

**Environmental and Labor Issues:**

This is a category B project according to the IIC's Environmental and Social Sustainability Policy 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 efficient resource use and pollution prevention, workplace and labor conditions, and community health and safety.

Both hydroelectric plants are located on tributaries of the Monzón River, the El Carmen River, and the Aucantagua River in the Monzón district, Huamalíes province, Huánuco department, Peru. The company will also build a 138-KV transmission line of approximately 60 km in length to connect the plants to the substation in the town of Tingo María.

Estimates are that the El Carmen hydroelectric plant, with an installed capacity of 8.4 MW, will generate some 62.3 GWh annually and will have 1,475 m of penstock. An environmental impact statement was filed for this project with the Mining and Energy Ministry in August 2011.

Estimates are that the 8 de Agosto hydroelectric plant, with its 19 MW of installed capacity, will generate some 141 GWh annually and have 3,243 m of penstock. For this project and for the power transmission line, an environmental impact study was submitted to the Mining and Energy Ministry in February 2013.

At the request of one of the financial institutions that participated in the assessment for the project funding, JGP Consultoría Perú SAC performed an independent socio-environmental assessment. This assessment concluded that both hydroelectric plants plus the transmission line represent a single Category B project pursuant to Equator Principle 1 (hereinafter, the "Project") because its possible adverse social or environmental impacts are limited, few in number, confined to specific locations, largely reversible, and readily addressed with mitigation measures. The study proposes the mitigation measures to be included in the Environmental and Social Action Plan that the company would implement.

A number of towns and small villages are located in the hydroelectric plants' area of influence: Maravillas, Chipaco, Cachicoto, and Monzón, with the latter being the district's capital.

**Soil and water impacts:** The Project will be carried out in natural habitats that have been modified by many years of human intervention. The land's surface is characterized by marked gradients. The banks of both rivers involved in the Project are covered with grassland and small coffee and banana fields, mixed with some riverside foliage. No high-biodiversity habitats will be affected, nor are there any protected or ecologically-sensitive areas near the Project. The entire area of influence of both plants has been used for coca leaf cultivation, which is currently being eradicated and replaced with alternative crops (coffee, cacao).

The impact on land use is not significant, since both the intake structures and the power house take up little surface area. This is also true of the transmission line, although its area of direct influence will be larger. The high-pressure penstock is entirely underground, allowing seasonal crop cultivation on the surface.

No significant use is made of the El Carmen and Aucantagua rivers' water resources, as there are no irrigation activities, water use for livestock is uncommon and more concentrated in the Monzón River valley, and artisan fishing is also done on the Monzón River or the Huallaga River, where the Monzón River discharges near the city of Tingo María, some 60 km from the location of both plants.

The Project's area of influence is located in the highland jungle ("selva alta") ecoregion, with precipitation patterns resulting in flash flooding from January to March and low flow from June to August, with average annual precipitation of around 3,300 millimeters. The quality of the water is good, although coliforms have been detected due to presence of humans and some livestock activity.

**Impact on local flora and fauna:** The Project's indirect area of influence is a tropical rain forest with timber and other species that are characteristic of secondary growth forests. The flora characteristic of the area include some species with a conservation value (*Cedrela odorata*, *Swietenia macrophylla* and *Manilkara bidentata*) under Peruvian legislation and international organizations like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the International Union for Conservation of Nature (IUCN). However, the area of direct influence is characterized by human intervention. For years, humans have practiced an aggressive type of agriculture, clearing forests with slash and burn in order to grow coca, a practice that has not yet been fully eradicated. The land on the banks of the rivers mixes intensive agriculture, grazing land, woodlands, and unproductive land, generally with a marked slope, soil of moderate depth, and a low degree of natural fertility, with no endemic or threatened species. Still, selective trimming of trees will be emphasized during maintenance of the transmission line easement strip to prevent the loss of flora specimens by respecting recommended conservation criteria and minimizing environmental impact.

According to available information, the fauna found in areas with characteristics similar to those of the Project area include a variety of mammals, amphibians, reptiles, and birds. Among them are four mammals classified as vulnerable (*Tapirus terrestris*, *Tayassu pecari*, *Cacajao calvus*, and *Lagothrix lagotricha*) and one classified as near threatened (*Panthera onca*), according to the IUCN's Red List of Threatened Species. There is also a species of bird classified as vulnerable (*Patagioenas subvinacea*) and one classified as near threatened (*Pyrilia barrabandi*). Given the characteristics of the Project and its small footprint, impact on the fauna will be temporary during the construction phase due to the presence of people and machinery, and be reduced significantly during the operational phase. Since the water will be directed toward the turbine by underground penstock, the barrier effect of open channels will be avoided.

According to the environmental impact statement submitted for the El Carmen hydroelectric plant, the ecological flow was found to be 10% of the average annual flow, following the methodology recommended by the Spanish Ministry of Public Works and Transportation and accepted by the government of Peru. A hydrobiological assessment was performed on the Monzón, Aucantagua, Huallaga, and other tributary rivers and streams for the environmental impact study for the 8 de Agosto plant. The ecological flow was found to be 12.2% of the average annual flow following the IFIM PHABSIM methodology of the U.S. Army Corps of Engineers. However, in order to comply with the Equator Principles, further study of the ichthyofauna's biological baseline was recommended, particularly for the El Carmen River, in order to ensure the ecological flow established would not cause a loss of biodiversity and would meet the provisions of the IIC Environmental and Social Sustainability Policy.

**Impact on air quality and noise:** Most air emissions will occur during the construction phase, originating from vehicles and machinery operated by the contractors. In addition to gas emissions from internal combustion engines, vehicle traffic will generate fugitive dust emissions. In order to mitigate gas emissions, engine maintenance will be performed regularly in accordance with the manufacturers' specifications, and the regular technical service will be kept current. Contractor vehicle traffic must be monitored to ensure that it follows the regulations and timetables in place to guarantee the health, safety, and well-being of the community. There will be no air emissions during

the operational phase, save those generated by inspections, maintenance work, or occasional repairs.

A slight increase in noise levels is expected nearby the machinery houses of both plants. However, this increase is not expected to disturb the local population or fauna.

**Environmental and Occupational Safety:** To prevent damage to the environment or to people – both workers and the general population – the company prepared an environmental management plan for the Project. This plan has two parts, one concerning the physical environment and the other, the biological environment. The activities are organized in specific subprograms that seek to mitigate environmental and safety issues more specifically. More than 30 subprograms have been identified, including:

- Handling of explosives
- Managing temporary and permanent access routes
- Camp management
- Controlling air emissions, particulate material, noise, and vibrations
- Managing solid waste
- Waste water management
- Handling of construction materials
- Managing subterranean excavation
- Managing storage of excess material
- Controlling spills and handling fuels
- Signage

Contingency plans are also in place to deal with natural disasters, disasters resulting from accidents, disasters caused intentionally, and sabotage. More specifically, these general contingencies are spelled out in a list of individual contingencies with specific instructions covering mobile barrage collapse, landslides and cave-ins, spills of fuels and/or hazardous substances, explosions, fires, vehicular and work accidents, snake and other animal bites, seismic events, and social conflict.

**Social and Community Issues:** Construction of the plants will not require relocation of people, homes, or economic activities. The plants will be able to coexist with the traditional agricultural activities carried out in the Project's impact area. The local population does not belong to any peasant or indigenous communities. The land belongs to its occupants, and the land acquisition processes is minimal. Proper financial compensation will be provided where applicable.

The population generally feels positively toward the Project because the process of eradicating coca plantations led to a shortfall in job opportunities in the Monzón River valley. The construction of the hydroelectric plants and the infrastructure to go along with them will provide direct and indirect job opportunities for the local populations, improve provision of electricity locally, leave behind permanent communications infrastructure, attract the establishment of new services for the population (a bank has already opened in the area and another is on the way), and generate tax income that will lead to investment by local governments.

The National Commission for Development and Drug-Free Life (Devida) is a public, decentralized body in charge of designing and implementing a national anti-drug policy with the support of USAID. Among other objectives, it seeks to provide a solution to the national problem of crop production for illicit purposes – mainly coca leaves – by improving economic, political, social, and environmental conditions, creating jobs and occupations for young people, offering technical training, teaching trades, and developing enterprises. Devida supports projects like Generación Andina because they strengthen its initiatives by working in harmony with its objectives. The organization is currently

operating in 42 villages in the Project's area of influence trying to get producers to form agrarian cooperatives to efficiently and sustainably grow crops to replace coca. Hydroelectric projects in the area, improved road access and communications in general, incentives for offering services, and creation of opportunities for social improvement all support Devida's efforts and those of the Peruvian government in the region.

Three participatory workshops were each held once in three different towns (Cachicoto, Maravillas, and Tingo María) and two public hearings were also held (Maravillas and Tingo María) to present the project in the framework of the Citizen Participation Plan. Information was also made available to the public in two information offices (Tingo María and Maravillas) and 19 comment boxes were set up to collect suggestions. Generally speaking, the population has been found to be significantly interested in the project and largely backs it.

**Monitoring and Reporting:** Generación Andina shall prepare an Environmental and Social Action Plan (ESAP) to ensure its compliance with national standards and IIC guidelines in the areas of environmental and occupational safety and health. The ESAP will include recommendations for addressing some shortcomings with respect to the Equator Principles regarding impact and risk assessment, and regarding measures designed to prevent, mitigate, and compensate for impact and risks. In addition, it will also submit regular progress reports on the implementation of the ESAP.