

8 DE AGOSTO HYDROELECTRIC PLANT AND 138 KV TRANSMISSION LINE PERU



Fig 01: 8 de Agosto hydroelectric plant and 138 kV transmission line
Source: Generación Andina S.A.C.

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EXECUTIVE SUMMARY

The 8 de Agosto hydroelectric power plant and 138 kV transmission line are located in the district of Monzón, Huamalíes province, in the Huánuco region of Peru. This run-of-river hydropower plant is designed to restore the entirety of the water used to produce energy back to the Aucantagua, the river in which it operates, without altering its overall original quality. Its construction, projected to be finished by the beginning of 2016, represents a significant contribution to Peru's efforts to increase renewable energy generation. With an installed capacity of 19 MW and an annual energy generation potential of 140,000 MWh, the project aims to provide long-term access to clean energy to 15 towns across Monzón, a region currently suffering from limited power supply.

The project team, a collaboration between Generación Andina and Union Group, is actively involved in the economic revitalization of communities inside the project's area of direct impact. The team conducted several studies that aimed at understanding the current living conditions of the people in the area, as well as the environmental characteristics of the site. Following this, they implemented numerous in-depth programs with detailed plans for creating new economic opportunities, along with protection of the ecosystem, to achieve sustainable long-term improvement in the quality of life of these communities.

To effectively respond to the economic needs of the community, efforts were made to encourage a democratic participation from every local group, entity, and organization with interests in the development of project. The project team was able to collaborate with stakeholders in the implementation of programs to encourage short-term economic growth, including hiring local labor as well as educating farmers on cultivation of alternatives such as coffee and cacao in place of illegal coca growing. The team has also pursued initiatives to increase the quality of education and public health in existing elementary schools and medical centers respectively. To keep strengthening community relations, public participation and feedback will be extended throughout the project's lifespan to aid identification of and responsiveness to current socioeconomic challenges. Overall, the economic prospects provided both directly and indirectly by this project are also likely to draw new migrants into the area.

Policies that address social responsibility, safety, and environmental sustainability are integrated into the company's principles. These are further explained in community workshops where public statements of sustainable plans by the project team leadership, along with collaboration goals with government authorities, are shared with the community. The project team also shows a clear line of authority that not only facilitates proper delegation inside the company but clearly prioritizes objectives and goals aligned with current community needs.

Moreover, its sustainable business approach takes into consideration the importance of negotiating transparent transactions that clearly outline the obligation of the project owner and stakeholders to the community and the project's related activities. The management team not only incorporated these philosophies into their comprehensive investment plans, which included in-depth studies and cost estimates for the implementation of proper monitoring and maintenance of the project's infrastructure, but prioritized the creation of environmental programs for restoring physical and biological on-site resources.

As a development based on a renewable energy resource, this project will contribute to expanding the regional electric grid while incorporating its own energy production into the daily operational energy demands of the project. Through the implementation of different hydrological monitoring systems, the project seeks to register and analyze the current condition of the Aucantagua river, including its nominal flow, abnormal discharges, temperature, oxygen and pH levels, and the increase of sediments (among others), to protect the quality of water and preserve its original biodiversity. To minimize any adverse impact on human health and the environment, the project's environmental subprograms have been designed to address the need to protect surface and groundwater resources, and the importance of reusing excavated soils to revegetate deforested areas.

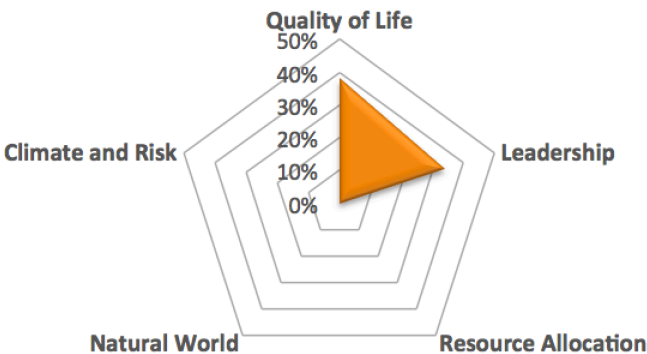
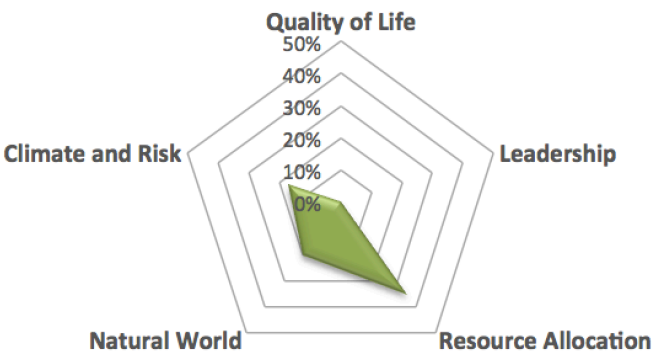
Due to its direct contact with the Aucantagua, the project team studied the impact its infrastructure would have on the wider ecosystem of the area. In response to this study, the project was designed to make only a limited use of the river's water, with a main focus on restoring the presence of fish species that were predicted to be impacted in the near future during the operation phase of the station. With respect to agriculture, the project contributes to reducing the amount of land close to the water's edge dedicated to crop farming, which tends to increase the chance of water pollution from runoff of agricultural chemicals. Similarly, in terms of revegetation, considerations have been made for the use of plant species that will help to reduce the dependence on fertilizers. A reforestation program is also planned once the on-site construction work is finished.

The evaluation of the 8 de Agosto hydroelectric plant and 138 kV transmission line has shown the project's strengths in terms of making a positive socioeconomic contribution to the community. Robust and comprehensive programs directly and indirectly benefit the people's quality of life through improvements in job development, education, technical training, and access to preventive health programs. While the project generates clean energy and reduces the dependence on polluting fossil fuels, there are still opportunities for improvement worth exploring.

The categories showing the best performance are the ones related to Quality of Life and Resource Allocation, even though they could be further improved by increasing the efforts already ongoing in the project, putting emphasis on clarifying long-term sustainable goals, and tackling areas that the project team has not addressed yet. In the category of Quality of Life, these include considerations on how education can promote development-centered job creation, improving existing public spaces to enhance community livability, and addressing the specific economic demands of women and indigenous groups. In regard to Resource Allocation, the project could take advantage of recommended initiatives related to selecting material suppliers that support sustainable practices, decreasing embodied carbon emissions connected to the extraction of virgin materials by substituting recycled ones, determining effective methods for reducing the use of potable water, and considering ways to reuse its own components once the project reaches the end of its useful life.

The categories with the largest opportunities for improvement are Leadership, Natural World, and Climate and Risk. The project needs to clarify its project delivery method and include its risk-reward sharing strategies into the contract. To strengthen the efforts in the Leadership category, the project team could identify outdated standards and policies that could hinder the integration of sustainable practices in the project, and consider the importance of extending the useful life of the project by allowing for infrastructural flexibility and multiple use reconfiguration. In the category of Natural World, more environmental awareness is crucial. For instance, the project's relationship with farmlands could be improved by combining a strong social agenda with an environmental program that addresses the intrinsic impacts of human activities on natural landscapes. Strengthening ties with national institutions could help the project team in improving living and working conditions of the community's inhabitants as well as preserving the natural quality of the ecosystem, further reinforcing its unique environmental value and character.

Finally, in the category of Climate and Risk more detailed strategies are needed in developing a long-term plan to adapt to climate change. A detailed analysis is needed of both short- and long-term threats related to past climate events and their impacts in order to understand future forecasts. These concerns could be translated into design strategies with programs, targeted to both the project and the community, oriented to developing preparedness and resilience in the aftermath of short- and long-term climatic threats and hazards.

	
Figure 02: People & Leadership award Summary of results	
	
Figure 03: Climate & Environment award Summary of results	
	
Figure 04: Infrastructure 360 award Summary of results	