a program of activities with the coordinating agency.

Soil and water impacts: The project is in a rural area where the main activity is livestock-grazing, along with some crop production. The terrain is steep, with patchy vegetation consisting of natural grasses and brush, and small fertile valleys alongside the river, used chiefly for pasturing and some

crop production. The entire area has long been the site of human activity. There are no virgin areas or sensitive habitats that would be affected by the project. There is direct access to the project from the public road across company land.

The steep terrain poses the risk of landslides on the lower parts of the slope during construction of the canal and tunnels. Measures will be adopted during construction to minimize these events. Such measures include riverbank defenses, energy dissipation structures, and slope stabilization measures. Earth-moving operations in the area surrounding the project will be limited, and the topsoil removed during the construction phase will be preserved for subsequent restoration of ground cover. On completion of the project, restoration of the areas disturbed by excavation and earth-moving operations will begin as soon as possible, using the ground cover that was removed. An agreement has been reached with the users of the land to temporarily relocate livestock during the construction phase.

Water quality in the Pachacayo River is good and considered suitable for irrigating crops and watering livestock. Higher microbial concentrations are found only in the vicinity of populated centers, owing to human activity. The project construction phase also poses the highest risk of affecting water quality in the river due to the same potential silting effects that cause turbidity and, eventually, sedimentation, the latter of which is temporary.

Impact on local flora and fauna: The project, situated in an area already impacted by traditional grazing, will have a negligible impact on local flora and fauna. The project will be implemented in an area where agricultural and grazing lands have been significantly altered and vegetation outside irrigated zones is scarce. Two species of flora identified in the area are considered to be endangered by the impact of human activities on the ecosystem. These species are indigenous to the Andean region of Peru, Ecuador, and Colombia.

Due to historic human pressures on fauna in the project's zone of influence, the fauna observed in the area is limited, and most of it is migratory. A total of 25 species of wild fauna have been recorded in the area—19 bird, 5 mammal, and 1 reptile species. Twelve of these species are designated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) as species of least concern. Construction activities and operations will be strictly limited to the public works site to avoid altering the habitats of wild fauna.

A minimum ecological flow of 10% of the total flow has been established. Agreement has also been reached with the Túpac Amaru agricultural cooperative on a minimum flow of 0.12 m³ per second to supply water for irrigation and watering livestock. According to water surveys in recent years, the minimum flow of the river exceeds 2 m³ per second; thus, the ecological flow established would exceed the minimum flow agreed to with the cooperative.

Impact on air quality: The main air emissions would occur during the construction phase, originating from vehicles and machinery operated by the contractors. In addition to gas emissions from internal combustion engines, the project would also generate fugitive dust from vehicular traffic. In order to mitigate gas emissions, engine maintenance will be performed regularly in accordance with the manufacturers' technical specifications. There would be no significant air emissions in the operational phase.

Solid waste and liquid effluent management: Most solid waste would be generated during the construction phase. The treatment of such waste would be similar to that generated during the

operational phase. The environmental management plan provides for different treatment of waste:

- Hazardous waste must be separated from nonhazardous waste;
- Nonhazardous waste must be classified as recyclable and nonrecyclable;
- A recycling program must be implemented for the disposal of recyclable material;
- Nonrecyclable material must be sent to the Huancayo sanitary landfill for final disposal through a service provider. Land set aside as a temporary dump must be steamrolled on a regular basis to facilitate easy removal of the material and prevent soil contamination;
- Hazardous waste (spent oil and lubricants, oily liquid waste, oil-contaminated soil, clean-up and maintenance waste) must be stored in hermetically sealed and labeled receptacles, which will be disposed of by a service provider registered with the Ministry of Health; and
- For management of liquid waste generated in the work areas, chemical sinks and toilets will be installed, managed by a service provider.

Personal safety and emergency response: The company will have a plan to comply with occupational health, industrial safety, and workplace accident prevention regulations, along with an analysis of occupational and health risks to employees, subcontractors, service providers, and agents involved in the construction of the project. For each type of work, EGECSAC will provide appropriate equipment, machines, and tools, which will be used by authorized qualified personnel solely for the purpose for which they were designed. All project personnel will be informed about the risks of each job and receive training in how to use the available material and how to provide timely, appropriate aid to anyone injured in an accident. All personnel will be provided with appropriate personal and collective protective equipment, based on the risks to which they are exposed (i.e., uniforms, helmets, gloves, boots, goggles, harnesses, and hearing protection devices). For jobs involving dynamite, a specialized company with mining experience will be engaged, implementing the security measures stipulated by law.

There is a contingency plan that includes the formation of a brigade to respond to fires, hazardous spills, earthquakes, etc. It includes communication and first aid procedures and indicates the relevant outside organizations to contact in each case. The project is located in an earthquake zone, a risk addressed in the structural design.

Social and community issues: The population closest to the project site is that of Canchayllo, some 4 km from the projected location of the powerhouse, the nearest point of the project. The construction phase of the project will not require the relocation of persons or dwellings. Water from the Pachacayo River in the project zone is currently used for watering livestock and some crop irrigation. The project will not affect these activities, since the minimum ecological flow will ensure adequate water flow, and the people who use the lands will still have access to the river, as they have in the past.

When it submitted its application for the project, the company held a public consultation for the residents of Canchayllo that involved a presentation describing the project with audiovisual materials and interviews with residents. As a result of the consultation, there were no objections to the project; on the contrary, residents viewed it as offering new employment and income opportunities through the compensation agreement that had been established—both very desirable in a low-income community with few opportunities for work and deficient education and health services.

Canchayllo's farming community, which owns the land, is made up of 124 active residents and has an eight-member board, elected for a two-year period. The census of residents is updated every two

years. The hydroelectric project was unanimously approved by the community assembly in 2011. There was no opposition to its approval. EGECSAC made a commitment to hiring unskilled labor from the community to build the hydroelectric plant. An estimated 300 people will be hired during the construction phase, 90% of whom will be from the district, with some 50 coming directly from Canchayllo and the rest from nearby towns.

All workers assigned to the field will undergo a pre- and post-employment medical examination. They will also receive medical coverage through Social Security (EsSalud). Under Peruvian law, employees are free to choose and join labor unions. EGECSAC has a community relations plan designed to maintain an open dialogue with the community, keeping it informed about the progress of the project, forging bonds of trust, integrating workers, and preventing potential social conflicts.

Monitoring and reporting: EGECSAC will prepare an environmental and social action plan (ESAP) to ensure compliance with national regulations and the IIC's environmental and occupational safety and health guidelines. It will also submit regular progress reports on the implementation of the ESAP.