Hydropower Sustainability Standard

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SILVER

Project: **Chorreritas Hydropower Project**
Stage: **Implementation**
Date: **January 2025**

Assessment Report

Project Name: Chorreritas HPP

Installed Capacity: 19.9 MW

Country: Colombia

ENERGO-PRO

Project Sponsor: Energo-Pro Colombia

Report Author: Joerg Hartmann, Juan Quintero, Paula Pérez

Report Date: June 24, 2024 (final for publication)

Implementation

Cover page photo: San Andrés valley, view upstream. The town of San Andrés is located to the left, halfway up the valley. In the foreground on the left, the penstock of the La Chorrera hydropower plant is visible. The Chorreritas project intake is located a short distance downstream of La Chorrera.

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The findings in this report are based on an independent assessment conducted in compliance with the processes set out in the Hydropower Sustainability Assurance System.

Hydropower Sustainability Standard

About the HSS	The Hydropower Sustainability (HS) Standard is the normative document that sets out the performance requirements of the Hydropower Sustainability Certification System, a global labelling and certification scheme outlining the expectations for hydropower projects around the world. The HS Standard recognises hydropower projects for their environmental, social and governance (ESG) performance by setting minimum and advanced performance requirements for the sector and acknowledging projects for meeting these requirements. The HS Standard is aligned with the safeguards of key lenders (e.g. IFC and World Bank) and can be used to attract climate-aligned finance through green bonds certified by the Climate Bonds Initiative and support electricity sales to RE100 companies. The HS Standard is managed by the Hydropower Sustainability Alliance. The HS Alliance was established in October 2023 to act as the independent and multistakeholder standard-setting body that oversees the Hydropower Sustainability Certification System.
Intended users and uses	The HS Standard includes three separate stages: Preparation, Implementation and Operation. These reflect the different stages of hydropower development and have been designed to be used as standalone documents. Each reporting template provides an action plan to help project teams address any gaps against minimum (good practice) and advanced requirements (best practice). Official HS Standard assessments are carried out by Accredited Assessors, who take an evidence-based approach based on data triangulation. All findings are supported by objective evidence, which is factual, reproducible, objective and verifiable. The HS Standard is most effective when operators and developers commit to implement the recommendations provided and resolve identified significant gaps. Hydropower development and operation may involve public entities, private companies or combined partnerships, and responsibilities may change as the project progresses through its life cycle. It is intended that the organisation with the primary responsibility for a project at its particular life-cycle stage will have a central role in any HS Standard assessment.
Structure of the reporting template	The HS Standard comprises 12 sections that cover the environmental, social, governance and climate change impacts, both negative and positive, that arise from hydropower development and operation. Summary sections at the beginning of the report include: (A) Assessment Overview, (B) Project Details, (C) Performance against Minimum Requirements, (D) Performance against Advanced Requirements, (E) Environmental and Social Action Plan and (F) Abbreviations and Acronyms. The summary sections are followed by the 12 ESG sections where requirements for good and best practices are presented and project findings are provided. The report finishes with three appendixes that list the types of evidence used in the assessment.
Supporting resources	Additional guidance on the structure, content and history of the HS Standard can be found online at: www.hs-alliance.org
Version date	October 2023

A. Assessment Overview

Assessor(s)	Joerg Hartmann (Sustainable Water & Energy LLC), Juan Quintero (Environmental Engineering Consultants LLC), Paula Pérez (EPM)
Assessment objective	• Position Energo-Pro as a company that promotes and aligns itself with internationally established good sustainability practices, demonstrating the best environmental and social performance from the planning to the execution of their projects. • Enable a better analysis of risks and opportunities in the medium and long term as a project and as a company, in the exercise of planning and managing the project portfolio. • Design projects that can access financing from international entities in compliance with the best social, environmental, and governance management practices aligned with the IHA and Good International Industry Practice (GIIP).
Assessment dates	On-site assessment Nov. 27 – Dec. 1, 2023
Assessment report date	June 24, 2024 (final for publication)
Summary of key findings	The Chorreritas hydropower project (HPP) is located in the San Andrés municipality in northern Antioquia, in an Andean valley that has a long history of settlements and agriculture, as well as other hydropower projects and roads. The project has a very limited terrestrial footprint and affects a small number of properties and a few hectares of riparian forest along the San Andrés River. The project is owned by Energo-Pro, an experienced international group, and currently under construction by several Colombian contractors. The impact assessment process followed standard Colombian regulations and practices. Baseline information, impacts and management plans are adequate for a project of this size and type of impacts. Construction impacts are generally well managed, with some opportunities for better housekeeping. There are also some opportunities to better understand and manage the cumulative impacts of multiple HPPs in the valley. Labour and working conditions are good, with no observations regarding OH&S, where the project benefits from a relatively robust regulatory system. Local employment could be promoted more actively. Negative impacts of the project on erosion, sedimentation and water quality are minor, except some localized sediment input from construction sites. The project will protect some land as part of its 1% investment plan and its compensation measures, and make transfers of funds during operation to government agencies for environmental improvements, all of which should have positive impacts on erosion and water quality. The project affects fewer than 200 local residents across all its components, as well as other residents in the San Andrés valley who may sell land, goods or services to the project, work in the project, or benefit from various community development initiatives as well as royalty payments. Many impacts will be transitory. No major community health and safety impacts are expected. All social management plans are adequate for a project of this size and level of impacts.

	Only one family had to be resettled, which is not without issues as they have been previously displaced and were reluctant to move. However, there was close support to the family during the relocation and livelihoods restoration process. Although the Andean mountains generally present high biodiversity values, the biodiversity of the San Andrés valley has been reduced by intensive human use. The project's footprint and the loss of terrestrial biodiversity will be minimal, and impacts on aquatic species are also limited. Compensation programs are implemented as required by the environmental license. As one of the first countries in the world, Colombia ratified the ILO Convention 169 and implemented it into its national constitutional framework in 1991. The rights to free, prior and informed consultation and consent are legally protected. Indigenous territories are recognized and registered in official databases. The Ministry of Interior confirmed in 2019 that no such territories are affected by the Chorreritas project. The project area has no significant historic buildings or sites that are protected for their cultural heritage value. Archaeological surveys have yielded some remains such as small ceramic fragments. A generic archaeological management plan is in place. Energo-Pro has a modern corporate governance framework and to date, has not encountered any major external governance issues in the development of the Chorreritas project. Engagement with stakeholders has intensified since the start of construction. Many affected households are personally known to the social staff of the developer and contractors. The Chorreritas project is a pure run-of river project, with no effective water storage and no hydrological variations downstream from the discharge of the powerhouse. The bypass reach will be maintained with an environmental flow regime. The project makes a significant positive impact to climate change mitigation by providing a very low-carbon source of power and displacing high-carbon energy sources. There has been only an initial effort to understand the resilience of the project to future climate change, but the design of the project makes it fairly robust.
Limitations of the assessment	Some interview requests (for example, with the environmental regulator Corantioquia) could not be scheduled. However, these stakeholders were interviewed earlier during the 2022 HESG assessment or their perspective on the project was otherwise documented, and this did not affect the findings of this assessment.

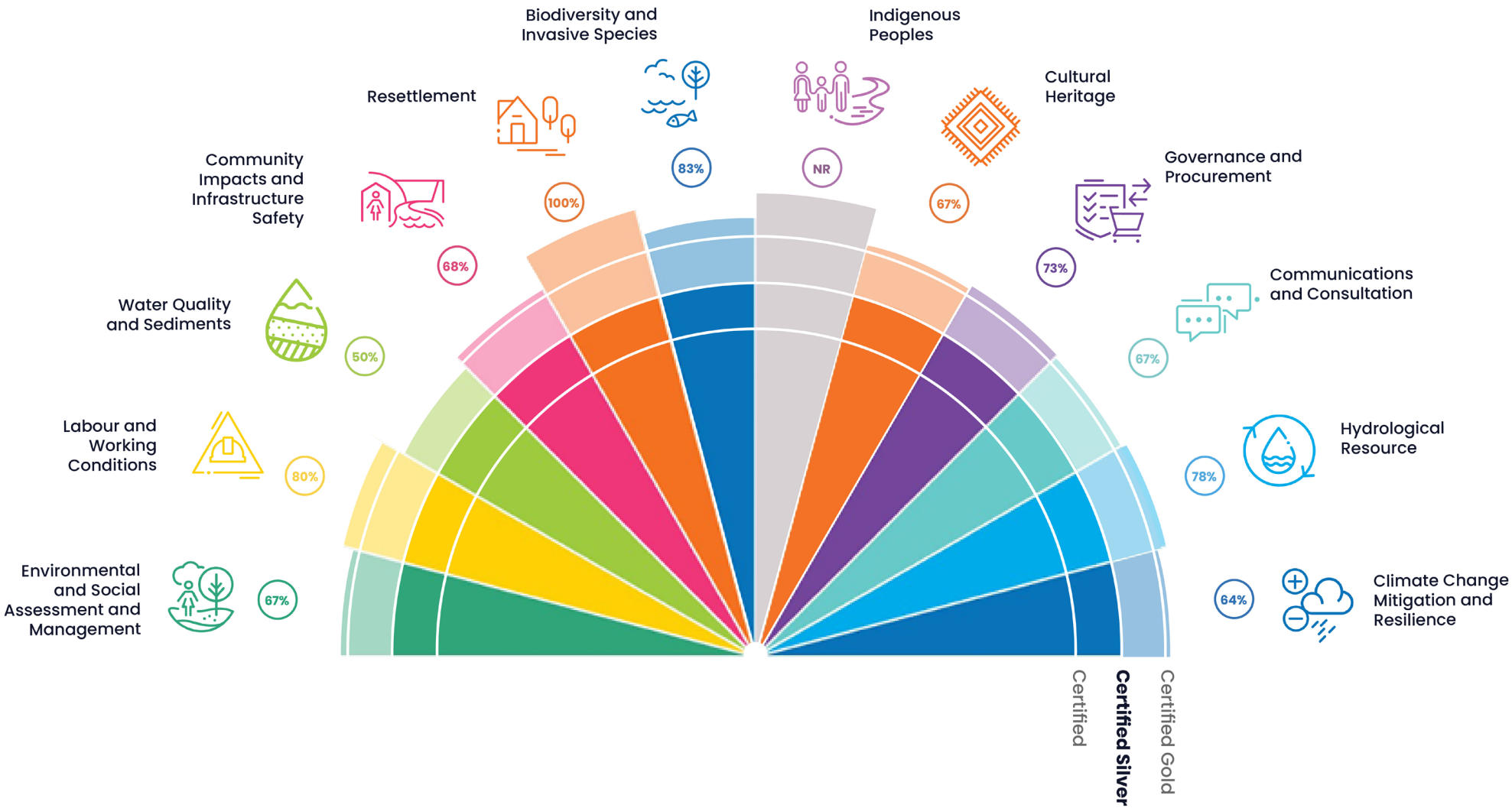


Figure 1 – Hydropower Sustainability Standard (HSS) Results Diagram

B. Project Details

Project name	Chorreritas Hydropower Project (HPP); in Spanish: Pequeña Central Hidroeléctrica (PCH) Chorreritas
Country	Colombia
Location	Department of Antioquia, on the San Andrés River, a right-bank tributary to the Cauca
Purpose	Power Generation
Developer / Owner	Energo-Pro Colombia, through a special purpose company Generadora Chorreritas S.A.S. E.S.P.
Financer(s)	Financing arranged within Energo-Pro Group
Installed capacity (MW)	19.9 MW
Construction start date (planned or actual)	February 2023
Commercial operations date (planned or actual)	December 2026
Annual average generation (GWh / year)	114.68 GWh (source: EIA)
Associated infrastructure: road(s) (length)	Very short access roads from main San Andres-Ituango highway (25AN)
Transmission lines and sub-stations (names, lengths and capacities)	17 km transmission line running south to new EPM substation near San Jose de la Montaña
Total cost (USD m)	USD 52.6 million
Annual operating costs (USD m)	O&M USD 796,000, insurance USD 234,000, royalties USD 273,000, grid access fees USD 70,000 (source: ESIA)
Specific investment cost (USD m / MW)	2.65
Levelised energy cost (USD / kWh)	not available
Dam type	Concrete weir
Dam height (m)	5.2 m
Dam length at crest (m)	35 m
Units (number, type, MW)	2 x 9.95 MW Francis
Reservoir area at Full Supply Level (FSL) (km^2)	rough estimate: 0.6 ha
Average net head at FSL (m)	182.8 m
Average flow (m^3 / s)	12 m^3/s
Design flow (m^3 / s)	13.1 m^3/s
Load factor	66%
Number of physically displaced households	1
Power density (W / m^2)	rough estimate: more than 3,300
Emissions intensity (gCO_2e / kWh)	not available
Contacts / website	http://www.energo-pro.com/en

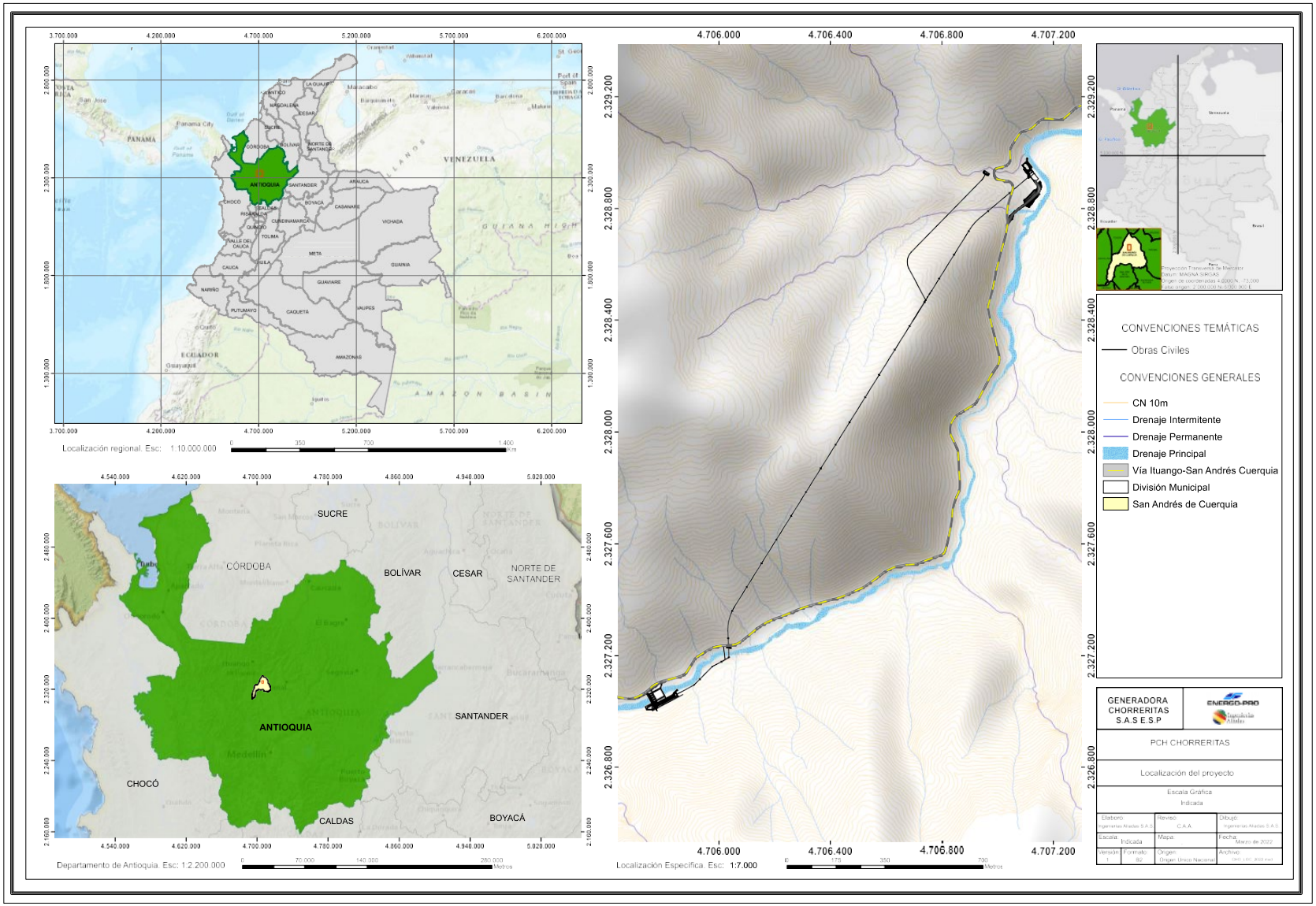


Figure 1 – Map of project location in the Department of Antioquia, Municipality of San Andrés. Project map with intake on right bank, pipe crossing the San Andrés River, and tunnel and powerhouse on left bank. Main road from Medellín to Ituango (25AN) follows river on left bank

C. Performance against Minimum Requirements

This section is not used since all Minimum Requirements are met.

D. Performance against Advanced Requirements

	Sections											
	1. Environmental and Social Assessment and Management	2. Labour and Working Conditions	3. Water Quality and Sediments	4. Community Impacts and Infrastructure Safety	5. Resettlement	6. Biodiversity and Invasive Species	7. Indigenous Peoples	8. Cultural Heritage	9. Governance and Procurement	10. Communications and Consultation	11. Hydrological Resource	12. Climate Change Mitigation and Resilience
TOTAL NUMBER OF REQUIREMENTS	12	5	12	22	5	6	5	6	11	15	9	14
NUMBER OF REQUIREMENTS MET	8	4	6	15	5	5	Not relevant	4	8	10	7	9
PERCENTAGE OF REQUIREMENTS MET	67%	80%	50%	68%	100%	83%	Not relevant	67%	73%	67%	78%	64%

Note:

- A project must meet all Minimum Requirements on all relevant sections to achieve HS Certified label.
- To receive the HS Silver label, a project must meet all Minimum Requirements on all relevant sections AND meet at least 30% of the Advanced Requirements on each relevant section.
- To receive the HS Gold label, a project must meet all Minimum Requirements on all relevant sections AND meet at least 60% of the Advanced Requirements on each relevant section.

E. Environmental and Social Action Plan (ESAP)

This section is not used. Energo-Pro is planning to take the results of the assessment into account during the remainder of the implementation and operation stages.

F. Abbreviations and Acronyms

CEERA	Centro de Estudios de la Energía Renovable y el Agua
COMFENALCO	Caja de Compensación Familiar Antioquia
Corantioquia	Corporación Autónoma Regional del Centro de Antioquia
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ICA	Informe de Cumplimiento Ambiental
ICANH	Instituto Colombiano de Antropología e Historia
MADS	Ministerio de Ambiente y Desarrollo Sostenible
UPME	Unidad de Planeación Minero Energética

1 Environmental and Social Assessment and Management

Scope and Principle
This section addresses the plans and processes for environmental and social issues management. The principle is that negative environmental and social impacts, including waste, noise and air quality, associated with the hydropower facility are managed; avoidance, minimisation, mitigation, compensation and enhancement measures are implemented; and environmental and social commitments are fulfilled.

Background	
Identify the main environmental and social issues during implementation	Main issues are associated with construction impacts: erosion and sedimentation from cuts and excavations, effluent from tunnels, sedimentation of streams, noise from blasting operations, waste from concrete plants, traffic management along a stretch of the road where most of the project is being bult, dust, and disposal of construction waste. Construction of intake, pressure pipes, bridges, tunnel portals entails the removal of riverine vegetation. The project will require the relocation of a family living in the required construction site.
Identify the main environmental and social issues during operation	During operation, main issues are linked to potential retention of sediments at the intake and alteration of flows downstream, which may be exacerbated by cumulative impacts from existing and other future hydropower plants in the San Andrés River watershed, owned by Energo-Pro and other developers.
Identify the environmental regulator	Corantioquia (*Corporación Autónoma Regional del Centro de Antioquia*, Regional Autonomous Corporation of Central Antioquia) is the licensing agency, and in charge of monitoring and supervision.
Identify other regulators (e.g. on land, water use, Indigenous Peoples)	A number of other central and local government agencies are involved in issuing permits and non-objections, such as the Ministry of the Interior (for certification on absence of indigenous peoples in the area of influence of the project) and ICANH (*Instituto Colombiano de Antropología e Historia*, Colombian Institute of Anthropology and History) for approvals and monitoring of archaeological artifacts. The Municipality of San Andrés is responsible for local permits, including for disposal sites.
Summarise the ESIA regulatory requirements	The environmental license establishes requirements primarily for the rescue of endangered flora and fauna, including fish; monitoring of water quality and sediment, aquatic flora and fauna, and others; biodiversity compensatory area of 28.09 has; regulations for cutting trees; provision of area for relocation of rescued materials; fish restocking in the San Andrés River; etc.
Volume of material needed for construction	Not available

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
oEnvironmental and social issues have been identified through an assessment process:			Monitoring of environmental and social issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✘	Water quality monitoring includes river stretches affected by domestic wastewaters from the town of San Andrés de Cuerquia. The risks from deteriorating water quality from these discharges, which will be exacerbated when other hydropower projects start construction and operation in the future, have not been assessed. Monitoring of some social issues, such as employment, takes into consideration the impacts from the Ituango Hydroelectric Project. However, these initial steps for understanding cumulative impacts are not yet comprehensive because they are not based on a systematic assessment of these impacts and are not a regulatory requirement. The lack of a systematic approach to cumulative impacts assessment is a **significant gap**.
• relevant to project implementation	✓	An environmental assessment of alternatives was submitted to Corantioquia in 2014, a first full environmental impact assessment in 2017, and a second one in 2019. The ESIA includes an ESMP with detailed management plans for all construction activities. On that basis, Corantioquia granted an environmental license in 2019.			
• relevant to project operation	✓	The ESMP includes specific plans and monitoring activities during operation.			
Assessments address:					
• evaluation of associated facilities	✓	A full ESIA for the transmission line has been prepared, and the line has been licensed by the regulator.			
• scoping of cumulative impacts	✓	Although a formal cumulative impact assessment has not been carried out, the configuration of the Chorreritas project has included due consideration of several other small hydropower projects upstream in the watershed, and interrelationships with these projects, 3 of which already exist and 2 others are still in the planning stages, including Energo-Pro's own Cuerquia project. This includes examples such as:			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		• Managing flows and reducing surface impacts: the upstream Cuerquia project will utilize infrastructure of the Chorreritas project for the delivery of discharge waters. • Biodiversity: by establishing a compensatory reserve of 150 has all Energo-Pro projects will utilize the same area for compensation. Other developers can potentially also use this area for a regional compensation scheme. • Transmission lines: Energo-Pro projects and others will share transmission line corridors. Coordination with the other projects is through participation in work groups regarding basin conservation and development, e.g. development of the river basin management plan with regional authorities, as well as direct meetings with other developers and consolidation of projects with fewer developers. Energo-Pro has carried out a scoping exercise of cumulative impacts in the watershed and has included a cumulative impacts assessment in the Terms of Reference for the ESIA of the future Cuerquia hydropower project.			
• role and capacity of third parties	✓	Project management is fully aware of capacity limitations of various government authorities that could			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		cause delays in decision making and other issues.			
• impacts associated with primary suppliers	✓	Aggregates are being supplied by the project's own borrow areas or from excavation. All primary suppliers need to present proof of environmental licensing for operations.			
Waste, noise and air quality issues have been identified through an assessment process:			Monitoring of waste, noise and air quality issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	Monitoring of waste, noise and air quality takes into consideration other sources of impacts. Spoil deposits take into account scenic impacts on the landscape.
• relevant to project implementation	✓	Chapter 10 of the ESIA is dedicated to environmental and social management plans, including in great detail for waste, noise and dust from construction. Contractors are required to present detailed management plans for construction and Energo-Pro has prepared a Guide for the preparation of site-specific ESMPs by contractors. Contractors will be obligated to present such plans prior to any construction at any work front.			
• relevant to project operation	✓	Issues have been included in the project's ESMP.			
The assessments utilised appropriate expertise for:					
• environmental and social issues	✓	The ESIAs including the ESMPs were prepared by competent environmental firms.			
• waste, noise and air quality	✓	Waste, noise, and air quality were addressed in detail in the ESIA.			
Monitoring is being undertaken during the project implementation stage appropriate to the following identified issues:					
• environmental and social issues	✓	There is comprehensive monitoring of identified E&S issues, including fish			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		and fauna surveys and monitoring of construction impacts.			
• waste, noise and air quality	✓	Intensive monitoring of water and air quality, noise, and vibrations during construction is being undertaken. Blasting in tunnels follow strict protocols starting with baseline house structure surveys which are signed by both Energo-Pro and the property owners, so that impacts can be attributed.			
MANAGEMENT					
Processes are in place to ensure management of identified environmental and social issues	✓	An organizational structure has been put in place to manage environmental and social issues during construction. A competent consulting firm (Consultora Endémica SAS) has been contracted to implement parts of the ESMP and provide supervision of the implementation of other parts. Contractors are required to have their own environmental and social teams. Energo-Pro directly supervises construction related issues through their own staff at head office in Medellín and on site through the construction management team. Total budgeted expenditure on E&S management is USD 3.03 million.	Processes are in place to anticipate and respond to emerging risks and opportunities	✘	The lack of a cumulative impact assessment has limited the capacity to anticipate and respond to risks and opportunities, which is a **significant gap**.
Processes utilised appropriate expertise (internal and external)	✓	Members of supervision teams have an adequate level of expertise.			
Processes are in place to meet environmental and	✓	Daily, weekly and monthly joint meetings are conducted between			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
social commitments relevant to project implementation stage		supervision teams and contractors, and reports are prepared including main findings and agreements.			
Processes are in place to ensure management of identified waste, noise and air quality, and to meet commitments, relevant to project implementation stage	✓	The processes in place should ensure meeting all these commitments. Although with some initial compliance issues, the environmental management and supervision of construction activities is being implemented satisfactorily.			
Plans are in place for the operation stage for ongoing environmental and social issues management	✓	Energo-Pro's environmental and social team will continue to be responsible during operation. An operation stage ESMP is included in the ESIA.	Plans and processes are embedded within an internationally recognised environmental management system which is third party verified, such as ISO 14001	✘	The environmental management system could be improved, for example regarding systematic document management. There is no third party certification for example against ISO 14001 at this point, which is a **significant gap**; but certification against ISO 14001, 45001, 9001 and 27001 will be a requirement for all business units of the Energo-Pro group.
The environmental and social impact assessment and key associated management plans are publicly disclosed	✓	ESIAs and ESMPs are available on the webpage of the regulators. They have been made available at the municipality.			
Plans are in place for the operation stage for ongoing waste management	✓	Deposit sites will be closed as acceptable to municipality and regulators. Waste during operation will be minor.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives to manage each of the following have been and are on track to be met:			There are no non-compliances relating to:		
• environmental and social management, with no major non-compliances	✓	Environmental and social objectives have been met and are on track to be met; resettlement of the affected family has been completed; land for the compensatory reserve has been acquired, and preparation work for enclosures and removal of cattle has started. Regarding fish nursery and fish stocking, Energo-Pro has	• environmental and social management	✓	None have been identified.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		requested clarification from the regulator given that most experts agree that this task is not technically feasible for the fish species of concern identified by the regulator.			
• environmental and social management, with no major non-conformances	✓	Some legal processes are still ongoing regarding the acquisition of land from the affected family but all resettlement objectives have been met.			
• waste, noise and air quality, with no major non-compliances	✓	Despite the supervision scheme in place, the contractors were initially partially failing to address non-compliances identified by supervisors: not all streams were being protected from sediments in runoff (a major requirement in the ESMP); and construction waste management was unsatisfactory. However, the Energo-Pro team implemented an action plan leading to a clearer set of procedures and tightened the E&S management of construction sites. A second site visit by the assessment team verified that the system is being implemented satisfactorily.	• waste, noise and air quality	✓	None have been identified.
• waste, noise and air quality, with no major non-conformances	✓	No major non-conformances have been identified.			
Environmental and social commitments have been or are on track to be met	✓	Most commitments such as those on resettlement and forestry compensation have been completed or are on track to be met. Construction waste management was	There are no non-conformances relating to:		

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		initially deficient; however, Energo-Pro has implemented corrective actions. A number of voluntary commitments that go beyond regulatory requirements are being implemented.			
Environmental and social funding commitments have been or are on track to be met	✓	E&S funding is available as committed.	• environmental and social management	✓	Social and environmental programs are on track to be met with no non-conformances.
Any waste, noise and air quality-related commitments have been or are on track to be met	✓	Energo-Pro has adjusted supervision processes to meet all commitments on waste.	• waste, noise and air quality	✓	Waste, noise and air quality programs are on track to be met with no non-conformances.
OUTCOMES					
Negative environmental and social impacts of the project are avoided, minimised and mitigated	✓	There are no indications for impacts that are not adequately managed.	Negative environmental and social impacts are avoided, minimised, mitigated and compensated	✓	There are no indications for impacts that are not adequately managed.
The project or the corporate entity to which it belongs can pay for social and environmental plans and commitments	✓	Energo-Pro has assigned sufficient budgets for all environmental and social plans, and there is a process in place to provide additional funding if necessary.	Enhancements to pre-project environmental or social conditions or contributions to addressing issues beyond those impacts caused by the project are achieved or are on track to be achieved	✓	The project is making some contributions to improving E&S conditions in the area of influence, for example through reforestation, employment, and royalties.
Negative noise and air quality impacts arising from project activities are avoided, minimised and mitigated	✓	Noise and vibrations from drilling and tunnel construction are being managed in a responsible manner. Because of the short dirt roads required for access, and project traffic primarily using paved roads, there are limited impacts from dust, and these have been managed adaptively,	Negative noise and air quality impacts arising from project activities are avoided, minimised, mitigated and compensated	✓	Residual negative impacts are small and are adequately compensated by other contributions to communities.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		responding to community complaints when they arise.			
Project wastes managed responsibly	✓	Excavated material – primarily from the tunnel - and all other wastes from the project are being managed adequately.	The project contributes to addressing waste management issues beyond those impacts caused by the project	×	The project is not making contributions to waste or wastewater management in San Andrés municipality.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	8

Summary of findings and other notable issues
The Chorreritas project has a limited environmental and social footprint, although the combination with several other hydropower projects in the San Andrés valley is causing significant cumulative impacts. The ESIA and ESMP are generally adequate, but despite putting in place a sophisticated supervision scheme for construction, the civil works contractor was causing unnecessary damages by not addressing all non-compliances identified by the supervision team. Energo-Pro implemented an Action Plan to remedy this gap, as verified by the assessment team.

Relevant evidence	
Interview	1, 2, 4
Document	1-7, 16-21, 23, 24, 27-34, 36, 55, 59, 63. 70-76
Photo	--

2 Labour and Working Conditions

Scope and Principle
This section addresses labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety. The principle is that workers are treated fairly and protected.

Background	
Labour requirements during implementation (full-time equivalent)	Peak employment of approximately 200 low-skilled and 100 high-skilled workers was estimated during the ESIA. The current workforce of the first contractor (Consorcio Alto Seco) is 144, half local and half from other parts of Colombia, including 16 high-skilled workers and 10 women. Energo-Pro itself has a planned workforce of 35. Recruitment is conducted through COMFENALCO (Caja de Compensación Familiar Antioquia).
Labour requirements during operation (full-time equivalent)	Not yet estimated
Applicable key human resources regulations	The key legislation is the *Código Sustantivo de Trabajo*, which has undergone multiple modifications since its introduction in 1950.
Applicable key occupational health and safety (OH&S) regulations	A series of laws and decrees, most recently with the requirement for all companies to maintain a OH&S Management System (*Sistema de Gestión de la Seguridad y Salud en el Trabajo*, SG-SST) including an OH&S Committee between staff and management (*Comité Paritario en Seguridad y Salud en el Trabajo*, COPASST).
Identify the regulator for labour law and OH&S	Ministry of Labour

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Human resources and labour management requirements have been identified through an assessment process	✓	Internal workforce requirements of Energo-Pro Colombia are identified by management and confirmed with group headquarters. Contractors identify their own requirements and coordinate hiring with COMFENALCO and Energo-Pro.	The assessment takes broad considerations into account, and both risks and opportunities	×	There have been limited efforts to identify and promote local and in particular, female workforce participation in the project; by identifying potential workers and

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
The assessment included occupational health and safety issues and risks	✓	There are a number of assessment and monitoring processes for OH&S. Besides standard construction-related issues and risks, the public security situation in the project region is complex and is regularly assessed.			assessing and improving their skills (see also section 4). While there have been few accidents overall, those are often related to traffic. There are significant risks involved in road travel between Medellín (where a large proportion of the companies and their staff are based) and San Andrés. Opportunities to reduce risks (e.g. with professional drivers and group travel) need to be systematically assessed. As a recent start-up, Energo-Pro Colombia still has opportunities to consolidate human resource practices, for example by formalizing periodic staff assessments and feedback. These examples for broader labour-related considerations that are not yet taken into account constitute a **significant gap**.
Processes are in place to identify any emerging or ongoing issues	✓	A number of processes are in place, including individual worker evaluations for skills, medical issues and substance abuse; the OH&S committee; the grievance mechanism; coordination with COMFENALCO and the municipality about local labour availability; and others.			
Processes are in place to monitor if management measures are effective	✓	Energo-Pro and their contractors monitor, analyse and report on a number of labour-related indicators.			
MANAGEMENT					
Human resource and labour management policies, plans and processes are in place that address all labour management planning components	✓	Energo-Pro as a group has established labour related policies including those for human rights, human resources, OH&S, data protection, whistleblower, security, as well as a global code of conduct (all publicly available through website). These policies are operationalized through guidelines, procedures etc. that are available internally (for example, a	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	There are multiple examples of best practices in labour-related monitoring and adaptive management. For example, Energo-Pro has full visibility of the contractors' workforces (including gender, origin and other parameters); OH&S statistics are regularly analysed, and annual improvement plans required; the kitchens of contracted food providers

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		procedure for the analysis of work injuries and illnesses). All Energo-Pro staff have direct and permanent contracts, and are covered by collective insurance policies. In compliance with Colombian labour regulations, the internal work rules (*Reglamento interno de trabajo*) also apply to contracted labour and are available to all workers.			are inspected by the OH&S supervision team; night shifts during construction of the bridge at tunnel entrance were adapted after worker comments; local hiring includes many workers who have experience in other HPPs such as Hidroituango; etc. Best practices in Energo-Pro are also confirmed through external review by COLMENA, the labour insurance company.
Human resource and labour management policies, plans and processes of contractors, subcontractors and intermediaries are in place	✓	The project conducts selection of workers for contractors and sub-contractors through COMFENALCO. Once subjected to medical exams and initial training in Medellín, new workers undergo induction training which include OH&S and E&S issues, and have to confirm that they will comply with policies and processes. Energo-Pro requires its contractors to comply with national labour-related regulations including contributions to social security, insurance, implementation of the OH&S management system, identification of OH&S risks and periodic reporting, as well as additional requirements such as payment of at least prevailing wages,. Both contractors at the time of the on-site assessment (Consorcio Alto Seco for civil works and Endémica for the ESMP) have comprehensive processes in place, and Energo-Pro			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		provides close supervision of labour practices. Emergency plans, medical evacuation procedures, and procedures for specific high-risk work (e.g. confined spaces, at height) are in place. Workers are housed in rental homes and hotels in the town of San Andrés instead of in camps, and working conditions and use of PPE on worksites were satisfactory. Dialogue and grievance mechanisms are available.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives relating to human resource and labour management have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for non-compliances.
• no major non-compliances	✓	Energo-Pro maintains a labour-related compliance database. There are no indications for major non-compliances.			
• no major non-conformances	✓	There are no indications for major non-conformances.	There are no non-conformances	✓	There are no indications for non-conformances for OH&S. Energo-Pro's supervisors regularly point out opportunities for improvements of worksites including OH&S aspects to contractors, to ensure conformance. Non-conformances related to hiring of local, female, young and handicapped workers are addressed under section 4.
Any labour related commitments have been or are on track to be met	✓	There are no indications otherwise. Within Energo-Pro, there are examples for extra efforts by management to prevent individual labour conflicts.			
OUTCOMES					
There are no identified inconsistencies of labour management policies, plans and practices with	✓	No inconsistencies have been identified. Colombian labour legislation and Energo-Pro's labour policies reflect internationally	Labour management policies, plans and practices are demonstrated to be consistent with	✓	Energo-Pro pays equal salaries to female and male employees, pays higher salaries and provides better benefits than comparable employers,

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
internationally recognised labour rights		recognised labour rights. Colombia has not ratified some ILO Conventions related to OH&S but the nationally required OH&S management systems are of a high standard.	internationally recognised labour rights		and has good retention rates. Work Injury rates in the project are low and worker satisfaction appears high, across the different companies participating in the project. High OH&S performance has been independently confirmed by the insurance company.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	4

Summary of findings and other notable issues
Energo-Pro is a relatively small but growing company with well-established labour policies and processes. Project implementation requires a workforce of several hundred, many of which are locally hired in the municipality of San Andrés. There is no need for labour camps, as workers live at home or in rented accommodation. Labour conditions including OH&S are of high quality, with some minor opportunities for improvement.

Relevant evidence	
Interview	1, 3, 4, 5, 7, 10
Document	4, 16, 28, 31-49, 59-61, 63-76
Photo	15, 17, 24, 28-34, 36, 41, 50, 53-55, 58-59, 63-65

3 Water Quality and Sediments

Scope and Principle
This section addresses the management of water quality, erosion and sedimentation issues associated with the project. The principle is that water quality in the vicinity of the project is not adversely impacted by project activities, that erosion and sedimentation caused by the project are managed responsibly and do not present problems with respect to other social, environmental and economic objectives, and that commitments to address water quality, erosion and sedimentation issues are fulfilled.

Background	
Water Quality	
Description of water quality	The San Andrés River flows through an Andean valley with steep slopes. The river has a high assimilation capacity given its high gradient, water velocities and oxygenation.
Key water quality issues	The river presents generally good water quality conditions, although with bacterial contamination.
Main influences on water quality	Untreated wastewater discharges from San Andrés town and run-off from cattle ranching upstream are the main sources of pollution.
Sedimentology	
Key sediment issues	Very steep watershed but with vegetation cover in steepest parts. Steep slopes prone to landslides. Aggregates will be extracted from the project's own excavation and own quarries which have been licensed by Corantioquia.
Sediment load (tonnes/year)	Sediment loads at the weir site have been estimated at 35 kT/year.
Catchment area at the dam	The catchment above the intake has an area of 261.6 km^2, with a mean slope of 12%, from 3,100 masl to 1,000 masl at the intake.
Other information	In the original design, the weir would not create enough retention time to trap suspended sediments. Only around 0.51 Kt/year were expected to be retained in the headpond, and would need to be removed by flushing or mechanically. The design included a sedimentation canal (desander) before entering the pressure tunnels. However, modifications in the design and additional granulometric analysis of the sediments have demonstrated that indeed the headpond can remove sediments effectively and the structure has been redesigned to allow flushing of sediments during high water flows. This eliminated the need for the sedimentation canal, and reduces the project footprint.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
ASSESSMENT					
The following issues have been identified through an assessment process:			Monitoring of water quality issues during project implementation into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	Monitoring of the San Andrés River takes into account all pollution sources including the domestic wastewaters from San Andrés de Cuerquia.
• water quality issues relevant to project implementation	✓	Water quality issues have been addressed in the ESIA. Baseline studies included water quality sampling, with different parameters, and biological water quality surveys. Monitoring data has not identified any trends yet, but this is acceptable as: (i) there are limited pollution sources in the catchment area; (ii) most water from domestic sources is not taken from the river but from tributaries; (iii) the reduced flows in the bypass reach will not increase the concentration of pollutants and there are no identified water users in that reach; (iv) the pondage created by the weir will not modify water quality; and (v) the river has an excellent self-cleaning capacity because of the high water speeds and rapids.			
• water quality issues relevant to project operation	✓	Water quality is deemed adequate for operations.			
• erosion and sedimentation issues relevant to project implementation	✓	Moderate erosion and sedimentation impacts are being caused by construction of the project, especially from construction sites associated with the access road, the tunnel, the weir, and the powerhouse. While the transmission line will be built on steep slopes, there is no need for additional access roads.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• erosion and sedimentation issues relevant to project operation	✓	The new design for the weir will allow for flushing of the sediments accumulated in the headpond.			
The above processes utilised appropriate expertise for:					
• water quality	✓	Baseline studies and monitoring of water quality utilized competent expertise.			
• erosion and sedimentation	✓	Sedimentation studies included empirical modelling of sediment transport. The feasibility study and the ESIA include assessments of geohazards for the headworks, pressure pipe and powerhouse. There are no relevant risks of creating rockfall and landslides during construction.	Monitoring of erosion and sedimentation issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	Monitoring of the sediment load in the affected segment of the San Andrés River takes into account existing sediment sources such as landslides and erosion.
Monitoring is being undertaken during the project implementation stage appropriate to the following identified issues:					
• water quality	✓	Water quality monitoring is being carried out per the requirements of the environmental license.			
• erosion and sedimentation	✓	Sedimentation monitoring is being carried out as per the requirements of the environmental license.			
MANAGEMENT					
Processes are in place to ensure management of identified water quality issues, and to meet commitments, relevant to the project implementation stage	✓	Quality impacts from tunnel run-off waters and wastewater from sanitation infrastructure are being managed through adequate and collection and treatment. Wastewaters from latrines is collected by private contractors and disposed in municipal wastewater treatment	Processes are in place to anticipate and respond to emerging risks and opportunities for water quality	✘	The risks of water quality deterioration from pollution such as domestic wastewaters, which will be exacerbated when other hydroelectric projects come into operation, have not been assessed and are not currently being managed, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		plants. Water quality monitoring data are reported to the regulators.			
Plans are in place for the operation stage for ongoing water quality issues management	✓	Water quality monitoring will continue during operation. Energo-Pro is discussing with local and regional authorities its potential support for the treatment of domestic wastewater from the town of San Andrés de Cuerquia.			
Processes are in place to ensure management of identified erosion and sedimentation issues, and to meet commitments, relevant to the project implementation stage	✓	Erosion control measures are being implemented for the tunnel portals and other construction sites.	Processes are in place to anticipate and respond to emerging risks and opportunities for erosion and sedimentation	✕	Erosion risks in the watershed, including major active landslides probably caused by agricultural land use change, have not been assessed and are not currently being managed, which is a **significant gap**. The recent climate risks study recommends monitoring an evaluation of erosion risks from mass movements.
Plans are in place for the operation stage for ongoing erosion and sedimentation issues management	✓	Sediment retained in the headpond will be flushed regularly. Sediment monitoring will continue during operation.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage each of the following have been and are on track to be met:			There are no non-compliances relating to:		
• water quality, with no major non-compliances	✓	No major non-compliances have been identified.	• water quality	✓	No non-compliances have been identified.
• water quality, with no major non-conformances	✓	No major non-conformances have been identified.			
• erosion and sedimentation, with no major non-compliances	✓	The initial lack of protection of streams at work sites was allowing sediments to reach the San Andrés River. However, changes in work practices have reduced this risk and the amount of material potentially entering water bodies was very small	• erosion and sedimentation	✓	No non-compliances have been identified.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		compared to other erosive processes, for example the major landside area in the watershed above the tunnel.			
• erosion and sedimentation, with no major non-conformances	✓	Despite the initial lack of protection of streams at construction sites, there have been no major non-conformances regarding turbidity.			
Commitments relating to the following have been or are on track to be met:			There are no non-conformances relating to:		
• water quality	✓	Water quality commitments are being met.	• water quality	✓	No non-conformances have been identified.
• erosion and sedimentation	✓	Erosion and sedimentation commitments are being met.	• erosion and sedimentation	✓	No non-conformances have been identified.
OUTCOMES					
Negative water quality impacts arising from project implementation are avoided, minimised and mitigated	✓	Negative impacts are adequately managed and water quality objectives are being met.	Negative water quality impacts arising from project implementation are avoided, minimised, mitigated and compensated	✘	No compensation measures have been identified, which is a **significant gap**.
			Enhancements to pre-project water quality conditions or contribution to addressing water quality issues beyond those impacts caused by the project are achieved or are on track to be achieved	✘	No enhancement measures have been identified, which is a **significant gap** quirements. The project will transfer funds during operation to government agencies for environmental improvements, which may have positive impacts on erosion and water quality.
Erosion and sedimentation issues during project implementation are avoided, minimised and mitigated	✓	Negative impacts, in particular erosion from construction sites is adequately managed and erosion and sedimentation objectives are being met.	Erosion and sedimentation issues during project implementation are avoided, minimised, mitigated and compensated	✘	No compensation measures have been identified, which is a **significant gap**.
			Enhancements to pre-project erosion and sedimentation	✘	No enhancement measures have been identified, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
			conditions or contribution to addressing erosion and sedimentation issues beyond those impacts caused by the project are achieved or are on track to be achieved		Reforestation in the upper watershed on the forestry compensation property may have a minor positive impact on soil stabilization in the future. The project will transfer funds during operation to government agencies for environmental improvements, which may also have positive impacts on erosion and water quality.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	6

Summary of findings and other notable issues
Negative impacts of the project on erosion, sedimentation and water quality are minor, except some localized sediment input from construction sites. The project will protect some land as part of its 1% investment plan and its compensation measures, and make transfers of funds during operation to government agencies for environmental improvements, all of which should have positive impacts on erosion and water quality.

Relevant evidence	
Interview	1, 2, 4, 7
Document	3-5, 7, 16, 24-26, 63, 71-84
Photo	1, 3, 7-9, 13, 16, 18, 21-23, 33, 37-40, 43, 46-49, 51, 56, 57, 61

4 Community Impacts and Infrastructure Safety

Scope and Principle
This section addresses impacts of the project on project-affected communities, including economic displacement, impacts on livelihoods and living standards, public health impacts, impacts to rights, risks and opportunities of those affected by the project, infrastructure safety risks and additional benefits that can arise from a hydropower project. The principle is that livelihoods and living standards impacted by the project are improved relative to pre-project conditions for project-affected communities, that commitments to project-affected communities are fully delivered, and that life, property and community assets and resources are protected from the consequences of dam failure and other infrastructure safety risks. This section does not address requirements that relate to physical displacement or to Indigenous Peoples, which are addressed in Section 5 and 7. Other interested parties and groups are addressed in Section 10.

Background	
Community Impacts and Benefits	
Description of project-affected communities and how they are affected (distinguish between physically displaced (addressed in Section 5), economically displaced and other project-affected communities and include estimated number of people and households)	According to the 2018 census, the municipality of San Andrés de Cuerquia with an area of 177 km^2 in northern Antioquia had a total population of 7,235 inhabitants, with approximately 2,500 in the main town and the rest spread across a number of villages. In the ESIA, the area of influence of the Chorreritas project was defined as the urban area of San Andrés as well as the villages (*veredas*) of Santa Gertrudis, Lomagrande, Alto Seco, Cañaduzales, and El Roble. 190 people live close to project components. Parts of the population have been subject to previous displacement from armed conflicts and insecurity, and other infrastructure projects. The principal impacts are the loss of farmland, construction impacts, impacts on river uses, and additional employment, other economic activity and revenues for the municipality.
Agencies relevant to land acquisition	The project has been declared to be in the public interest by the Ministry of Mines and Energy, which allows expropriation if a sales agreement cannot be negotiated. In projects of public interest, the value of the property is to be determined by specified entities; typically this is done by so-called '*lonjas*', which are non-profit associations of qualified real estate professionals.
Agencies relevant to livelihood restoration and project benefits	Livelihood restoration for the few property owners affected by the project, will be done through the project directly. Project benefits will be managed by the project in conjunction with local authorities such as the municipality and the village development committees ('*juntas de acción comunal*').
Infrastructure Safety and Public Health	
Type of dam	Diversion weir
Dam height (m)	5.2 m
Probable maximum flood (m^3 / s)	Not estimated

Design flood (expressed as estimated flood with return period)	585.1 m^3/s for 1-in-100-year flood, without overtopping lateral walls
Spillway capacity (m^3 / sc)	Weir with free overflow
Spillway height (masl)	Weir with free overflow
Headrace length (m)	Total (aboveground, upper tunnel, pressure shaft, lower tunnel) 2.6 km
Headrace width (m)	2.4-2.5 m
Headrace capacity (m^3 / s)	13.1 m^3/s
Seismicity	Colombia is seismically active, and major earthquakes have occurred in Antioquia. While earthquake hazards in the region are considered intermediate/moderate, several fault lines have been identified close to the project.
Geology	Local geology is dominated by schists. The terrain is steep with some instable zones and landslides. There are few alluvial deposits in the narrow reach of the San Andrés River affected by the project. The valley opens up and sediments are deposited further downstream, before the river enters the Ituango reservoir.
Dam safety regulatory authorities	There are no specialised dam safety authorities in Colombia; project designs are part of the documents submitted to and approved by environmental authorities, such as Corantioquia.
Local presence/capacity of emergency services	Small volunteer fire department, police station and army detachment in San Andrés de Cuerquia. The next larger and well-equipped emergency services are located at the Ituango dam, at a distance of 37 km.
Potential safety risks in this context	There are minor public safety risks of floods and geohazards related to the small headpond, the tunnel and other components of the Chorreritas project.
Degree of risk of dam failure and in what way	A failure of the weir is very unlikely; a flood that could not be handled by the free overflow weir would likely erode the riverbanks and damage the weir, but not lead to a complete and rapid failure.
Population at risk of dam break (locations, numbers)	There is no specific information on population exposure downstream. A review on Google Earth shows no buildings next to the river for the next ~ 10km. Inundation maps show that the flood resulting from break of the diversion weir would be largely contained to the river channel.
Dam safety standards followed	Design of Small Dams (USBR, 1987), as well as Colombian standards for seismicity and bridges and USACE standards for reinforced concrete hydraulic structures and spillway gates
Agencies relevant to dam safety	Local emergency services
Other infrastructure safety issues	Stability of slopes, traffic safety; electrical safety
Description of key public health issues	Most of the population in the area lives close to the paved main road 25AN, which has been significantly improved due to the construction of the Ituango hydropower project and allows access to public health facilities locally (in particular, the level 1 hospital in San Andrés) as well as in Medellín. There are no active health posts in the villages. Most of the 190 project neighbours are covered by the publicly subsidized health system.
Agencies relevant to public health	The municipality administration includes a public health department.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
ASSESSMENT					
Community Impacts and Benefits					
Issues relating to project-affected communities have been identified through an assessment process	✓	The ESIA provides a socio-economic baseline, evaluation of impacts, and mitigation programs. The main impacts discussed in this section include: • Loss of farmland: The project has to acquire approximately 10 ha for project components (i.e. within the area declared of public interest), consisting of (parts of) 7 properties. It also has to acquire additional land: through market transactions, for source water protection (1% investment plan, see below, approximately 80 ha) and for environmental compensation (28 ha). It also has to acquire rights-of-way across approximately 70 properties for the 16.9 km transmission line. Most of this land was previously used for agricultural purposes. • Construction impacts: The project will be built within a narrow corridor of ~ 4 km, including transport to spoil deposits. Much of the work is underground and not noticeable from above. Construction will add to existing impacts (e.g. noise, air pollution) from the 25AN road.	Monitoring of project-affected communities issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	The monitoring program is sufficiently broad to capture relevant inter-relationships, risks and opportunities, through surveys of representative segments of affected communities.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		• Impacts on river uses: Along the bypass reach, there is occasional fishing and gold extraction (traditional gold panning by *barequeros*). There is likely to a minor reduction in fish populations (see sections 6 and 11). Short sections directly at the intake and tailrace will be closed to public access for safety and security purposes, but the rest of the bypass reach should see improved access for *barequeros*, because of reduced flows. No impacts are expected downstream of the tailrace, where there is more fishing. • Additional employment and other economic activity: The project will provide some 300 jobs over the construction period, with preferential access for local people, and will inject additional funding into the local economy through purchases of land, goods and services. • Additional benefits: The project will fund some community development initiatives and during the operations period, a significant share of the municipal budget through royalties.			
This assessment utilised local knowledge	✓	The assessment is based on detailed surveys of local conditions.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Monitoring of project impacts and effectiveness of management measures is being undertaken during project implementation appropriate to the identified issues	✓	The ESMP includes monitoring programs to track the implementation of all management plans as well as of relevant impacts across five dimensions (demographic, spatial, economic, cultural, political/organizational), and results are reported to Corantioquia.			
Opportunities to increase the development contribution of the project through additional benefits and/or benefit sharing have been assessed	✓	As for any hydropower project in Colombia, there are significant regulatory benefit sharing requirements. Chorreritas will be required to invest 1% of its capital costs (approximately USD 397,000) in catchment protection measures. The plan was submitted and approved with the ESIA. 58% of the funds will be used to acquire ~ 80 ha of land strategically located to protect water sources; 36% for enrichment planting; and 6% for a hydrological station. Once in operation, Chorreritas will also be required to transfer 6% of its annual revenues to Corantioquia and to the municipality, for use in environmental improvements including water and sanitation investments. A number of options for additional benefits have been considered during the elaboration of the ESIA/ESMP and afterwards, by Energo-Pro (see below under Management). The project infrastructure will also provide some	The assessment of delivery of project benefits takes into consideration both risks and opportunities.	✓	There is some awareness of the need to cooperate with and build capacity in the recipient organizations such as the *juntas de acción comunal* and the municipality, a component of the ESMP is designed to address these needs, and a component of the monitoring program will track implementation.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		benefits to those families who live on the right bank of the river near the intake (La Vega, more than 100 people), and will have vehicle access to their properties for the first time, by being able to use the new vehicle bridge over the San Andrés River.			
In the case that commitments to additional benefits or benefit sharing have been made, monitoring is being undertaken on delivery of these commitments	✓	Delivery of benefits is being tracked.			
Infrastructure Safety and Public Health					
Dam and other infrastructure safety risks relevant to project implementation have been identified through an assessment process	✓	Geological, geotechnical, hydrological and seismic risks have been evaluated in the preparatory studies, with the stability of slopes (natural and of spoil deposits) in case of earthquakes and heavy rains as the main safety concern. Construction traffic will use (and temporarily close) public roads, in particular the 25AN, but will be minor compared to construction traffic caused by previous projects and to general traffic. Risks associated with the cofferdam, diversion weir and headpond have been considered during design and found to be negligible. The headpond volume at FSL is 15,200 m^3. The weir has an inherently safe design even in case of substantial floods, and there are no significant buildings or infrastructure	Consideration of safety issues takes into account a broad range of scenarios and both risks and opportunities	✘	Project management is aware of public security issues in the region, a private security firm (*Seguridad Atlas*) is contracted, and there is coordination with an army detachment which is patrolling the area and also protecting the explosives storage facility. However, the focus regarding safety management is on protecting project staff and infrastructure, and there is little consideration of public safety risks and opportunities in the project documentation (for example regarding road safety in the wider area, beyond road closures at the main work sites). This is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		near the river for several km downstream. A draft dam break and inundation analysis have been prepared.			
Dam and other infrastructure safety risks relevant to project operation have been identified through an assessment process	✓	See above and section 11. A range of operation-stage risks are assessed in the project's ESIA. If the headpond is operated in run-of-river mode, without active regulation, there are no additional flow-related risks.			
Safety monitoring is being undertaken during the project implementation stage appropriate to the identified issues	✓	Public safety monitoring is currently focused on access to sites, primarily those affected by project traffic and blasting, which is appropriate.			
Public health issues relevant to project implementation have been identified through an assessment process	✓	Public health issues are adequately assessed. No significant public health impacts are expected. There is no camp but workers continue to live in their homes or in rented accommodations in the town of San Andrés. While the assessment has not considered public health facilities in any detail, this is not considered a significant gap because the project is unlikely to lead to a net increase in use of public services, as (1) other hydropower projects in the area are winding down and workers will leave the area, (2) a significant share of workers in the project are from the community, (3) the project will offer its own medical services to workers. Also, access to health services will be	Monitoring of public health issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities for different community groups that become evident during implementation	✘	Monitoring of public health is basic (as part of an indicator on the quality of social services, to be tracked over time) and there is no evidence that inter-relationships or emerging risks or opportunities are taken into account, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		part of periodic surveys and tracked over time.			
Public health issues relevant to project operation have been identified through an assessment process	✓	No relevant public health issues are expected during operations.			
The public health assessment processes utilised appropriate expertise	✓	Expertise regarding public health was and is adequate for the level of impacts.			
Monitoring is being undertaken during the project implementation stage appropriate to the identified public health issues	✓	Monitoring is basic but adequate at the minimum requirements level. The health status of workers, which could contribute to public health issues, is tracked.			
MANAGEMENT					
Community Impacts and Benefits					
Measures are in place to address identified issues that affect project-affected communities and meet commitments made to address these issues	✓	Land acquisition for properties needed for construction of the hydropower project and transmission line follows the principle of market value, established through an independent entity. Compensation can be in cash or kind, following the preferences of the seller. In-kind compensation can be for the land and buildings itself (in some cases, see e.g., section 5), and for other improvements (such as driveways, crops, etc) in all other cases. None of the areas that will be required for construction and the biodiversity compensation plans is used intensively for agriculture	Processes are in place to anticipate and respond to emerging risks and opportunities relating to project-affected communities and project benefits	✓	There have been some disagreements with landowners about the valuation criteria used, as they did not follow the example of the previous large infrastructure project affecting the same area (the improvement of the 25AN road to Ituango), which did not differentiate as much by the specific value of individual properties (e.g. on steep slopes) and paid more in some cases. However, the process followed by the property assessors for Chorreritas appears reasonable. There is also an unresolved lawsuit with EPM about land ownership. An opportunity to increase the community support program to

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		or for other purposes, and all of them will affect only a part of the owners' properties, hence livelihood restoration is not required (with the exception of the family to be resettled, see section 5). Public and private assets that are damaged by construction will be repaired or replaced. Multiple other plans and processes to mitigate other impacts from construction and operation will be relevant for communities, and are described in other sections. Residual impacts that are diffuse, uncertain and/or small will generally be compensated through project benefits (see below).			additional *veredas* and broaden public support has been identified. Local people have wondered whether cracks in buildings and landslides may have been caused by blasting for the tunnel; however Energo-Pro had anticipated such concerns and has been able to disprove them with appropriate baseline data and technical explanations.
If there are any formal agreements with project-affected communities these are publicly disclosed	✓	Agreements are disclosed through the public ESIA/ESMP, letters exchanged with the government agencies at various levels (and accessible to the public), and consultation meetings. Contracts to purchase land with individuals will remain private.			
Measures are in place to deliver commitments by the project to additional benefits or benefit sharing	✓	Measures are in place to deliver (1) the 1% investment plan (recently voluntarily increased to compensate for inflation) and land compensation plan, which will benefit sellers of land and improve local land protection, (2) initiatives for institutional strengthening of the municipality (in			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		preparation for receiving significant additional funds during operation) and other local actors, (3) local employment preferences (with a target of 80% of semi-skilled and non-skilled labour), training (with a target of 70% of local young people) including scholarships for 6 technicians, and productive projects, (4) a program of social infrastructure to be defined with and for each of the *veredas* around the project, (5) construction of vehicle bridge and access road, which will significantly simplify access for some local families, including disabled people. During operation, the main benefit will be the transfer of 6% of revenues, the use of which will be decided by recipient agencies, as part of their regular planning and budgeting process. San Andrés municipality will benefit significantly, as it will receive transfers from several hydropower projects, including a share of the transfers from the large Ituango project downstream.			
Commitments to project benefits are publicly disclosed	✓	See above.			
Infrastructure Safety and Public Health					
Processes are in place to address identified dam and other infrastructure safety issues, and to meet any safety	✓	Construction quality is monitored by Energo-Pro. The project's risk management plan (part of the ESMP) addresses several exogenous risks	Processes are in place to anticipate and respond to emerging infrastructure safety risks and opportunities	×	There are no specific processes in place for emerging infrastructure safety risks and opportunities, for example related to climate change,

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
related commitments, relevant to the project implementation stage		(earthquake, floods, mass movements, disturbances of public order) and endogenous risks (work accidents, spills, fire/explosion, operational or structural failure of weir and spillway, flood caused by construction stage failure, tunnel collapse, failure of spoil deposits). Several of these are primarily assessed in terms of their impact on project workers and project infrastructure, and would have little impact on public safety. The civil works contractor also has an emergency plan in place, with simple flowcharts for responses to different types of events. A number of other safety-relevant processes are in place.			new infrastructure, or emergency services in the San Andrés valley. This is a **significant gap**.
Processes include communication of public safety measures	✓	Adequate signage is used in all project components, but very limited mention of safety-relevant issues in other communication materials such as the project updates (*Boletín Informativo*, see section 10).			
A formal quality control programme is in place for construction	✓	Energo-Pro is supervising the contractors directly through its own construction department and crew of inspectors, without use of an owner's engineer.			
Safety management plans for the operation stage have been developed	✓	See above and section 11. If the headpond is operated in run-of-river mode, without active regulation, there are no additional flow-related risks. Access to the headpond, bridge	Public safety measures are widely communicated in a timely and accessible manner	✘	Beyond basic safety measures such as signage, there is no evidence of wider communication. This is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		over the San Andrés River, powerhouse and other project components will be controlled.			
These plans have been developed in conjunction with relevant regulatory and local authorities	✓	The project's emergency plan is primarily oriented towards project staff. There is some coordination with the fire department and the risk management unit of the municipality.			
Emergency response plans include awareness and training programmes and emergency response simulations	✓	There are various measures to prepare for emergencies, including awareness raising and simulations with project workers.			
Processes are in place to ensure management of identified public health issues, and to meet commitments, relevant to the project implementation stage	✓	A small number of plans with relevance for public health are described in the ESIA/ESMP, including (1) hazardous waste handling, (2) availability of snake bite treatments, (3) health education for local young people, with a focus on sexuality and drugs, (4) signage and barriers around construction sites. In addition, occupational health measures have positive public health impacts because many workers are part of the community and health exams, protocols (e.g. against the spread of infectious diseases) and a Code of Conduct will be implemented.	Processes are in place to anticipate and respond to emerging public health risks and opportunities	✓	The Colombian government's public health system includes such processes. Given its minor impacts, there is no specific role for Energo-Pro and its project in these processes. The project is generally open to engage in additional activities if they emerge as risks or opportunities.
Plans are in place for the operation stage for ongoing public health issues management	✓	There is no need to anticipate specific public health measures for that stage.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
These plans include hand-over to local authorities as appropriate	✓	There is no need to continue and hand over public health measures to local authorities.			
CONFORMANCE AND COMPLIANCE					
Community Impacts and Benefits					
Processes and objectives in place to manage the following have been and are on track to be met:			There are no non-compliances relating to:		
• project-affected communities' issues, with no major non-compliances	✓	There are no indications for major non-compliances.	• project-affected communities	✓	There are no indications for non-compliances.
• project-affected communities' issues, with no major non-conformances	✓	There are no indications for major non-conformances.			
• project benefits, with no major non-compliances	✓	There are no indications for major non-compliances.	• project benefits	✓	There are no indications for non-compliances.
• project benefits, with no major non-conformances	✓	There are no indications for major non- conformances.			
Commitments have been or are on track to be met relating to:			There are no non-conformances relating to:		
• project-affected communities	✓	There are no indications otherwise.	• project-affected communities	✓	There are no indications for non-conformances.
• project benefits	✓	There are no indications otherwise.	• project benefits	✓	There are no indications for non-conformances.
Infrastructure Safety and Public Health					
Processes and objectives in place to manage the following have been and are on track to be met:			There are no non-compliances relating to:		
• dam and other infrastructure safety, with no major non-compliances	✓	There are no indications otherwise.	• dam and other infrastructure safety	✓	There are no indications for non-compliances.
• dam and other infrastructure safety, with no major non-conformances	✓	There are no indications otherwise.			
• public health issues, with no major non-compliances	✓	There are no indications otherwise.	• public health	✓	There are no indications for non-compliances.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• public health issues, with no major non-conformances	✓	There are no indications otherwise.			
Commitments have been or are on track to be met relating to:			There are no non-conformances relating to:		
• dam and other infrastructure safety	✓	There are no indications otherwise.	• dam and other infrastructure safety	✓	There are no indications for non-conformances.
• public health	✓	There are no indications otherwise.	• public health	✓	There are no indications for non-conformances.
OUTCOMES					
Community Impacts and Benefits					
Livelihoods and living standards impacted by the project have been or are on track to be improved	✓	No significant negative impacts on livelihoods and living standards have been identified. It is highly likely that almost all project neighbours will see some improvements in livelihoods and living standards.	The measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term	✓	Permanent benefits will arise primarily from improved access for families in the settlement La Vega, on the right bank of the river, and royalties that will increase public resources at the level of the municipality.
Economic displacement is fairly compensated, preferably through provision of comparable goods, property or services	✓	A large majority of acquisition of land will follow the principle of willing seller-willing buyer. Only in case of (1) properties designated as required for this public interest project, and (2) disagreements regarding compensation values or special cases such as death of a landowner and unresolved title issues, is there a fallback process of forced acquisition. Even in these cases, there is very limited displacement of livelihood activities, and compensation criteria have been fairly designed and applied.			
Communities directly affected by the development of the hydropower project have	✓	Plans will deliver significant and sustained benefits for local communities.	Benefits are significant and the project has delivered or is on track to deliver significant and sustained benefits for	✓	See above and under Minimum Requirements.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
received or are on track to receive benefits			communities affected by the project		
Infrastructure Safety and Public Health					
Safety risks have been avoided, minimised and mitigated with no significant gaps	✓	Public safety risks in this project are low, due to its small footprint including a low diversion weir and small reservoir with no active regulation. Risks are adequately managed at the level of minimum requirements, through the project's emergency plans.	Safety risks have been avoided, minimised and mitigated with no identified gaps	✘	There are limited efforts to address public safety directly, for example through a traffic management plan that would address all project-related transport, not just traffic regulation at the two main worksites on the 25AN road. This is a **significant gap**.
			Safety issues have been addressed beyond those risks caused by the project itself	✘	There are no indications for planned positive impacts on public safety, which is a **significant gap**. There may be minor benefits to public security during construction from the presence of private security staff and army personnel.
Negative public health impacts arising from project activities are avoided, minimised and mitigated	✓	Plans for public health are adequate for a project of this size and impacts.	Negative public health impacts arising from project activities are avoided, minimised, mitigated and compensated	✓	See under Minimum Requirements.
			Enhancements to pre-project public health conditions or contributions to addressing public health issues beyond those impacts caused by the project are achieved or are on track to be achieved	✘	There are minor and temporary positive impacts on public health, for example through talks on drug addiction and engagement with single mothers, but these are not considered substantial enough to lead to enhancements of public health conditions, which is a **significant gap**.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	15

Summary of findings and other notable issues
Negative community impacts are primarily related to land acquisition and construction disturbances, and are limited and generally well managed. Positive community impacts are significant, primarily related to employment and royalties, including some voluntary provisions. Public health is not a significant concern. Public safety is not a major concern due to the small footprint and lack of a substantial reservoir, andemergency plans are focused on project staff and infrastructure.

Relevant evidence	
Interview	1-5, 7-10
Document	4, 7, 16, 21-24, 28, 34, 50-59, 63, 66-72, 76, 78, 79, 86, 87
Photo	2, 4, 6, 11, 12, 14, 19, 20, 22, 35, 45, 60, 66

5 Resettlement

Scope and Principle
This section addresses physical displacement arising from the hydropower project development. The principle is that the dignity and human rights of those physically displaced are respected; that these matters are dealt with in a fair and equitable manner; that livelihoods and standards of living for resettles and host communities are improved; and that commitments made to resettlees are fully delivered. This section does not address those that are only economically displaced, who are addressed in Section 4.

Background	
Does the project require or result in any physical displacement of people? Please state the evidence on which this determination is made.	
Yes, this section is relevant	One family had to be resettled as the land where their home is located, was understood to be the only available flat area that could be used as an industrial zone for offices, workshops, concrete plant etc., near the intake. Against expectations, the contractors have identified other areas for their needs, and the home may be preserved and turned over to the community or used as a visitor centre. However, it is surrounded on all sides by construction activities and would not have been usable at least during construction.
No, this section is not relevant	Click here to enter text.

Description of physically displaced communities and how they are displaced (distinguish between permanently vs temporarily and include number of people and households)	The property to be acquired belongs to a larger family, with most members residing in Medellín. One of the co-owners and his family (a total of 5 people) was displaced from the area because of a lack of public order and security, and later returned from Medellín to farm and live permanently in one of the two homes on the property. This family has now resettled to a property on the outskirts of the town of San Andrés. Other family members visit only temporarily. The total property has 24 ha, but only the flat area where the homes are located (~10%) needs to be acquired. Resettlement within the property would have been difficult because of a lack of access to water and flat areas to build on.
Name and number of settlements	See above
Agencies relevant to land acquisition	See section 4
Agencies relevant to livelihood restoration	See section 4
Other relevant information	There has been previous displacement in the area, both from violent conflict and from other infrastructure projects such as the improvement of the 25AN road to Ituango, by EPM.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✗)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✗)**		**Findings and Observations**
ASSESSMENT					
An assessment of the resettlement implications of the project has been undertaken	✓	The technical design of the project has considered various alternatives for the placement of the industrial area. The resettlement implications were identified early, and are addressed in detail in the ESIA.	The assessment of delivery of commitments to resettlees and host communities takes into consideration both risks and opportunities	✓	Since the resettlement affects only one family, risks and opportunities are well understood and communicated between project staff, local authorities and the affected family.
This assessment establishes the pre-project socio-economic baseline for resettlees and host communities	✓	The family's socio-economic conditions were documented.			
Monitoring is being undertaken of implementation of the resettlement plans, and to see if commitments made to resettlees and host communities have been delivered and are effective and to identify any ongoing or emerging issues	✓	The resettlement process is being closely monitored.			
MANAGEMENT					
Measures to address resettlement are documented in a Resettlement Action Plan	✓	According to the resettlement plan, the family will receive approximately 5% (or USD 2,600) of the compensation value for the part of the property to be acquired, in line with their ownership share. Additionally, the value of the replacement house is approximately USD 26,000, and there is assistance for livelihood restoration.	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	An emerging risk is that parts of the family have not accepted the purchase value for the property, and the acquisition is still not concluded. However, constructive relations have been maintained, and the family has rented part of their property to the civil contractor. The purchase value has been paid into an escrow account,

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Measures are in place to deliver commitments to resettlees and host communities	✓	The family has been accompanied and supported by project staff throughout the process. It preferred to build the new home itself with cash compensation received, has relocated to the new home, and has started a grocery shop out of the ground floor, as a new source of income.			ready to be disbursed once the issue is resolved.
Measures are in place to manage any issues relating to resettlement, including provision of grievance mechanisms	✓	Throughout the process, the family has had access to independent advice, grievance mechanisms, the local authorities, and the legal system.			
Formal agreements with resettlees and host communities are publicly disclosed	✓	The general commitments regarding land acquisition and resettlement are disclosed through the ESIA and general regulations in Colombia; however the individual agreements with the family are private and not disclosed, which is appropriate.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in the Resettlement Action Plan have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.
• no major non-compliances	✓	No major non-compliances have been identified.			
• no major non-conformances	✓	No major non-conformances have been identified.	No major non-compliances have been identified.	✓	No non-conformances have been identified.
Any resettlement related commitments have been or are on track to be met	✓	Except for the finalization of the land acquisition, which is on track to be resolved through negotiation or the legal process, all commitments have been met.			
OUTCOMES					

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Resettlement has been and is being treated in a fair and equitable manner	✓	There are no indications otherwise.	The measures put in place to improve livelihoods and living standards are on track to promote self-sufficiency in the long-term	✓	There are no indications otherwise.
Resettlees and host communities have experienced or are on track to experience a timely improvement in livelihoods and living standards relative to the pre-project baseline	✓	The family's new home is of significantly higher quality than the previous one, is closer to the town of San Andrés, and the new business (grocery shop) is delivering a higher net income than previous activities. In spite of the reluctance of some members to leave the former home, adjustment is going well.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	5

Summary of findings and other notable issues
The relocation of one family and the restoration of their livelihood has been largely concluded; however the acquisition of their land is still unresolved.

Relevant evidence	
Interview	1, 3, 4, 8
Document	4, 16, 22, 34, 53-58, 69, 71
Photo	6

6 Biodiversity and Invasive Species

Scope and Principle
This section addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the planned project. The principle is that there are healthy, functional and viable aquatic and terrestrial ecosystems in the project-affected area that are sustainable over the long-term, that biodiversity impacts arising from project activities are managed responsibly, and that commitments to implement biodiversity and invasive species measures are fulfilled.

Background	
Short description of the ecological region in the project area	The project is located approximately between 800 and 1,250 masl, between the pre-montane humid forest of the Central Cordillera and the dry tropical forest of the Cauca valley. Affected land uses include crops, pastures and natural habitats, principally a small area of riparian forest, and the San Andrés River.
Protected areas (national parks and reserves etc) and their distance from the project	According to the portal of the Colombian Environmental Information System (SIAC), the area of influence does not overlap with any national conservation priority areas or areas under any conservation category at the local and regional level. This was also verified with the screening tool of the Tremarctos Colombia early warning system. The closest areas of interest for conservation are a Soil Conservation District in the municipality of Peque (distance of 20 km), the Paramillo National Natural Park (60 km), the District of Integrated Management of the Dry Forest of Western Antioquia (17 km), the Regional District of Integrated Management of the Páramos and High Andean Forest System of the Middle Northwest of Antioquia (20 km) and the Regional District of Integrated Management of Alto de Ventanas (28 km).
Critical habitats in the project area, including important bird areas, hotspots of endemism etc.	According to the ESIA, no critical habitats or important migratory pathways for birds, nor endemisms for this group, were identified. The registered native flora represents 84% of species that are endemic for the department of Antioquia.
# threatened species in the directly affected area: terrestrial	According to the EIA, there are no threatened species of terrestrial or aquatic fauna and flora in the project area. 5 plant species are registered on IUCN and CITES lists in categories LC (least concern), VU (vulnerable) and LR (lower risk): *Inga densiflora* LC, *Persea Americana* LC, *Heliocarpus americanus* LC, *Cedrela odorata* VU, *Ficus schippii* LC/LR
# threatened species: aquatic	None identified
Any other species of conservation importance	None identified
Migratory pathways	None identified
Invasive species: terrestrial	None identified
Invasive species: aquatic	None identified

Key threats to biodiversity	Deforestation, agriculture, livestock, illegal mining, water pollution
Agencies involved in biodiversity conservation	Corantioquia is the regional entity responsible for the environment and renewable natural resources, adhering to the guidelines issued by the Ministry of Environment and Sustainable Development (*Ministerio de Ambiente y Desarrollo Sostenible*, MADS). National Natural Parks of Colombia is a special administrative unit of the Ministry in charge of managing the National Natural Park Systems and coordinating the National System of Protected Areas.

Minimum Requirements			**Advanced Requirements**		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Biodiversity issues relevant to project implementation have been identified through an assessment process	✓	The 2019 ESIA included an assessment of biodiversity impacts during construction.	Monitoring of biodiversity issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	Monitoring is adequate for the small scale and scope of biodiversity impacts. The San Andrés River is a steep and turbulent mountain river with limited fish diversity. Energo-Pro has analyzed management measures required by Corantioquia, specifically fish restocking, and has argued that these are not feasible and would negatively affect aquatic biodiversity. The issue is not yet resolved.
Biodiversity issues relevant to project operation have been identified through an assessment process	✓	The impacts during operation were also included.			
The above assessments utilised appropriate expertise	✓	Appropriate biodiversity expertise was used.			
Monitoring is being undertaken during the project implementation stage appropriate to the identified issues	✓	Monitoring of biodiversity issues is being carried out within the area of influence of the project, in line with the environmental management plans, which have a series of sub-plans for the monitoring of terrestrial and aquatic biodiversity.			
MANAGEMENT					
Processes are in place to ensure management of identified biodiversity issues, and to meet commitments, relevant to the project implementation stage	✓	The project is implementing directly or through the contractor Endémica the different biodiversity-related management plans, including those for aquatic species (*Lontra longicaudis, Chironectes minimus, Procyon cancrivorus, Colostethus*	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	As part of the compensation plan, the project is acquiring 28.075 has which is the offset required for the affected area of 4.78 has in natural ecosystems and secondary vegetation. 20 has will be preserved and 8.075 has will be

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		fraterdanieli), amphibians, wildife removal and rescue, vegetation management, and protection of wildlife through driver training and signage. During clearing of vegetation for construction, sensitive flora (such as epiphytes) and fauna are removed and relocated. Relocated plants have shown good survival rates. A large property has been acquired for compensation purposes as defined in a Biodiversity Compensation Plan, which follows standard Colombian regulations. Some measures go beyond those required by the environmental license.			restored, and the net gain in biodiversity will be quantified. The compensation property in the upstream municipality of San José de la Montaña is larger than the regulatory requirement of 28.075 has and can also accommodate offsets for the transmission line and for future hydropower projects under development. The property has equal or higher biodiversity value and also serves for the protection of water resources. It is located in the premontane forests of the northern region of the Central Cordillera, which are considered as strategic ecosystems, with a high structural complexity and floristic diversity. The project is currently starting rehabilitation of vegetation on a second 5 has property, specifically intended to compensate for the effects on the epiphytes, with an initial planting of approximately 234 trees.
Plans are in place for the operation stage for ongoing biodiversity issues management	✓	Plans to support broader ecological processes such as connectivity along the San Andrés River are under preparation. The objective is to acquire all properties at least on the left bank along the bypass reach, and to restore a natural riparian forest, using the project's nursery where seedlings from local plants are being grown.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage biodiversity issues have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.
• no major non-compliances	✓	No major non-compliances have been identified.			
• no major non-conformances	✓	No major non-conformances have been identified.	There are no non-conformances	✓	No non-conformances have been identified.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Biodiversity related commitments have been or are on track to be met	✓	There are no specific commitments beyond the requirements of the environmental license.			
OUTCOMES					
Negative biodiversity impacts arising from project activities are avoided, minimised, mitigated and compensated with no significant gaps	✓	The biodiversity impacts of the project are small and adequately managed through the biodiversity-related sub-plans of the EMP and the Biodiversity Compensation Plan. No gaps have been identified.	Negative biodiversity impacts arising from project activities are avoided, minimised, mitigated and compensated with no identified gaps	✓	No gaps have been identified.
			Enhancements to pre-project biodiversity conditions or contribution to addressing biodiversity issues beyond those impacts caused by the project are achieved or are on track to be achieved	✕	There are no specific measures to enhance biodiversity conditions, which is a **significant gap**. While the compensation property is larger than required by the regulator, it is anticipated that it will also serve for the compensation of the impacts of other projects, so may not represent a net gain.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	5

Summary of findings and other notable issues
Although the Andean mountains generally present high biodiversity values, the biodiversity of the San Andrés valley has been reduced by intensive human use. The project's footprint and the loss of terrestrial biodiversity will be minimal, and impacts on aquatic species are also limited. Compensation programs are implemented as required by the environmental license.

Relevant evidence	
Interview	1, 2, 4, 6, 7, 11
Document	4, 8, 10-13, 16, 28, 29, 32, 63, 70, 71, 76, 78, 79
Photo	1, 2, 7, 8, 21, 22, 25-27, 37-39, 66-75

7 Indigenous Peoples

Scope and Principle
This section addresses the rights at risk and opportunities of Indigenous Peoples with respect to the project, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalised and vulnerable segments of the population. The principle is that the project respects the dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resource-based livelihoods of Indigenous Peoples in an ongoing manner throughout the project life.

Background	
Are any of the affected people Indigenous Peoples? Please state the evidence on which this determination is made.	
Yes, this section is relevant	Click here to enter text.
No, this section is not relevant	As one of the first countries in the world, Colombia ratified the ILO Convention 169 and implemented it into its national constitutional framework in 1991. The rights to free, prior and informed consultation and consent are legally protected. Indigenous, Afro-Colombian and other ethnic minority territories are recognized and registered in official databases. The Ministry of Interior confirmed in 2019 that no such territories are affected by the Chorreritas HPP.

8 Cultural Heritage

Scope and Principle
This section addresses cultural heritage, with specific reference to physical cultural resources, associated with the hydropower facility. The principle is that physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance. This section does not address non-physical cultural resources, which are addressed in Section 1 and/or in Sections 5 and 7 when relevant.

Background	
Does the project affect any physical cultural resources? Please state the evidence on which this determination is made.	
Yes, this section is relevant	Yes, this section is relevant. The project area has no significant historic buildings or sites that are protected for their cultural heritage value; some historic buildings are located in the nearest town San Andrés but would not be affected. Some sections in the project area could have been settled by pre-historic populations, and the construction of other hydropower plants in the valley has yielded some ceramics and other archaeological remains. Such remains are typical for many construction projects in Colombia. In the case of Chorreritas, the Colombian Institute of Anthropology and History (*Instituto Colombiano de Antropología e Historia* - ICANH) authorized preventative archaeological surveys (which are a precondition for environmental licensing) in 2016 and approved the report in 2017. The surveys covered approximately 10 hectares, including potential spoil deposits and access roads, and were documented in great detail. Further communication with the ICANH occurred in 2021, when the project design had further advanced. A number of small ceramic fragments were recorded. A generic archaeological management plan called 'Preventive Archeology Program' is in place that includes access to archaeological expertise in case it is required, a chance find procedure with further excavation and rescue if archaeological material is identified, and awareness building for workers and local communities.
No, this section is not relevant	Click here to enter text.

Sites of physical cultural heritage affected by or in proximity to the project-affected areas	How they are affected
In the footprint of the Chorreritas project (10.12 ha), archaeological reconnaissance and prospecting activities were carried out, with 26 out of 41 excavations in areas of high archaeological potential, however, no archaeological material was evident.	Currently no specific impacts have been identified.

Agencies responsible for cultural heritage	ICANH

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Cultural heritage issues, with respect to physical cultural resources, that are relevant to project implementation have been identified through an assessment process	✓	A prospecting program was designed and implemented in specific project-affected areas, prior to construction, in order to locate physical resources of archaeological, historical and cultural importance. 4 polygons of archaeological interest were registered for monitoring during construction. As of the date of this assessment, 70% progress has been made in archaeological monitoring.	Monitoring during project implementation takes into account interrelationships amongst issues, and both risks and opportunities that become evident during implementation	✓	The monitoring program is adequate for the cultural heritage issues that have been or may be identified during construction.
Cultural heritage issues, with respect to physical cultural resources, that are relevant to project operation have been identified through an assessment process	✓	No issues that are relevant to project operation are foreseen.			
The assessments utilised appropriate expertise	✓	The prospecting studies were carried out by archaeological professionals. The implementation of the archaeological management plan is currently undertaken by registered and qualified archaeologists, as required by Colombian regulations.			
Monitoring is being undertaken during the project implementation stage appropriate to the identified issues	✓	Monitoring the implementation of the archaeological management plan is a requirement of ICANH's regulatory resolution, and is currently carried out to verify the presence of cultural heritage assets that, due to			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		topography and access conditions, may not have been identified in the prospecting stage.			
MANAGEMENT					
Processes are in place to ensure management of identified cultural heritage issues, and to meet commitments, relevant to the project implementation stage	✓	The management plan approved by ICANH covers the possible scenarios that may arise during construction, such as: archaeological verification and monitoring, specialized laboratory analysis, dissemination and public archaeology, registration and safekeeping of archaeological material. Minor archaeological pieces which have been found to date have been stored; the consultation with ICANH to define their final treatment has not yet begun and it is unknown if they will be disposed of in the ground (reburied) or if they will be transferred to some official entity. The transmission line also has an approved Preventive Archaeology Program, but has not yet started implementation.	Processes are in place to anticipate and respond to emerging risks and opportunities	✘	The ongoing monitoring and communication with ICANH is adequate to respond to any cultural heritage risks. However, the custody and final destination of any archaeological material has not yet been defined. This is a **significant gap**, since without a decision by ICANH it is unclear what activities such as cultural heritage education can be implemented.
Plans are in place for the operation stage for ongoing cultural heritage issues management	✓	By regulation, an equivalent chance find process will be in place during the operation stage.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage cultural heritage issues have been and are on track to be met with:			There are no non-compliances	✓	No non-compliances have been identified.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• no major non-compliances	✓	No major non-compliances have been identified.			
• no major non-conformances	✓	No major non-conformances have been identified.	There are no non-conformances	✓	No non-conformances have been identified.
Cultural heritage related commitments have been or are on track to be met	✓	There are no specific commitments related to cultural heritage. Energo-Pro is looking into the possibility of upgrading the architectural design of the powerhouse.			
OUTCOMES					
Negative cultural heritage impacts arising from project implementation are avoided, minimised, mitigated and compensated with no significant gaps	✓	There are no indications for any negative cultural heritage impacts that are not appropriately managed.	Negative cultural heritage impacts arising from project implementation are avoided, minimised, mitigated and compensated with no identified gaps	✓	No gaps have been identified.
			Contributions to addressing cultural heritage issues beyond those impacts caused by the project are achieved or are on track to be achieved	✘	While the archaeological management plan in principle includes dissemination of findings with interest groups such as local communities, construction workers, children and local administrations, there is no evidence that significant findings or contributions to public knowledge have been made or are on track to be made, which is a **significant gap**.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	4

Summary of findings and other notable issues
The archaeological prospecting and monitoring programs and some awareness campaigns, allow the identification and preservation of archaeological material on the construction site. The material found to date is of minor significance and, in cooperation with ICANH will be analysed, and its final destination determined.

Relevant evidence	
Interview	1-4
Document	4, 6, 14-16, 32, 34, 59, 70-72, 75
Photo	--

9 Governance and Procurement

Scope and Principle
This section addresses corporate and external governance considerations for the operating hydropower facility, and all project-related procurement including works, goods and services. The principle is that the developer has sound corporate business structures, policies and practices, and that procurement processes are equitable, transparent and accountable.

Background	
Key information on political context and public sector risks	On the World Bank's WGI indicators (http://info.worldbank.org/governance/wgi/) Colombia shows above-average scores, compared to the rest of Latin America, for Government Effectiveness and Regulatory Quality, but below-average (and partially declining) scores for other indicators. On Transparency International's CPI index, Colombia is ranked 91st. Colombia has suffered from many years of political instability and armed conflict.
Key information on corporate ownership and governance	Energo-Pro is a 28-year old, privately owned, independent power producer group with hydropower and distribution assets across Eastern Europe. The Colombian subsidiary is the first in Latin America, and Chorreritas is the first project in Colombia. It is structured as a special-purpose vehicle (Generadora Chorreritas SAS ESP).
Details of the concession, if applicable	The Chorreritas HPP obtained its environmental licence in 2019. Projects under 20 MW enjoy preferential market access. Connection to the grid has to be provided by the regional grid operator, in this case EPM, after technical and commercial analysis by the grid operator and the planning unit of Ministry of Energy (*Unidad de Planeación Minero Energética*, UPME).
Key licenses or permits	Corantioquia issued the environmental licence with multiple additional conditions.
Key information on expected procurement strategy for this project (EPC, BOOT, etc)	The contracting strategy includes contracts for (1) tunnels and roads, (2) intake and powerhouse, (3) electromechanical equipment, (4) ESMP, and (5) the transmission line. Contracts (1) and (4) are under implementation.
Other relevant information	The project region (northern Antioquia) has been among the most instable regions in Colombia, with significant coca production and trafficking, and competing armed groups.

Minimum Requirements		**Advanced Requirements**	
Requirement is met: yes (✓) or no (✗)	**Findings and Observations**	**Requirement is met: yes (✓) or no (✗)**	**Findings and Observations**
ASSESSMENT			
Processes are in place to identify:		✓	

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• ongoing or emerging political and public sector governance issues	✓	Energo-Pro Colombia staff and consultants have a good understanding of the political and public sector governance situation in Colombia in general, and in the project region. The project has been able to obtain all required permits and approvals.	There are no significant opportunities for improvement in the assessment of political and public sector governance issues		The company is well connected, supported by legal and other advisors, and engaged in sector policy through an association of independent power producers (*Centro de Estudios de la Energía Renovable y el Agua* - CEERA).
• ongoing or emerging corporate governance requirements and issues	✓	Corporate governance requirements are established by the Energo-Pro group, and partially customized for the specific regulatory context in Colombia.	There are no significant opportunities for improvement in the assessment of corporate governance requirements and issues	✓	There are no indications for any significant opportunities.
• major supply needs, supply sources, relevant legislation and guidelines, supply chain risks and corruption risks	✓	Supply needs, procurement guidelines and contracting strategy are being defined by Energo-Pro internally, without an owner's engineer.			
Processes are in place to monitor if corporate governance measures are effective	✓	Processes include monitoring by the Energo-Pro group and external auditors.	The assessment includes opportunities for local suppliers and local capacity development	✓	Increasing local content and employment are part of the procurement objectives. Major contractors have to submit within 30 days a program for local supplier development, which is approved and supervised by the client.
Ongoing monitoring is being undertaken to monitor effectiveness of procurement plans and processes	✓	Implementation of procurement plans and processes is monitored internally.			
MANAGEMENT					
Processes are in place to manage:			Processes are in place to anticipate and respond to emerging risks and opportunities	✓	Energo-Pro Colombia is an agile company that has been able to respond to opportunities (such as acquiring, and modifying the design of, new projects under development) and risks (such as local elections, during which discussions on benefit
• corporate, political and public sector risks	✓	Risks are addressed through a range of corporate policies and practices.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
					sharing were suspended to avoid any perception of taking sides).
• compliance	✓	Energo-Pro Colombia staff includes a legal advisor. Compliance with various regulations (e.g. labour-related) is tracked through internal processes. Compliance with license conditions is monitored and reported to the regulator CORANTIOQUIA through the biannual Environmental Compliance Report (*Informe de Cumplimiento Ambiental, ICA*). Contractor compliance is supervised by Energo-Pro and by the company contracted for implementation of the ESMP (see section 1).	Contractors are required to meet or have consistent policies as the developer	✓	The contractual conditions include environmental, social and labour/OH&S obligations and supervision of compliance. Standards such as the HSS are explicitly included in contractor requirements. The contractor is required to present a notarized letter of acceptance of and compliance with Energo-Pro policies. Contractors and consultants are expected to abide by the Code of Conduct.
• social and environmental responsibility	✓	E&S responsibility is supported by various corporate policies (especially the Environmental, Social and Governance, Sustainability, and Human Rights policies) and implemented through a committee, head and core team at group level, Energo-Pro Colombia's E&S department, currently with 6 staff, the company contracted for implementation of the ESMP, and the E&S staff of other contractors.			
• procurement of goods and services	✓	The Energo-Pro group's Procurement Policy and the General Terms and Conditions for Purchase of Goods and/or Services are available on the website. Draft conditions of contract are included with tender documents.	Procurement processes include anti-corruption measures as well as sustainability and anti-corruption criteria specified in pre-qualification screening	✘	The procurement policy specifies that ethical business practices and sustainability performance are taken into account in supplier selection. While there is no separate pre-qualification screening, contractor

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		The policy and processes emphasize alignment with ESG policies and the objective of maximizing local content, through contractor selection (e.g. previous sustainability record) and contracting (e.g. confirmation of compliance with Energo-Pro policies).			offers are first to be evaluated for compliance with technical, financial and sustainability capacity and criteria, before financial offers are reviewed. Supplier selection in the group and in Energo-Pro Colombia are also described in the Sustainability Report. However, there is currently limited practical guidance on how to interpret, submit and evaluate the integrity and sustainability criteria, which is a **significant gap**. This is also recognized in the Sustainability report, which states that '*we recognize we need to strengthen our supply chain management and monitoring. EP Group is currently developing manuals and processes to integrate sustainability in our value chain. We are preparing Contractor Management and Monitoring Plans, Evaluation checklists and Manuals to improve our supply chain performance and make them stronger and more sustainable*.'
• grievance mechanisms	✓	A mechanism for grievances and petitions is established (see section 10).			
• ethical business practices	✓	The Energo-Pro Group's Code of Conduct and Anti-Bribery and Anti-Money Laundering Policy which are guided by a zero tolerance principle are available on the website. An anti-bribery and anti-money laundering committee at the group level meets at least once a year.			
• transparency	✓	Energo-Pro makes its sustainability-related corporate policies accessible in all languages of countries where the group operates, and publishes an annual sustainability report.			
Policies and processes are communicated internally and externally as appropriate	✓	Policies and processes and published on the external website and/or on the internal site (intranet), are referenced in the annual group sustainability report and procurement documents, and are communicated to staff through induction training and where applicable, signed by staff.	Anti-corruption measures are strongly emphasised in procurement planning processes	✕	There is no evidence for a strong emphasis on corruption in procurement planning, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Independent review mechanisms are utilised to address sustainability issues in cases of project capacity shortfalls, high sensitivity of particular issues, or the need for enhanced credibility	✓	To date there have been no cases of project capacity shortfalls, high sensitivity of particular issues, or a need for enhanced credibility. The 2022 independent HESG assessment was made publicly available.			
Measures are in place to guide procurement of project goods, works and services and address identified issues or risks, and to meet procurement related commitments	✓	Procurement is progressing as planned. Delivery of contract (1) is approximately 1 month behind schedule, partly because of delays caused by changes in regulations for procurement of explosives, but measures are being taken to recover the lost time.			
CONFORMANCE AND COMPLIANCE					
The project has no major non-compliances relating to governance	✓	There are no indications for major non-compliances, as also confirmed by Energo-Pro's external auditors.	There are no non-compliances	✓	There are no indications for non-compliances.
Processes and objectives relating to procurement have been and are on track to be met with:					
• no major non-compliances	✓	There are no indications for major non-compliances.	There are no non-conformances	✓	There are no indications for non-conformances.
• no major non-conformances	✓	There are no indications for major non-conformances.			
Any procurement related commitments have been or are on track to be met	✓	There are no indications otherwise.			
OUTCOMES					
There are no significant unresolved corporate and external governance issues identified	✓	While there some external governance issues regarding public security in the project region and regulatory arrangements (see under	There are no unresolved corporate and external governance issues identified	✘	Energo-Pro has raised a number of external governance issues, in some cases through business associations such as CEERA and the *Cámara*

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		Advanced Requirements), none of them currently pose significant risks for the Chorreritas project.			*Colombiana de la Infraestructura*, among them (1) the 20 MW cut-off for generation projects with preferential market access, and (2) the responsibilities for grid interconnections. The first issue provides an incentive for developers to limit their project size to under 20 MW, which may represent an inefficient use of natural resources. This is apparent in the San Andrés valley, where a cascade of small projects probably has larger cumulative impacts and costs than fewer, integrated projects would. It also limits the access of small projects to revenue streams for firm energy. The second issue is related to the sharing of incentives and risks between an IPP and a grid company. The grid connection of the project depends on the regional utility EPM, and Energo-Pro bears the risk of delays of this connection. This arrangement represents a potential conflict of interest, as EPM also competes with Energo-Pro in the energy market. These issues represent a **significant gap**, although they are not under the responsibility of Energo-Pro (which can only work to limit the implications for the company) and would have to be addressed by national regulators.
Procurement of works, goods and services across major project components is:					
• equitable	✓	There are no indications otherwise.			
• efficient	✓	There are no indications otherwise.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• transparent	✓	There are no indications otherwise.	Opportunities for local suppliers including initiatives for local capacity development have been delivered or are on track to be delivered	✓	See above under Assessment. Contractors selected to date are from the department of Antioquia. Some services such as accommodation and food have been contracted with small entrepreneurs from the town of San Andrés. A large proportion of workers are from the municipality, and are acquiring skills that may translate into future economic opportunities.
• accountable	✓	There are no indications otherwise.			
• ethical	✓	There are no indications otherwise.			
• timely	✓	There are no indications otherwise.			
Contracts are progressing or have been concluded within budget or changes on contracts are clearly justifiable	✓	There are no indications otherwise. Through the use of unit prices Energo-Pro has assumed some risks but has also been able to realize some savings in contract (1).			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	8

Summary of findings and other notable issues
Energo-Pro Colombia is an agile, well-structured company with modern ESG policies and processes.

Relevant evidence	
Interview	1-4, 7, 9
Document	4, 16, 21, 28, 54, 55, 59, 66, 71, 75
Photo	--

10 Communications and Consultation

Scope and Principle
This section addresses ongoing engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The principle is that stakeholders are identified and engaged in the issues of interest to them, and communication and consultation processes maintain good stakeholder relations throughout the project life. Communications and consultation requirements unique to Indigenous Peoples are found in Section 7.

Background	
Directly affected community-level stakeholders	See section 4. There are approximately 190 direct neighbours of different project components, as well as other residents of the San Andrés de Cuerquia municipality who will be affected negatively or positively by the project, and their grassroots groups such as *juntas de acción comunal*.
Directly affected institutional-level stakeholders	Government agencies with different roles, including the municipality, Corantioquia, UPME; contractors; EPM as the public company that improved the 25AN road next to the project and will have to provide the transmission connection; other hydropower developers in the San Andrés valley.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✓) or no (✗)		**Findings and Observations**	**Requirement is met: yes (✓) or no (✗)**		**Findings and Observations**
ASSESSMENT					
Communications and consultation requirements and approaches have been identified through an assessment process	✓	Most of the communications and consultation requirements have been regulated (for example, consultations during the permitting process, standard communications plans in the ESMP, standard grievance mechanism - PQRS). There have been some adjustments based on locally gained experience.	The stakeholder mapping takes broad considerations into account	✗	The stakeholder register contains a limited number of local community leaders, but no additional contacts such as regulators, other hydropower companies in the area, other businesses, NGOs, and other civil society representatives; this is a **significant gap**.
The assessment process involved stakeholder mapping	✓	The ESIA contains a detailed description of stakeholders, and project staff have maintained			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		a register of contacts. As a relatively small project, there are a limited number of stakeholders, and these are well known to project staff.			
The assessment process was supported by ongoing monitoring	✓	Monitoring of stakeholders is ongoing as described in sections 1 and 4.			
MANAGEMENT					
Communications and consultation plans and processes are in place to manage communications and engagement with stakeholders	✓	Plans and processes were implemented during preparation, further developed as part of the ESMP, and updated in 2021 and in 2023. They are primarily organized into a Communication and Participation Management Program and an Environmental Education Program, as well as monitoring programs. They include information on management of the community impacts and benefits listed in section 4, through a variety of communication channels.	Communication and consultation plans and processes show a high level of sensitivity to communication and consultation needs and approaches for various stakeholder groups and topics	✓	Community leaders such as representatives of the *juntas de acción comunal* have been approached with a high level of sensitivity. Regular roundtable meetings (*mesa de participación*) have been initiated to further increase opportunities for dialogue with local leaders. Surveys of 60 representative community members will further increase understanding of local impacts and perspectives. The effectiveness of communications is also monitored. There are no signs for a lack of sensitivity and interest in engaging with stakeholders other than local community leaders; although there has been no systematic approach to doing so.
They include an appropriate grievance mechanism	✓	A grievance and requests mechanism was described in the ESMP, and formally launched before construction started.	Processes are in place to anticipate and respond to emerging risks and opportunities	✓	The grievance and monitoring mechanisms as well as frequent community interactions should help Energo-Pro detect any relevant

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
They outline communication and consultation needs and approaches for various stakeholder groups and topics	✓	A stakeholder database is being maintained that describes stakeholder interests and contacts. Most communication interest has been about employment opportunities.			developments early on. There is some capacity to respond such as requesting additional resources from group management.
STAKEHOLDER ENGAGEMENT					
The project implementation stage involves engagement with directly affected stakeholders	✓	Project staff and contractors have organized many formal and informal meetings with affected people.	Engagement is inclusive and participatory	✘	There are no indications for any intentional exclusions of stakeholder groups. However, some potential stakeholders other than local community leaders are not registered and systematically engaged with, and some community members appear to not know of, or want to use the grievance mechanism. This limits these stakeholders' ability to participate and is a **significant gap**.
Engagement is:					
• appropriately timed and scoped	✓	There are no indications otherwise. There had been delays in communication during the preparation stage, but not any longer.			
• often two-way	✓	There are no indications otherwise.	Negotiations are undertaken in good faith	✓	There are no indications otherwise.
• undertaken in good faith	✓	There are no indications otherwise.			
The business interacts with a range of directly affected stakeholders to understand issues of interest to them	✓	Personal relationships are maintained with several officials of the municipality, community leaders, business owners and other stakeholders, which allows Energo-Pro a good understanding of stakeholder perspectives.			
Ongoing processes are in place for stakeholders to raise issues and get feedback:	✓	There are frequent meetings as well as other communication channels such as WhatsApp groups to raise issues and get feedback.	Feedback on how issues raised have been taken into consideration has been thorough and timely	✓	There are no indications otherwise.
Ongoing processes are in place for:					

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• environmental and social issues	✓	See above.			
• project-affected communities	✓	See above.	Project-affected communities have been involved in decision-making around relevant issues and options	✓	Most importantly, priorities for investment of the community support program (more than 1% of project costs) are agreed with communities.
• resettlees and host communities	✓	See above.	Resettlees and host communities have been involved in decision-making around relevant issues and options	✓	Resettlees were provided with several choices both for relocation and for livelihoods support.
• employees and contractors to raise human resources and labour management issues	✓	Energo-Pro staff have direct access to management (see section 2), and there are multiple trainings, meetings and other opportunities for interaction with contractors and contractor staff.	The business publicly reports on project performance in sustainability areas of high interest to its stakeholders	✘	Energo-Pro shows a high level of transparency in some areas, e.g. by making all corporate policies available on their website in several languages. However, there is no simple and quick access to official project reports and/or to materials that could be specifically prepared for stakeholders in Colombia. The Energo-Pro Group Sustainability Report may be useful for some stakeholders but is in English and does not have substantial information specifically on the Chorreritas project. The lack of a materiality analysis to show what areas are of high interest to stakeholders of this project, and the lack of dedicated reporting on project sustainability performance are a **significant gap**.
• management of climate risks	✓	See above, although this has not been an issue of discussion.			
Public disclosure:					
• the business makes significant project reports publicly available	✓	The environmental license is published by Corantioquia. The underlying ESIA (which also contains a project description) and other official documents are available through government agencies at various levels or through Energo-Pro, upon request. Access could be much simplified by making the ESIA, the periodic reports (ICA) and other relevant information available online on Energo-Pro's website. Other information materials (printed and			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		audio-visual) have been and will be prepared for publication.			
• the business publicly reports on project performance, in some sustainability areas	✓	Information materials on project progress and compliance with the environmental and social obligations will be prepared for publication. There could be more substantive information provided e.g. through the corporate website, but this is not considered a significant gap at the level of minimum requirements, given the low level of public interest in this small, low-impact project.			
• power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment have been publicly disclosed	✓	While the power density has not been publicly disclosed, it is very high (see section 12) and could easily be calculated from the data in the publicly available ESIA, by any interested party.	The assessment of project resilience has been publicly disclosed	✕	There is no published resilience assessment (see section 12), which is a **significant gap**.
STAKEHOLDER SUPPORT					
Affected communities generally support or have no major ongoing opposition to the plans for the issues that specifically affect their community	✓	Affected communities generally have a good understanding of hydropower in general, from several other projects in the region. There is general support for the Chorreritas project, although other projects like the La Chorrera project directly upstream are seen critically by the community and have generated some scepticism, and some landowners disagree with the level of compensation payments offered by Energo-Pro (see section 4).	Formal agreements with nearly all the directly affected communities have been reached for the mitigation, management and compensation measures relating to their communities	✓	Formal agreements are mostly relevant for the investments under the community support program. Most villages have come to decisions, but others are still deliberating their priorities.
Resettlees and host communities generally	✓	There is no indication for any major opposition.	There is consent with legally binding agreements by the	✕	While the resettled family has agreed to relocation and livelihood support

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
support or have no major on-going opposition to the Resettlement Action Plan			resettlees and host communities for the Resettlement Action Plan		measures, there is no consent yet on compensation for their property, which is a **significant gap**.
There is general support or no major ongoing opposition amongst directly affected stakeholder groups for the cultural heritage assessment, planning or implementation measures	✓	There is no indication for any major opposition.	Formal agreements with the directly affected stakeholder groups have been reached for cultural heritage management measures	✓	The only stakeholder group that has shown an interest in cultural heritage management related to the project is ICANH, the regulatory body that approved the management plan.
CONFORMANCE AND COMPLIANCE					
Processes and objectives relating to communications and consultation have been and are on track to be met with:			There are no non-compliances	✓	There are no indications for non-compliances.
• no major non-compliances	✓	There are no indications for major non-compliances.			
• no major non-conformances	✓	There are no indications for major non-conformances.	There are no indications for major non-compliances.	✓	There are no indications for non-conformances.
Communications related commitments have been or are on track to be met	✓	There are no indications otherwise.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	10

Summary of findings and other notable issues
Engagement with stakeholders has intensified since the start of construction. Many affected households are personally known to the social staff of the developer and contractors, and relations are generally. Communication with the wider public is less systematic.

Relevant evidence	
Interview	1-4, 7, 8, 10
Document	4, 28, 34, 63-69
Photo	5, 10, 20, 35, 60, 64, 74

11 Hydrological Resource

Scope and Principle
This section addresses the management of environmental, social and economic issues within the reservoir area and downstream flow regimes during project implementation, as well as planning for reservoir management for the operating hydropower facility. The principle is that the reservoir and downstream flow regimes are planned and managed with an awareness of environmental, social and economic objectives.

Background	
Hydrology and flows	
Average flow at dam (m^3 / s)	11.97 m^3/s
Minimum monthly average flow (m^3 / s)	6.42 m^3/s
Maximum monthly average flow (m^3 / s)	304.5 m^3/s (for a 10-year return period)
Lowest observed flow (m^3 / s)	Not known
Highest observed flow (m^3 / s)	Not known
Design flow (m^3 / s)	13 m^3/s
Affected river reaches (start/end and how affected)	~3 km between intake and powerhouse discharge, with only minor tributaries within that reach. Also, no water uses in the reach for domestic or agricultural purposes.
Proposed downstream flow regimes for environmental or social objectives	Ecological flows for the affected river reach will range from 1.74 m^3/s in April to 2.78 m^3/s in November. Flow regimes after the discharge of the powerhouse are expected to follow current conditions.
Reservoir	
Reservoir length (km)	Not known
Minimum operating level MOL (masl)	Level of minimum flow release canal at 1,025.20 masl
Normal operating level (masl)	Not known
Full supply level FSL (masl)	Spillway crest at 1,029.20 masl
Reservoir area at FSL (km^2)	Not known (rough estimate at average depth of 2.5m: 0.6 ha)
Reservoir area at MOL (km^2)	Not known
Volume at FSL (million m^3)	15,200 m^3
Volume at MOL (million m^3)	Not known
Average retention time in days	20 minutes at average flows
Number of days for filling	20 minutes at average flows
Other relevant information	The Chorreritas project is a pure run-of river project, with no effective water storage and no hydrological variations downstream from the powerhouse. The bypass reach will be maintained with a minimum flow regime.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
The following issues have been identified through an assessment process:			Monitoring of reservoir preparation and filling activities takes into account inter-relationships amongst issues both risks and opportunities that become evident during implementation	✓	The headpond deisgn has been optimized compared to the original design, to minimize the need for sediment flushing. A comprehensive monitoring program for all relevant impacts is in place.
• the important considerations prior to and during reservoir filling	✓	The surface area of the headpond will be slightly larger than the previous river surface, which will affect some riparian vegetation; this has been considered in the assessment of impacts on terrestrial biodiversity.			
• the important considerations during reservoir operations	✓	The headpond will not be actively regulated except during sediment flushing when the radial gate of the bottom outlet is opened.			
• issues in relation to flow regimes downstream of project infrastructure during the project implementation stage	✓	Environmental flows have been defined for the affected reach. No hydrological changes are expected downstream from the powerhouse discharge.			
Monitoring is being undertaken during the project implementation stage appropriate to the following identified issues:			Monitoring of downstream flow issues takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation	✓	A comprehensive monitoring program for all relevant impacts is in place, including for downstream flows. No changes in downstream flows below the powerhouse are expected.
• reservoir preparation and filling	✓	No relevant issues have been identified. See section 6 on biodiversity regarding vegetation removal in the headpond area.			
• effectiveness of flow management measures or any emerging downstream flow issues during project implementation	✓	Water flow and quality monitoring is taking place upstream and downstream of the intake.			
MANAGEMENT					

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Measures are in place to address identified needs during reservoir preparation and filling	✓	Flora and fauna rescue is being carried out at the intake area (see section 6 on biodiversity).	Processes are in place to anticipate and respond to emerging risks and opportunities relating to reservoir preparation and filling	✓	Not applicable due to the small size of the headpond.
Plans are in place to manage the reservoir and any associated issues for the operating hydropower facility	✓	Monitoring of water quality and sediment accumulation at the headpond will be carried out during operation.			
Measures are in place to manage identified downstream flow issues	✓	Minimum flows were determined by a multi-criteria methodology accepted by the environmental agency (Corantioqia). Variability will be provided by tributaries, spilling, and flushing. Environmental flows in the affected reach will be assured through direct flow measurement. Downstream of the powerhouse discharge, flows will follow current conditions.	Processes are in place to anticipate and respond to emerging risks and opportunities relating to downstream flow regimes	✘	No major issues or opportunities are foreseen for downstream areas. Even a failure of the weir (see section 4) would not generate flood conditions above normal flow levels in natural conditions. However, there is no specific process to monitor and respond to possible changes in the bypass reach, such as changes in gold panning (*barequeo*), changes in microclimate and effects on riparian vegetation, or changes in access related to acquisition in riverbank properties by Energo-Pro. This is a **significant gap**.
Where formal downstream flow commitments have been made, these are publicly disclosed	✓	Environmental flow requirements are included in the environmental license which has been disclosed and is publicly available.			
CONFORMANCE AND COMPLIANCE					
Processes and objectives in place to manage each of the following have been and are on track to be met:			There are no non-compliances relating to:		
• reservoir management, with no major non-compliances	✓	There will be no significant reservoir, and no major non-compliances have been identified.	• reservoir management	✓	No non-compliances have been identified.
• reservoir management, with no major non-conformances	✓	There will be no significant reservoir, and no major non-conformances have been identified.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• downstream flow regimes, with no major non-compliances	✓	No major non-compliances have been identified.	• downstream flow regimes	✓	No non-compliances have been identified.
• downstream flow regimes, with no major non-conformances	✓	No major non-conformances have been identified.			
Commitments relating to the following have been or are on track to be met:			There are no non-conformances relating to:		
• reservoir management	✓	There are no needs for any specific reservoir management rules or commitments as there will be no active regulation of the headpond.	• reservoir management	✓	No non-conformances have been identified.
• downstream flow regimes	✓	Commitments regarding environmental flows have been incorporated into project design and operation rules.	• downstream flow regimes	✓	No non-conformances have been identified.
OUTCOMES					
Downstream flow regimes take into account environmental, social and economic objectives	✓	Minimum flows are likely to provide an acceptable balance between objectives, given that there are limited environmental and social values in the bypass reach and that some variability of flows will be maintained.	Downstream flow regimes represent an optimal fit amongst environmental, social and economic objectives within practical constraints of the present circumstances	✕	There is no analysis to confirm an optimal fit amongst objectives in the bypass reach, which is a **significant gap**.
Where relevant, they also take into account agreed transboundary objectives	✓	Not applicable.			

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	7

Summary of findings and other notable issues
The Chorreritas project is a pure run-of river project, with no effective water storage and no hydrological variations downstream from the discharge of the powerhouse. The bypass reach will be maintained with a minimum flow regime.

Relevant evidence	
Interview	1, 2, 4
Document	3-5, 16, 17, 25-27, 52, 71, 76-84
Photo	1, 3, 7-9, 21, 37-39, 75

12 Climate Change Mitigation and Resilience

Scope and Principle
This section addresses the estimation and management of the project's greenhouse gas (GHG) emissions, analysis and management of the risks of climate change for the project, and the project's role in climate change adaptation. The principle is that the project's GHG emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and the project contributes to wider adaptation to climate change.

Background	
Climate Change Mitigation	
Capacity (MW) (or additional capacity in case of expansion/ rehabilitation projects)	19.9 MW
Average reservoir area (representing area of flooded land, net of pre-impoundment water body) (km^2) (or additional reservoir area if any, for expansion/rehabilitation projects)	A small headpond with a (roughly estimated) area of 0.6 ha is formed by the weir.
Power density (W / m^2)	Given the very small headpond, the power density will be very high (based on a surface area of 0.6 ha, more than 3,300).
Emissions intensity (gCO_2e / kWh)	Not relevant
National and regional policies, plans and commitments relevant to mitigation	Colombia has low per capita CO_2 emissions of 1.61 tons/capita/year. An updated Nationally Determined Contribution (NDC) and a National Climate Change Policy were issued by the Environmental Ministry in 2020. Colombia has committed to reduce its greenhouse gas emissions by 51% by 2030, compared to a business-as-usual scenario, while another 10% cut could be achieved with international support.
Climate Change Resilience	
Hydrological data available for the project site and the basin, and observed climate trends	Flow data was generated by rainfall models and watershed transposition of flows based on adequate historic series. Flow data are available from one IDEAM gauge on the San Andrés River. No statistically significant trend for runoff was identified.
Regional and basin-level climate models relevant to the project location, if any	Predictions from global climate models for large watersheds such as the Magdalena-Cauca are available, for example, through the World Bank portal: https://climate knowledgeportal.worldbank.org. According to the latest assessment report from the International Panel on Climate Change (IPCC), precipitation is likely to increase for northwestern South America but to decrease over the Caribbean.
Any climate change predictions for the project location, and degree of consistency	Corantioquia has assessed the historic influence of El Niño and La Niña phenomena as not significant for the San Andrés River. Specific climate predictions for a mountain watershed of this small size are difficult and uncertain.

National policies, plans and commitments relevant to adaptation and resilience	A National Climate Change Policy was issued by the Environmental Ministry in 2020, and sectoral and regional climate plans include adaptation measures.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
ASSESSMENT					
Climate Change Mitigation					
If power density is below 5 W/m2, net GHG emissions (gCO2e) of electricity generation have been estimated and independently verified	✓	Not applicable	If a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks	✓	Not applicable
If power density is below 5 W/m2 and estimated emissions are above 100 gCO2e/kWh, a site-specific assessment of GHG emissions has been undertaken	✓	Not applicable			
Climate Change Resilience					
An assessment of the project's resilience to climate change has been undertaken	✓	The project documentation includes a discussion of some climate related impacts and risks, among the threats listed in the ESIA. An additional climate risk study was undertaken in 2024. No clear trends or projections can be identified at this point, and downscaling climate change models to small mountain watersheds is particularly difficult, and there is little confidence in results, so that it is not clear how reliable projections could be achieved. Because of this, projects in such environments have to focus	Assessment of resilience incorporates sensitivity analysis, and project-specific hydrological modelling using recognised climate models	✘	No detailed or quantitative assessment has been undertaken, which is a **significant gap**.

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		Findings and Observations	Requirement is met: yes (✔) or no (✘)		Findings and Observations
		on being robust, i.e. being able to handle different, highly uncertain climate futures. The design and operations of the Chorreritas project can be considered robust: the project has a high capacity factor, and only the weir/spillway will be exposed to floods.			
The assessment:					
• incorporates an assessment of plausible climate change at the project site	✓	An initial review of possible climate change including hydrological conditions was undertaken.			
• identifies a range of climatological and hydrological conditions at the project site	✓	See above			
• applies these conditions in a documented risk assessment or stress test	✓	A qualitative risk assessment was undertaken.			
The risk assessment or stress test encompasses:			An assessment of the project's potential adaptation services has been undertaken	✓	The design of the project with a very small headpond makes it unfeasible to provide adaptation services; hence this requirement is not applicable.
• dam safety	✓	There are no indications for increases in peak flows at this point. While climate change could in principle lead to increase of peak flows and increase the risk of weir failure, as discussed in section 4, the weir is inherently safe, the amount of water stored is small, and the downstream exposure is low.			
• other infrastructural resilience	✓	See above. The 25AN road, bridge over the San Andrés River, powerhouse and other infrastructure components are located close to the river and could in principle be affected			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
		by increased floods. The likelihood that such floods will be significantly outside the range of historic variability is unknown. If such floods would occur, infrastructure could be repaired and/or adapted.			
• environmental and social risks	✓	Environmental and social impacts of the project are low, but could in principle be exacerbated by climate change. A qualitative discussion of such risks is included in the 2024 study.			
• power generation availability	✓	Variations in availability have only been assessed in sensitivity analyses for the financial modelling. While the project has a relatively high load factor and has no specific delivery obligations under the Colombian market regulations, this could affect revenue. A qualitative discussion of such risks is included in the 2024 study.			
MANAGEMENT					
Climate Change Mitigation					
If GHG emissions estimates assume design and management measures relevant to the implementation stage, these measures are in place	✓	Not applicable	Design and management measures relevant to the implementation stage are in place to respond to risks and opportunities including offsetting emissions	✘	No specific design and management measures are in place to reduce or offset emissions, which is a **significant gap**.
			Plans are in place to monitor parameters used in GHG emissions estimates or to monitor GHG stocks	✓	Not applicable

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
Climate Change Resilience					
Measures relevant to the implementation stage are in place to avoid or reduce the identified climate risks	✓	The project design is based on flows generated from precipitation data and transposition of flows from the existing gauge on the San Andrés River. No significant trends were detected, El Niño and La Niña phenomena have limited influence on the San Andrés watershed (as determined by Corantioquia), and no significant climate risks were identified in the 2024 study, as described above. Hence no measures are required to be in place. Increased monitoring of hydrology and erosion (mass movements) are recommended in the 2024 study.	Resilience measures relevant to the implementation stage take account of a broad range of risks and inter-relationships	✘	There is no evidence for resilience measures responding to a broad range of risks and inter-relationships, which is a **significant gap**.
			Plans are in place to provide adaptation services if necessary	✓	See above. No need or ability to provide adaptation services has been identified.
CONFORMANCE AND COMPLIANCE					
Climate Change Mitigation					
Processes and objectives relating to mitigation have been and are on track to be met with:			There are no non-compliances	✓	Not applicable
• no major non-compliances	✓	Not applicable			
• no major non-conformances	✓	Not applicable	There are no non-conformances	✓	Not applicable
Mitigation-related commitments have been or are on track to be met	✓	Not applicable, as there are no relevant commitments.			
Climate Change Resilience					
Processes and objectives relating to resilience have been and are on track to be met with:			There are no non-compliances	✓	Not applicable, as there are no compliance requirements.
• no major non-compliances	✓	Not applicable, as there are no compliance requirements.			

Minimum Requirements			Advanced Requirements		
Requirement is met: yes (✔) or no (✘)		**Findings and Observations**	**Requirement is met: yes (✔) or no (✘)**		**Findings and Observations**
• no major non-conformances	✓	Not applicable, as there are no relevant plans that would require conformance.	There are no non-conformances	✓	Not applicable, as there are no relevant plans that would require conformance.
Resilience-related commitments have been or are on track to be met	✓	Not applicable, as there are no relevant commitments.			
OUTCOMES					
Climate Change Mitigation					
The project's GHG emissions are demonstrated to be consistent with low carbon power generation	✓	While there has been no such analysis, which is a gap, it is not significant as emissions from the small headpond will be negligible and quantities of carbon emitted during the construction stage will be very small, when compared to power generated over the lifetime of the project.	Project net emissions are minimised or project operations facilitate system emissions reductions	✓	It is plausible that the project contributes to reducing system emissions.
Climate Change Resilience					
Plans will deliver a project that is resilient to climate change under a range of scenarios	✓	The qualitative discussion of climate risks in the 2024 study shows no indications for significant risks. While resilience has not been documented in detail, the project design with a relatively high load factor and low safety risks leaves a considerable margin for adaptation to changing climate and hydrological conditions.	The project is resilient under a broad range of scenarios	✘	There is insufficient evidence to confirm resilience under a broad range of scenarios, which is a **significant gap**.
			The project will contribute to climate change adaptation at local, regional or national levels	✘	There is no evidence that the project will contribute to climate change adaptation, which is a **significant gap**.

List of significant gaps against **Minimum Requirements**	Number of **Advanced Requirements** met
None	9

Summary of findings and other notable issues
The Chorreritas project will make a significant positive impact to climate change mitigation by providing a very low-carbon source of power and displacing high-carbon energy sources such as firewood, diesel, gas and coal. There has been only an initial effort to understand the exposure, vulnerability and resilience of the project to future climate change, or its contribution to adaptations, even if the design of the project makes it fairly robust.

Relevant evidence	
Interview	1, 2
Document	2-4, 20, 63, 71, 85, 88, 89
Photo	--

Appendix 1 – Interviews

Ref	Interviewee/s, Position	Organisation	Date	Location
1	Leonardo Pérez, Country Manager Juan S Velasquez, Development Manager Natalia Montoya, ES Manager Andrea Molina, Social Coordinator David Rave, Environmental Leader Rolf Kalt, Construction Manager	Energo-Pro Colombia	Nov 27	Energo-Pro offices Medellín
2	Sergio Gómez Carolina Osorio	Endémica	Nov 27	Energo-Pro offices Medellín
3	Marinela Chavarría, Promotora desarrollo social	Alcaldía San Andrés	Nov 28	San Andrés town hall
4	Diego Jerez, Environmental Coordinator Fanny Arguello, Social Coordinator	Contratista Consorcio Alto Seco	Nov 28	Energo-Pro town office San Andrés
5	Lina Buritica, Project Manager Francy Salazar, HSEQ Leader	Energo-Pro Colombia	Nov 28	Energo-Pro site office Chorreritas
6	Familia Areiza	Resettled family	Nov 29	Home
7	Juan Pablo Atehortua, Community Leader and Endémica staff	Comunidad Sector La Vega	Nov 29	La Chorrera HPP, Chorreritas intake
8	Eliecer Arroyave, Community Leader	Comunidad Alto Seco	Nov 29	Alto Seco school
9	Milena Tejada Claudia Henao	Contractors for food	Nov 29	Restaurants
10	Luisa Fernanda Echavarria, Community Leader	Comunidad Santa Gertrudis	Nov 30	Santa Gertrudis school
11	Argemiro Arango, caretaker	Compensation property	Nov 30	San José de la Montaña

Appendix 2 – Documents

Ref	Author	Year	Title
1	Banco de Iniciativas Regionales para el Desarrollo de Antioquia-BIRD Antioquia	2011	Potencial Hidroeléctrico de Antioquia - Inventario, perspectivas y estrategias
2	Ingenierías Aliadas	2014	DIAGNÓSTICO AMBIENTAL DE ALTERNATIVAS - PROYECTO HIDROELECTRICO CHORRERITAS
3	Pi Epsilon	2018	PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS: ESTUDIO DE FACTIBILIDAD
4	EYC GLOBAL S.A.S.	2019	ESTUDIO DE IMPACTO AMBIENTAL - HIDROELÉCTRICA CHORRERITAS
5	EYC GLOBAL S.A.S.	2019	RESPUESTA REQUERIMIENTOS CORANTIOQUIA ACTA No. 160TH-ACT-1908-3551 PARA EL ESTUDIO DE IMPACTO AMBIENTAL DE LA PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS
6	Ministerio del Interior	2019	Certificado de Presencia o No de Comunidades Étnicas
7	Endémica	2021	Ajuste de PMA y PMS. PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS
8	ANLA	2017	RESOLUCIÓN N° 01163 - "Por la cual se otorga Permiso de Estudio para la Recolección de Especímenes de Especies Silvestres de la Diversidad Biológica con Fines de Elaboración de Estudios Ambientales, y se toman otras determinaciones"
9	MinAgricultura – Unidad de Restitución de Tierras	2019	Respuesta a petición
10	Ingenierías Aliadas	2017	Solicitud de levantamiento parcial de veda de especies
11	MinAmbiente	2019	Resolución No 1299 – Levantamiento veda nacional
12	EYC GLOBAL S.A.S.	2019	Solicitud de levantamiento de veda regional
13	Corantioquia	2019	Resolución No 5914 – Levantamiento veda regional
14	EYC GLOBAL S.A.S.	2017	RESULTADOS PROSPECCIÓN ARQUEOLÓGICA
15	INSTITUTO COLOMBIANO DE ANTROPOLOGÍA E HISTORIA	2021	RESOLUCIÓN No. 1701 "Por la cual se aprueba y autoriza la implementación del Plan de Manejo Arqueológico para cuatro (4) polígonos específicos denominados Portal entrada ventana de construcción, Portal salida ventana de construcción, Vía de acceso captación y Vía de acceso casa de máquinas, del Proyecto PCH Chorreritas"
16	Corantioquia	2019	Resolución 160TH-RES1911- 6665 – Licencia ambiental
17	Endémica	2021	MODIFICACIÓN DE LICENCIA AMBIENTAL - PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS
18	PHC SERVICIOS INTEGRADOS	2020	Estudio de conexión PCH Cañaduzal 19.9 MW y PCH Chorreritas 19.9 MW
19	UPME	2020	Concepto de Conexión - PCH's Cañaduzal 19.9 MW y Chorreritas 19.9 MW. Concepto de conexión de la subestación Guárcama 110 kV. Respuesta a radicado UPME No. 20201110022512 Cartas a EPM

20	UPME	2021	REGISTRO DE PROYECTOS DE GENERACIÓN. CESIÓN Y RENOVACIÓN REGISTRO FASE 2. PROYECTO PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS. Carta a Energo-Pro
21	Ministerio de Minas e Energía	2020	Resolución 40313 "Por la cual se declara de utilidad pública e interés social el PROYECTO HIDROELÉCTRICO PCH CHORRERITAS, así como los terrenos necesarios para su construcción y protección y se dictan otras disposiciones."
22	Energo-Pro	2021	Expediente Compra Predio Familia Fernandez Velez
23	Alcaldía Municipal de San Andrés de Cuerquia	2020	Plan de Desarrollo Territorial 2020-2023
24	Alcaldía Municipal de San Andrés de Cuerquia	2021	PLAN DE DESARROLLO 2020 – 2023 "YO AMO A CUERQUIA" INVERSIONES CON CARGO AL SISTEMA GENERAL DE REGALIAS
25	Corantioquia / Consorcio Tecniscain	2018	FORMULACIÓN DE PLANES DE ORDENAMIENTO DEL RECURSO HÍDRICO – PORH EN LOS RÍOS SAN ANDRÉS, ANORÍ Y TARAZÁ. Contrato CN-1705-39 INFORME No. 2 FASE II DIAGÓSTICO RÍO SAN ANDRÉS
26	Corantioquia / Consorcio Tecniscain	n.d.	PLAN DE ORDENAMIENTO DEL RECURSO HÍDRICO 2019 – 2029 PARA EL RÍO SAN ANDRÉS: RESUMEN EJECUTIVO
27	Esneider Ardila Poveda y Liseth Yamilt Garavito Rendón / Universidad de Antioquia	2020	Impactos acumulativos por la implementación de PCHs sobre la cuenca del rio San Andrés en el municipio de San Andrés de Cuerquía
28	Energo-Pro	n.d.	Políticas Corporativas en http://www.energo-pro.com/en/policies
29	ANLA	2017	Términos de Referencia para la Elaboración del Estudio de Impacto Ambiental – EIA – en Proyectos de Construcción y Operación de Centrales Generadoras de Energía Hidroeléctrica
30	UPME	2021	INFORME DE SEGUIMIENTO A LA EVALUACIÓN DEL POTENCIAL HIDROENERGÉTICO SUBDIRECCIÓN DE ENERGÍA ELÉCTRICA – GRUPO DE GENERACIÓN
31	Energo-Pro	2023	Presentación Técnica PCH Chorreritas
32	Endemica	2023	Presentación PCH CHORRERITAS: EJECUCIÓN PMA Y PMS
33	Energo-Pro	2023	Presentación Cronología PCH Chorreritas
34	Energo-Pro	2023	Presentación Componente Social - PCH Chorreritas
35	Energo-Pro	2023	4 sample accident reports
36	Energo-Pro	2023	20230921 ACTA DE COMITÉ – Minutes of Meeting between Energo-Pro and Consorcio Alto Seco
37	Colmena Seguros	n.d.	Diagnostico de la Empresa Energo-Pro
38	Energo-Pro	2022	EPCO-PRC-ST14 PROCEDIMIENTO PARA LA INVESTIGACIÓN DE INCIDENTES, ACCIDENTES Y ENFERMEDADES LABORALES
39	Consorcio Alto Seco	2023	PLAN DE PREVENCIÓN, PREPARACIÓN Y RESPUESTA ANTE EMERGENCIAS Y CONTINGENCIAS
40	Consorcio Alto Seco	2023	PROCEDIMIENTO DE ATENCIÓN DE EMERGENCIAS MEDICAS MEDEVAC (EVACUACIÓN MÉDICA)

41	Consorcio Alto Seco	2023	Procedimiento Operativo Normalizado – Plan de Emergencia San Andrés
42	Consorcio Alto Seco	2023	PROGRAMA DE GESTION PARA EL TRABAJO EN ESPACIOS CONFINADOS
43	Ministerio del Trabajo	2021	RESOLUCIÓN NÚMERO 4272 - Requisitos mínimos de seguridad para el desarrollo de trabajo en alturas
44	Energo-Pro	n.d.	Formatos, fichas técnicas, permisos, certificaciones para trabajo en alturas y confinados
45	Energo-Pro	2023	Indicadores de seguridad y salud en el trabajo
46	Energo-Pro	2023	Indicadores Programa de Gestión para Trabajo en Espacios Confinados
47	Energo-Pro	2023	FORMATO DE REPORTE DE MANO DE OBRA DE CONTRATISTAS
48	Energo-Pro	2023	MATRIZ DE CUMPLIMIENTO LEGAL SEGURIDAD Y SALUD EN EL TRABAJO
49	Energo-Pro	2023	REGISTRO INTEGRAL DE AUSENTISMO
50	GRUPO DE INVESTIGACIÓN DE MACROECONOMÍA APLICADA FACULTAD DE CIENCIAS ECONÓMICAS UNIVERSIDAD DE ANTIOQUIA		Boletín Económico Municipal Antioquia 2021 - San Andrés de Cuerquia
51	MUNICIPIO DE SAN ANDRÉS DE CUERQUÍA Consejo Municipal para la Gestión del Riesgo de Desastres – CMGRD	2017	Plan Municipal De Gestión De Riesgo De Desastres
52	Hidrased	n.d.	MODELO DE ROTURA DE PRESA PARA LA CENTRAL HIDROELECTRICA CHORRERITAS - borrador
53	Energo-Pro and Areiza Family	2022	Acuerdo de compensación y desestimiento de PAR
54	Maria Piedad de la Concepción Girón David y Javier Ramiro Areiza Posada	2023	AUTORIZACION VOLUNTARIA DE PAGO A TERCEROS- LICENCIA DE CONSTRUCCION- Secretaria de Infraestructura - Municipio de San Andres de Cuerquia
55	Energo-Pro	2023	Base de Datos: GESTION PREDIAL DE PAGOS PREDIAL Y AMBIENTAL
56	Energo-Pro	2022	ACUERDO DE PAGO EN EL MARCO DE LA COMPENSACIÓN POR DESPLAZAMIENTO FÍSICO Y ECONÓMICO INVOLUNTARIO GENERADO POR LA PCH CHORRERITAS - Areiza
57	n/a	n.d.	PLAN DE REASENTIAMIENTO Y RESTABLECIMIENTO DE MEDIOS DE SUDSISTENCIA PARA LA UNIDAD FAMILIAR AREIZA GIRON, UBICADA EN EL AREA DE INFLUENCIA DEL PROYECTO GENERADORA CHORRERITAS

58	Energo-Pro	2022	Presentación: REASENTAMIENTO Y RESTABLECIMIENTODE MEDIOS DE SUBSISTENCIA
59	GENERADORA CHORRERITAS S.A.S. E.S.P.	2022	Pliego Contrato 2: CONSTRUCCIÓN DE CAPTACIÓN, CASA DE MÁQUINAS, OBRAS CIVILES SUBESTACIÓN, TUBERÍA DE CONDUCCIÓN, EQUIPOS HIDROMECÁNICOS Y VÍAS FASES 2
60	Energo-Pro	2023	REGLAMENTO INTERNO DE TRABAJO ENERGO-PRO COLOMBIA
61	Energo-Pro	2023	POLÍTICA DE HORARIOS Y TURNOS DE TRABAJO EN CAMPO - PCH CHORRERITAS
62	Energo-Pro	2023	BOLETIN INFORMATIVO 01 SAN ANDRES DE CUERQUIA, NOVIEMBRE DEL 2023
63	Energo-Pro	2022	Sustainability Report
64	Energo-Pro	2023	Plan de Comunicaciones
65	Energo-Pro	2023	Estandár de Participación PCH Chorreritas / Mapeo de Stakeholders
66	Energo-Pro	2022	EPCO-RSC-PROCEDIMIENTO RECEPCION Y TRAMITE DE QUEJAS Y RECLAMOS- 2022V1
67	Energo-Pro	2022	EPCO-RSC-FO-01-Gestión de Peticiones quejas y reclamosV1
68	Energo-Pro	2023	EPCO-RSC-BD-001-Control de Peticiones Quejas y Reclamos v1 (004) 14-04-2023
69	Energo-Pro	2023	Anexo_10.2_Base de Datos_Actores Sociales
70	Global EyC	2022	ESTUDIO DE IMPACTO AMBIENTAL DE LA LÍNEA DE CONEXIÓN PCH CHORRERITAS
71	Endemica	2023	Informe de Cumplimiento Ambiental No. 1
72	Energo-Pro	2023	PLAN DE GESTIÓN AMBIENTAL PARA LA CONSTRUCCIÓN - Guía para Contratistas
73	Energo-Pro	2023	Informe de Supervisión
74	Energo-Pro	2023	Hallazgos de supervisión Generadora Chorreritas el 31/03/2023H
75	Energo-Pro	2022	INVITACIÓN PARA LA CONSTRUCCIÓN DEL TÚNEL DE CONDUCCIÓN, VÍAS, PUENTES Y FOSO DE CASA DE MÁQUINAS - DOCUMENTOS DE LICITACIÓN - CONTROL DE IMPACTO AMBIENTAL
76	Energo-Pro	2024	Análisis de impactos acumulativos asociados al proyecto Chorreritas en la cuenca del río San Andrés, Antioquia
77	Hidrased	2022	ACTUALIZACIÓN DEL ESTUDIO HIDROLÓGICO Y ANÁLISIS HIDRÁULICO DE LA ZONA DE CAPTACIÓN
78	Empresas Publicas de Medellin	2012	Metodología para la determinación del caudal de garantía ambiental
79	Energo-Pro	2021	Calculo del caudal de garantía ambiental para Chorreritas (hoja Excel)
80	Hidrased	2022	ESTUDIO HIDRO-SEDIMENTOLÓGICO E HIDRÁULICO PARA DETERMINAR LA NECESIDAD DE DESARENADOR EN LA PEQUEÑA CENTRAL HIDROELÉCTRICA CHORRERITAS
81	CORANTIOQUIA	2019	Plan de Ordenamiento del Recurso Hídrico 2019 – 2029 para el río San Andrés
82	Endemica	2023	MONITOREOS DE CALIDAD DEL AGUA –PMS_ABIO_02 EJECUCIÓN E IMPLEMENTACIÓN DE PMA Y PMS PARA LA PCH CHORRERITAS
83	Endemica	2023	PROGRAMA PARA EL USO EFICIENTE Y AHORRO DEL AGUA – PUEAA

84	Daniel Rios Arboleda	2018	Erosión hídrica y evolución del relieve en las cuencas de los ríos Grande y San Andrés, Antioquia -Colombia – Tesis de Grado
85	Energo-Pro	2023	Energo-Pro's Green House Gases Reporting 2020-2022
86	Energo-Pro	2024	PLAN DE PREVENCIÓN, PREPARACIÓN Y RESPUESTA ANTE EMERGENCIAS Y CONTINGENCIAS DE LA PCH CHORRERITAS
87	Energo-Pro	2024	Socializacion Bomberos 30-04-24
88	Hidrased	2024	Presentación: Riesgos climáticos, programa de monitoreo, evaluación y reporte del proyecto Chorreritas
89	Hidrased	2024	PROYECTO HIDROELÉCTRICO CHORRERITAS: RIESGOS CLIMÁTICOS. Informe Juno 2024

Appendix 3 - Photographs

Photo 1: Upper watershed of San Andrés River, in cattle and dairy region

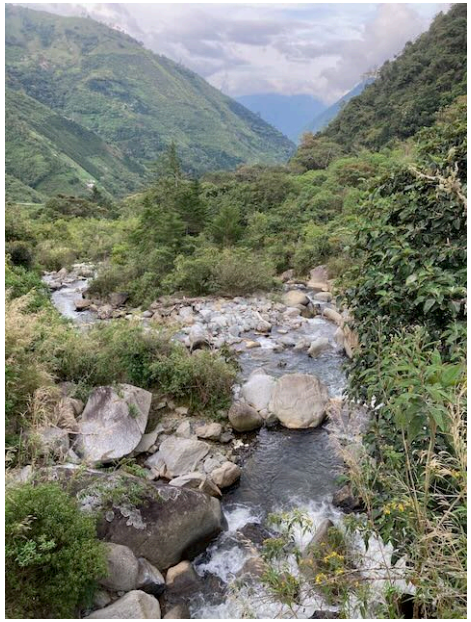
Photo 2: Main square of San José de la Montaña, seat of upstream municipality where the substation and forestry compensation property are located

Photo 3: Powerhouse of Celsia's upstream San Andrés HPP

Photo 4: Town hall on main square in San Andrés de Cuerquia

Photo 5: Project information board in town hall

Photo 6: Newly built home for resettled family in San Andrés

		
Photo 7: San Andrés River upstream, near planned intake of Cuerquia HPP	Photo 8: Planned powerhouse site on upstream Santa Ines tributary	Photo 9: Powerhouse of La Chorrera HPP on upstream tributary
		
Photo 10: Mobile community liaison office	Photo 11: Road from highway through Alto Seco community to spoil deposit	Photo 12: Santa Gertrudis school

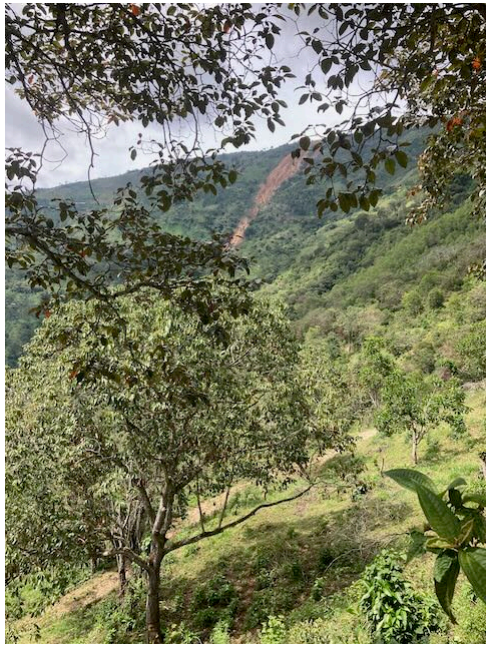


Photo 13: Large slope failure above San Andrés valley	Photo 14: Streets in San Andrés de Cuerquia	Photo 15: Interview with Endémica worker and community leader
		
Photo 16: Bridge across San Andrés River and upper tunnel portal below	Photo 17: Space restricted worksite on highway near upper tunnel portal	Photo 18: Temporary spoil deposit at upper tunnel portal, at risk of sliding into river

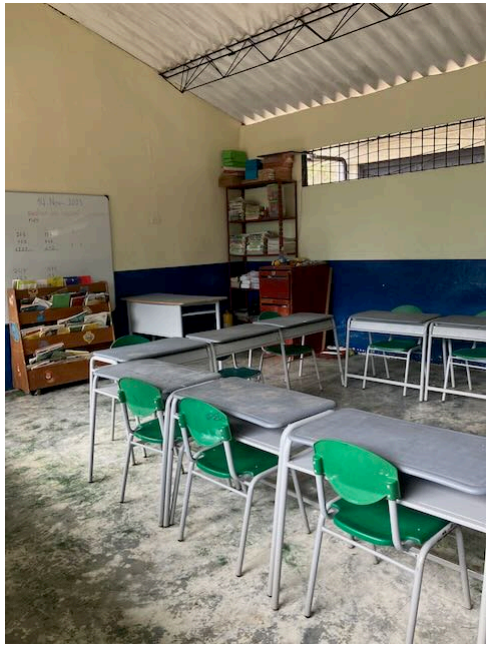
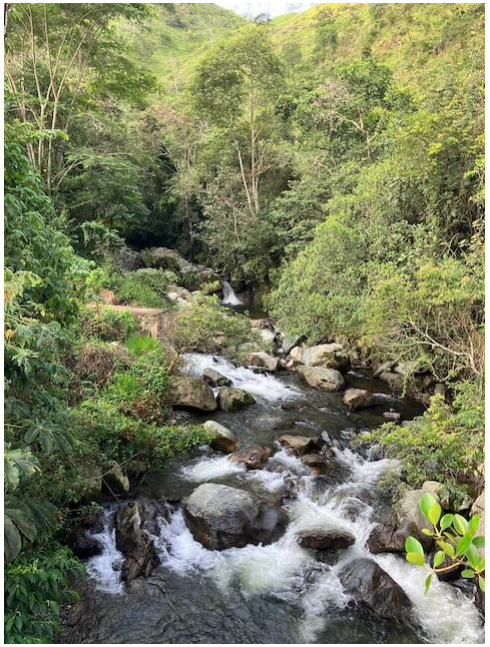
		

Photo 19: Classroom in Santa Gertrudis school	Photo 20: Project liaison officer meeting farmer in Santa Gertrudis	Photo 21: Tributary to San Andrés River
		
Photo 22: View across San Andrés valley from Santa Gertrudis village	Photo 23: Tunnel spoil dump truck, losing oil	Photo 24: Contractor's ambulance at upper tunnel portal

Photo 25: Area on right bank cleared for construction of weir and intake

Photo 26: View of highway, tunnel portal and bridge construction from right bank

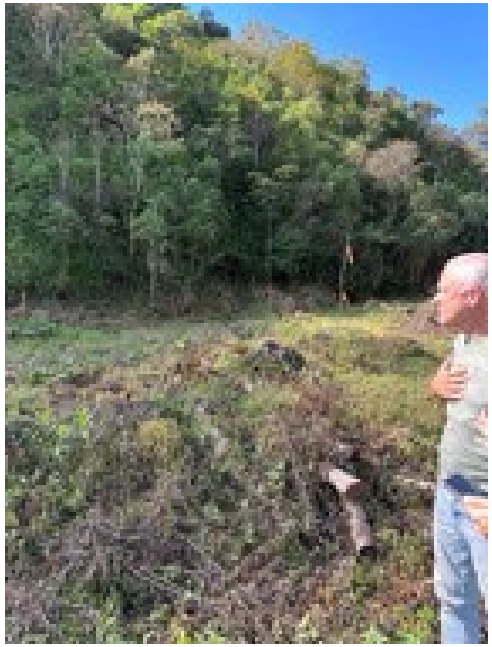


Photo 27: Cleared area on right bank

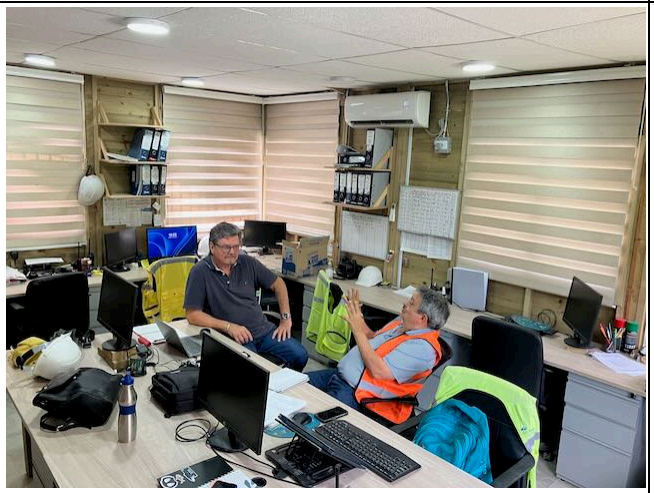


Photo 28: Interview with Energo-Pro construction manager in site office

Photo 29: Members of civil contractor's OH&S committee

Photo 30: Newsletter No 1 at worksite

Photo 31: Heavy transport for Hidroituango project passing on highway

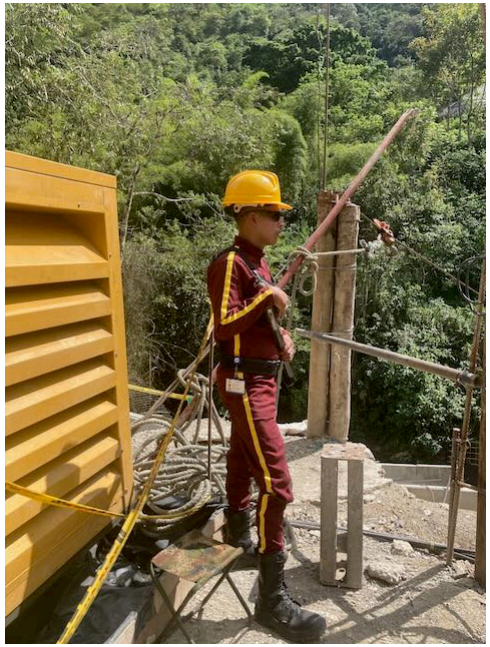


Photo 32: Private security personnel at upper tunnel portal

Photo 33: Roadside toilets at upper tunnel portal

Photo 34: Rules for animal encounters in project

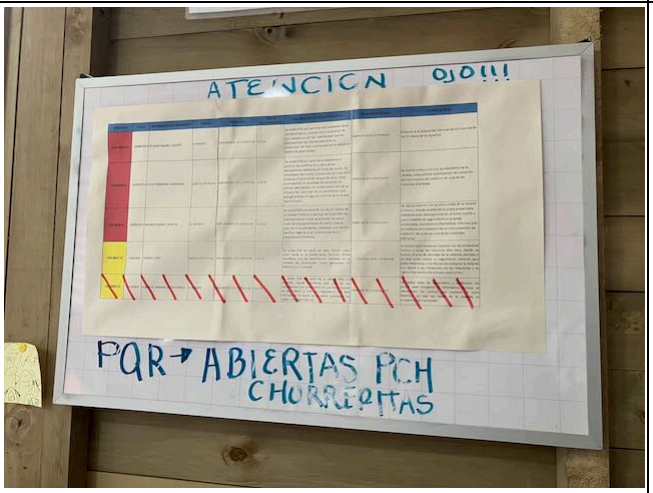


Photo 35: Unresolved community grievances highlighted in site office

Photo 36: Signage for current stage of tunnelling activities

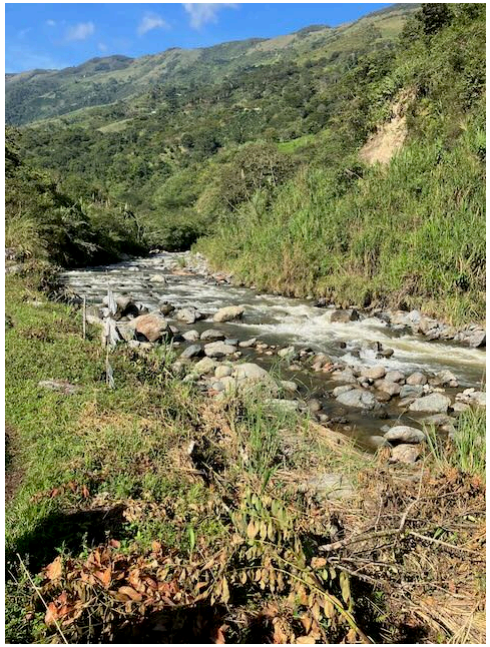
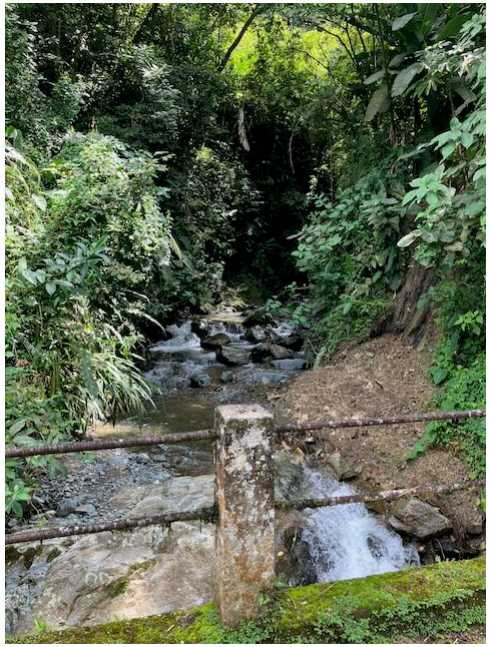
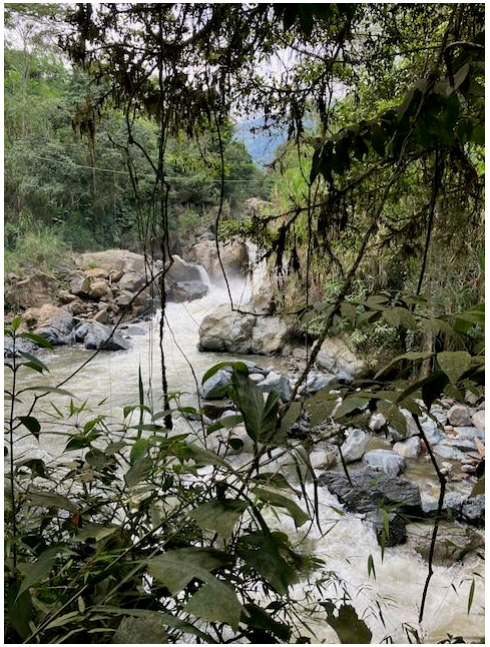
		

Photo 37: San Andrés River at future weir site	Photo 38: Bridge over Chorreritas creek, right bank tributary in bypass reach	Photo 39: San Andrés River in bypass reach
		
Photo 40: Inadequate containment of excavated material from tunnel	Photo 41: Equipment storage and worker rest area at lower tunnel portal	Photo 42: Construction equipment with inadequate containment 1

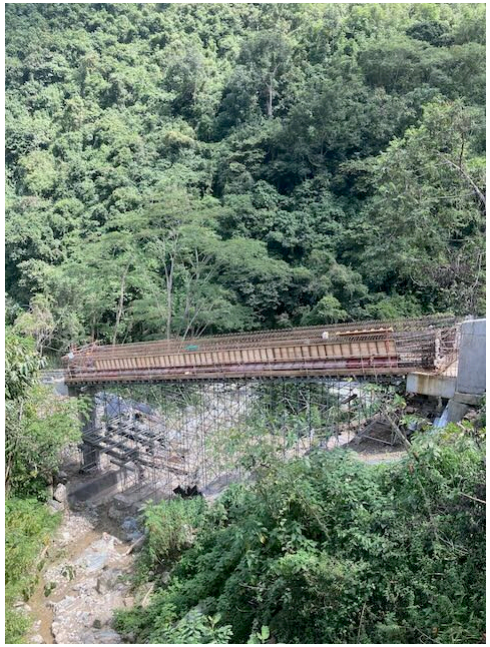
		
Photo 43: Construction equipment with inadequate containment 2	Photo 44: Bridge on access road from highway to powerhouse	Photo 45: Explosives storage building near spoil deposit
		
Photo 46: Improved oil containment, follow-up visit January 2024	Photo 47: Improved retention of sediments at upper tunnel portal, follow-up visit January 2024	Photo 48: Improved housekeeping at work site, follow-up visit January 2024

		
Photo 49: Containment wall between future powerhouse below and spoil deposit from road construction above	Photo 50: Emergency equipment at powerhouse construction site	Photo 51: Inadequate waste management
		
Photo 52: Gas bottle storage at tunnel portal	Photo 53: Ventilation at lower tunnel entrance	Photo 54: Control of workers' presence in tunnel

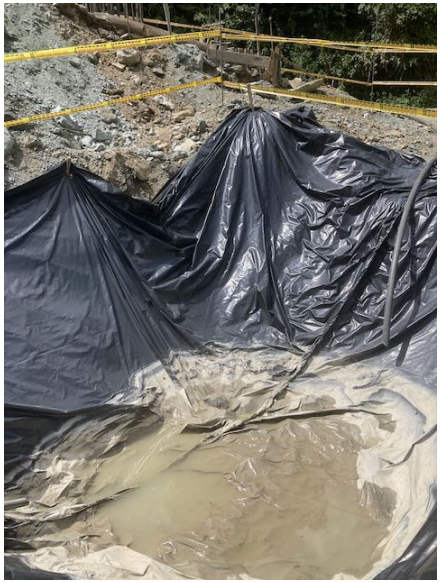
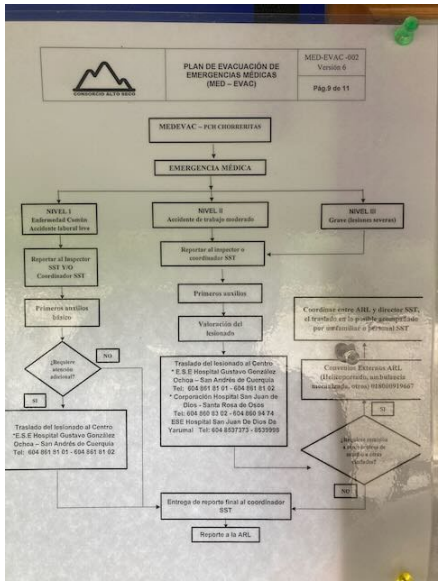
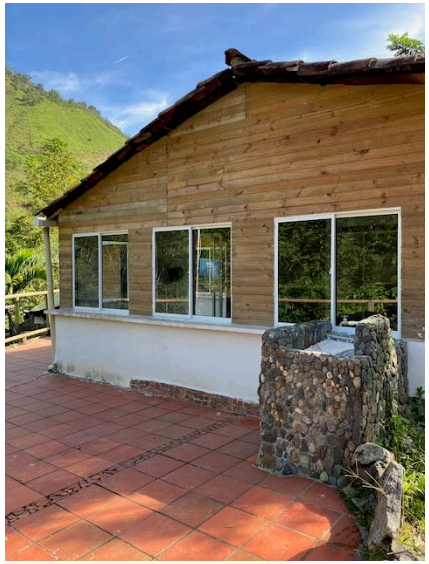
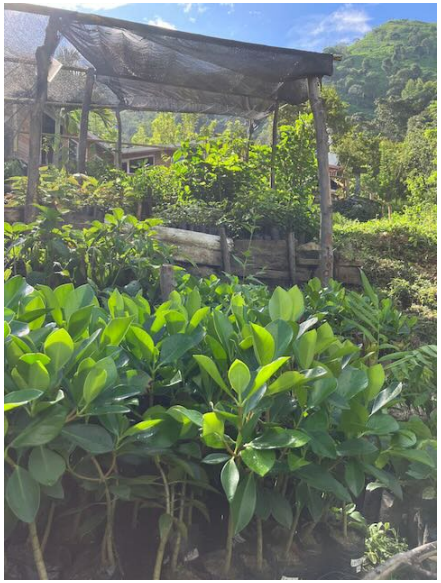
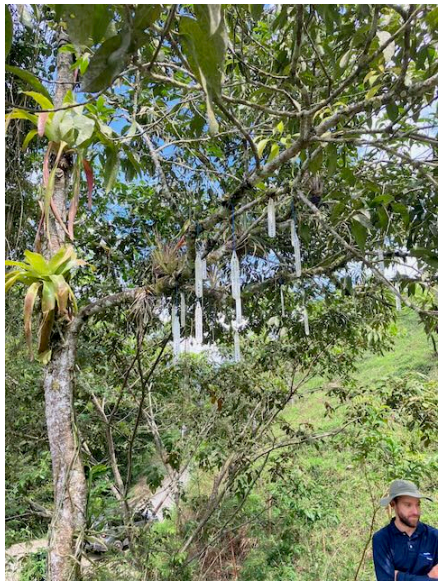
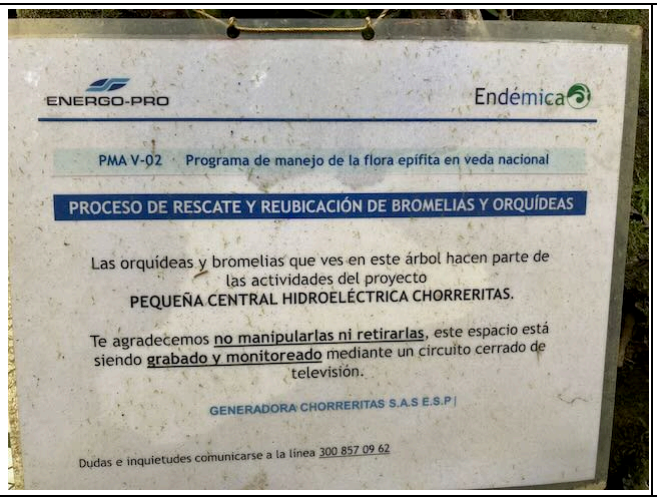
		
Photo 55: Control of alignment in tunnel construction	Photo 56: Drainage at lower tunnel portal	Photo 57: Temporary sediment trap at lower tunnel portal
		
Photo 58: Contractor's alcohol, drugs, tobacco policy	Photo 59: Contractor's medical evacuation plan	Photo 60: Emergency communications procedures

		
Photo 61: Heavy sediment load of creek at lower tunnel portal, caused by slope failure above, with damaged platform on left	Photo 62: Monitoring equipment at powerhouse construction site	Photo 63: Rest area for workers at powerhouse construction site
		
Photo 64: Work rules display	Photo 65: Workers with PPE for work at heights	Photo 66: House acquired, remodeled for nursery

		
Photo 67: Interview with contractor Endémica staff for nursery	Photo 68: Subcontractor for monitoring equipment at nursery	Photo 69: Nursery
		
Photo 70: Individual plant labels at replanting site	Photo 71: Replanting of epiphytes from cleared area	Photo 72: Leafcutter ant defoliation

		
Photo 73: Riverbank replanting site	Photo 74: Signage at replanting site	Photo 75: Ituango reservoir downstream