

ESRS Ituango Hydroelectric Project

1. General Information on the Scope of the IIC's Environmental and Social Review Summary

Empresas Públicas de Medellín E.S.P. (Public Enterprises of Medellín, hereafter "EPM" or the "Company") is classified under Colombian law as a public industrial and commercial company that provides water and sanitation utilities; provides a natural gas network; and generates, transmits, distributes and sells energy.

In the hydropower sector, EPM is a previous customer of the Inter-American Development Bank Group (IDBG), with whom a relationship has been maintained since 1993 when operation CO0221 was approved to partially finance the PORCE II Hydroelectric Project. Subsequently, in 2005, operation CO-L1005 was approved to partially finance the PORCE III project.

EPM, jointly with the Department of Antioquia, is developing the Ituango Hydroelectric Project (hereafter "Ituango", "IHP" or "the Project"), which is located in the northwest of the Department of Antioquia on the Cauca River, approximately 170 km from the city of Medellín. The Project will have an installed capacity of 2,400 MW, which will allow it to generate approximately 14,040 GWh per year. The Project's first phase, which includes the enabling of four turbines (to reach a capacity of 1,200 MW), is scheduled to be finalized in 2019. The second phase includes bringing the four remaining turbines into operation (to reach 2,400 MW), and will be finalized in 2022. EPM holds the concession for construction of the Project and to operate it for 50 years. The Project's total investment is estimated at approximately COP\$11,400,000 million Colombian pesos (equivalent to USD\$3.899 billion U.S. dollars). In addition to the planned hydraulic and electromechanical works, the Project includes building a two-lane asphalt concrete road between the Dam Site and Puerto Valdivia. The energy produced by Ituango will be evacuated through a 500 kV transmission line (TL), which will be built by ISA-Intercolombia¹.

As part of the process of evaluating a possible non-sovereign-guaranteed corporate loan to EPM of US\$550 million to partially finance the development, construction, operation and maintenance of Ituango, the Inter-American Investment Corporation (IIC), member of the IDBG, carried out an Environmental and Social Due Diligence (ESDD) which included two site visits (July and October 2016²) and comprised the following aspects: i) a review of the Project's environmental, social, cultural and occupational health and safety (OSH) information; ii) interviews and technical meetings with: a) EPM, b) representatives of the contractors for major building works, c) personnel from the Comptroller³, d) personnel from the Project's Technical Consultant, e) the Independent Environmental and Social Auditor, and f) some of the most representative social actors, including some resettled families; iii) evaluation of the Project's compliance with the IIC's Sustainability Policy (which includes the IDB's Environmental and Social Policies and IFC's (International Finance Corporation) Performance

¹ As will be explained below in Section 4.1.c of this document, the construction of this t-line is subject to a separate contract, awarded by the Colombian government to ISA-Intercolombia.

² The first visit was carried out from July 25 - 29, 2016. The second visit was carried out from October 4 - 6, 2016. Both visits included surveys of the general area of the Project.

³ Project Supervision (Interventoría).

Standards); and with Colombian environmental and social legislation applicable to the Project (the latter hereafter "applicable environmental and social requirements"); and iv) preparation of an Environmental and Social Action Plan⁴ (ESAP) to close any gap between what has been verified and what is required by the applicable environmental and social requirements.

It should be mentioned that the IDBG has been involved in the Project's environmental and social monitoring since 2012, through the implementation of activities contained in the Contract for Non-Reimbursable Technical Cooperation ATN/OC-13351-CO (project CO-T1250⁵).

2. Environmental and Social Classification and Justification

According to the IIC's Environmental and Social Sustainability Policy, the Project has been classified as a Category A operation since it may generate highly significant environmental and social impacts and risks, including: i) irreversible loss of plant cover (approximately 3,800 hectares); ii) increased risk of spills and soil contamination during construction; iii) changes in air quality due to increased emissions caused by equipment and machinery operation; iv) increased noise levels; v) an impact on community land use and exploitation of natural resources by neighboring communities (artisanal or informal fishing); vi) increased health and safety risks for neighboring communities; vii) a direct impact on 474 families, of which 262 will be physically displaced and 212 will be economically displaced (largely miners who come down to the river from the high areas); viii) potential lifestyle changes for the local population; and ix) increased social or employment expectations. The Project is also located in an area with medium seismic activity and high rainfall, and due to their intrinsic characteristics, it exacerbates the hazards present in the region.

3. Environmental and Social Context

The Project is located in the biogeographical region of the northern Cauca River Canyon, between the Central and Western cordilleras. The area extends from where the Tonusco River (elevation 450 meters) flows into the Santa Fe de Antioquia municipality, to where the Puquí River (elevation 140 m) discharges between the municipalities of Valdivia and Tarazá. This region additionally includes the middle and lower watersheds of the San Andrés River.

The area has the following biogeographical limits: to the north, the region of the Lower Cauca of Antioquia, an area of high biological diversity as it is a refuge for biodiversity of the Pleistocene; to the south, to the border between the Department of Antioquia and the north of the Department of Caldas; to the east, to the system of heaths and high Andean forests of the Middle Northwest of Antioquia (of great importance for the region's hydrography); and to the west, to the northern area of the western cordillera of the Andes, where the Nudo de Paramillo is located.

⁴ The ESAP included in this document presents the agreements to close existing gaps between what has been verified and what is required by the IIC's Sustainability Policy. An ESAP for monitoring and control will be agreed upon with EPM before the financial closing of the credit operation. This new plan will contain greater detail about the ongoing monitoring that must be carried out to achieve the objectives of each of the proposed environmental and social management plans.

⁵ Through this operation, the following studies were financed: i) Water Quality Modeling in the Future Reservoir and Downstream; ii) Update of the Ichthyologic Baseline; iii) Update of the Social Management Plan Design; iv) Update of the Flora and Fauna Baseline; and v) Cumulative Impacts Analysis.

The Project's area of direct influence (ADI) has several population centers [Translator's note: in Colombia, *municipalidades* (municipalities) may be subdivided into administrative units called *corregimientos* (townships) which have population centers or *veredas* which are rural and have small populations.] These include the Barbacoas township in the Peque municipality; the Orobajo *vereda*, located in the Sabanalarga municipality; and some scattered dwellings that will be flooded by the creation of the reservoir. The ADI also includes the urban area of the San Andrés of Cuerquia municipality, some rural sectors along the San Andrés de Cuerquia - El Valle corridor (Toledo municipality) and rural sectors along the Puerto Valdivia - Dam Area corridor. Due to their proximity to the principal works, migratory pressure is predicted to impact population centers in the El Valle township (Toledo municipality) and the Puerto Valdivia township.

Structural data on vegetation cover in the area show interrupted coverage, with low and open forests that are predominantly Tropical Dry Forest, and with diversity gradients that increase from south to north, coinciding with an increase in the level of relative humidity.

The Project is located in a complex tectonic framework resulting from the convergence of the South America, Nazca, and Caribbean tectonic plates and the Panama microplate. In addition, the area includes several regionally important fault systems: to the east are the Eastern and Western Santa Rita Faults, which cross the Cauca River Canyon downstream from the Project's works; to the west are the Cauca, Romeral, Sabanalarga, Ituango and Sardinas fault systems; to the northeast is the Espíritu Santo system and a bit further away to the northwest are the Murrí-Mutatá faults. For this reason, the area is classified as a medium seismic activity zone.

The Project area is also prone to large landslides due to high precipitation⁶ (up to 5,000 mm per year), the steep slopes along the Cauca Canyon, and the relative geological instability of some land adjacent to the planned works, especially those lands along the Dam Site-Puerto Valdivia road.

Inside the ADI there are no natural protected areas, nor are there any in the process of being created. Likewise, there are no verified Key Biodiversity Areas (KBAs) nor indigenous communities⁷. However, the entire region has been considered a guerilla zone and the Armed Revolutionary Forces of Colombia (FARC, Fuerzas Armadas Revolucionarias de Colombia) has had a presence there in the past.

The Project's area of indirect influence (All) includes the municipalities of Briceño, Buriticá, Ituango, Liborina, Olaya, Peque, Sabanalarga, San Andrés de Cuerquia, Santa Fe de Antioquia, Toledo, Valdivia and Yarumal.

⁶ EPM has done a Climate Change Vulnerability Study and taken the necessary adaptation measures.

⁷ See section 4.7 of this document.

4. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures

4.1 Assessment and Management of Environmental and Social Risks and Impacts

4.1.a Environmental and Social Management System

The Project uses an Environmental and Social Management and Occupational Health and Safety System (ESMS-OHS) that covers environmental, social and cultural aspects as well as occupational health and safety. This system, which complies with the Environmental License and Colombian law, incorporates lessons learned from the implementation of PORCE II and PORCE III hydroelectric projects, both funded by the IDBG.

4.1.b Policy

EPM has a number of policies that define the objectives and principles that govern and guide its operations⁸. These include Sustainability, Environmental with Business Sector Outreach, Corporate Social Responsibility (CSR), Human Rights, Occupational Health and Safety and Integrated Risk Management Policies. In accordance with Colombian law and international best practices, all of these policies seek business management efficiency in a framework of good relations with employees, communities and the environment.

4.1.c Risk and Impact Identification

As part of the Environmental Impact Assessment (EIA) of the Ituango Hydroelectric Project, EPM identified the Project's most significant risks and impacts through quantitative (modeling) and semi-quantitative evaluations of the behavior of different environmental components likely to be impacted by the planned activities for both the construction and operation phases. The Environmental Impact Study (EIS) resulting from the EIA was presented to the National Authority for Environmental Licenses (ANLA, Autoridad Nacional de Licencias Ambientales), which analyzed it and then granted the corresponding environmental license to the Project⁹. In order to adapt this license to changes that the Project has undergone since that time (including the construction of the Dam Site-Puerto Valdivia road, which was not originally planned), the original license has been modified and approved by the ANLA on 14 occasions.

In addition to the impacts detailed in section 2 of this document, the EIA identifies the following impacts as among the most significant: i) changes in benthic communities; ii) possible habitat loss or fragmentation; iii) landscape modification; iv) transformation of river environments into lake environments; v) modification of soil quality; vi) changes in the abundance of fish in the Cauca River basin; and vii) changes in land ownership.

⁸ See statement of all policies at <http://www.epm.com.co/site/Home/Institucional/Políticas.aspx>.

⁹ Resolution 0155 of January 30, 2009.

EPM, at the request of and with the financial support of the IDBG¹⁰, also developed a water quality modeling study¹¹ in the future reservoir and downstream from the dam; an assessment of the cumulative effects of a future chain of reservoirs Canafisto-Ituango-Espíritu Santo; and updates of the fish baseline, the social management plan, and the flora and fauna baseline. In addition, it analyzed the movement of the sediment wedge in the reservoir and erosion that could be caused downstream the dam, estimated net greenhouse gas (GHG) emissions that would be generated by the reservoir and identified areas in the reservoir where macrophytes could potentially appear.

The transmission line (TL) that will connect the Antioquia substation (SS) (located at the Project) with the Cerromatoso SS will be the main route through which energy produced in Ituango will be evacuated and delivered to the national grid (SIN, Sistema Interconectado Nacional or National Interconnected System). The TL will be 112.5 km long and will be composed of two parallel lines in double circuit, isolated at 500 kV and built by ISA-Intercolombia as part of a package contracted by the Colombian Government separately from the construction of the Project, which also includes the expansion of the Cerromatoso SE, PORCE II SS, Sogamoso SS and Ancon Sur SS; the construction of the Antioquia SS and Medellín SS; and the construction of the Antioquia-PORCE III TL, PORCE III-Sogamoso TL, and the Antioquia-Medellín TL (all these at 500kV).

In the meetings held as part of the ESDD process, ISA-Intercolombia reported that the EIA of the Antioquia-Cerromatoso TL had been contracted to a local firm with recognized international experience, that it is nearly finished and that as part of the corresponding environmental licensing process, it would be presented in the coming days for evaluation and review to the National Authority for Environmental Licenses (ANLA, Autoridad Nacional de Licencias Ambientales). It also indicated that the TL final designs were placed over the least impact corridor previously authorized by the ANLA, that the line's potential impacts¹² can be classified as medium and manageable through good construction practices and a good relationship with the community, and that once the study in question is formally presented to the environmental licensing system it will immediately become available to the public on the ANLA website.

It should be mentioned that EPM holds monthly coordination meetings with ISA-Intercolombia to analyze general aspects concerning the construction of the line, including environmental and social issues; and that to date has it has been doing its best effort to ensure the proper management of environmental and social impacts generated by the construction of the LT.

4.1.d Management Programs

¹⁰ Non-Reimbursable Technical Cooperation ATN/OC-13351-CO.

¹¹ This study used the Delft3D model, which allows three-dimensional representation of hydrodynamic processes and water quality, and the analysis of the sedimentation process of solid material in the reservoir as well as the effect of the modification of the sediment flow in the river downstream. It also includes a specific sub-model for vegetation that simulates carbon and nutrient cycles associated with flooded terrestrial vegetation and provides greenhouse gas flows, taking into account CO₂ exchange with the atmosphere, the oxidation process, evaporation and NH₄ volatilization.

¹² These include: i) affecting air quality due to uncontrolled emission of particulates into the atmosphere; ii) noise generation at work sites due to construction machinery and equipment operation, especially the installation of towers; iii) generation of liquid, solid and gas waste; iv) increased risk of accidents due to working at heights, the presence of machinery, the process of energizing the line, the improper disposal of debris or materials, and the lack of signage at work areas, among others; v) possible social problems due establishing the easement strip; vi) impacts on high forest cover, due to establishing the easement strip; and vii) minor impacts on wildlife due to the removal of forest cover.

The Project's management plans and programs established in its EIA were approved by the ANLA at the time that the latter issued the corresponding environmental license. The most important of these are as follows: i) the Biotic Resource Management Program, which in turn includes the Habitat and Organism Management Program with subprograms for Wildlife Management and Conservation and Fish and Fisheries Resources Management and Conservation for the High, Middle and Low Watersheds of the Cauca; and a Vegetation Management Program with subprograms for the Removal of Biomass and Forestry Use, Restoration of Forest Coverage, and Compensation for the Impacts on Vegetation Coverage; ii) Socioeconomic Management Program, with subprograms for Community Participation and Communication, Restitution of Living Conditions for the Displaced Population, Project-Region Integration, Monitoring of the Project's Area of Influence and Preventive Archeology; and iii) Physical Management Program, with subprograms for managing Air Quality, Excavation Materials, Surface Waters, Domestic and Industrial Wastewater, Solid and Hazardous Waste, Impacts of Vehicle Traffic, Material Sources, Instability and Erosion, Reservoir Filling, Reservoir Operation and Floating Waste Management.

The Comptroller (the works supervisor) is responsible for verifying that contractors implement and adhere to the management programs. In addition, the Project has an Independent Environmental and Social Auditor¹³ that, every six months, evaluates each program's compliance with applicable Colombian legislation, the environmental license and the IDBG's environmental and social policies, with ongoing and unannounced oversight by the ANLA, and with the ongoing advisory services of a panel of internationally recognized experts¹⁴ to address issues relating to environmental and social factors, geotechnical issues, hydraulic works, and electro-mechanical equipment.

4.1.e Organizational Capacity and Expertise

EPM, at the corporate level, has a first-rate technical and managerial team for the management of environmental and social issues and occupational health and safety for its projects. In particular, a large part of the environmental, social and health and safety team that EMP has designated to manage the environmental and social issues and health and safety at Ituango, is the same team that previously handled environmental and social management for the Porce II (installed capacity of 450 MW) and Porce III (installed capacity of 660 MW). This team has the experience necessary to properly handle the environmental and social issues of large hydroelectric projects under international standards.

4.1.f Emergency Preparedness and Response

Due to being located in a zone of medium seismic activity and because of exacerbating the hazard conditions in the area, the Project has a solid Contingency Plan based on an analysis of the most

¹³ The Third Environmental and Social Audit Report from May 2016, produced by the Center for Investigation and Technological Development of the Electric Sector (CIDET, Centro de Investigación y Desarrollo Tecnológico del Sector Eléctrico), indicates that EPM and its contractors are appropriately implementing the activities and projects referred to in each of the programs and subprograms that comprise the Project's Environmental and Social Management Plan. This report also indicates that, aside from minor deviations, the Project is in compliance with the IDB's environmental and social policies.

¹⁴ Consisting of: i) Gabriel Fernandez, expert on geotechnical issues; ii) Bayardo Materón, expert on large dams; iii) Nelson Pinto, expert on hydraulic works; iv) Helmut Friedrich Miller, expert on electro-mechanical equipment; and v) Juan David Quintero, expert on environmental and social management systems for large dams.

significant risk scenarios caused by both the most relevant natural hazards (heavy rainfall, massive landslides and seismic movements) as well as manmade risk factors. The latter include: i) fires (industrial and forest fires); ii) explosions; iii) assaults and robberies; iv) sabotage; v) kidnapping; vi) civic strikes; vii) terrorist acts; viii) work strikes; ix) operating accidents, including a possible dam failure; x) cessation of activity; and xi) impacts on cultural heritage.

While the Project's design includes a series of measures to diminish its vulnerability to natural hazards¹⁵ (and thereby lower the risk), the Plan includes other measures to handle manmade threats in a preventive manner. It also includes a series of response, control and recovery measures as well as training and education programs, as well as defines the roles, responsibilities, lines of communication and the resources of each authority within the risk management system. In particular, the plan details a series of measures and actions for evacuation and coordination with the competent authorities (civil defense, Red Cross, municipalities, national police and national army) that will be triggered should a structural failure of the dam or any of its components occurs and may pose a risk to communities downstream from the reservoir.

It should also be noted that the Project routinely trains its own staff, Comptroller staff, and contractor staff on emergency situation management, and performs routine drills or simulations (both announced and unannounced) to test and improve communication and response protocols to possible emergencies.

4.1.g Monitoring and Evaluation

As a corporate policy, EPM has implemented a monitoring and evaluation system for each of the projects it carries out. In this regard, the Project specifically has a monitoring and follow-up program that includes: i) domestic and industrial wastewater; ii) surface waters; iii) waste; iv) macrophytes; v) air quality; vi) instability and erosion; vii) sediments; viii) fluvial dynamics and bathymetry; ix) biotic environment; x) wildlife conservation; ix) fish and fisheries resources; and x) vegetation coverage and management of social issues. The Comptroller monitors contractors' compliance with environmental, social, risk, and health and safety programs through inspections (daily, periodic and joint), checklists, documentation review, mechanisms for interacting with contractors (notes, records), and meetings with environmental, employment, contingency, and OHS committees. Since 2015, EPM hired an external Environmental and Social Auditor¹⁶, which is in charge of evaluating the Project's legal and contractual compliance with the applicable framework for environmental and social issues and occupational health and safety.

4.1.h Participation of Stakeholders

4.1.h.i Analysis of Stakeholders and Planning Their Participation

At the corporate level, EPM has an Office of Communications and Corporate Relations Management, which is responsible for identifying and promoting the participation of the most relevant stakeholders

¹⁵ Locating its components in more stable areas that are not prone to landslides, incorporating higher safety factors in structural design to handle possible seismic activity, using broader return periods for designing evacuation structures, etc.

¹⁶ The external environmental auditor is the Center for Investigation and Development of the Electric Sector of Colombia (CIDET, Centro de Investigación y Desarrollo del Sector Eléctrico Colombiano).

for each of its projects. To this end, EPM creates spaces for participation to ensure the social sustainability of each of its projects. These spaces include: i) employment oversight committees, which meet quarterly with EPM; ii) youth collectives; iii) quarterly dialogues in the municipalities and *veredas*; iv) migratory pressure impact management committees; v) citizen oversight; and vi) environmental groups and community production associations. This corporate work strategy is almost exactly replicated on all projects.

The work of identifying and analyzing the most relevant stakeholders for the Project started in 2006 with an office analysis. This analysis was then validated through fieldwork, which allowed the creation of a stakeholders map, which identifies the characteristics of each stakeholder, their location, interests, number of affiliates (for professional or trade associations), their objectives and interests, etc. EPM is constantly updating this map to reflect the social dynamic in the Project's area of influence.

Based on the stakeholders map, the Project generated roadmaps for each stakeholder, which constitute a true stakeholder participation plan in the Project. These roadmaps are used as guides and verification instruments and, just as with the stakeholder map, they are continually updated.

4.1.h.ii Disclosure of Information

EPM's Sustainability Policies make no mention of the need to establish procedures to manage external communications, nor that such procedures should include a mechanism for receiving and addressing complaints. However, its Environmental Policy includes the requirement to "communicate environmental management to interest groups and strengthen their participation." To this end, EPM regularly releases information about its projects.

Specifically, the Project has adopted several information disclosure mechanisms such as the following: i) printed material (posters, brochures and pamphlets) regularly distributed to the population in its ADI; ii) material for the formal media, including press releases, articles of interest, radio and television segments which are regularly broadcast; and iii) material for the informal media, including the publication of Project-related videos and articles through social media.

4.1.h.iii Consultation

As part of its corporate policies, EPM creates early-on relationships with communities that are related to its projects. These relationships are established in different ways, including public and private consultations with each of the previously identified stakeholder.

Ituango has been implementing a public consultation process with communities in its area of influence since 2006. The events, which total hundreds of workshops, talks and meetings, have dealt with issues including: i) a description of the Project, explaining to the community in simple language the work that was to be done; ii) a description of the probable impacts that could be generated by the Project, with an emphasis on impacts that could become a problematic or distressing to the population; iii) a description of proposed management measures, to communicate the population how the Project has planned to eliminate, mitigate or compensate possible adverse effects, or

stimulate possible positive effects; iv) a description of the Social Management Plan¹⁷, analyzing each modality to be used to compensate for physical or economic displacement of the population caused by the Project; v) a description of the grievance mechanism through which interested parties can present their complaints, requests for information, claims and suggestions; and vi) an analysis of possible employment that the Project could generate in each community, including the demand for services. An essential element included in every consultation and participatory event has been to dedicate time for the community to express itself regarding the Project, and to analyze how community requests from past events have been taken into account in the planning process.

4.1.h.iv Informed Consultation and Participation

Ituango has a Communication and Participation Program focused on communities located in its areas of direct and indirect influence. The principal objective of this program is to keep these communities informed about the Project's progress and manage their expectations. In addition, it has specific communication mechanisms for individuals who will be physically or economically displaced, as well as an "Employment Oversight Committee", which provides information on available positions and details regarding the number of workers from the area of influence that EPM employs.

4.1.h.v Indigenous Peoples

In adherence to its own corporate policies and in strict compliance with Colombian legislation, EPM verifies the presence of ethnic groups, indigenous communities and Afro-descendant communities in the areas of influence of each of its projects. To this end, prior to any construction activity, the Company sends a request to the Ministry of the Interior for a certification of the presence of any of these groups in the area of influence of the project in question. If a positive certification is received, EPM initiates a process of Previous Consultation as stipulated in Article 6 of Convention 169 of the International Labour Organization (ILO).

The Project holds a certification issued by the Ministry of the Interior¹⁸ confirming that there are no ethnic groups, indigenous peoples or Afro-descendants in the Project's area of influence. Thus, it was not necessary to activate the Previous Consultation mechanism nor to create different types of public participation processes to specifically include such minorities.

4.1.i Distribution of Project Benefits

With regards to hydroelectric projects, Colombian legislation clearly states how to proceed with the distribution of Project benefits: i) the need to allocate 1% of the partial investment of the Project for the recovery, conservation, preservation and monitoring of the watershed that feeds the respective water source¹⁹; and ii) the Project's obligation to allocate 6% of gross sales from self-generated energy to the Regional Autonomous Corporations with jurisdiction over the watershed and reservoir of the

¹⁷ Which, strictly speaking, is the Involuntary Resettlement Plan (IRP). For greater detail see section 4.5 of this document.

¹⁸ For greater detail see section 4.7 of this document.

¹⁹ Decree 1900 of 2006 of the Ministry of the Environment, Housing and Territorial Development (MAVDT, Ministerio de Ambiente, Vivienda y Desarrollo Territorial), which regulates the paragraph of article 43 of Law 99 of 1993.

project in question, and to the municipalities that are within the Project's area of influence and provide land for the construction of the hydroelectric project²⁰.

Regarding the first disposition, the Project prepared a Compulsory Investment Plan of 1% that was temporarily approved²¹ in 2009 by the Ministry of the Environment, Housing and Territorial Development (now the Ministry of the Environment and Sustainable Development), which includes investments for: i) protection and management of strategic areas, including areas of withdrawal from water sources, wetlands, water sources, aquifers, biological corridors and protected areas; ii) protection and management of other strategic areas including the purchase, reforestation, and insulation of areas of influence for the original sources of water supply for aqueducts; iii) environmental health, including creating master plans and building interceptors and treatment plants for domestic waste water; iv) the creation of watershed planning and regulation plans; and v) environmental education activities. Using an estimated Project cost of approximately US\$3.899 billion, the budget for this plan would be around US\$38.99 million.

Regarding the second obligation, once in commercial operation the Project must allocate 6% of gross sales of self-generated energy²² as follows: i) 3% to the Regional Autonomous Corporations with jurisdiction over the watershed and reservoir; ii) 1.5% for the municipalities and districts of the watershed that supplies the reservoir; and iii) the remaining 1.5% to the municipalities and districts where the reservoir is situated. The resources that are transferred to the Corporations may be used only for environmental protection efforts and to defend the watershed where the reservoir is located. The funds transferred to municipalities may be used only for projects contained in their municipal development plans, with a priority on basic sanitation and environmental improvement projects.

In addition to these legal requirements, EPM has invested a total of nearly COP\$190 billion pesos in the region (which at that time were equivalent to approximately US\$100 million) in local development programs. This investment has been channeled into: i) the production and implementation of Departmental Development Plans and Municipal Development Plans for the municipalities in the area; and ii) direct investments in initiatives and municipal programs which covered the following issues: 1) institutional frameworks; 2) participatory budgeting (the community votes for the projects to be financed); 3) connectivity (roads); 4) productive projects; 5) national development projects such as "Maná", that includes home food gardens and entrepreneurship projects, among others; 6) housing; 7) education; 8) health; 9) gas utilities; and 10) water and sewer utilities. As part of the institutional framework program, the following actions were taken: i) Protective Surroundings Program, whose purpose is to prevent young people from falling into drugs or joining the guerrillas; ii) strengthening jails, detention center for adolescents, furnishings and technological equipment; iii) strengthening of human rights; and iv) assistance to victims of armed conflict. Of the total allocated amount, 80% has already been disbursed and the remaining 20%, which has been entirely already committed, will be executed in the coming months.

²⁰ Article 45 of Law 99 of 1993.

²¹ Resolution 155 of January 2009. The approval was temporary because the final investment amount can only be determined when the Project has finished its construction phase. For this reason, within six (6) months of the completion date of the Project's construction phase, EPM must present the authorities with the liquidation of investments actually made; this value will be used to close the final investment plan.

²² Using a planned generation goal on the order of the 14,040 GWh per year and assuming an average commercial cost of US\$60 per MWh, the amount to be transferred would be approximately US\$50 million per year.

4.1.j External Communications and Grievance Mechanisms

4.1.j.i External Communications

EPM's Communications and Corporate Relations Management is responsible for all issues related to communication, visibility, transparency, participation and the relationship between the company and all interest groups. For the Ituango Project, EPM is supported by an external consultant, *MoralesCom*, which specializes in strategic communication.

4.1.j.ii Grievance Mechanism for Affected Communities

As a business practice, EPM ensures that all its projects have mechanisms for requests, complaints, claims and suggestions (RCCS) through which communities adjacent to any of the Company's projects can express themselves.

In line with the above, the Project has implemented an RCCS mechanism for affected communities that meets the requirements specified by Colombian legislation, EPM's Human Rights Policy and the IFC's Performance Standard Number 1. This mechanism, which has been operational since Project activities began, receives the community's requests, complaints, claims and suggestions primarily through the following channels: i) any of the 12 offices serving the community that the Project maintains in the main towns of the municipalities inside the area of influence; ii) EPM's field personnel that works on the Project; iii) the Project's website; iv) EPM's offices, customer service telephone numbers and website; and v) the contractors' staff and the Comptroller's staff. Each written or verbal RCCS received²³ through the mechanism is analyzed and investigated by a committee that meets every two weeks or more often as circumstances require. This committee is composed of representatives from the contractors, the Comptroller and EPM staff working on the Project. After analyzing an RCCS and making a ruling, the committee communicates its decision individually to the persons who presented the issue and, when circumstances warrant, includes details of the actions to be taken to correct the situation.

While the mechanism does not have an appeals authority per se, any person who presents an RCCS and considers that the ruling was not satisfactory for their needs or convenience, has the legal ability to present their claim to the appropriate legal authorities.

The most frequent RCCS between January 2015 and June 2016 were related to the categories of inclusion in the census of the population that will benefit from the Social Management Plan and, to a lesser degree, environmental impacts (noise, dust, etc.). As of the date of preparation of this report, RCCS of greater importance have not been recorded.

4.2 Labor and Work Conditions

4.2.a Work Conditions and Management of Labor Relations

²³ The Project has special formats for this purpose.

4.2.a.i Human Resources Policies and Procedures

EPM's Sustainability Policies clearly state that "in the development of projects [sponsored or implemented by the Company] neither discriminatory practices nor forced or coerced labor shall be permitted, and the following shall be promoted: fair remuneration, freedom of association, psychosocial risk management, and the maintenance of safe and healthy work environments."²⁴ This and other principles are clearly included to in the terms of employment that the Project uses and have been transmitted both to its contractors²⁵ and to the Comptroller²⁶.

4.2.a.ii Working Conditions and Terms of Employment

The Project's lodging services are provided directly by EPM and its contractors. The visit to the camps for direct employees provided by EPM (camp Tacui-Cuni) and by the Consortium CCC (Villa Luz) showed that both facilities comply with the basic services requirements established in the IFC's PS2, including: i) suitable spaces for housing²⁷ and offices with good natural and artificial lighting; ii) provision of drinking water in quantity and quality; iii) adequate disposal systems for solid, liquid and gas waste and residues; iv) adequate protection from heat, cold, humidity, noise, fire and animals; v) appropriate kitchen facilities, dining rooms and provisions storage (cafeterias); vi) emergency and first aid facilities; and vii) recreation facilities (pool, sauna and Turkish bath).

Regarding the terms of employment, EPM, its contractors and the Comptroller all have different types of contracts that govern their employment relationship with their staff. All of the contracts strictly follow current legislation and are aligned with the international principles of non-discrimination, non-exploitation, no child labor, fair pay and occupational safety. Working shifts are 12 hours with required breaks that vary according to the number of days worked (e.g. 21 workdays and 7 rest days).

Currently, the Project has generated employment²⁸ for approximately 8,700 people, including the staff of contractors and subcontractors. It is estimated that indirect employment is in the range of 20,000 positions. Unskilled labor (UL) is hired mainly from the 12 municipalities in the Project's direct area of influence. Of the total number of employees, approximately 10% (870) are female. Every worker undergoes a background check before being hired. This is vital because the area around the Project is considered to be a guerilla zone and will very probably become an area of reintegration.

Although EPM's corporate policies do not inhibit, restrict or limit the creation of worker syndicates or unions inside the Company²⁹, there are no labor, union or trade groups involved in the Project.

The Project does not have an employment termination plan. To mitigate the adverse impacts that personnel reduction will have on the population, this plan will be required before the end of the

²⁴ EPM's Sustainability Policies, October 2012.

²⁵ The contractor for the Project's major works is Consorcio CCC, which is a consortium formed by the companies Camargo Correa, Conconcreto and Coninsa Ramón H. Another contractor called the MISPE consortium, formed by the companies Mincivil S.A., Estyma S.A. and SP Ingenieros S.A.S., is in charge of the works for the Puerto Valdivia-Dam Site road. The Consorcio de Mantenimiento Ituango (CMI, Ituango Maintenance Consortium) is in charge of maintaining access roads to the Project.

²⁶ Ingetec-Sedic Consortium

²⁷ It was verified that there were no so-called "hot beds."

²⁸ For greater detail see section 4.5 of this document.

²⁹ Twelve recognized unions function inside EPM.

construction phase. It is estimated that the number of workers required for the Project's operational phase will be on the order of a few hundred.

The Project also has a grievance mechanism for workers to present their concerns about their workplace. This mechanism is equipped with an appropriate level of management and allows requests, complaints, claims and suggestions to be submitted anonymously. The response time for labor complaints is approximately two weeks and the internal management process is similar to the RCCS mechanism.

4.2.b Labor Force Protection

EPM's Sustainability Policies prohibit the hiring of child labor. EPM also complies with Colombian legislation³⁰, which: i) does not allow the hiring of minors; ii) promotes labor standards that are incompatible with any type of work or service that is not provided voluntarily; iii) sets the minimum age for non-hazardous jobs at 15 years of age and for hazardous jobs at 18 years of age; and iv) does not permit hiring children in any manner that would constitute economic exploitation, that interferes with their education, or that could be hazardous to their physical, mental or social development. Additionally, both EPM's Sustainability Policies and Colombian legislation prohibit forced or coerced labor.

The process of Environmental and Social Due Diligence (ESDD) did not find evidence that the Project (EPM, Comptroller, contractors and subcontractors) had hired minors or was implementing forced or involuntary labor.

4.2.c Occupational Health and Safety

EPM's Occupational Health and Safety Policy indicates that, for the exercise of its activities, the company must manage occupational health and safety and labor risk prevention for its workers, providers and contractors, promoting a culture of self-care, work in safe and healthy environments, continuous improvement and efficient performance.

In line with the above, the Project has a solid Occupational Health and Safety Management System (OHS-MS), which has the goal of guaranteeing a safe and healthy environment for workers. This system applies to all of the Project's direct employees, contractors and subcontractors and has been developed on the basis of a risk analysis (physical, chemical and biological risks). The OHS-MS also requires that a "root cause analysis" be performed for every occupational accident, illness or incident that occurs during the Project's construction and OHS has incorporated the "Stop Work Authority" through which any worker can stop work at any work location if they believe health and safety conditions are not adequate to guarantee their own physical integrity or that of other workers.

The contractors and subcontractors are also part of the Project's OHS-MS. To that end, representatives from EPM and from the principal contractors (CCC, MISPE and CMI) make up what is called the Joint Committee on Occupational Health and Safety (JC-OHS) and a Work Behavior

³⁰ Art. 67 of the Constitution of 1991; Art. 28 and 35 of Law 1098 of 2006.

Committee that meets periodically to analyze occupational health and safety issues and to try to resolve concerns and complaints received from workers about these issues.

According to the Third Socio-Environmental Audit Report of May, 2016, the Project's accident rate (including contractors) between 2012 and 2015 is around 8% and is declining slightly. However, and in spite of the health and safety precautions adopted by the Project, between when construction began and the writing of this report, 16 fatal accidents have occurred. Of these, 12 are related to activities of the Project itself (falls from a height, being trapped by collapsing materials and contusions from a rock fall) and 4 to other causes including a snake bite and vehicle strikes.

The EPM has yet to develop an OSH-MS for the operational phase at Ituango. This system must be adopted prior to finalizing the Project's construction phase.

4.2.d Workers Hired by Third Parties

Contracts signed between EPM and the principal contractors stipulate that the contractors' and subcontractors' employees must enjoy, in general terms, the same benefits and have the same obligations with regards to their behavior that EPM provides and requires of its own workers. These contracts include the same principles of non-discrimination, non-exploitation, no child labor, fair pay and occupational safety that EPM has. The Comptroller verifies full compliance with these contractual precepts.

4.3 Efficient Use of Resources and Pollution Prevention

4.3.a Efficient Use of Resources

At the corporate level, EPM seeks the saving and efficient use of water and energy. This intention is translated into two lines of its Environmental Policy, which specifically includes: i) preventive environmental management and the rational use of resources and ii) improvements in environmental performance. These two precepts have been included in the Project by means of plans to reduce the use of resources and to prevent pollution.

4.3.a.i Greenhouse Gases (GHG)

One of the elements of EPM's Environmental Policy is a commitment to face climate change issues through adaptation and mitigation actions implemented the framework of the projects it promotes or executes.

By applying the ACM0002³¹ standard to estimate the amount of greenhouse gases (GHGs) that the Ituango reservoir would generate, a Power Density (PD) for Project Activity³² of 63.2 W/m² can be established. This value indicates that the GHG emissions from the Project reservoir will be negligible,

³¹ United Nations Framework for Climate Change.

³² The PD is defined as the relationship between the difference in installed capacity between beginning activity of the hydroelectric project and what existed prior to its implementation (expressed in Watts -W), and the difference between the maximum area of the reservoir after project activity has begun and what there was previously (expressed in m²).

as long as it is much greater than the 10 W/m² established as the point of reference below which CO₂ and CH₄ emissions of a reservoir begin to be significant.

Likewise, assuming an annual average generation of 14.04 million MWh and considering a relatively clean power source (such as an LNG high-efficiency combined cycle plant that could generate 0.3175 tons of CO₂ per MWh), GHG emissions would be about 4.5 million tons of CO₂ per year. The amount of CO₂ that would have been sequestered by the vegetation that will be flooded by the reservoir (3,800 hectares) should be deducted from this figure, in addition to vegetation that will be removed to accommodate the Project's ancillary works (200 hectares, approximately). Thus, assuming vegetation coverage of the entire affected area similar to a semi-disrupted forest at the base of a mountain, and an average carbon capture rate of 50 tons per year per hectare³³, the annual amount of CO₂ that would have been sequestered by this vegetation is 200,000 tons per year.

Taking into account the expected reduction due to the generation of clean energy (4.5 million tons of CO₂ per year) and the amount of CO₂ that would have been trapped by the vegetation that will be removed or flooded (equal to 200,000 tons per year), the net reduction of CO₂ achieved by the Project would be on the order of 4.3 million tons per year. Because of this net reduction in emissions that the Project would generate once it enters the operational phase, EPM has requested that it be designated as a Clean Development Mechanism (CDM)³⁴.

It should be mentioned that the Project possesses a quantification of potential GHGs that would be generated during the construction and operation phases, as well as various recommendations for reducing them.

4.3.a.ii Water Consumption

In line with the EPM's policy on efficient use of resources, the Project has a plan to reduce water consumption. This plan is highly important given that the construction of the Project requires significant amounts of water both for domestic use (for the population of 8,700 workers) and for industrial use (cement plants, dust control, moistening soil for earthworks, etc.).

The Project does not use groundwater as a supply source. In its place, EPM has many concessions for surface water (rivers and streams) that have been granted by the relevant authorities and are current.

4.3.a.iii Pollution Prevention

In line with the precepts of interdependence with the environment, proactive integrated environmental management and environmental, economic and social sustainability contained in the EPM Group's Environmental Policy, Ituango has several environmental programs to prevent pollution. The most important of these programs, contained in the corresponding EIA, include: i) Air Quality

³³ The maximum estimated rate for a forest in good health, according to the data contained in the document titled "Potential for Forest Plantations and Carbon Capture in Nicaragua" ("Potencia de Plantaciones Forestales y Fijación de Carbono en Nicaragua") published by the Ministry of Farming and Forestry (Ministerio Agropecuario y Forestal) of Nicaragua.

³⁴ Clean Development Mechanisms (CDM) allow countries that, due to the Kyoto Protocol, have committed to reducing or limiting their greenhouse gas emissions and that execute projects to reduce those emissions, to receive credits for certified emissions reductions (CERs).

Management, which contains measures such as spraying roads and other activities that produce dust and particulates at shredding plants, placing tarps over dump trucks and ongoing maintenance of filters at concrete plants; ii) Management of Excavation Material to place it appropriately at unclassified material deposits; iii) Surface Water Management, which includes the construction of diversion structures, protection of slopes, the creation of waterproof storage areas and signage for waterways, among other measures; iv) Groundwater Management, which includes an integrated system for sediment reduction; v) Management of Domestic and Industrial Wastewater, through the operation and maintenance of domestic wastewater treatment plants (DWWTP) and the use of portable sanitary units; vi) Integrated Solid Waste Management, which includes the separation and classification of waste, collection, storage, and final disposition depending on the type of waste (domestic, industrial or hazardous) and programs for recycling, composting and dehydration of grease and oil; vi) Management of Chemical and Hazardous Substances; and vii) Management and Closure of Disturbed Areas.

All of these programs have their own respective implementation budgets and include not only EPM but also the principal contractors (CCC, MISPE and CMI). The Comptroller and the external Environmental and Social Auditor continually verify compliance.

4.4 Community Health and Safety

4.4.a Community Health and Safety

EPM's Sustainability Policies do not include specific requirements related to community health and safety. However, health and safety risks and impacts for the affected communities are detailed in the Project's EIA. Based on this evaluation and with the support of the University of Antioquia, the Project has an active Epidemiological Surveillance Program (ESP), whose objective is to monitor public health in communities and municipalities in the Project's area of influence³⁵. This program includes the following activities: i) consulting and technical assistance visits on epidemiological surveillance; ii) outreach on public health events of interest; iii) follow-up for illnesses and infections, with an emphasis on sexually transmitted infections and HIV; iv) strengthening municipal and institutional epidemiological surveillance committees (ESCs); v) training on public health issues of interest; and vi) additional training as needs are identified in each municipality or rural area.

The Project's workers have limited contact with the neighboring communities. The camps have the logistical arrangements necessary to minimize the impacts of that the presence of the Project's workers could cause to the health, safety and services in neighboring communities, and vice versa.

Regarding community exposure to hazardous materials and substances generated by the Project, in line with the stipulations of the environmental license, Ituango is implementing the following measures to minimize this risk: i) citizen information and training campaigns; ii) restrictions on the free circulation of persons in areas where hazardous substances are used or handled; and iii) the placement of alarms and the corresponding signage. The Project is also implementing a program to manage and monitor migratory pressure, including measures such as: i) building the camps with the

³⁵ The municipalities of Valdivia, Briceño, Ituango, Peque, Sabanalarga, Buriticá, Toledo and San Andrés de Cuerquia.

necessary logistical arrangements to reduce (or eliminate) contact between workers and the neighboring communities; ii) implementing a code of conduct to avoid friction among workers; and iii) building recreation areas for workers so that, through sports, they can vent their energy.

4.4.a.i Emergency Preparedness and Response Plan

For advice, support and training on emergency preparedness and response issues, the Project has signed a contract with the Colombian Red Cross, which covers prevention and response services in all the municipalities of the direct area of influence and includes trainings for municipal councils and social organizations on these issues. The services contracted from the Red Cross go beyond what is required by the Environmental License, given that they follow the guidelines and requirements of EPM's Social Responsibility Policy.

4.4.b Security Personnel

The Project has hired private security services provided through a company. Security personnel, who are unarmed, follow strict protocols to monitor persons entering and exiting the camps, verifying the identity of everyone who enters and exits, verifying their activities inside the camps, and above all and given that the Project area is still considered to be in a guerilla zone, checking every vehicle (passengers and cargo) to ensure that no threat is posed to installations or personnel. The firm carries out a "background check" of each of the security guards to guarantee that they have not been implicated in past abuses. Project security staff receive ongoing trainings on issues related to the avoidance of the use of force and appropriate conduct towards workers and neighboring communities. The community may, through the RCCS mechanism, present any concerns regarding the Project's security company.

Except in the case of a governmental disposition that expressly requires it, EPM is not planning to use security forces provided by the government (police or armed forces).

4.5 Land Acquisition and Involuntary Resettlement

The Project's design has tried to minimize land acquisition and the resettlement of persons. However, given its size, these two issues not could be avoided. For this reason and in line with EPM's environmental and social policies, the Project is implementing a Social Management Plan³⁶ (SMP) to address the needs of families who will be physically or economically displaced by the execution of the planned works.

The SMP has the following objectives: i) to compensate families who will be physically and economically displaced by the execution of the works planned in the Project; ii) to ensure that their economic conditions after being resettled are at least equal to (or better than) what they had prior to displacement; and iii) to assist the displaced in reconstituting their social networks. To achieve the latter, the plan has been structured in five components or programs: i) the Communication and Participation Program, which seeks to establish formal and informal communication channels with the affected communities while also creating spaces for their active participation; ii) the Integral

³⁶ Which, strictly speaking, is an Involuntary Resettlement Plan (IRP).

Restitution of Living Conditions Program, which seeks to reestablish the social and economic conditions of the families that will be displaced; iii) the Project-Region Integration Program, which seeks to generate virtuous cycles to achieve better development in neighboring communities through dealing with issues such as employment, the handling of migration pressure and participation in development in the region; iv) the Follow-up and Reading the Surroundings Program, which seeks to detect any situation that could change the peaceful conditions in the region³⁷; and v) the Environmental Education Program, which seeks better community understanding of the region's environmental processes.

The Communication and Participation Program uses different means and spaces to promote a direct channel of communication with the community and achieve its active participation. Regarding media, the following can be named: i) regional mass media such as the newspaper "La Voz de Ituango" ("The Voice of Ituango") and the radio program "Sobre la Mesa" ("On the Table"); and ii) more targeted media such as pamphlets and billboards.

The most important spaces for community participation include the following: i) the employment oversight committees; ii) participatory committees to handle the impacts of migratory pressure; iii) dialogues in towns and *veredas*; iv) citizen oversight; v) family assemblies; and vi) workshops frequently held by the Project.

The Integral Restitution of Living Conditions Program (PRICV, Programa de Restitución Integral de Condiciones de Vida) was structured based on a census of families who would be potentially affected. This census included information gathered in the field to create family, socioeconomic and work group files. With this information and records from the *veredas* and municipalities, the affected population was identified. When the above was completed, the information was verified, validated (again in the field) and analyzed with previously obtained information to determine that a total of 262 families would be physically displaced³⁸ and 212 families would be economically displaced (who arrived in the area at least three years prior)³⁹. Combined, the PRCIV will assist a total number of 474 families. There is also a group of 13 families of gold buyers and 10 families of boatmen whose economic activities would be affected and who will be assisted by the Project, as well as approximately 611 families of miners who arrived in the area after the public utility declaration (2008) and the census, who will not be assisted by the Project.

To determine the restitution value for affected lands, EPM, in compliance with Law 56 of 1981 and its Regulatory Decree 2024⁴⁰, prepared a Manual of Unit Values which permits lands to be valued using a methodology that considers the cost of the land in question, of existing buildings and of crops (or plantations) during different stages of growth. This manual also considers aspects intrinsic to the

³⁷ It must be noted that the region was considered a guerilla zone and will very probably be a reintegration area once the peace treaties are signed with the FARC.

³⁸ 32 families in Orobajo, 36 in Barbacoas, 61 in San Andrés de Cuerquia, 96 in Puerto Valdivia and 37 who live scattered in the reservoir's flood area.

³⁹ 58 families in the northern area of the project and 154 in the western area (60 from Angelina, Mogotes and Carauquia; 10 from the Buriticá *vereda* and 84 from the rest of the area). These families come down from the high areas of the watershed to practice placer mining along the Cauca River

⁴⁰ Approved in 1982 by the Ministry of Mines and Energy.

land to be valued such as the topography, land usage (current and potential) and its access to public utilities (irrigation water, roadways, etc.).

Once the entire number of the affected families had been determined as well as the restitution values for displacement that would be provided to each of them as compensation, the process of consultation and consensus began. This included visits by a good number of affected families from Ituango to the places where families displaced by the PORCE II and PORCE III projects were relocated, as well as workshops and meetings among the families from Ituango and Porce to better understand the process of resettlement and the advantages and disadvantages of the options presented at that time. As part of this consultation and consensus process, it was explained that Ituango offered only two compensation alternatives to the involuntarily displaced families: i) integral restitution of living conditions, which in turn provided options for nucleated resettlement⁴¹ and suggested lands⁴²; and ii) the direct purchase of the lands. The latter option was less encouraged, given the difficulties that arose when trying to follow up with the post-resettlement families who chose this option from PORCE II and PORCE III⁴³.

To date, the Project has focused on the 262 families that must be resettled⁴⁴ (because they must be physically relocated prior to the initiation of the reservoir being filled) and a large number of them have reached an agreement regarding displacement options. The process of building a relationship with the 212 mining families that will be economically displaced by the Project has also begun and has produced agreements with several of them.

Of the 262 families that will be physically displaced, 106 chose the direct purchase option due to factors including the following reasons: i) they arrived in the region recently and so have no roots in the region; ii) they have relatives who live in other regions and wish to go live near them; and iii) they have other properties where they can easily go to live or to start businesses.

The remaining 156 families chose the option of comprehensive restitution of their living conditions: i) 128 chose the option of suggested lands, of which 35 are waiting for their lot to be obtained while 93 already have their plot assigned and are implementing, with the Project's help, work plans for agricultural or livestock development; and ii) 28 families chose nucleated resettlement, of which all have signed the corresponding contract.

The creation of the reservoir will flood the entire villages of Orobajo and Barbacoas and also the following places that either provide a community service or are considered to have intangible value:

⁴¹ This option refers to the resettlement of families on lots that EPM has acquired for that purpose and where construction had begun on housing and community infrastructure similar to what would be lost due to the flooding of the reservoir. Families participate in designing their own homes.

⁴² This option allows displaced families to suggest the location where they wish to be resettled. The Project, insofar as possible, tends to accommodate these wishes. The lots chosen have previously been productive (coffee, rubber, pasture, various crops) and if they contain housing, it is improved. If the lot does not contain housing, new housing is built, always trying to meet the requirements of the displaced family.

⁴³ Socioeconomic follow-up of families who choose the direct purchase of their lands as compensation for being physically displaced during these projects shows that, in many cases, a couple of years after that purchase these families' condition was much worse in terms of poverty and rebuilding their social networks than what they had prior to being displaced.

⁴⁴ These families are from the populations of Orobajo (32), Barbacoas (36), San Andrés de Cuerquia (61) Puerto Valdivia (96) and other small villages (37).

a school, a communal hall, a cemetery, a sports venue and a monument to the Virgin of Mercy in Orobajo; and a rural school, a multi-sport venue, a cemetery, a monument to the Virgin, a water fountain, a children's playground, and a mango tree (used as a meeting point by inhabitants to play dominoes in the afternoons) in Barbacoas. The Project is in the process of replacing, with new facilities, all the infrastructure that will be flooded by the creation of the reservoir and transporting the monuments that are emblematic for the two villages (the monuments to the Virgin, the water fountain and the children's playground) to sites that have been previously arranged with the community.

Regarding the cemeteries that will be flooded, advances have been made to reach agreements with the population to relocate them, but to date there is no consensus. Some families have indicated that they prefer their loved ones' remains to rest where they now lie (that is, to be flooded) while other families have expressed that they wish their dead to be relocated. In any case and given that the tombs in both cemeteries are in a precarious state of conservation⁴⁵ and that there are practically no records of the places where most of the bodies have been buried, the Project has initiated contact with the Attorney General of the Nation to, if needed, exhume the bodies, conduct DNA tests and proceed as desired by the families.

The External Environmental and Social Auditor or, alternatively, the Independent Environmental and Social Consultant shall conduct a final evaluation of the PRICV to provide evidence of what has been achieved versus what was planned.

The Project-Region Integration Project closely follows the demand for employment generated by the Project. To date, 8,767 jobs have been generated in the zone as follows: i) 1,837 jobs for unskilled labor (UL) that have been filled by 1,466 people from the Project's area of direct influence (ADI) and 371 from the area of indirect influence (AII); and 6,930 jobs for semi-skilled labor (SSL) and skilled labor (SL) that have been filled by 565 people from the ADI and 2,590 people from elsewhere (2,547 from the department and the rest of the country and 43 foreigners). Of the total of the 8,767 jobs created, 819 are filled by female personnel (9.34%).

To counter the effects of migratory pressure on the municipalities inside the ADI, various projects have been implemented including the following: i) purchasing material for artistic activities (musical instruments, amplifiers, painting workshop supplies, etc.); ii) hiring personnel for sports, recreation, culture and art for children, teens, young people and adults; iii) building soccer fields with artificial turf at different locations; iv) supporting local response capacity for public health (mental, sexual and reproductive health, chronic non-transmissible diseases, physical health and the prevention of the use of psychoactive substances); v) supporting integrated solid waste management plans; vi) public lighting; vii) improving hospitals and health clinics; viii) supporting road accident prevention; ix) road signs; x) building or improving sewer systems; and xi) building or improving primary and secondary schools.

4.6 Biodiversity Conservation and Natural Resource Management

⁴⁵ In some cases the original caskets were wooden and have disintegrated with time while in other cases the bodies were buried without caskets.

The studies presented by the Project meet the requirements set in this Performance Standard, which are: the identification of direct and indirect impacts on biodiversity and ecosystem services with a focus on habitat loss, degradation and fragmentation, invasive exotic species, over-exploitation, hydrological changes, nutrient load and pollution. In addition, these studies use a mitigation hierarchy, seeking first to avoid, then to minimize, and only when not feasible to avoid or minimize an impact, to compensate for impacts on biodiversity and ecosystem services. These studies also present an impact assessment for natural habitats and critical habitats.

The Project will directly affect modified habitats and small patches of natural habitats that are located along the Cauca River and that will be flooded by the formation of the reservoir. Of the latter, only a few dozen hectares can be considered critical habitat⁴⁶. However, the baseline update for the terrestrial flora and fauna components done in 2014 shows a mosaic of isolated areas located inside the Project's area of indirect influence that can be considered critical habitat. These areas, which will not be affected by the Project, will be managed as part of the Compensation Plan for Terrestrial Habitat that is explained below.

The baselines measured in 2011 and 2014 show, inside the Project's area of influence, several populations of monkeys with restricted ranges including populations of white-footed tamarins (*Saguinus leucopus*), which is endangered, and of cotton-top tamarins (*Saguinus oedipus*) and black-headed spider monkeys (*Ateles fusciceps*), which are both considered critically endangered. However, sightings have been recorded of more than several dozen individuals of these species and they are classified as "common" in the area. Other types of mammals include opossums (*Marmosa sp.*), armadillos (*Dasyprocta novemcinctus*), sloths (*Choloepus hoffmanni*), ocelots (*Leopardus pardalis*), pumas (*Puma colcolor*), forest foxes (*Cerdocyon thous*), long-tailed weasels (*Mustela frenata*) and several species of bats (*Chiroptera sp.*), all of which are considered to be of minor importance. There are also giant anteaters (*Myrmecophaga tridactyla*), white-lipped peccaries (*Tayassu pecari*) and jaguars (*Panthera onca*), which are classified as vulnerable.

Regarding amphibians, the baselines show that 10 species of frog⁴⁷, of which two are endemic to Colombia, are listed by the IUCN as threatened or vulnerable, respectively, and have limited distribution: the crystal frog (*Cochranella punctulata*) and the Fuhrmann's Backpack Frog (*Cryptobatrachus fuhrmanni*). Several types of salamanders, lizards and iguanas⁴⁸ were recorded and two types of snakes: the coral snake (*Micrurus dumerilii*) and the false coral snake (*Pseudoboa newi*), which had never previously been reported in the area. None of the reptile species are classified as threatened.

⁴⁶ See study "Baseline Update for the Flora and Fauna Components of the Ituango Hydroelectric Project" ("Actualización de las Líneas de Base de los Componentes Flora y Fauna Terrestre del Proyecto Hidroeléctrico Ituango"). EPM - National University of Colombia (Universidad Nacional de Colombia), 2014.

⁴⁷ Robber frog (*Craugastor raniformis*), yellow-striped poison frog (*Dendrobates truncatus*), túngara frog (*Physalaemus pustulosus*), rusty tree frog (*Hypsiboas boans*), thin-fingered frog (*Leptodactylus insularum*), "rana de las montañas" (*Pristimantis aff. cruentus*), Gaige's rain frog (*Pristimantis gaigei*), cane toad (*Rhinella marina*), crystal frog (*Cochranella punctulata*) and the Panama cross-banded tree frog (*Smilisca sila*)

⁴⁸ Garland anole (*Anolis vittigerus*), rainbow whiptail lizard (*Cnemidophorus lemniscatus*), common basilisk (*Basiliscus basiliscus*), yellow-headed gecko (*Gonatodes albogularis*) and the green iguana (*Iguana iguana*)

Regarding birds, the 2011 EIA recorded a total of 243 species, while the baseline update in 2014 recorded 221 species, of which some are considered threatened⁴⁹. In general, the study in question concludes that the areas that are furthest from the impacts of the Project's engineering works have the most diverse avifauna.

Studies by Roldán (1992, 1996, 2003) and Aguirre and Palace (2002, 2004) indicate that the Cauca River is a major corridor for three species of migratory fish of the genera⁵⁰ *Prochilodus*, *Ichthyoelephas*, and *Pseudoplatystoma* ("bocachico," "besudo" and catfish, respectively). However, recent research by the National University of Colombia (Universidad Nacional de Colombia) in Medellín⁵¹ argues that, based on empirical evidence collected and analyzed over the last six years from more than 39 sample stations located along the river and its tributaries, the samples analyzed, in spite of belonging to the same species, come from individuals that are genetically distinct⁵². Based on the above, these studies reach the following conclusions: i) these species do not have corridors that extend between the low, middle and high watershed of the Cauca, but rather there are micro-corridors along distinct sections of the river way; ii) the dam will not be an obstacle for the migration of these species given that their migratory routes are already segmented along the river; and iii) upriver from the dam site, there is sufficient genetic material to guarantee that the species in question will not be affected by the presence of the dam.

To define fish migration patterns in the Cauca River more precisely, EMP carried out a fish and fisheries study between 2012 and 2016 that included catching, marking and releasing over 5,000 fish belonging to 24 species⁵³, of which 76 specimens were recaptured. With this information, it was determined that 43% of recaptured fish had descendant movements in the river; 30% had ascended movements; and the remaining 27% are considered stationary, as they were recaptured at points very close to where they were marked. Regarding distances, for those that showed ascending movement, the majority covered distances of several tens of kilometers between the Los Pinillos sector (the confluence of the Cauca and the Magdalena Rivers) and the Tarazá River, located 50 kilometers away in straight line downstream from the dam site. Those that followed a descending migratory pattern covered several tens of kilometers between the villages of Valdivia and Caucasia. The greatest distance for a descent belong to a "bocachico" fish that covered approximately 180 kilometers from the mouth of the La Guamera stream (border between the Valdivia and Ituango municipalities) and the mouth of the Nechí River. The greatest distance for an ascent belongs to a so-called toad catfish ("bagre sapo"), which recorded an ascent of 162 kilometers between the La Panela swamp in the Pinillos municipality and the mouth of the Tarazá River. However, these two

⁴⁹ Hawks (*Buteo sp.*), hummingbirds (*Amazilia sp.*) and hermit hummingbirds (*Phaethornis sp.*), among others.

⁵⁰ Of these genera, "bocachico" (*Prochilodus magdalenae*) is endemic; the "besudo" (*Ichthyoelephas longirostris*) is endemic to the area and considered vulnerable; and the striped catfish (*Pseudoplatystoma magdaleniatum*) is endemic and considered endangered.

⁵¹ Study of Genotypic and Phenotypic Variation of Populations of Species of Rheophilic Fish Present in the Area of Influence of the Ituango Hydroelectric Project (Estudio de Variación Genotípica y Fenotípica de Poblaciones de Especies de Peces Reófilas Presentes en el Área de Influencia del Proyecto Hidroeléctrico Ituango) by the National University of Colombia (Universidad Nacional de Colombia), 2016.

⁵² Bands on the body, presence of spots on the back, number of vertebrae, conformation of the barbicules, conformation of the mouth (mesethmoid, supraoccipital, nuchal plate and vomer), eye covering.

⁵³ Including: "comelón" (*Leporinus muyscorum*), "capaz" (*Pimelodus grosskopfii*), trans-Andean shovel-nosed catfish "blanquillo" (*Sorubim cuspicaudus*), "arenca" (*Triporthus magdalenae*), Bloch's catfish "barbudo" (*Pimelodus blochii*), driftwood catfish "doncella" (*Ageneiosus pardalis*), "chango" (*Cynopotamus magdalenae*), "jetudo" (*Ichthyoelephas longirostris*), toothless characin "vizcaína" (*Curimata mivartii*), "picudo" (*Salminus affinis*), "dorado" (*Brycon moorei*), "cucha" (*Hypostomus hondae*), "mazorco" (*Leporellus vittatus*), "pacora" (*Plagioscion magdalenae*) and "cachegua" (*Tracheolypterus insignis*).

trajectories were recorded nearly 100 km below the dam site and are not considered to be representative, because the fish required more than 6 months to cover those distances.

The study, which covered over 500 km of river, also analyzed samples of benthic material taken from 39 stations located on the river and 17 stations located on its tributaries. The results allowed the identification of the most common spawning areas for the majority of species: i) the Cauca River, downstream from its confluence with the Tarazá River; ii) the confluence of the Cauca River and the Man River; iii) the La Ilusión sector; and iv) the areas of Cenagosos Ayapel, Montecristo (Caribona River) and Brazo de Loba (confluence of the Cauca River and the Magdalena River). Of these, the closest to the dam site is on the Tarazá River, which is located almost 100 km downstream, and the farthest is the area of the Caribona River and Brazo de la Loba, located nearly 200 km downstream from the river's closing point. The above, coupled with the fact that between the dam site and the spawning area, the Cauca is fed by countless rivers and streams⁵⁴ with significant flows, allows the study to conclude that the Project's presence would have a minimal effect on these spawning areas. However, and to prevent any possible effect that Ituango could have on these sensitive areas, EPM has structured an Adaptive Management Plan for the Conservation of Fish Species in the Cauca River, which contains a series of management measures⁵⁵ to preserve these areas and thereby avoid any potential impacts.

The Project will flood approximately 3,800 hectares (representing a large part of the dry forest in the Cauca valley⁵⁶) and will require that a buffer zone of approximately 2,250 hectares be established around the future reservoir. Although neither the area to be flooded nor the buffer zone include legally protected area or areas that are internationally recognized for high biodiversity value (including Ramsar sites, Important Bird Areas -IBAs and Key Biodiversity Areas -KBAs), EPM has prepared a Land Habitat Compensation Plan (LHCP)⁵⁷.

Based on an evaluation of the principal ecosystem services in the area to be disrupted by the Project⁵⁸, the types of coverage to be flooded or affected, the areas required for different species that will be affected and following the guidelines established in the Manual for Assigning Compensation for Loss of Biodiversity⁵⁹, the LHCP includes the management of an approximately 19,000 hectare area that covers 2,250 hectares of the buffer zone plus 16,800 hectares of the management zone that is located around the future reservoir and outside the buffer zone. This plan seeks to ensure that the Project does not generate a net negative impact on natural habitats but rather to achieve a net gain in biodiversity. To achieve this, the LHCP proposes adopting an Integrated Management System for Biodiversity and Ecosystem Services (IMS-BES) as a management tool, and a regional ecological structure based on an analysis of the following factors: i) areas required by

⁵⁴ The principal ones include the Ituango River, La Guamera River and Espíritu Santo River.

⁵⁵ The measures include: i) planting native species at strategic points; ii) forming dispersion nuclei; iii) planting species that act as facilitators or "nanny species"; iv) enrichment; v) ongoing monitoring; and vi) environmental outreach and education.

⁵⁶ This eco-region is considered threatened due to the significant historical loss of forest cover that it has undergone.

⁵⁷ This plan is adaptive in order allow the management of any species to be included, even if the species was not identified during the structuring of the baseline upon which the original plan was created.

⁵⁸ These are: i) provision of freshwater and water regulation; ii) erosion control and moderation of extreme events due to landslides; iii) food and agricultural/livestock production systems; iv) recreation, tourism and scenic value; and v) carbon capture, associated mainly with forest ecosystems.

⁵⁹ Ministry of Environment and Sustainable Development of Colombia, August 2012.

emblematic or threatened species⁶⁰; ii) proximity of national and regional protected areas; iii) forest cover (especially tropical dry forest); iv) national and regional conservation priorities; v) ecological connectivity; vi) soil quality; vii) conservation status of the watersheds that provide potable water to the population; viii) location of the aqueduct intakes⁶¹ that currently supply water to the population; ix) drainage headwaters and withdrawals of drainages; and x) summits and watershed divides, among the most important factors.

As of the date of this report, EPM has acquired 40% (1,520 hectares) of the land to be flooded, almost half (1,126 hectares) of lands that are intended for the buffer zone and around 47% of the land (11,505.97 hectares) which will be used as land habitat compensation. The acquisition of both lands to be flooded and the buffer zone must be concluded prior to filling the reservoir (planned for mid-2018).

The Project is not planning to leave an ecological flow for the following reasons: i) the location of the powerhouse next to the dam means that the distance from the spillway, the dam's bottom and middle discharges, and the discharge from the powerhouse is very small (barely a couple of hundred meters); ii) filling the reservoir includes operating the diverter gates and the bottom and middle discharges to always maintain a minimum water flow of 450 m³/s, promoting, during this process, a controlled filling of the reservoir until the relief height is reached and preventing the dewatering of the river; and iii) just a few hundred meters downstream from the dam site, the Cauca receives the Ituango River, which has a flow rate that is comparable to that of the Cauca River's ecological flow⁶². With this, the river will never be dewatered and even at times of maximum generation and zero relief, only a small stretch of the river measuring a couple of hundred of meters would be affected by a flow decrease.

4.7 Indigenous Peoples

In accordance with current legislation, the Project obtained certifications in 2008 and 2010 (the latter obtained one year after having obtained the environmental license) from the Colombian Institute of Rural Development (INCODER, Instituto Colombiano de Desarrollo Rural) that no indigenous, ethnic or Afro-descendant communities were present in the Project's area of influence⁶³.

However, at the beginning of 2014 the Nutabe Indigenous Council of Orobajo indicated to the municipal mayor's office that they self-identified as indigenous. Given this fact, and despite holding the INCODER certifications, the Project asked the authority with jurisdiction (now the Directorate of Indigenous, Roma and Minority Affairs⁶⁴ (DAIRM) of the Ministry of the Interior) for instructions on

⁶⁰ Military macaw "guacamaya verde" (*Ara militaris*), white-footed tamarin "mono titi" (*Saguinus leucopus*), Colombian cane mouse "ratón colicorto colombiano" (*Zygodontomys brunneus*), Antioquia wren "arrierito paisa" (*Thryophilus sernai*), Cuban cedar "cedro acajou" (*Cedrela odorata*), crystal frog "rana de cristal" (*Sachatamia punctulata*) and the Fuhrman's backpack frog "rana oculta de Fuhrmann" (*Cryptobatrachus furhmanni*), among others.

⁶¹ 187 intakes have been inventoried.

⁶² A flow rate of 100 m³/s, based on the Cauca's average flow rate of 1,000 m³/s.

⁶³ INCODER certifications from March 18, 2008 and August 11, 2010. These certificates are currently issued by the Ministry of the Interior.

⁶⁴ Previously known as the Directorate of Ethnic Groups or the General Directorate of Indigenous Affairs at the Ministry of the Interior

how proceed and definitions to determine whether, pursuant to current legislation, it should start a process of prior consultation with this community.

Upon this request, at the end of 2014 DAIRM visited the Orobajo community to verify whether it complied with the requirements for being declared indigenous. In May 2015, DAIRM ratified that no indigenous organizations existed in the territory⁶⁵ upon confirming that there was evidence of the following situations at the Nutabe Indigenous Council of Orobajo: i) on the plots or parcels, families carried out productive activities which were not collective nor could be considered community activities; ii) the place is private and does not comprise an indigenous settlement outside a reserve nor a settlement of black communities; iii) family housing units do not constitute a system that would demonstrate the continued cultural or physical existence of the community to which it belongs, given that they are not connected with any infrastructure to community or collective service units; iv) the productive practices and economic activities are for the maintenance of each family unit and not for redistribution in the community; v) no evidence was found of cultural or social practices that promote social cohesion or preserve culture, such as a sacred site, a pilgrimage site, spiritual ceremonies, specific spaces for ritual practices, areas restricted to protect their cultural value; and vi) no relationships of "compadrazgo" [Translator's note: the relationship between god-parents or co-parents] nor ancestral lines of kinship could be corroborated in the community.

In January 2016, through its external advisors, the community lodged a motion for protection ("amparo") before the Superior Tribunal of Antioquia, which denied the appeal at the beginning of February of the same year⁶⁶. On February 15, just a few days after receiving the Tribunal's denial, the Council filed an appeal to the Chamber of Criminal Cassation of the Supreme Court of Justice, which through Ruling No. 84679, Record No. 95, upheld the ruling of the lower tribunal.

The Project's ESDD process, carried out by the IIC with the support of the firm Environmental Resources Management (ERM), based on available information and the Policy on Indigenous Peoples (OP-765) of the Inter-American Development Bank⁶⁷ and Performance Standard No.7 of the IFC⁶⁸, performed an analysis to determine if, in effect, the Nutabe Indigenous Council of Orobajo could be considered an indigenous people under these two regulations. After analysis, it was concluded that this group could not be considered an indigenous community under either of the above regulations.

Despite holding certifications showing that the Project had no legal obligation to carry out a formal prior consultation process, the Project of its own initiative has worked substantively with the Orobajo

⁶⁵ Ministry of the Interior, Certification No. 657 of May 14, 2015.

⁶⁶ Resolution of February 9, 2016 of the Criminal Chamber.

⁶⁷ Communities that meet the following three criteria are considered indigenous peoples: i) they are descendants of the peoples that inhabited the region of Latin America and the Caribbean during the Conquest or colonization; ii) regardless of their current legal situation or location, they conserve, fully or partially, their own social, economic, political, linguistic and cultural institutions and practices; and iii) they self-identify as belonging to indigenous or pre-colonial peoples or cultures.

⁶⁸ The term "Indigenous peoples" is used in a generic way to designate a distinct social and cultural group that possesses the following characteristics to varying degrees: i) their own identity as members of a separate indigenous cultural group, as well as the recognition of their identity by others; ii) a collective attachment to geographically demarcated habitat or ancestral territories in the project zone, as well as to natural resources in such habitats and territories; iii) cultural, economic, social or political institutions that are historically distinct from the dominant society or culture; and iv) an indigenous language, which is frequently different than the official language of the country or region.

community in good faith using a process that is comparable to prior consultation⁶⁹ that included: i) a long, sustained consultation with the Orobajo community, using appropriate procedures and methods that included involving their representative institutions to do outreach about the Project's general characteristics and analyze probable impacts as well as mitigation and compensation measures for such impacts; ii) establishing means through which the community could freely participate at all levels in making decisions that would affect it⁷⁰; and iii) establishing appropriate means for the full development of the institutions and initiatives of the Orobajo community by providing the necessary human, physical and financial resources.

4.8 Cultural Heritage

4.8.a.i Procedure in Case of Chance Findings

Following the provisions of the Environmental License, the Project conducts ongoing archaeological monitoring in areas disturbed by the Project during the entire construction phase. This includes the permanent presence of an archaeologist during any activity involving earthworks and close coordination with the Colombian Institute of Anthropology and History (ICANH, Instituto Colombiano de Antropología e Historia) of the Ministry of Culture.

The Project has approved protocols in force to be activated in the event of a finding. It also conducts education and training activities for staff on the identification and protection of cultural heritage. These activities are conducted through lectures and information leaflets. Training includes the steps to follow in the event of a chance finding.

4.8.a.ii Consultation

The Project has developed a series of activities to publicize results and archaeological or heritage findings made by the Project. These include: i) a publication during the Project, "La Voz," which is handed out in the municipalities inside the ADI, with articles about findings; ii) the publication of an article in the Anthropology Bulletin of the University of Antioquia and a seminar about archaeology at said university; iii) a traveling exhibition of the sample *Removing Traces to Discover Our History ("Removiendo Huellas se Descubre Nuestra Historia")* in the municipalities in the Project's area of influence and at the EPM building in Medellín, where replicas of archaeological finds were exhibited; and iv) the publication of the archaeological pamphlet *Dreaming of Other Times (Soñando con otros tiempos)*, designed for children, to explain the history of the findings.

4.8.a.iii Relocation of Reproducible Cultural Heritage

There are three pieces of reproducible architectural heritage that will be flooded by the creation of Ituango reservoir: i) the Pescadero Bridge (Puente Pescadero), ii) Cuní estate house (casa de hacienda) and iii) San Juan de Rodas estate house (casa de hacienda).

⁶⁹ See article 6 of Convention No. 169 of the International Labor Organization (ILO).

⁷⁰ This activity included workshops to identify impacts, define management measures, and participatory working groups with the community to analyze the compensation measures to be agreed upon.

The Pescadero Bridge, built in 1964, is an engineering feat that, beyond connecting the municipalities of Toledo and Ituango, which are separated by the Cauca River, is in itself an emblematic symbol of the region because it connects the Ituango municipality with the northern part of the Department of Antioquia. The 120-meter-long bridge, supported nearly 100 meters above the Cauca River by an 180-degree arch, is also known as the Juan de la Cruz Posada Bridge. Once the reservoir is created and the bridge flooded, connectivity will be maintained between the municipalities of Toledo and Ituango using a road that is approximately 560 meters long along the crest of the Ituango dam.

The Cuní and San Juan de Rodas estate houses, although deteriorated, still conserve their unique architectural features. They were the two most important estate houses in the region and still hold within their walls a wealth of history and legends that are important for the community.

While these three pieces are not irreproducible, the Project is making an effort to keep their memory alive in the population through videos, photographs and publications that will be kept at municipal government offices. Other copies will be distributed to the population.

4.8.a.iv Relocation of Irreproducible Cultural Heritage

The Project will not affect irreproducible cultural heritage. However, by changing the principal activities performed along the banks of the Cauca River, it could affect intangible cultural heritage such as artisanal mining. EPM has carried out a series of activities to capture the details of this activity in photographs and videos.

5. Local Access to Project Documentation

Since the beginning of the preparation phase, the community has had access to information about the Project through several means: i) the EPM website; ii) EPM's offices in the 12 municipalities of the ADI; iii) the contractors' websites; iv) Ituango personnel, including contractors and the Comptroller; v) the National Authority of Environmental Licenses (Autoridad Nacional de Licencias Ambientales); vi) the municipalities; and vii) and lately the IIC website.

6. Environmental and Social Action Plan

6.1 The Environmental and Social Action Plan (ESAP) is summarized below:

Ituango Hydroelectric Project

Environmental and Social Action Plan (ESAP)

No.	Component	Action	Product	Date of Completion
PS 1: Assessment and Management of Environmental and Social Risks and Impacts				
1.1	ESHS Policy	1. Provide EPM's environmental, social, health and safety (ESHS) and human rights policies, considering the Project's context and needs.	1. Copy of EPM's ESHS and human rights policies.	1. October 15, 2016.
		2. If necessary, supplement EPM's policies with outreach, follow-up and monitoring programs for all members of the organization.	2. Proof of implementation of outreach, follow-up and monitoring programs.	2. If required.
		3. Generating a follow-up mechanism that identifies the ongoing improvements in EPM's policies.	3. Ongoing improvement mechanism.	3. Prior to the first disbursement.
1.2	Identification and evaluation of environmental and social impacts and risks	1. Continuously update the environmental and social matrix for each stage of the Project.	1. A copy of the Project's updated risk matrix.	1. Periodic environmental and social compliance reports.
1.3	Environmental and social management system and industrial safety and occupational health (ESMS-OHS)	1. Provide a copy of EPM's environmental and social management system and occupational health and safety plan (ESMS-OHS) and the Project's own ESMS-OHS, if they differ from the corporate EPM version, to include: i) the organizational structure, including the roles and responsibilities of the environmental, social and industrial safety occupational health department (OHS), ii) the profiles of personnel in each department (hired or to be hired); iii) details of how the Project implements this system; iv) protocols for information management; v) decision-making protocols; vi) control and follow-up protocols for the implementation of management measures; vii) evaluation and continues improvement protocols for the system; and viii) protocols to ensure compliance by contractors and subcontractors with the social, environmental and OHS plans.	1. Copy of EPM's ESMS-OHS and of the Project's version, if they differ from the EPM corporate version.	1. October 30, 2016.
1.4	Monitoring and evaluation indicators	1. Develop, or if they already exist, provide details about tracking indicators to measure the efficacy of social and environmental management measures, as well as compliance with all legal and contractual obligations during the construction and operation phases.	1. List of management and success indicators.	1. October 15, 2016.
1.5	ESHS plans and procedures for the construction phase	1. Provide copies of ESHS plans and procedures for the construction phase and copies of evidence of their implementation. These plans and procedures must include the following categories: industrial safety and occupational health; ii) air, noise, emissions, greenhouse gas (GHG), effluent, surface water and groundwater management; iii) waste management; iv) community health and safety; iv) offer and supply of local goods and workers; v) transportation and traffic management safety; vi) security; vii) participatory monitoring.	1. A copy of each plan and procedure and evidence of its implementation.	1. October 15, 2016.
1.6	Grievance Mechanism for the construction phase	1. Provide: i) copies of the Internal Grievance Mechanism (direct employees, contractors and subcontractors) and the External Grievance Mechanism (Affected Communities) for the construction phase and ii) copies of evidence	1. Copies of the Internal Complaint Mechanism and the External Complaint Mechanism for the construction phase	1. October 15, 2016.

No.	Component	Action	Product	Date of Completion
		of their implementation. This mechanism should include details of how these complaints are recorded and evaluated as well as the follow-up and resolution process.	2. Copies of the evidence of implementation for the two mechanisms.	2. October 15, 2016.
1.7	Contractors' environmental and social management plans	1. Provide the Environmental Management Plan of the Principal Contractors: CCC, MISPE, CMI.	1. Copies of each Contractor's Environmental Management Plan.	1. Prior to the first disbursement.
		2. Provide the Social Management Plan of the Principal Contractors: CCC, MISPE, CMI.	2. Copies of each Contractor's Social Management Plan.	2. Prior to the first disbursement.
		3. Provide the OHS Management Plan of the Principal Contractors: CCC, MISPE, CMI.	3. Copies of each Contractor's OHS Management Plan.	3. Prior to the first disbursement.
1.8	Participation plan for social actors during the construction phase	1. Provide a copy of the Participation Plan for Social Actors during the construction phase and evidence of its implementation.	1. Copies of the Participation Plan for Social Actors during the construction phase and evidence of its implementation.	1. October 15, 2016.
1.9	Monitoring plan for the construction phase	1. Provide the ESHS Monitoring Plan for the construction phase and evidence of its implementation.	1. Copy of the ESHS Monitoring Plan for the construction phase and evidence of its implementation.	1. October 15, 2016.
		2. Develop a participatory monitoring committee with representatives from Affected Communities to participate along with EPM in environmental monitoring.	2. Agreement establishing the Committee and documents (certificates, photographs, etc.) that show the participation of Affected Communities in environmental monitoring.	2. Prior to the first disbursement.
1.10	ESHS plans and procedures for the operation phase	1. Provide ESHS plans and procedures for the operation phase. These plans and procedures must include the following categories: industrial safety and occupational health; ii) air, noise, emissions, greenhouse gas (GHG), effluent, surface water and groundwater management; iii) waste management; iv) community health and safety; iv) offer and supply of local goods and workers; v) transportation and traffic management safety; vi) security; vii) participatory monitoring.	1. A copy of each plan and procedure.	1. 90 days before starting the operation phase.
1.11	Grievance mechanism for the operation phase	1. Provide: i) copies of the Internal Grievance Mechanism (direct employees, contractors and subcontractors) and the External Grievance Mechanism (Affected Communities) for the operation phase and ii) copies of evidence of their implementation. This mechanism must include details of how complaints are recorded and evaluated as well as the follow-up and resolution process.	1. Copies of the Internal Complaint Mechanism and the External Complaint Mechanism for the operation phase. 2. Copy of document showing the adoption and implementation of the two mechanisms.	1. 90 days before starting the operation phase. 2. 90 days before starting the operation phase.
1.12	Participation plan for stakeholders during the operation phase	1. Update the Participation Plan for Stakeholders for the operation phase, including lessons learned during the construction phase.	1. Updated copy of the Participation Plan for Social Actors for the operation phase.	1. 90 days before starting the operation phase.
1.13	Monitoring plan for the operation phase	1. Provide the ESHS Monitoring Plan for the operation phase.	1. Copy of the ESHS Monitoring Plan for the operation phase.	1. 90 days before starting the operation phase.
1.14	Social Responsibility Plan	1. Provide the EPM's Corporate Social Responsibility (CSR) Plan.	1. Copy of EPM's CSR.	1. October 15, 2016.
1.15	Watershed Management	1. Based on available information, the National Policy for Water Resource Management of Colombia and the Management Plan for the Magdalena-Cauca Watershed, present a document analyzing the various management initiatives that have been used in the Cauca Watershed to determine compatibility between these initiatives and the Ituango project.	1. Written analysis	1. October 15, 2016.

No.	Component	Action	Product	Date of Completion
		2. Provide an analysis of the management of the Project in relation to the management of the watersheds of the Cauca and San Andrés Rivers and detail where the Project fits and how it will affect the national watershed management policy.	2. Written analysis.	2. October 15, 2016.
1.16	Study of Cumulative Impacts	1. Update the study of cumulative impacts to align the methodology with international best practices, including: i) a list of all significant projects that will be developed in Ituango's area of influence, together with the corresponding analysis justifying its inclusion in or exclusion from the study of cumulative impacts; ii) the justification of the valued environmental and social components (VEC) to be considered in the analysis; iii) the determination of the added impact that each project to be considered would generate; and iv) the environmental mitigation plan to manage cumulative impacts.	1. Copy of the updated study of cumulative impacts.	1. November 4, 2016.
1.17	Community participation in Project-generated benefits	1. Provide the Plan for Community Participation in Project Benefits. This plan must include details of the amounts to be invested and the manner in which they are being distributed. In addition, the plan must include details of EPM's contribution to development in area municipalities and procedures for the distribution of the 6% of net benefits from Project generation to CORANTIOQUIA and to the municipalities, among others.	1. Copy of the Plan for Community Participation in Project Benefits.	1. October 15, 2016.
		2. Develop and implement a gender equality policy, including indicators to measure the results of this policy, to ensure that the Project does not discriminate against workers because of their gender and that men and women alike are benefiting from the Project's positive impacts.	2. Copy of EPM's Gender Policy.	2. Prior to the first disbursement.
1.18	Economic Assessment of Impacts	1. Present the environmental cost-benefit study of the Project.	1. Copy of the study.	1. October 15, 2016.
1.19	Permits and suspension preventive measures	1. Provide the matrix of the Project's permits and legal obligations, including governmental entities, dates, the person responsible, and communications.	1. Copy of the matrix of the Project's permits and legal obligations.	1. October 15, 2016.
		2. Provide evidence of the lifting of the preventive suspension measures for 1) the Puerto Valdivia-Dam road and 2) the Bolivia landfill.	2. Copies of the evidence of the lifting of preventive measures.	2. October 15, 2016.
1.20	Project Compliance with Applicable Standards	1. Through an Independent Environmental and Social Consultant (IESC), create periodic consolidated reports covering environmental, social, health, safety and work issues to provide the Project's compliance status with the IIC's Environmental Sustainability Policy, Colombian legislation, the IDB's Environmental and Social Policies and the IFC's Performance Standards including the progress of ESAP actions regarding established indicators.	1. Periodic environmental and social compliance reports.	1. On a quarterly basis during the first year of the loan; and twice per year beginning the second year.
PS 2: Labor and Work Conditions				
2.1	Human Resources Policies and Procedures	1. Provide human resources policies and procedures for EPM and the Project, if the latter are different than EPM's.	1. Copies of the human resources policies and procedures of EMP and the Project, if the latter are different than EPM's.	1. October 15, 2016.
2.2	Behavior Manual	1. Provide the behavior manual for the Project's workers, contractors and subcontractors.	1. Copies of the work behavior manual	1. October 15, 2016.

No.	Component	Action	Product	Date of Completion
2.3	Labor Force Protection	1. Provide the Project's procedures for hiring and termination.	1. Copy of the Project's procedures for hiring and termination, and evidence of its implementation.	1. October 15, 2016.
2.4	Occupational Health and Safety	1. Provide the details of the mechanisms that EPM and its contractors have implemented to guarantee a safe work environment and reduce the physical, chemical and biological risks associated with the construction of the Project, and evidence of its implementation. This information must include: i) details of the identification of potential risks to the health and safety of workers according to their duties; ii) details of the prevention and protection measures that were implemented, worker trainings and daily safety talks mentioned during field visits; and iii) copy of the records in the event of an occupational incident or accident.	1. A copy of the health and safety procedures for the construction phase and evidence of their implementation.	1. October 15, 2016.
2.5	Workers Hired by Third Parties	1. Provide the procedures adopted by contractors for the hiring and termination of workers on the Project.	1. Copies of the hiring and termination manual for the Project's contractors and suppliers.	1. October 15, 2016.
		2. Provide policies and procedures for EPM's management and monitoring of the performance of workers hired by third parties.	2. Copies of policies and monitoring procedures for workers hired by third parties.	2. October 15, 2016.
2.6	Workforce demobilization plan	1. Develop a demobilization plan for direct employees, contractors and subcontractors who are currently working on the construction of the Project.	1. Copy of the workforce demobilization plan.	1. 60 days prior to finalizing the construction phase.
2.7	Plan to hire local staff for the operation phase	1. Develop and implement a plan to hire local staff for the operation phase.	1. Copy of the local hiring plan.	1. 60 days prior to finalizing the construction phase.
2.8	Serious accidents and fatalities	1. Report any major accidents, including fatalities.	1. Notification of major accidents.	1. Within 24 hours of the accident.
		2. Analyze the cause and ensure the resolution of corrective actions.	2. Copy of the cause analysis and corrective actions.	2. Periodic environmental and social compliance reports.
PS 3: Efficient Use of Resources and Pollution Prevention				
3.1	Energy efficiency	1. Provide the Project's Energy Efficiency and Savings Plan and evidence of its implementation.	1. Copy of the Project's Energy Efficiency and Savings Plan and evidence of its implementation.	1. October 15, 2016.
3.2	Water efficiency	1. Provide a water efficiency program (analysis of water use: volumes, frequency, types of usage, efficiency measures and monitoring) for the Project and evidence of its implementation.	1. Copy of the Project's Water Efficiency and Savings Plan and evidence of its implementation.	1. October 15, 2016.
3.3	Greenhouse gases (GHGs)	1. Quantify potential GHG emissions generated during the construction phase and Project operation, following best international practices	1. Results of the quantification of GHG emissions.	1. Prior to the first disbursement.
		2. Provide an inventory of the sources of GHG emissions updated to December of 2015, together with recommendations for reducing those emissions.	2. Copy of the inventory of the sources of GHG emissions, together with the detail of proposed measures to reduce those emissions.	2. October 15, 2016.
		3. Provide an estimate of GHG emissions of to 2018.	3. Written estimates.	3. October 15, 2016.
		4. Present a summary of the steps taken to register the Project in the voluntary carbon market (VCS, Verified Carbon Standard)	4. Summary of steps taken.	4. October 15, 2016.
3.4	Hazardous waste and materials management	1. Provide: i) copy of protocols for the handling and disposal of common and hazardous waste, in compliance with the applicable environmental legal framework; and ii) copy of evidence of their implementation.	1. Copies of the protocols and evidence of their implementation.	1. October 15, 2016.
3.5	Sources of fill material	1. Provide a list of the origin of fill material and the necessary permits for transportation.	1. Copies of the permits and maps of the quarry location.	1. October 15, 2016.

No.	Component	Action	Product	Date of Completion
		2. Develop and implement a plan to ensure the safe transportation of fill material from its origin to the Project, in compliance with the applicable environmental legal framework.	2. Copy of the plan for security and transportation.	2. October 15, 2016.
3.6	Energy use during the operation phase	1. Estimate the Project's energy use and detail actions to be taken to ensure energy efficiency during the operation phase.	1. Estimate of energy use and list of actions to achieve energy efficiency.	1. 90 days prior to finalizing the operation phase.
3.7	Emergency response and spill prevention plan	1. Develop and implement an Emergency Response and Spill Prevention Plan for the construction phase.	1. Copies of the Emergency Response and Spill Prevention Plan for the construction phase.	1. October 15, 2016.
		2. Develop and implement an Emergency Response and Spill Prevention Plan for the operation phase.	2. Copies of the Emergency Response and Spill Prevention Plan for the operation phase.	2. 90 days prior to finalizing the construction phase.
3.8	Response and dam safety plan	1. Develop a response plan for the event of a dam rupture.	1. Copy of the conceptual response plan for the event of a dam rupture.	1. October 15, 2016.
			2. Copy of the detailed response plan for the event of a dam rupture.	2. March 30, 2017
3.9	Closure plan	1. Provide the Closure Plan for the Project's worksites, production areas and camps.	1. A copy of the Closure Plan.	1. 90 days prior to finalizing the construction phase.
3.10	Air emissions	1. Provide the Air Emissions and Air Quality Control Plan for the Project's operation phase.	1. Copies of the Air Emissions and Air Quality Control Plan for the Project's operation phase.	1. 90 days prior to finalizing the construction phase.
PS 4: Community Health and Safety				
4.1	Emergency preparedness and response plan	1. Provide copy of the contract with the Red Cross for emergency preparedness and response, including emergencies that may impact community health and safety.	1. Signed copy of the contract with the Cross Red and details of the preparation and response protocols for emergencies, including those that may affect the community.	1. October 15, 2016.
4.2	Policy and protocols for external security	1. Provide a copy of the contract between EPM and the security company (or companies) to verify, among other things, that provisions are included enabling EPM: i) to conduct reasonable investigations to ensure that those in charge of security do not have police records and have not been involved in past situations of abuse; ii) to detail the required training related to the use of force; and iii) to place restrictions on the use of firearms.	1. Copy of the contract between EPM and the Project's security company or companies.	1. October 15, 2016.
4.3	Community health and safety	1. Provide the Vehicle Traffic Impact Management Program, which must include details about mitigation measures for possible impacts on Affected Communities, especially during the construction phase.	1. Copy of the Vehicle Traffic Impact Management Program.	1. October 15, 2016.
4.4	Risk analysis and emergency response mechanism for the operation phase	1. Provide a quantitative analysis of the risk to the surrounding communities during the operation phase.	1. Copies of the analysis and the identified mitigation measures.	1. 120 days prior to finalizing the construction phase.
		2. Develop and implement an Emergency Response Plan for the operation phase that includes the community.	2. Copy of the Emergency Response Plan.	2. 120 days prior to finalizing the construction phase.
4.5	Safety Plan for the operation phase	1. Update the current Safety Plan for the operation phase.	1. Copy of the updated Safety Plan for the operation phase.	1. 120 days prior to finalizing the construction phase.
4.6	Community exposure to diseases	1. Provide the results from monitoring migratory pressure and details regarding how the plan to manage the impacts of migratory pressure is being implemented.	1. Copy of the results of monitoring migratory pressure and details about the implementation of the corresponding mitigation measures.	1. Prior to the first disbursement.
PS 5: Land Acquisition and Involuntary Resettlement				

No.	Component	Action	Product	Date of Completion
5.1	Physical and economic displacement	1. Provide a copy of the Socioeconomic Compensation Plan implemented during the construction phase.	1. Copy of the Project's Socioeconomic Compensation Plan.	1. Prior to the first disbursement.
		2. Provide a summary of the main risks and social impacts associated with physical and economic resettlement due to the Project.	2. Report on the risks and social impacts associated with the physical and economic resettlement.	2. Prior to the first disbursement.
		3. Provide the Unit Values Manual used by EPM to determine the value of compensation to displaced persons for the loss of goods and/or means of subsistence.	3. Copies of the Unit Values Manual.	3. October 15, 2016.
		4. Develop a resettlement schedule (or matrix) that includes: i) details of all families to be resettled; ii) the type of compensation (e.g. direct purchase, resettlement); and iii) their status, including details about the process of becoming titleholders for those individuals who have been resettled.	4. Copies of the resettlement matrix.	4. October 15, 2016.
		5. Finalize the relocation of all families and inhabitants within the reservoir flood zone.	5. Relocation report.	5. Prior to the filling of the reservoir.
		6. Provide details of the monitoring procedure.	6. Copy of the Socioeconomic Compensation Plan monitoring program.	6. October 15, 2016.
		7. Evaluate the implementation of the Socioeconomic Compensation Plan.	7. Semi-annual reports that evaluate the Socioeconomic Compensation Plan.	7. During the five years of monitoring.
		8. Perform a final evaluation of the Socioeconomic Compensation Plan (<i>Completion Report</i>). The final evaluation is to be performed once all mitigation measures have been substantially completed and must include an analysis of: i) mitigation measures implemented by EPM; ii) a comparison of the results with the agreed objectives; and iii) a conclusion regarding the possibility of ending the resettlement process.	8. Copy of the final evaluation of the Socioeconomic Compensation Plan.	8. 120 days prior the end of the five-year monitoring (or accompaniment) period that EPM agreed upon with the displaced persons.
5.2	Community participation	1. Support outreach regarding the Unit Values Manual and how it is used, to reduce speculation or overly high expectations among the persons to be displaced	1. Documentation of the disclosure of information (records of meetings, details of the information provided during trainings).	1. Prior to the first disbursement.
		2. Use the "roadmaps" developed for each stakeholder to create a single document that identifies the different types of stakeholder, including: i) their interests and ii) their relation to the Project.	2. A copy of the "roadmaps" developed for each stakeholder and a copy of the integrated document where all the different stakeholder are mapped.	2. October 15, 2016.
PS 6: Biodiversity Conservation and Sustainable Use of Natural Resources				
6.1	Natural habitats	1. Provide confirmation of the presence or absence of regionally or nationally protected areas in the Project's area of influence, in consultation with the following institutions: i) Resnatur; ii) Autonomous Regional Corporations; iii) Municipal Planning Directorates for each municipality; and iv) the Special Administrative Unit for Natural National Parks.	1. A copy of the confirmation of the presence or absence of regionally and nationally protected areas in the Project's area of influence.	1. October 15, 2016.
		2. In the event that in the Project's area of influence there are already formalized protected areas or areas in the process of being constituted, generate a strategic baseline for biodiversity (flora, fauna, ecosystems, ecosystem services) that includes the protection categories defined in the Schematics of Territorial Organization (EOT, Esquemas de Ordenamiento	2. Strategic baseline document, if applicable.	2. October 15, 2016.

No.	Component	Action	Product	Date of Completion
		Territorial), Plans of Territorial Organization (POT, Planes de Ordenamiento Territorial) and that defines biological corridors, if present.		
		3. Provide the monitoring indicators for the recovery of disturbed areas concerning each type of compensation and with a focus on achieving a zero net loss, where feasible.	3. List of the monitoring and evaluation indicators for progress towards a zero net loss of natural habitat.	3. October 15, 2016.
6.2	Wildlife management	1. Adjust the wildlife management protocol in accordance with potential species distribution, biological corridors and primary reporting.	1. Wildlife management protocol also known as Rescue Plans.	1. October 15, 2016.
6.3	Areas of compensation	1. Determine the area of land compensation, including: i) its characteristics; ii) the corresponding management plan; and iii) a risk analysis of property acquisition.	1. Plan for land compensation, including a focus on achieving a zero net loss of natural habitats and net gains for critical habitats.	1. October 15, 2016.
		2. Determine the area of fish compensation, including: i) its characteristics; ii) the corresponding management plan; and iii) a risk analysis of property acquisition.	2. Fish compensation plan.	2. October 15, 2016.
6.4	Management of ecosystem services	1. Provide an identification and characterization study of ecosystem services, including consultation with Affected Communities.	1. Study of ecosystem services.	1. October 15, 2016.
		2. Provide information about mitigation and compensation measures due to adverse impacts on relevant priority ecosystem services to the Affected Communities.	2. Mitigation and Compensation Plan for impacts to priority ecosystem services to the Affected Communities.	2. Prior to the first disbursement.
6.5	Biological corridors	1. Provide an analysis of the biological corridors that could be interrupted by the Project and the corresponding mitigation plan.	1. Copy of the analysis of biological corridors and mitigation plan.	1. October 15, 2016.
6.6	Critical habitat	1. Provide a study of identification, mapping and characterization of potential critical habitats that may be affected, considering the IFC's Performance Standards, and the compensation plan.	1. Copy of the study of critical habitats and compensation plan.	1. October 15, 2016.
PS 7: Indigenous Populations				
7.1	Indigenous populations	1. Provide a copy of the Ministry of the Interior report (or details of this study) which evaluates whether the Nutabe de Orobajo Indigenous Council is classified as an indigenous population or not. In addition, include details about the characteristics defined by the Ministry of the Interior to determine who qualifies as an indigenous population.	1. Copy of the report	1. October 15, 2016.
		2. Provide a map of the Project's location in relation to all the indigenous peoples in municipalities surrounding the Project area to guarantee that the Project will not impact them.	2. Details of the Project's location in relation to recognized indigenous peoples in the area of influence.	2. October 15, 2016.
PS 8: Cultural Heritage				
8.1	Protection of cultural heritage	1. Consult with ICAHN to specify obligations regarding identified cultural heritage.	1. ICANH Certification.	1. October 15, 2016.
8.2	Consultations regarding Fisherman Bridge (Puente Pescadero)	1. Since the Project will affect Fisherman Bridge (Puente Pescadero), work jointly with Affected Communities to document the bridge's history (including photographs, drawings and interviews with local residents).	1. Evidence of consultation with the Affected Communities.	1. Prior to filling the reservoir.
8.3	Relocation of cultural heritage	1. In coordination with an archaeologist, an anthropologist, the community and the relevant authorities, present a plan for relocating the two cemeteries that will be flooded by the reservoir.	1. Copies of the relocation plan for the two cemeteries.	1. Prior to filling the reservoir.