Contents

1. General considerations of the Ituango hydroelectric project 4
2. Construction of the Ituango project 5
   2.1. Progress in construction 5
   2.2. Progress in the physical component 5
      2.2.1. Program for the management of atmospheric quality 6
      2.2.2. Program for the management of excavation materials 7
      2.2.3. Program for the management of surface water 7
      2.2.4. Program for the management of residential and industrial wastewater 8
      2.2.5. Program for the integrated management of waste 9
      2.2.6. Program for the management of vehicular traffic impacts 11
      2.2.7. Program for the management of construction materials sources 11
      2.2.8. Program for the management of instability and erosion 12
      2.2.9. Program for the reservoir filling and the Cauca River diversion 13
      2.2.10. Program for the management of the reservoir 13
         2.2.10.1. Subprogram for the operation of the reservoir 13
         2.2.10.2. Subprogram for the management of macrophytes and waste 13
      2.2.11. Investment of 1% 14
      2.2.12. Contingency plan 14
   2.3. Progress in the biotic component 16
      2.3.1. Program for the management of habitats and organisms 16
         2.3.1.1. Subprogram for the management and conservation of wild fauna 17
         2.3.1.2 Subprogram for the management and protection of fish and fishery resources in the middle and lower basins of the Cauca River 18
      2.3.2. Program for the management and conservation of vegetation 19
         2.3.2.1. Subprogram for biomass removal and forest harvesting 19
         2.3.2.2 Subprogram for the restoration of the vegetation cover 20
         2.3.2.3. Subprogram for the offset of the damaged vegetation cover 21
         2.3.2.4. Subprogram for the rescue of orchids, bromeliads, and tree ferns 22
   2.4. Progress in the social component 23
      2.4.1. Community communication and participation program 23
         2.4.1.1. Communication for participation project 23
         2.4.1.2. Information and communication project 27
      2.4.2. Program for the restitution of living conditions 27
      2.4.3. Program for the project-region integration 28
      2.4.4. Program for the monitoring of the area of influence of the project 32
      2.4.5. Preventive archeology program 32
   2.5. Indigenous communities 34
   2.6. Progress in additional social investment 35
      2.6.1. Institutionality line 35
         2.6.1.1. Institutional strengthening 35
         2.6.1.2. Human rights 35
2.6.1.3. Protective environments 36
2.6.2. Planning and participatory budget line 36
2.6.3. Connectivity line 36
2.6.4. Productive projects line 36
2.6.5. Health line 36
2.6.6. Housing line 37
2.6.7. Education line 37
2.6.8. Public utilities line
  2.6.8.1. Water supply and sewerage 37
  2.6.8.2. Gas 37

3. Contingency 38
  3.1. What the contingency was and how it was understood 38
    3.1.1. Physical-biotic component 40
    3.1.2. Social component and contingency plan 46
      3.1.2.1. Humanitarian help 47
      3.1.2.2. Water and sanitation 48
      3.1.2.3. Electrification 48
      3.1.2.4. Mobility plan 49
      3.1.2.5. Psychosocial support 50
      3.1.2.6. Economic support 51
      3.1.2.7. Early warning system (EWS) 52
      3.1.2.8. Electrical energy recognition 53
    3.1.3. Attention to families affected during the emergency on May 12 in Valdivia 53
      3.1.3.1. Families damnified 53
      3.1.3.2. Families affected 55
      3.1.3.3. Discussion 55
      3.1.3.4. Commerce 56
    3.1.4. Installed capacity 56
      3.1.4.1. Previous positioning 57
      3.1.4.2. Preparation in the face of the emergency 57
      3.1.4.3. Internal chain of calls 58
    3.1.5. Grievance procedure 59
    3.1.6. Implementation of the contingency plan 60

4. Project recovery plan 64
  4.1. Technical component 64
  4.2. Physical-biotic component 65
  4.3. Social component 66
    4.3.1. Return protocol 66
      4.3.1.1. Phase I 66
      4.3.1.2. Phase II 67
      4.3.1.3. Phase III 68
    4.3.2. Specific action plan 70
      4.3.2.1. Relocation of infrastructure in areas of unmitigable risk 70
1. General considerations of the Ituango hydroelectric project

The Ituango hydroelectric project is located on the Cauca River, in the northwest of Antioquia, about 170 kilometers from the city of Medellín, and its area of influence includes the municipalities of Ituango and Briceño, where the main works are located, and Santa Fe de Antioquia, Buriticá, Peque, Liborina, Sabanalarga, Toledo, Olaya, San Andrés de Cuerquia, Valdivia, and Yarumal, which provide land for the reservoir and other works of the project.

The project consists of a dam of 225 m high with a volume of 20 million m³, an underground power station with a maximum installed capacity of 2,400 MW and 13,930 GWh of average annual energy.

The project also includes works for the temporary diversion of the Cauca River, on its right bank, the spillway to evacuate open-canal-type floods, and the intermediate discharge tunnel.

To learn more about the project, click here:
Video
Brochure
2. Construction of the Ituango project

2.1. Progress in construction

On April 30, 2018, before the contingency, the Ituango project had a physical advance of 84.3%, with a 0.8% lag with respect to the forecast. The main advances are summarized in the following work fronts:

- The filling of the dam with execution progress of 88%, for a volume of 17,606,819 m³.
- The excavation of the spillway with progress of 99% and the concrete of the spillway with progress of 95%.
- The concrete in the intermediate discharge with progress of 81%.
- The concrete in the upper headraces with progress of 94%.
- The aspiration tunnels with progress of 100% in units 1 to 4 and 39% in units 5 to 8.

2.2. Progress in the physical component

Before the contingency, all environmental activities prior to filling were under implementation based on the provisions of the Environmental Management Plan (EMP) authorized by the National Environmental Licensing Authority (abbreviated ANLA in Spanish). A diagram of this plan in its physical component is presented below:
2.2.1. Program for the management of atmospheric quality

With the execution of the activities of this program the management plan seeks to reduce the impact generated to the air, with activities such as:

- Watering of roads and exposed areas using tanks and sprinklers.
- Covering dump trucks with tarps.
- Controlling emissions in the crushing, concrete, and asphalt plants.
- Covering and watering places where construction stone materials are stocked.

In addition, atmospheric quality monitoring is conducted periodically, with follow-up to variables such as particulate matter, gases, noise, and odors in the area of direct influence of the project.
2.2.2. Program for the management of excavation materials

The execution of the activities of this program seeks to avoid and reduce the impact generated to the air, the water, and the soil as a result of the excavations carried out to build the infrastructure required for the project. Different activities are implemented in this program including:

- Withdrawal of materials and placement in disposal areas.
- Conformation and compaction of materials in disposal areas.
- Construction of drainage works.
- Final revegetation of the impacted area.

2.2.3. Program for the management of surface water

The execution of the activities of this program seeks to reduce the impacts that could be generated on water resources through the implementation of different activities such as:

- Gauging in water sources.
- Monitoring of the resource use.
- Operation of water intakes.
- Construction of ditches and canals in disposal roads and areas.

In addition, surface water sources in streams, in the Cauca River in the reservoir area, and downstream are monitored permanently.
2.2.4. Program for the management of residential and industrial wastewater

This program seeks to minimize the impact generated to water as a result of the discharges of wastewater that are generated in the different facilities of the project, through the execution of different activities such as:

- Treatment of residential and industrial wastewater.
- Permanent monitoring of discharges and of receiving water sources.
- Portable sanitary systems for the work fronts.
2.2.5. Program for the integrated management of waste

The execution of the activities of this program seeks to reduce the impact generated to the soil, water, and air, with activities such as:

- Sorting at the source
- Collection
- Storage
- Final disposal
- Reclamation
- Treatment

With a capacity of approximately 23,000 m³, the Bolivia landfill was built for the final disposal of ordinary waste resulting in the project.
Sorting at the source

Composting of biodegradable waste

Delivery of hazardous waste for final disposal to authorized companies

Storage of hazardous waste

Recycling
2.2.6. Program for the management of vehicular traffic impacts

This program seeks to avoid or minimize the possible impact generated on wild fauna, people, and the air quality associated with the movement of vehicles through the project roads, through different activities such as:

- Training of drivers in environmental education.
- Control of speed.
- Signage on the roads.
- Preventive maintenance works.

Vehicle inspections

Signage on the roads

2.2.7. Program for the management of construction materials sources

The execution of the activities of this program seeks to minimize the impact generated on the water, soil, air, and flora and it focuses on the management of areas for the extraction of construction materials. Currently, it is mainly developed in the El Palmar borrow area No. 4, from where the impermeable material for the core of the dam is extracted. The following actions are implemented there:

- Air quality: humidification of the exposed areas, use of tarps for the transport of materials.
- Water quality: control of rainwater and runoff, construction of energy dissipation works.
• Closing plan: partial and final closure of each exposed area, in order to improve soil stability and mitigate the deterioration impact on the landscape.
• Revegetation of the areas where exploitation was completed.

Construction of canals at the El Palmar materials source

Revegetation of the areas where exploitation was completed

2.2.8. Program for the management of instability and erosion

This program seeks to avoid and reduce the impact generated to the soil and water, with the execution of activities such as:

• Construction of canals.
• Protection of slopes with shotcrete.
• Revegetation of slopes.

Additionally, monitoring of instability and erosion is carried out permanently and measures for their management are proposed.

Shotcrete and revegetation combination for slope stabilization

Installation of parapets to avoid material from dragging to the hillside
2.2.9. Program for the reservoir filling and the Cauca River diversion

The diversion of the Cauca River began on February 17, 2014, with the blowing of the plugs that protected the branches of the diversion tunnels.

The development of this activity had the participation of a group of approximately 60 people, made up of 26 fishermen from different riverine populations of the middle and lower areas of the Cauca River and professionals from the environmental, industrial safety, and occupational health fields.

During this process, 4,645 fish were recovered, of which 99.2% was released alive.

2.2.10. Program for the management of the reservoir

It is divided into two subprograms. However, none had been implemented before the contingency presented from April 28. They are generally described below:

2.2.10.1. Subprogram for the operation of the reservoir

This subprogram is oriented to good management of the reservoir and avoiding discharge impacts downstream, by implementing the operation rule that guarantees that on a single day (or 24-hour period) the fluctuation of the river flow should be restricted in function of the average flow of the Cauca River on that day.

2.2.10.2. Subprogram for the management of macrophytes and waste

This subprogram is directed to the control of macrophytes (water hyacinth) and floating waste on the reservoir, making a proper management and final disposal of them. Some of the activities of this program are containment, removal from the reservoir, separation, commercialization, final disposal, and treatment.
2.2.11. Investment of 1%

Colombian regulations establish that any project that involves the use of water taken directly from natural sources and that is subject to obtaining an environmental license must allocate at least 1% of the total investment for the recovery, conservation, preservation, and monitoring of the hydrographic basin that feeds the respective water source.

In the case of the Ituango project, the resources are being invested as follows:

- Protection and management of strategic areas: purchase, reforestation, and isolation of areas of influence from springs that are source of water supply.
- Environmental sanitation: construction of sewers and residential wastewater treatment plants in the municipalities of the area of influence.
- Training of environmental leaders and managers through environmental education activities.

For the first quarter of 2018 the investments in the territory for this concept were in the line of purchase of properties for the protection of the microbasins: in total 381.23 hectares with an investment of COP 1,528,565,690.

2.2.12. Contingency plan

The risk analysis was prepared considering the uncertainty of the occurrence of disasters generated by the natural conditions existing in the area of influence of the project and by anthropic factors. As part of the methodology used, the potential threats were assessed in light of their probability of occurrence and impacts that they could generate.

The structure proposed for the contingency plan distinguishes three operational levels: strategic, tactical, and operational, including the competencies within the risk management process in knowledge, reduction, and emergency management. The organizational structure of this plan is presented below.
Likewise, as part of the implementation of the contingency plan, the installed capacity has been inventoried in the municipalities of the area of influence of the project and in downstream municipalities; workshops and drills were also conducted. In addition, 30 kits were delivered for emergency care:

<table>
<thead>
<tr>
<th>Description</th>
<th>Installed capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early warnings installed by the Red Cross</td>
<td>12</td>
</tr>
<tr>
<td>Drills conducted with the downstream communities</td>
<td>18</td>
</tr>
<tr>
<td>Drills conducted with the upstream communities</td>
<td>40</td>
</tr>
<tr>
<td>Preparation workshops conducted downstream</td>
<td>88</td>
</tr>
<tr>
<td>Preparation workshops conducted upstream</td>
<td>120</td>
</tr>
<tr>
<td>People prepared for the response downstream</td>
<td>3,667</td>
</tr>
<tr>
<td>People prepared for the response upstream</td>
<td>4,045</td>
</tr>
<tr>
<td>Action Plan during Disasters (APDD) (% of progress)</td>
<td>100%</td>
</tr>
<tr>
<td>Endowment kits for communities</td>
<td>30</td>
</tr>
<tr>
<td>Workshops and drills by Municipal Councils for Disaster Risk Management</td>
<td>6</td>
</tr>
<tr>
<td>Workshops and drills by CMGRDs upstream</td>
<td>42</td>
</tr>
<tr>
<td>Drill by CMGRDs downstream</td>
<td>2</td>
</tr>
<tr>
<td>Drill by CMGRDs upstream</td>
<td>14</td>
</tr>
<tr>
<td>Patients attended to during medicalized ambulance transport (MAT) and basic ambulance transport (BAT)</td>
<td>337</td>
</tr>
</tbody>
</table>
2.3. Progress in the biotic component

Diagram of the programs for the management of the biotic component.

Program for the management of the biotic environment

- Program for the management of habitats and organisms
  - Subprogram for the management and conservation of fauna
  - Subprogram for the management and restoration of fish and fishery resources in the middle and lower basins of the Cauca River
- Program for the management and conservation of vegetation
  - Subprogram for the management and conservation of fauna
  - Subprogram for the restoration of the forest cover
  - Subprogram for the offset of the damaged vegetation cover
  - Subprogram for the rescue of orchids, bromeliads, and tree ferns

2.3.1. Program for the management of habitats and organisms

It is divided into two subprograms.

*CCCI: Consorcio Camargo &Correa, Conconcreto y Coninsa Ramón H Ituango
2.3.1.1. Subprogram for the management and conservation of wild fauna

This program seeks to reduce the impact generated to the wild fauna, with the development of the following activities:

- Preventive signage on the crossing of wild fauna on the roads.
- Actions to chase away, rescue, and relocate the terrestrial fauna affected by the construction of the works, the diversion of the Cauca River, and the filling of the reservoir.
- Construction and operation of wild fauna care and assessment centers - one permanent and some mobile - operated in agreement with the Regional Autonomous Corporation of Central Antioquia (Corantioquia).
- Preparation of population studies of vulnerable wild fauna species.

As part of the obligations described in the Environmental Management Plan (EMP), the operation of the Permanent Wild Fauna Care and Assessment Center (CAC) of the project began in 2018; currently 14 people work there, including veterinary physicians, biologist, zootechnician, veterinary assistants, environmental educator, communicator, operators, and drivers. The center has the necessary equipment for the clinical and biological management of the individuals that require it, as well as for processes of rehabilitation and release to the natural environment of the wild fauna individuals that may be affected by the different activities of the project.
In addition, terrestrial fauna monitoring continued during 2018 as part of the project’s EMP. Punctual samplings for the population studies of felines and otters were also carried out, as well as the monitoring required within the Program for the management and protection of fish and fishery resources in the lower and middle basins of the Cauca River.

To learn more, click here:
Birds
Felines

2.3.1.2 Subprogram for the management and protection of fish and fishery resources in the middle and lower basins of the Cauca River

This subprogram meets the requirements established by the environmental authorities in the environmental license. On February 18, the updates of both the Program for the management and protection of fish and fishery resources in the middle and lower basins of the Cauca River and the Program for the monitoring and conservation of fish and fishery resources in the middle and lower basins of the Cauca River were submitted to the ANLA. These programs are divided into the following projects:

- Project for the monitoring of the group of fish species located in the lower and middle basins of the Cauca River.
- Project for the monitoring of the reproductive activity of migratory species in the lower and middle basins of the Cauca River. It includes the monitoring of the reproductive activity of rheophilic species and the identification of potential spawning areas.
- Project for the monitoring of the fishing activity in the lower and middle basins of the Cauca River.
- Project for the rescue and relocation of fish due to the diversion of the Cauca River and the filling of the reservoir.
- Project for the rescue and relocation of fish species due to maneuvers or operational activities in the Ituango hydroelectric power station.
- Project for the restocking of fish species.

Since 2010, the project has been monitoring fish species from different stations in the middle and lower basins of the Cauca River, from Bolombolo to Pinillos (Southern Bolívar), in order to assess species composition, breeding seasons, migration routes, among others aspects. To date, 123 fish species have been recorded in the assessed section.
Likewise, potential spawning location and some migration routes have been identified.

Simultaneously, the population genetic analysis of 16 species is being conducted, aiming at identifying aspects such as genetic diversity, distribution of populations, and possible damages due to the construction and operation of the project.

2.3.2. Program for the management and conservation of vegetation

2.3.2.1. Subprogram for biomass removal and forest harvesting

This program manages the impact on flora, landscape, and wildlife, both in the area of works, roads, and camps, and in the reservoir vessel. As part of this subprogram, the following activities are performed: opening of roads, alignment for land clearing, grass-cutting, felling, limbing, stacking, transport to temporary collection sites when required, among others.

In 2016, the vegetation cover of the reservoir vessel started to be removed. 889.3 ha of vegetation cover were intervened until the moment in which the contingency occurred and the level of the river (reservoir) began to increase rapidly.

Tree felling

Wood chipping

Temporary timber collection sites

Panoramic view of the removal of vegetation cover in the reservoir vessel
2.3.2.2 Subprogram for the restoration of the vegetation cover

With the execution of the activities of this program, the company seeks to restore and offset the possible impacts on the flora and fauna components, through the implementation of the following actions:

- **Conservation of vegetation**: seeds of threatened species such as balsa, yellow mombin, needle flower, courbaril, gumbo-limbo, basul, elephant ear, gaita, colorado, aguacatillo, soapberry, and calabur are rescued and planted in nurseries.

- **Rescue of germplasm**: in order to preserve the rescued material - before, during, and after forest harvesting - in any of its reproductive forms (seeds, cuttings, tubers, among others) strategies have been established to maintain and reproduce the rescued germplasm.

- **Adaptation and maintenance of plant nurseries**: during 2018, three nurseries operated in the project.
  1. El Palmar plant nursery (permanent): It has a production capacity of 1 million plantlets per year.
  2. Villa Luz plant nursery (temporary): It is in charge of the production of native plantlets for the activities of vegetation restoration in the areas intervened by the construction processes.
  3. Humagá plant nursery (temporary): It performs activities of storage and classification of the vegetal material with the purpose of using it in the activities of landscape recovery and restoration in the areas impacted by the construction of the Puerto Valdivia-Dam road.
Landscape recovery and restoration activities in the areas that will no longer be intervened, as part of the execution of the final abandonment and restoration plan. The restoration of the El Palmar borrow area started in the first semester of 2018, with the development of trials with a mixture of biosolids (from the San Fernando wastewater treatment plant), cleared material, and seeds of grasses and trees, in a total area of 7 ha.

Additionally, the execution of activities for ecological restoration began in April in the properties acquired by EPM within the offset area of the project. The main goal of these activities is the ecological restoration of 150 ha of tropical moist forest and 200 ha of tropical dry forest, based on the structural and morphological characteristics of the territory.

2.3.2.3. Subprogram for the offset of the damaged vegetation cover

This subprogram makes it possible to obtain a positive net ecological balance through the execution of activities to restore the vegetation cover damaged by the construction of the works and the conformation of the reservoir.
The environmental license establishes the obligation to offset 17,920.04 ha; the company has acquired lands that cover a total area of 16,723.54 ha - 12,986.52 ha corresponds to tropical dry forest (TDF) and 3,737.02 ha corresponds to tropical moist forest (TMF). The results show that the project has become a real and valuable opportunity to protect and preserve large tropical dry forest areas that were previously at risk due to activities mainly related to stockbreeding and mining.

Additionally, beyond its obligations, the project has acquired and protected 6,134.75 ha of premontane moist forest (PMMF), thanks to which environmental benefits have been obtained in terms of improvement of the ecological connectivity and management of biodiversity in the area of influence.

### 2.3.2.4. Subprogram for the rescue of orchids, bromeliads, and tree ferns

The purpose of this subprogram is to maintain the diversity and abundance of the species of orchids and bromeliads found in the areas intervened by the project, through the transplantation of a portion of the individuals affected by the construction of the works and the configuration of the reservoir.

Epiphytes and ferns are rescued and relocated to places with optimal conditions for their adaptability: areas with thick canopies, with medium to high relative humidity, close to surface water sources, with similar physical and biotic conditions to those of their original habitats, and that will not be intervened during the construction of works or the configuration of the reservoir.

During the first semester of 2018, epiphytic and terrestrial orchids and bromeliads found in the reservoir area were rescued, achieving the relocation of 37,085 individuals. All the individuals were distributed by life zone. In this way, 7,076 individuals were rescued and relocated to tropical dry forest (TDF) and 30,009 individuals to tropical moist forest (TMF).

<table>
<thead>
<tr>
<th>Rescue of epiphytes</th>
<th>Relocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring</td>
<td>Transitory collection in temporary plant nurseries</td>
</tr>
</tbody>
</table>
2.4. Progress in the social component

Scheme of the social environment management program.

2.4.1. Community communication and participation program

In order to favor the construction of relationships based on trust and mutual understanding among stakeholder groups in the area of influence of the project, some assertive communication and pedagogical strategies have been implemented, based on the production and delivery of accurate and timely information, as well as on the promotion of spaces for dialogue and strengthening of communication and leadership skills.

This program is made up of two projects: Communication for participation and Information and communication.

2.4.1.1. Communication for participation project
Strengthening of youth communication groups
In 2018, 48 training workshops were conducted with youth communication groups in the municipalities of Ituango, Briceño, Valdivia, Ituango, Peque, Sabanalarga, and Liborina. In these spaces, young people received practical tools on content production, media analysis, as well as on communication and leadership skills.

The strengthening of youth participation scenarios (collectives, municipal platforms, and organized groups) becomes an opportunity for the promotion of citizenship. Through communication tools, young people manage to perceive themselves as builders and promoters of practices that contribute to the creation of a democratic culture in their communities. This culture is understood as the result of empowerment for making decisions and working jointly to achieve common objectives.
In October 2018, 60 young people met to exchange experiences, learn about the work of other youth groups, share the communication pieces that each group produces in their municipality, learn about community communication and its applications in local contexts, and recognize the importance of their active participation in local development through communication.

Chats in the rural settlements

Chats are the spaces for dialogue and conversation par excellence. They are the opportunity to listen to the communities and identify the topics that interest them.

Listening to the different expectations and positions on the impacts of the project, talking about the contributions to development, and sharing information on the progress of the work are the purposes of these spaces that are essential for the viability of the project, as they are one of the pillars of environmental and social management.

Every month of 2018, the company conducted conversation spaces in all the rural settlements and municipalities of the area of influence. In these dialogue spaces, the communities received information on the most important milestones that the project might face this year, mainly related to the filling of the reservoir in the middle of the year
and to the start of the power generation operations by the end of the year. Therefore, information was provided regarding the way in which the physical, social, and environmental impacts derived from these two milestones would be handled.

From the contingency and until December, other conversations were held focused on explaining and addressing the concerns of the communities regarding what happened during the contingency and the way in which the project has foreseen its recovery process.

In 2018, the Ituango hydroelectric project conducted more than 252 meetings with stakeholders.

**Meetings with the communities**

*Visits to the project with the stakeholders What can be seen can be felt and, therefore, be better understood*

During 2018, the project implemented a plan of visits to the main works with all the stakeholder groups, especially with the families and communities of the area of influence, municipal administrations, EPM’s employees, universities, the academy, and the media.

These visits were particularly meaningful for the families and communities of the area of influence because they could understand the magnitude of the work and the importance of their contribution to the construction and operation of this project. In addition, some concerns were addressed, mainly related to the construction processes,
the investment, and the role of local authorities in the execution of the resources that will be received from the power generation. As for universities and the academy, it was an opportunity to talk about the construction process, the environmental and social management, and the opportunities created by a project like this one.

2.4.1.2. Information and communication project

**Radio strategy: radio for people**

The radio is an opportunity for close and permanent dialogue with communities. Informative spaces and radio magazines have allowed an effective contact with the communities to understand topics of interest. The environment, the development, the opportunities, and the progress of the project are permanent conversation topics in the Con vos (With you) and Sobre la Mesa (On the Table) programs, which are broadcast every week on the radio stations of the region.

The contents and the dialogues with the community can be listened to at the following link: [www.epm.com.co/site/Home/EPMradio.aspx](http://www.epm.com.co/site/Home/EPMradio.aspx)

**La Voz del proyecto Ituango (The voice of the Ituango project) newspaper**

The newspaper becomes an informative element that summarizes the memory of the project. It collects the life stories, environmental activities, and contributions to the development and evolution of the project.

Communities feel part of the project when they can read and see their own stories, life plans, and achieved goals; when they know about the project and can graphically and visually appreciate its contributions to the region.

La Voz del proyecto Ituango newspaper is a document that contains the history and memory of the project. All its published editions can be read at [https://www.epm.com.co/site/home/medios-de-comunicacion-epm/publicaciones](https://www.epm.com.co/site/home/medios-de-comunicacion-epm/publicaciones)

2.4.2. Program for the restitution of living conditions

This program is in charge of restoring the living conditions of people affected in the components of habitat, housing, social fabric, economic base, and community infrastructure.

EPM, in cooperation with the affected families and the municipal administrations, implemented the management measures according to the cultural particularities, the level of the impacts received due to the construction of the works, and the respective degrees of vulnerability of every case. The following results were achieved in 2018:

- 257 families in the process of full restitution of living conditions, and implementation of the management measures corresponding to the recovery of the habitat, deployment of family productive projects, and restoration of social and cultural networks through social support.
- 92.3% advance in the habitat restoration process through the construction of new houses and acquisition and/or improvement of used houses.
• 88 of the productive projects already implemented and generating income for family maintenance.
• Agreement with 911 families on a management measure that includes the payment of compensation (direct purchase), based on the real impact, and advice for an appropriate investment by a team of interdisciplinary professionals.

The program for the restitution of living conditions was developed under an approach of comprehensive attention to the affected populations or communities, assuming participation as “the process in which the communities recognize themselves and are recognized by others as actors of their own history in the social, political, economic, and cultural contexts, and exercise the individual and collective rights granted by the National Constitution and the Law to enjoy a healthy environment and take part in the decisions that affect them.” In this way, engagement was permanently strengthened through discussions, meetings, and referencing for the establishment of relationships based on trust. The processes that are part of the program for the restitution of living conditions take into account the following principles:

1. Equity and equal opportunities, recognizing the conditions of vulnerability and the characteristics of the populations or communities.
2. Transparency, supported by the provision of clear, timely, and accurate information.
3. Legitimacy, through the implementation of decisions resulting from agreement and negotiation processes.
4. Respect, based on the preservation of agreements and peaceful relationships, fostering an atmosphere of trust and credibility.
5. Availability, through advice and permanent support to the population subject to restitution.

Watch the video on restitution of living conditions to learn more about the execution of the program for the comprehensive restitution of living conditions.

2.4.3. Program for the project-region integration

The purpose of this program is the insertion of the project in the region through the interaction between EPM, the communities of the area of influence, public and private institutions, and the political-administrative entities of the region.

The projects that make up the program for the project-region integration are:

Job creation project: 7,871 jobs created. 22% corresponds to people from the region.

Institutional and community strengthening project: The level of development of municipal administrations and community organizations was analyzed in order to design an institutional and community strengthening plan for each of the municipalities of the area of influence of the project and promote social organization initiatives in the community action boards of the rural settlements of influence.

Institutional strengthening plan: It was implemented through meetings and workshops with municipal administrations on topics such as public management; transparency in administrative actions; control instruments; focalization, prioritization, and monitoring of the public expenditure; accountability to the community; citizen security; resolution and management of conflicts; information systems; establishment of alliances for the development of projects; and formulation of projects for the management of legal resources.
Project for the articulation of the Ituango project with the land use plans (LUPs) and the municipal development plans (MDPs): The project defined the strategies for the management of the reservoir and the feasible initiatives to be developed in the short, medium, and long term. In addition, it makes inter-institutional coordination efforts for the formulation of a new land use proposal and the definition of the regulations—having the reservoir as the articulating axis—in order to define, approve, and implement a land use plan for the reservoir.

Project for the monitoring and mitigation of impacts due to migratory pressure: Construction of large infrastructure projects usually attracts foreign people as a result of labor requirements and other economic expectations, which can alter the normal demographic dynamics of the territory due to an accelerated population growth.

This increase in population has an impact on the demand for services such as housing, health care, education, and public utilities. Additionally, it maximizes risks related to environmental vectors, diseases, and social problems, and may transform the cultural systems of the affected populations, in a direct or indirect way.

Some variables were defined for the monitoring of impacts due to migratory pressure. These variables were grouped into six categories, as shown in the following figure:

<table>
<thead>
<tr>
<th>Monitoring variables</th>
<th>Group 1 Population dynamics</th>
<th>Group 2 Real estate market</th>
<th>Group 3 Local economy</th>
<th>Group 4 Education</th>
<th>Group 5 Healthcare</th>
<th>Group 6 Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Operational capability for the provision of education services, capacity of the spaces for the development of activities, and enrollment behavior.</td>
<td></td>
<td></td>
<td></td>
<td>10. Operational capability for the provision of healthcare services and analysis of morbidity due to ADDs, ARDs, and STDs.</td>
<td>11. Youth risk factors (psychosocial risks, teenage pregnancy, drug addiction).</td>
<td></td>
</tr>
</tbody>
</table>
The measures to prevent, control, or mitigate the identified impacts are agreed through participatory methods in technical committees with municipal coordination entities. In the municipalities where there is a municipal council for social policy (abbreviated Compo in Spanish), this is the space for coordinating the monitoring plans and defining the management measures of the impacts due to migratory pressure. In the municipalities where this council does not exist, a local management committee is installed in coordination with the municipal administration.

In this way, the Ituango hydroelectric project, in the municipalities of San Andrés de Cuerquia, Toledo, Ituango, and Valdivia, where these impacts were identified, has made a total investment of COP 22,056,000,000 in the following strategies:

**Primary health care (PHC):** for families living in the areas of influence.

**Expansion of health coverage:** through activities related to oral health care, sexual and reproductive health, prevention of cardiovascular risk, vector-borne diseases, as well as training on water care.

**Plan for education on road safety.**

**Strengthening of the municipal family support unit** for the mitigation of psychosocial risks in young population.

**Processes of sports, artistic, and cultural initiation with children, youth, and adults.**

**Construction or improvement of educational institutions, sports centers, hospitals, and health centers.**

**Project for the engagement with the regional development:** more than 5,000 families from 577 rural settlements benefit from family and entrepreneurship productive projects. Additionally, aiming at strengthening the educational development of the communities in the municipalities of the area of influence, rural educational centers (RECs) were built or improved in a participative way:

<table>
<thead>
<tr>
<th>Project</th>
<th>Municipality</th>
<th>Rural settlement</th>
<th>Amount (COP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of the La Bastilla REC</td>
<td>Peque</td>
<td>La Bastilla</td>
<td>117,354,832</td>
</tr>
<tr>
<td>Improvement of the Renegado Valle REC</td>
<td>Peque</td>
<td>Renegado Valle</td>
<td>232,302,426</td>
</tr>
<tr>
<td>Astilleros REC</td>
<td>Valdivia</td>
<td>Astilleros</td>
<td>635,000,000</td>
</tr>
<tr>
<td>El Junco REC</td>
<td>Sabanalarga</td>
<td>El Junco</td>
<td>105,590,110</td>
</tr>
<tr>
<td>San Julián REC</td>
<td>Toledo</td>
<td>Barrancas</td>
<td>1,042,000,000</td>
</tr>
<tr>
<td>La Fragua and Buena Vista RECs</td>
<td>Buriticá</td>
<td>Buriticá</td>
<td>193,833,952</td>
</tr>
<tr>
<td>La Fragua REC</td>
<td>Buriticá</td>
<td>La Fragua</td>
<td>123,998,947</td>
</tr>
<tr>
<td>Buenavista REC</td>
<td>Buriticá</td>
<td>Buenavista</td>
<td>42,557,318</td>
</tr>
</tbody>
</table>
Gender-oriented development: it contributes to gender equity, prevention of gender violence, and training in sexual health and sexual and reproductive health rights in the area of influence of the project, through the implementation of the program for engagement with gender-oriented development, with the premise of empowering women participation in development plans, programs, and projects. This dynamic makes it possible to create equal opportunities for progress to be considered by the state as an actor of institutional integration and citizen participation.

Agreements were signed by the municipalities, state-owned hospitals (executor), and EPM for the provision of friendly services in Yarumal, Briceño, Valdivia, Toledo, San Andrés de Cuerquia, Ituango, Santa Fe de Antioquia, Olaya, Liborina, Sabanalarga, Peque, and Buriticá. The population directly benefited comprised 12,233 young people at risk, including 23 pregnant women, 34 young mothers, and 559 young people in vulnerable situations due to the use of psychoactive substances. More than 36,000 people of all ages and genders also benefited, in an indirect way, from actions that included:

Training workshops on gender equity, women’s rights, sexual and reproductive rights, gender violence, and care routes.

Individual, family, and group counseling, workshops on prevention of alcohol and drugs use, prevention of suicide, life skills, prevention of unwanted pregnancy, sexual and reproductive rights, among other topics related to prevention.

Efficient wood stoves and firewood tree gardens.

Forums for commemorating the day of non-violence against women and film and discussion for celebrating the international day of women’s rights.

Increase in gender violence complaints.

This program was developed with an investment of COP 3,783 million, with the following contributions:

<table>
<thead>
<tr>
<th>Contribution of EPM</th>
<th>Contribution of hospital</th>
<th>Contribution of municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP 3,115,817,095</td>
<td>COP 382,059,542</td>
<td>COP 285,139,888</td>
</tr>
</tbody>
</table>

Environmental education project: pedagogical activities on coexistence and care for the environment are conducted in educational institutions in the area of direct influence of the project; as well as workshops and talks on environmental regulations and activities with families that are subject to full restitution of their living conditions.
2.4.4. Program for the monitoring of the area of influence of the project

Considering the complexity of the territory and the context of the Ituango project, the analysis and management of socio-political risks have been implemented through a methodology that integrates into the Grupo EPM’s risk management.

The Ituango project has a socio-political risk matrix that is updated every six months and that accounts for the risks in terms of collective social action, human rights, security, and strategic litigation, to which the project is exposed at the local, regional, national, and international levels. It is worth mentioning that each of these risks has been assigned preventive and corrective controls to avoid or mitigate its materialization. There is also a map of actors with a socio-political approach that is constantly updated based on the readings of the territory and its dynamics.

The risks materialized, related to the mentioned categories, are reported every month, including actors involved, analysis of scenarios, and recommendations. In 2018, 13 reports were submitted and 101 signs of materialization of socio-political risks were registered, mainly in the categories of human rights, strategic litigation, and collective social action:

- Third-party claims against the project.
- Injunctions due to actions taken by third parties against the project.
- Social protests with de facto actions by third parties in the area of influence of the project.

Each of these risks was managed through preventive and corrective controls, such as inter-institutional coordination with local, regional, and national entities to deal with the events; joint legal action between the company and the state; due diligence with communities and state entities; timely response to complaints and claims; timely response to demands of national and international organizations; permanent dialogue and communication with impacted communities and the community in general; traceability of the information, among others.

2.4.5. Preventive archeology program

Archaeological survey, rescue, and monitoring activities were carried out with the approval of the competent authority: the Colombian Institute of Anthropology and History (abbreviated ICANH in Spanish). In response to the social responsibility commitment to the communities in the area of influence of the project, a result dissemination campaign was conducted in the municipalities, as well as a seminar with the academic community in the facilities of Universidad de Antioquia. In addition, as part of the dissemination activities, two articles were published in the anthropology bulletin of the same university.

The evidence recovered by means of the preventive archeology program rests in the Universidad de Antioquia’s museum and its possession is registered before the ICANH, as established by the current legislation on archaeological heritage.
Dissemination activities

Archaeological artifacts

Rescue activities
2.5. Indigenous communities

The Ituango hydroelectric project, committed to the respect of human rights and cultural diversity, and in compliance with the Colombian regulations, activated the assistance protocol for the Nutabe indigenous community from Orobajo, after the certification issued by the Ministry of the Interior, through Ruling 08 of March 1, 2018, which reads: “Taking into account that the project object of this certification is in construction stage, the interested party should request the Directorate of Prior Consultation to start the consultation process.” In consequence, on March 14, 2018, the company made the request, before the Directorate of Prior Consultation of the Ministry of the Interior, to start the consultation process during the construction stage of the project.

Subsequently, on May 11, 2018, the Ministry of the Interior initiated the prior consultation process and, along with the company, defined the methodological route as well as some joint activities between the project and the indigenous community, as a strategy to ensure the participation of the actors involved.

The joint work sessions held in 2018 made it possible to progress in the definition and coordination of technical, operational, and logistical aspects to comply with the methodological route. It is worth highlighting the partnership agreement signed on October 26 between the council of the Nutabe indigenous community and EPM with the purpose of hiring an advisory team to “join technical, logistical, and administrative forces in order to ensure technical and legal advice and support to the Nutabe community from Orobajo during the development of the prior consultation process of the Ituango hydroelectric project, pursuant to the provisions of Ruling 08 of March 1, 2018, issued by the Directorate of Prior Consultation of the Ministry of the Interior, and of Presidential Directive 10 of 2013.” The certificate of commencement of the respective agreement was signed on November 2.

In December, the first phase of the characterization stage was completed as a result of both the efforts made by the indigenous community through the self-determination of their customs and traditions as an ethnic minority and the support of the project’s social management team during the exploratory visits to the territory. In this way, the project reiterates its commitment to fully support the communities impacted by the construction of their works, from the premises of respect for their rights, social equity, transparency in the information, and recognition of differences.

The prior consultation process is expected to be completed by the first semester of 2019, complying with the stages of 1) identification and analysis of impacts, 2) formulation of management measures, and 3) protocolization.

The prior consultation of the Ituango hydroelectric project is the first of its kind, given that the Nutabe indigenous community from Orobajo began its self-determination process in 2014 and was recognized by the Ministry of the Interior only in 2017. In consequence, the consultation process only started in March 2018, when the construction works were 80% completed.

Besides being directed by the Ministry of the Interior, the prior consultation process has counted on the participation of guarantor institutions such as the Ombudsman’s Office, the Office of the Inspector General, the Office of the Public Defender, among others.
Before the start of the prior consultation, and at the request of the inhabitants, the Ituango project resettled 35 families that lived in Orobajo. They are currently located in the municipalities of Ituango (31) and Sabanalarga (4), living in their own homes, implementing the productive projects of their interest, and getting used to their new territory; everything as part of the program for the integral restitution of living conditions.

2.6. Progress in additional social investment

The Ituango hydroelectric project comprehensive plan is an agreement that joins the wills and efforts of the project’s partners - the Antioquia Governor’s Office, the Medellín Mayor’s Office, EPM, IDEA, and Sociedad Hidroeléctrica Ituango - and those of the 12 municipal administrations, in order to transform the area of influence of the project and improve the living conditions of its inhabitants, encouraging citizen participation and the direction of the human and natural resources of the territory towards a sustainable and competitive development that is a model of progress in Colombia.

The project’s partners committed to invest USD 100 million more in the territory, in an effort to positively transform this area of the region.

2.6.1. Institutionality line

Projects for institutional strengthening, human rights, and protective environments. A total amount of COP 14,889 million was invested in:

2.6.1.1. Institutional strengthening

Detention centers, youth detention centers, government houses, and family support units were equipped with furniture, technological devices, and vehicles for inspections.

2.6.1.2. Human rights

Education in human rights for 188 employees of the municipal administration and community leaders in the municipalities of Ituango, Toledo, Briceño, San Andrés de Cuerquia, Yarumal, Valdivia, Liborina, Peque, Sabanalarga, Santa Fe, Buriticá, and Olaya.

- Plan of comprehensive assistance to victims: 2,702 people assisted in the municipalities of Ituango, Peque, Sabanalarga, and Buriticá.
- Mine risk education: 1,553 people trained in the municipalities of Ituango, Toledo, Briceño, San Andrés de Cuerquia, Yarumal, and Valdivia.
- Rehabilitation of victims: 44 people assisted in the municipalities of Ituango, San Andrés de Cuerquia, Yarumal, and Valdivia.
- Psychosocial support to victims: 6,338 people assisted in the 12 municipalities of the area of influence.
- Assistance in cases of enforced disappearance: 220 people assisted in the municipalities of Ituango, Toledo, Briceño, San Andrés de Cuerquia, and Yarumal.
2.6.1.3. Protective environments

845 participating young people from the municipalities of Ituango, Toledo, Briceño, San Andrés de Cuerquia, Yarumal, Valdivia, Peque, and Buriticá.

2.6.2. Planning and participatory budget line

This program is a strategy aimed at strengthening governance and social inclusion through citizen participation in the construction of projects selected by popular vote. It also had a pedagogical and capacity-building component aimed at municipal delegates and citizen oversight committees. In total, 70 projects belonging to different lines, such as infrastructure, culture, and recreation, were prioritized and executed, with an investment of COP 6,270 million.

2.6.3. Connectivity line

With the execution of this line, secondary roads (162.5 km), tertiary roads (234.7 km), and bridle paths (828.98 km) were intervened in about 1,218 km. These improvements shorten distances; open the way to development, connectivity, and productivity; and benefit people reducing travel times by up to 60%. COP 56,201 million has been invested.

2.6.4. Productive projects line

With the execution of this line, production chains were established in the agricultural and forestry sectors. In addition, the company provided technical assistance, training, and support for the acquisition of supplies, tools, and equipment. 3,065 ha of land were intervened in 378 rural settlements of the 12 municipalities of the area of influence; to this end, coffee was planted to add value to special coffees; cocoa, to strengthen the cocoa chain; sugar cane, to improve and increase the production in sugar mills; avocado; among other fruits and crops. More than 3,700 people from 12 municipalities benefited from this program. The investment amounted to COP 20,035 million.

Maná: intervention of 2,300 family gardens, complemented with an education process on topics related to the production of fruits and vegetables for self-consumption, healthy diet, good food-handling practices, and proper use of water for human consumption. Moreover, 24 entrepreneurship projects with community organizations. The investment amounted to COP 4,445 million.

2.6.5. Health line

Through primary healthcare programs, 12,463 families living in distant rural settlements benefited from counseling, support, and primary health care, as well as 105 rural education centers in the area of influence.

The hospitals of the 12 municipalities of the area of influence of the project were equipped and improved in their physical infrastructure.
5,474 people have benefited from telemedicine, a strategy that improves the access to specialized health services for people located in remote, difficult-to-access areas.

COP 5,934 million has been invested in these three aspects.

2.6.6. Housing line

Through this line, the construction of 68 new houses and the improvement of 659 houses contributed to a better the quality of life for families. COP 11,268 million has been invested.

2.6.7. Education line

The purpose of this line was to integrate the student community into more favorable spaces for its learning and development, avoid desertion, and strengthen the educational processes among teachers and students. Thus seven new educational institutions were built and 71 were improved, which included the increased number of classrooms, lunchrooms, and bathrooms, among others, in the different rural settlements of the 12 municipalities in the area of influence of the project. COP 25,653 million has been invested.

2.6.8. Public utilities line

2.6.8.1. Water supply and sewerage

This includes the improvement of the water supply and sewerage systems of the 12 municipalities in the area of influence, to provide better quality of life.

This also aims at the construction of water purification plants and the improvement of deteriorated water supply and sewage networks that have met or that are required to improve the indicators of coverage and continuity of these basic public services. COP 13,050 million has been invested.

2.6.8.2. Gas

The quality of life has improved with the gas service in terms of energy savings and food cooking times, as well as with the change of other types of polluting fuels; today, more than 5,489 families benefit from this service. COP 21,437 million has been invested.
3. Contingency

3.1. What the contingency was and how it was understood

On April 28, a partial natural obstruction unintentionally occurred in the auxiliary diversion gallery (abbreviated GAD in Spanish), which caused the water to dam upstream from the dam and the flow to decrease downstream. At that moment, the dam was at an elevation of 385 MASL (meters above sea level) and, due to the winter season, the reservoir began to increase its level quickly and uncontrollably, which posed the possible risk of water overflowing above the dam. In this hypothetical scenario, the entire structure could collapse and generate a swelling downstream from the project with a peak flow estimated, at that time, at 262,000 m³/s.

The contingency chronology can be found at https://www.epm.com.co/site/home/sala-de-prensa/noticias-y-novedades/comunicado-proyecto-hidroelectrico-ituango/cronologia-de-la-contingencia

These events increased the level of risk for the populations settled on the banks of the Cauca River, downstream from the dam. The national government, represented by the National Unit for Disaster Risk Management (abbreviated UNGRD in Spanish), permanently installed the unified control post (abbreviated PMU in Spanish) since May 7, 2018, in the city of Bogotá, to monitor and support the risk situation.

From that moment, the project - with its specialists, contractors, and panel of national and international experts - began the necessary actions to regain control of the project: construction of a pressing dam filling to increase the elevation to 415 MASL (which ensured the safe use of the spillway for swellings of the Cauca River with a return period of up to 500 years); blocking of the right diversion tunnel and the auxiliary diversion system tunnel; and the urgent completion of the spillway concrete works to allow part of the reservoir water to flow through the cavern complex of the powerhouse.

The pressing dam filling was carried out as a measure to avoid the dammed water from overflowing the dam and protect all the inhabitants located downstream from the project. To build this pressing dam filling, the same materials used in its original construction were employed and, therefore, the materials were guaranteed to comply with the national and international standards in terms of impermeability, filters, and transitions for this type of works.

Considering the possibility of water overflowing the dam that was not yet finished, the project made the decision, from May 10, to use the powerhouse as a channel to discharge the reservoir water and thus reduce its increasing rate.

However, on Saturday, May 12, between 2:00 p.m. and 6:00 p.m., the right diversion tunnel was naturally unblocked, which generated a sudden flow increase of 6,000 m³/s in the Cauca River. The National System for Disaster Risk Management (abbreviated SNGRD in Spanish) was activated and the UNGRD announced the order to preventively evacuate the small town of Puerto Valdivia.

The following link shows a video of the contingency: https://www.youtube.com/watch?time_continue=156&v=B-StHv7nkQs
Since the beginning of the contingency, the project, with national and international experts, has been continuously conducting the geological monitoring using piezometers to measure the water fluid pressure, radars, inclinometers, accelerometers, topographic information, satellite monitoring, and laser beams on the tunnels to determine the stability and safety conditions of the works. Likewise, in the right abutment of the dam, in the unstable area of the mountain, there are surface control points, combined with radar, which achieve sensitivities of up to tenths of millimeters; this makes it possible to be alert of any event that deviates from the normal behavior and activate warnings in a timely and anticipated manner to protect the populations and the workers. A Technical Monitoring Center (TMC) was implemented in the project facilities for this permanent surveillance 24 hours a day, seven days a week.

**Protocols and procedures for dam failure and sudden swelling downstream from the IHP**

<table>
<thead>
<tr>
<th>Initial scenarios</th>
<th>Breakage or failure of dam 263.000 m³/s</th>
<th>Simultaneous unblocking of the diversion tunnels 16.000 m³/s</th>
<th>Unblocking of one of the diversion system tunnels 8.100 m³/s</th>
</tr>
</thead>
</table>

**Specific protocols and procedures for risk scenario**

- Closing of powerhouse gates
- Fault of the rock mass
- Temporary reduction of the Cauca River flow
- Opening of spillway gates

TMC video: [https://www.youtube.com/watch?v=GGqe37rJw80](https://www.youtube.com/watch?v=GGqe37rJw80)

Upon completion of the pressing filling up to the 410 elevation and the considerable progress in blocking the tunnels over which there is no operational control, the execution of the following activities continues: increase the pressing filling up to the 418 elevation; build a plastic concrete shield from the 380 to the 418 elevation, which seeks to ensure the impermeability of the dam; finish the dam fillings to strengthen the structural performance of the dam on its side facing downstream; complete the construction of the intermediate discharge tunnel; and close the gates of the powerhouse of the project.
On June 11, the construction of the spillway with its entire infrastructure associated with the mechanical and hydraulic operation of its gates was completed. At that time, the dam approached 415 MASL, which allows the water to be evacuated through the spillway in a controlled and safe way for flows of the Cauca River with return periods of up to 500 years. On Sunday, June 17, the dam reached an elevation of 415 MASL, thus reducing significantly the risks associated with flooding by swellings of the river.

This link shows a video of how the spillway works:
https://www.youtube.com/watch?time_continue=33&v=VDFI2ZkzI2eY

On June 28, EPM was notified by the National Environmental Licensing Authority (abbreviated ANLA in Spanish) about a preventive measure for the “immediate suspension of all regular activities related to the construction, filling, and operation of the reservoir, which are part of the activities that are carried out within the execution of the project...” This preventive measure does not involve stopping the execution of the measures of the follow-up and monitoring plan or the dismantling activities that are necessary to overcome the risk. Likewise, the preventive measure imposed does not involve the cancellation of activities, works, duties, and, in general, all the environmental measures and the engineering and civil works that must be executed in order to prevent and mitigate the risks associated with the contingency presented.

3.1.1. Physical-biotic component

Activities to chase away and rescue fauna began during the forest harvesting of the reservoir vessel; they lasted throughout the year, in order to attend to possible events affecting fauna individuals as a result of the increase in water levels in the reservoir.

The activities to chase fauna away, before the filling of the reservoir, were carried out by a group of biologists and assistants. Sound and visual methods were used, as well as guidance of individuals and disabling of nests and burrows.

Wild fauna rescue is carried out through manual search and capture of individuals with reduced mobility, trapped, and at risk in tree canopies or floating waste, mainly.

In order to care for the individuals that were affected, wild fauna primary care centers were available in each of the work fronts throughout the intervention area.
For a more specialized and longer stay, the project built and is operating a Wild Fauna Care and Assessment Center (CAC) that follows the guidelines proposed by the Ministry of Environment in Ruling 2064 of 2010.

The CAC has a total occupation area of 3,000 m², where cages and huts are located for fauna attention and handling; it has a main building of 72.5 m² including offices and areas of biological management of organisms. Specialized personnel attends to wild fauna; they are two veterinary physicians, one zootechnician, one biologist, two veterinary assistants, and two operators; moreover, an environmental educator is responsible for training the community and raising its awareness.

In response to the contingency, a special response plan focused on the management of wildlife was activated; it specifically considered the gradual entry of aquatic and terrestrial rescue brigades and the start-up of mobile wild fauna care centers, as the level of the reservoir increased. Currently, tours are conducted to rescue wild fauna in water and to inspect critical points where there is fauna on land (river access road). During the days of rescue on land and in water, the manual rescue of fauna is initially implemented, assisted on some occasions by tools for the safety of personnel and animals. Fauna management tasks have focused on the rescue of animals with potential risk for drowning, especially in sectors with accumulation of floating material, islands, isolated trees, among others, prioritizing animals with low mobility (such as sloths). The height of the water column remains stable and, therefore, the number of individuals rescued has decreased considerably.
As of December 31, 2018, a total of 60,605 individuals were rescued, of which 60,444 were resettled without treatment and 87 received veterinary medical attention.

Rescue of nests

Search and rescue of fauna during the filling of the reservoir

Resettlement and treatment of fauna after the rescue
## Search of fauna on the floating material

The following is a summary of this activity during the contingency attention as of December 31, 2018.

### Terrestrial fauna

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals rescued</td>
<td>60,195</td>
</tr>
<tr>
<td>Individuals resettled without treatment</td>
<td>60,028</td>
</tr>
<tr>
<td>Individuals treated</td>
<td>89</td>
</tr>
<tr>
<td>Individuals resettled after treatment</td>
<td>27</td>
</tr>
<tr>
<td>Individuals currently at CAC of IHP</td>
<td>17</td>
</tr>
<tr>
<td>Individuals dead</td>
<td>51</td>
</tr>
</tbody>
</table>

### Individuals per group

<table>
<thead>
<tr>
<th>Group</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td>62</td>
</tr>
<tr>
<td>Mammals</td>
<td>442</td>
</tr>
<tr>
<td>Reptiles</td>
<td>49,536</td>
</tr>
<tr>
<td>Amphibians</td>
<td>10,155</td>
</tr>
</tbody>
</table>

### Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals resettled / Individuals rescued * 100</td>
<td>99.77%</td>
</tr>
<tr>
<td>Individuals treated / Individuals rescued * 100</td>
<td>0.15%</td>
</tr>
<tr>
<td>Number of individuals of each group / Total number of individuals * 100</td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td>0.10%</td>
</tr>
<tr>
<td>Mammals</td>
<td>0.73%</td>
</tr>
<tr>
<td>Reptiles</td>
<td>82.29%</td>
</tr>
<tr>
<td>Amphibians</td>
<td>16.87%</td>
</tr>
</tbody>
</table>
Likewise, with the reduction of the river flow downstream from the dam, the fish fauna rescue plan was implemented, which consists of tours to look for possible pools of water where fish are trapped, rescue them, and take them to safe places.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals rescued</td>
<td>2,706</td>
</tr>
<tr>
<td>Individuals dead</td>
<td>1,002</td>
</tr>
<tr>
<td>Individuals resettled</td>
<td>1,704</td>
</tr>
<tr>
<td>individuals resettled / Individuals rescued * 100</td>
<td>62.97%</td>
</tr>
</tbody>
</table>

The implementation of the subprogram for the management of macrophytes and floating waste was initiated early as a result of the contingency; it involved the confinement of waste in the reservoir, its dragging and extraction in some areas arranged and conditioned for this purpose, and, subsequently, its transport to several temporary or permanent collection sites.

The floating material extraction involved the arrangement of four transitory extraction ports and five temporary collection yards, where the floating waste was classified for its subsequent final disposal.
From May, the following waste was extracted from the reservoir.

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Amount extracted from the reservoir (kg)</th>
<th>Final disposal (kg)</th>
<th>Reclamation (kg)</th>
<th>Storage (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>133,660,114</td>
<td>3,587.19</td>
<td>133,656,526.81</td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td>13,378</td>
<td>5,458.00</td>
<td>7,920.43</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>349</td>
<td>197.00</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>Ferrous scrap metal</td>
<td>74</td>
<td></td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>Ordinary and inert</td>
<td>8,126</td>
<td>7,010.00</td>
<td>1,115.80</td>
<td></td>
</tr>
<tr>
<td>Waste containers with remains of hazardous substances</td>
<td>6,039</td>
<td>4,685.00</td>
<td>1,354</td>
<td></td>
</tr>
</tbody>
</table>

Moreover, as a result of the contingency, specifically the anticipated damming up of water of the Cauca River, the ANLA issued 13 administrative acts with new environmental quality monitoring obligations:

- Monitoring of 13 physicochemical parameters every day and of three hydrobiological parameters every three days, at three points downstream from the dam.
- Monitoring of ten physicochemical parameters and three hydrobiological parameters along the river bed in case of sudden flow changes.
- Weekly results of the daily samplings, documentary evidences of the physicochemical and hydrobiological monitoring, and monthly report and analysis of the laboratory results of the previous month.
Likewise, when the river level increased and the reservoir formed, instability and erosion on slopes and banks started to be periodically monitored.

3.1.2. Social component and contingency plan

As a consequence of the events triggered by the contingency of the project, the riverine populations of the Cauca River were at risk and those on a red warning received an order for preventive evacuation, in accordance with Circular Letters 034, 035, and 042 issued by the Ministry of Mines and Energy, the Ministry of Environment and Sustainable Development, the UNGRD, and the Institute of Hydrology.

In a prompt and timely manner, EPM responded to all the needs of the communities that are within its scope and possibilities, as well as to those affected by the event on May 12. The Ituango project had, since 2009, a Contingency Plan and a Response Plan that was adjusted and updated based on recent requirements and events. Furthermore, Grupo EPM has a Protocol for Addressing Events and Crises (PADEC) that was activated from the beginning of the contingency and has coordinated the attention to it with the necessary economic resources.

The emergency on May 12 affected 73 people, impacted 162, and caused damages on the commerce.
### Humanitarian help

The following table shows the accumulated figures for the aid granted as of November 20 in each of the municipalities, according to the report 194 by the PMU of Ituango:

<table>
<thead>
<tr>
<th>Item (people)</th>
<th>Valdivia</th>
<th>Tarazá</th>
<th>Cáceres</th>
<th>Caucasia</th>
<th>Nechí</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning kit</td>
<td>11,036</td>
<td>3,909</td>
<td>448</td>
<td>0</td>
<td>0</td>
<td>15,393</td>
</tr>
<tr>
<td>Food kit</td>
<td>11,366</td>
<td>6,725</td>
<td>800</td>
<td>461</td>
<td>400</td>
<td>19,752</td>
</tr>
<tr>
<td>Cooking kit</td>
<td>2,700</td>
<td>23</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,723</td>
</tr>
<tr>
<td>Mats</td>
<td>5,451</td>
<td>3,809</td>
<td>2,605</td>
<td>0</td>
<td>0</td>
<td>11,865</td>
</tr>
<tr>
<td>Bed sheets</td>
<td>10,260</td>
<td>2,607</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>12,873</td>
</tr>
<tr>
<td>Blankets</td>
<td>5,153</td>
<td>4,306</td>
<td>2,558</td>
<td>0</td>
<td>0</td>
<td>12,017</td>
</tr>
<tr>
<td>Tents</td>
<td>1,550</td>
<td>2,640</td>
<td>1,031</td>
<td>0</td>
<td>4,500</td>
<td>9,721</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>84,344</strong></td>
</tr>
</tbody>
</table>

*The people are self-sheltered.*

This link shows a video of the shelter in Sevilla:
https://www.youtube.com/watch?v=1CpOgCoU_uk

The implementation of the protocol for the return of the population evacuated in the municipality of Valdivia began on October 5; when this report was prepared, 883 families had returned.

The management to address the effects that took place downstream from the dam is presented below.
In addition, 112,919 snacks were delivered in the different shelters built in the municipalities of Valdivia and Tarazá; 5,312 sets of groceries, in the municipalities of Tarazá and Cáceres; and 5,000 sets of provisions and 2,500 seedlings, in Caucasia.

During the implementation of the protocol started on October 5, 2018, for the return of the population evacuated in the municipality of Valdivia, 645 sets of groceries were delivered.

3.1.2.2. Water and sanitation

In order to maintain the water supply for the populations evacuated and sheltered, as of November 25, 2018, EPM provided the following in the municipalities of Valdivia, Tarazá, and Cáceres:

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Liters of water provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valdivia</td>
<td>1,672,800</td>
</tr>
<tr>
<td>Tarazá</td>
<td>1,101,400</td>
</tr>
<tr>
<td>Cáceres</td>
<td>788,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,562,600</strong></td>
</tr>
</tbody>
</table>

Likewise, portable toilets and showers were made available in the temporary shelters:

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Amount of portable toilets</th>
<th>Amount of portable showers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valdivia</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>Tarazá</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Cáceres</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>

3.1.2.3. Electrification

Direct activities were conducted by EPM to install and repair spotlights and streetlights:

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Installation</th>
<th>Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valdivia</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td>Tarazá</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Cáceres</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Nechí</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>
3.1.2.4. Mobility plan

To mitigate the impacts generated to the community of the municipality of Ituango by the early loss of the Pescaderos bridge, a comprehensive mobility plan was implemented from April 29, 2018, initially with land transportation in caravans through the works of the project, from 4:00 a.m. until 10:00 p.m., every two hours and in both directions, for private vehicles and cargo trucks.

As a complement to the land mobility plan, since May 27, river transportation has been established and scheduled with passenger transfers by boats; meanwhile, on June 15, the first of the two ferries available to transport the community through the project started to operate.

With these measures, it has been possible to give way mainly to emergency vehicles, public transport buses, and motorcycles. To date, and according to guidelines of the Ministry of Transport, the transportation on the river takes place from 6:00 a.m. to 6:00 p.m., every hour and alternately in each direction.

The following table shows the figures of mobility for the municipality of Ituango:

<table>
<thead>
<tr>
<th>Type of mobility</th>
<th>Vehicles</th>
<th>Public transportation</th>
<th>Special vehicles</th>
<th>Motorcycles</th>
<th>Three-wheeled motorcycles</th>
<th>People</th>
<th>Animals</th>
<th>Cargo trucks*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>10,827</td>
<td>1,764</td>
<td>469</td>
<td>3,222</td>
<td>155</td>
<td>62,646</td>
<td>7,470</td>
<td>3,276</td>
</tr>
<tr>
<td>Boats</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>29,476</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Ferry</td>
<td>825</td>
<td>2,350</td>
<td>84</td>
<td>15,616</td>
<td>N.A.</td>
<td>67,768</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Total</td>
<td>11,652</td>
<td>4,114</td>
<td>553</td>
<td>18,838</td>
<td>155</td>
<td>159,890</td>
<td>7,470</td>
<td>3,276</td>
</tr>
</tbody>
</table>

* Cargo trucks began to be counted separately from the "vehicles" item since 09/12/2018.

In the same way, to mitigate the flooding of the pedestrian and mule bridge of the Bocas de Niquía area (between Sabanalarga and Peque), there is also a river mobility plan that became operational from May 10, due to the impact on the roads and the Buenavista bridge that connected rural settlements of the three municipalities. This plan was part of the connectivity restitution included in the Environmental Management Plan, but it was planned to start after the scheduled filling of the reservoir; however, as a response to the contingency, the operation of boats in this area was moved forward. To date, three vessels are active: one 16-passenger boat and two ferries with the capacity to transport 32 livestock animals with their cargo and 40 people.
The following links show videos of the La Tranquilidad ferry:
https://www.youtube.com/watch?v=Mkz5JFoGzrQ
https://www.youtube.com/watch?v=bZ_yfDibuQ

3.1.2.5. Psychosocial support

This support is coordination from the PMU for the activation of the institutions responsible for psychosocial activities. As part of an agreement with the Ituango project, the Colombian Family Welfare Institute (abbreviated ICBF in Spanish) and Universidad de Antioquia have provided comprehensive and uninterrupted service to children and adolescents through mobile units, with psychosocial support, assistance, nutritional assessment, and preferential attention to early childhood through six active care lines:
During the implementation of the protocol started on October 5, 2018, for the return of the population evacuated in the municipality of Valdivia, all the families returning to their homes received psychosocial support. Until December 25, the “psychosocial family form” was applied to 590 families; this tool diagnoses the situation of the population that may or may not return and favors the:

- Identification of needs of the population in terms of mental health.
- Definition of strategies regarding living means (productive projects).
- Strengthening of education in relation to disaster risk management.

### 3.1.2.6. Economic support

As part of the EPM-FNGRD/UNGRD agreement that aims to “bring together technical, operational, logistical, administrative, and financial efforts to carry out the relevant and necessary actions to provide assistance to the people evacuated in the area of influence of the Ituango hydroelectric project,” the Declaration of Public Calamity (Decree 039 of May 14, 2018, issued by the Municipality of Valdivia, and the Declaration of Public Calamity of the department of Antioquia (Decree 2018070001272 of May 14, 2018), EPM implemented the line of economic support for families evacuated from the high-risk area. This support is delivered to the population evacuated that inhabited the area with an evacuation order in the municipality of Valdivia.

The purpose of this attention line is to provide each household evacuated from the municipality of Valdivia and that is in provisional shelters with a temporary financial support that can cover the costs of renting, food, transportation, and others that are necessary for the household subsistence.

The amount of the financial support is:

1. COP 1,100,000 for households made up of five people or less.
2. COP 1,200,000 for households made up of six people or more.
3. COP 2,000,000 for households that were in provisional shelters and, according to the return strategy, can go back to their homes.

The following payments have been made as of December 25:
Number of payment | Evacuated on May 16 | Affected on May 12 | Temporary payments to non-returning households | Temporary payments to returning households | Monthly subtotal
--- | --- | --- | --- | --- | ---
1 | 2,035 | 231 | 3 | 173 | 2,442
2 | 1,977 | 229 | 37 | 2,243
3 | 1,928 | 229 | | | 2,157
4 | 1,829 | 227 | | | 2,056
5 | 1,487 | 219 | | | 1,706
6 | 1,148 | 207 | | | 1,355
7 | 268 | 211 | | | 479
8 | | 154 | | | 154

|  | Total payments | 12,592 |
--- | --- | ---

During the implementation of the protocol for the return of the evacuated population from Valdivia that was in temporary shelters, economic support amounting to COP 2,000,000 is given only once to 110 families when they inhabit their homes again.

### 3.1.2.7. Early warning system (EWS)

The early warning systems (EWSs) provide a warning of events by means of sound devices, usually of continuous tones, but also electronic or mechanical sirens that can be activated remotely or send voice messages. These systems are very important in the knowledge of and preparation for the risk, since they favor the identification and warning of an event in advance to have the opportunity of an anticipated reaction to it.

The following is the inventory of the installation of sirens-alarms and repositioning of radios and megaphones, determination of meeting points, and evacuation routes:

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Number of current EWSs</th>
<th>Number of planned EWSs (SIATA)</th>
<th>Meeting points</th>
<th>Evacuation routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valdivia</td>
<td>21</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Tarazá | 7 | 6 | 15 | 18
| Cáceres | 8 | 8 | 15 | 13
| Caucasia | 7 | 8 | 10 | 14
| Nechí | 7 | 7 | 7 | 6
| Ituango | 6 | - | 9 | 8
| **Total** | **56** | **57** | **56** | **59** |
Furthermore, to have a redundant system, with the support of the Early Warning System of Medellín and Valle de Aburrá (abbreviated SIATA in Spanish), progress is made in the installation of an autonomous EWS consisting of a series of instruments that can activate evacuation sirens and make megaphone announcements to guide the community in the municipalities of Valdivia, Tarazá, Cáceres, Caucasia, and Nechí. This device would be activated from a monitoring center located in the facilities of the Ituango hydroelectric project.

Besides the installation of the EWSs, EPM has completed in each municipality the methodological route proposed since 2017, which consists of workshops on disaster risk management addressed to families and the community, training of community leaders in evacuation processes, delivery of kits, evacuation drills, and joint identification of evacuation routes and meeting points. These activities are complemented by the work and workshops on disaster risk management performed with the municipal councils in the municipalities of Valdivia, Cáceres, Tarazá, Caucasia, and Nechí.

The following is the current progress in compliance with Circular Letter 041 of June 7, 2018, issued by the UNGRD:

- 131,251 people prepared in the event of an emergency.
- 29 evacuation drills with 21,210 participants.
- 200 workshops with the participation of 7,045 people.
- 100% update of the municipal risk management plans for the municipalities of Valdivia, Cáceres, Tarazá, Caucasia, and Nechí.
- 100% update of the municipal strategies for the response to emergencies for the municipalities of Valdivia, Cáceres, Tarazá, Caucasia, and Nechí.

3.1.2.8. Electrical energy recognition

For the months of June, July, and August, the evacuated families (from Puerto Valdivia, Tarazá, and Cáceres) have been granted an electrical energy recognition amounting to COP 658,336,969.

3.1.3. Attention to families affected during the emergency on May 12 in Valdivia

3.1.3.1. Families damnified

For the 73 families damnified by the emergency on May 12, the following intervention measures are available:

Option 1:

- Restitution of the house, restitution of the economic base.
- Payment of movable property and equipment according to inventory.
- Provision of clothing and payment of public utilities.
- Payment of rents until the move.
Option 2:

- Payment of the house according to respective appraisal.
- Loss of profits due to economic activity and moral damage.
- Payment of movable property and equipment according to inventory and provision of clothing kit.
- Payment of public utilities and rents until disbursement of resources.

Of the 73 families damaged, progress was made in the process of information and consultation with 66 families through individual family assemblies.

Each family was informed about the methodology for the management of the affected population. Likewise, a detailed verification in terms of breakdowns in homes and equipment and impact on the economic activity was conducted with the households characterized to determine the degree of damage caused. This characterization was obtained with the following information:

- Unified Registry of Affected People and photographic registry.
- Determination of traceability with the existing information of families.
- Family interview to validate the information (including economic activity and characteristics of the house).
- Vulnerability form.
- Appraisals (housing, equipment, clothing, etc.).
- Determination of impact on economic activities by obtaining information and then conducting verification.
- Preparation of summary document of the family conditions.

Of the total of 66 families visited, once the information and consultation process was completed, the trend of intervention measure defined voluntarily by the family was identified, as well as the type of productive projects and the municipalities where the families want to implement them:

<table>
<thead>
<tr>
<th>Type of intervention measure</th>
<th>Number of families</th>
<th>Trend of productive projects</th>
<th>Number of families</th>
<th>Municipality of implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>34</td>
<td>Agriculture and livestock</td>
<td>16</td>
<td>Valdivia, Yarumal, Santa Rosa de Osos, Don Matías, Caucasia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real estate</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commerce and services</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transport</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type 2</td>
<td>8</td>
<td>Real estate</td>
<td>8</td>
<td>Medellín, Valdivia, Yarumal</td>
</tr>
<tr>
<td>Tenants and bailees</td>
<td>12*</td>
<td>N/A</td>
<td>12</td>
<td>Valdivia, Yarumal, Ciudad Bolivar</td>
</tr>
<tr>
<td>Payment for improvements</td>
<td>12</td>
<td>N/A</td>
<td>12</td>
<td>Valdivia</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>66</strong></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Families that lived in houses rented; the intervention measure for tenants and tenants applies for them.
3.1.3.2. Families affected

For the 162 families affected by the emergency on May 12, the following intervention measures are available:

**With each one of the families:**

- Agreement between the family and the official.
- The total value plus 10% of the administration (social security and others).

**Social procurement through the community action board - Contract with the community action board**

- The total value plus 25% of the administration and profits.

Of the 162 families affected, progress was made in the process of verification of information with 26 families through individual visits.

Each family was informed about the methodology for the management of the affected population, during the contingency and emergency in the municipality of Valdivia. Information was also provided to each family characterized as affected, as self-sheltered in a safe place and whose inhabited house suffered partial losses, as well as its furniture, equipment, and clothing, according to the Unified Registry of Affected People.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of families verified</th>
</tr>
</thead>
<tbody>
<tr>
<td>La Arrocera</td>
<td>12</td>
</tr>
<tr>
<td>La Iglesia</td>
<td>10</td>
</tr>
<tr>
<td>La Platanera</td>
<td>1</td>
</tr>
<tr>
<td>Remolinos</td>
<td>2</td>
</tr>
<tr>
<td>Tapias</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

3.1.3.3. Discussion

The progress made in the attention to the affected families has been discussed with the municipality of Valdivia, administrated by the municipal mayor and his secretaries of office, and with the community leaders of the small town of Puerto Valdivia.
3.1.3.4. Commerce

For informal traders and those formal traders who cannot prove income from their economic activity, there is a manual for the application of the methodology of assessment, compensation, and comprehensive compensation for the population impacted by the development of projects, works, or activities for the provision of public services by EPM. The manual establishes the compensation for financial loss due to cessation of economic activities, exceeding three months, with a one-time recognition equivalent to one monthly minimum wage for six months.

For the formal sector, the assessment is carried out according to the methodology implemented by EPM.

An investment of COP 6,000 million is projected in the implementation of this measure.

3.1.4. Installed capacity

In the municipalities where there were warnings by the UNGRD, the following installed capacity is used for emergency assistance:
### 3.1.4.1. Previous positioning

<table>
<thead>
<tr>
<th>Description</th>
<th>Valdivia</th>
<th>Tarazá</th>
<th>Cáceres</th>
<th>Caucasia</th>
<th>Nechí</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mats</td>
<td>5,449</td>
<td>5,200</td>
<td>3,395</td>
<td>3,733</td>
<td>3,911</td>
</tr>
<tr>
<td>Bed sheets</td>
<td>6,240</td>
<td>9,500</td>
<td>3,594</td>
<td>4,200</td>
<td>3,000</td>
</tr>
<tr>
<td>Blankets</td>
<td>14,284</td>
<td>3,600</td>
<td>5,442</td>
<td>3,200</td>
<td>2,000</td>
</tr>
<tr>
<td>Pillows</td>
<td>0</td>
<td>0</td>
<td>3,594</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Camp portions</td>
<td>4,000</td>
<td>4,300</td>
<td>4,000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tents</td>
<td>4,080</td>
<td>1,840</td>
<td>0</td>
<td>4,468</td>
<td></td>
</tr>
<tr>
<td>Cleaning kit</td>
<td>1,066</td>
<td>4,200</td>
<td>2,479</td>
<td>891</td>
<td>1,690</td>
</tr>
<tr>
<td>Food kit</td>
<td>1,724</td>
<td>0</td>
<td>1,600</td>
<td>2,900</td>
<td>2,900</td>
</tr>
<tr>
<td>Snacks</td>
<td>245</td>
<td>245</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Shelters</td>
<td>Sevilla mega-shelter</td>
<td>El Doce mega-shelter</td>
<td>El Guarumo shelter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.1.4.2. Preparation in the face of the emergency

<table>
<thead>
<tr>
<th>Description</th>
<th>Valdivia</th>
<th>Valdivia</th>
<th>Cáceres</th>
<th>Caucasia</th>
<th>Nechí</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of meeting points</td>
<td>19</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>7</td>
</tr>
<tr>
<td>Amount of evacuation routes</td>
<td>153</td>
<td>153</td>
<td>13</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Amount of drills</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>28</td>
<td>13</td>
</tr>
<tr>
<td>Community EWSs</td>
<td>13</td>
<td>13</td>
<td>2</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Emergency kit</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Hospital tent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Disaster risk management plan and municipal strategies for the response to emergencies updated as of:</td>
<td>21/06/2018</td>
<td>21/06/2018</td>
<td>30/05/2018</td>
<td>30/06/2018</td>
<td>Updated</td>
</tr>
</tbody>
</table>
15 municipalities

**Municipal Council for Disaster Risk Management**
- Workshops: 56
- Workshop participants: 860
- Drills: 5
- Drill participants: 1,788

6 municipalities

**Community**
- Workshops: 336
- Workshop participants: 12,513
- Drills: 101
- Drill participants: 6,269
- Emergency kits: 91
- Evacuation leaders: 442
- Meeting points identified: 79
- EWSs installed: 40

Source: CRCSA. As of: 12/03/2018.

3.1.4.3. Internal chain of calls

It is implemented in all the municipalities and has the participation of the chairman of the Municipal Council for Disaster Risk Management (abbreviated CMGRD in Spanish) and a Protocol for Addressing Events and Crises (PADEC) leader of EPM.

**Technical Monitoring Center / CCC**

- Crisis room
- PMU Hidroituango
- PADEC activation

Flow of the contingency plan

- Chairman of the CMGRD
- PADEC leader in the municipality
3.1.5. Grievance procedure

Since 2009, the project has a grievance mechanism. As of 2015, it was updated to include issues related to human rights. This mechanism serves the population of the 12 municipalities of influence through the community service offices of EPM and other means such as email, EPM’s building service offices in Medellín, and rural tours by field professionals.

This mechanism groups the following seven service lines:

- Inclusion in the census.
- Agreement and negotiation.
- Negative impact on infrastructure and labor claims.
- Environmental and sociocultural impacts.
- Relationship of employees and contractors with stakeholders.
- Public safety, private safety, and international humanitarian law.
- Sustainable territories.

Due to the contingency of the project, a new service line was created called “Compensation complaints - Ituango project contingency.” As of December 31, 2018, a total of 1,507 letters were received from the community: 1,152 complaints and claims and 357 requests for information regarding the contingency.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Status</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letters</td>
<td>Attended to</td>
<td>12,212</td>
<td>12,496</td>
<td>865</td>
<td>548</td>
<td>828</td>
</tr>
<tr>
<td></td>
<td>Solved</td>
<td>12,212</td>
<td>12,496</td>
<td>865</td>
<td>548</td>
<td>828</td>
</tr>
<tr>
<td>Rights to petition</td>
<td>Attended to</td>
<td>1,214</td>
<td>442</td>
<td>2,874</td>
<td>948</td>
<td>679</td>
</tr>
<tr>
<td></td>
<td>Solved</td>
<td>1,214</td>
<td>280</td>
<td>2,874</td>
<td>948</td>
<td>679</td>
</tr>
<tr>
<td>Writs for protection of</td>
<td>Attended to</td>
<td>8</td>
<td>11</td>
<td>8</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>constitutional rights</td>
<td>Solved</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Lawsuits addressed</td>
<td>Attended to</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Solved</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>31</td>
<td>0</td>
</tr>
</tbody>
</table>
3.1.6. Implementation of the contingency plan

From the moment of the contingency, the action protocols previously defined with the Red Cross were activated and the company started a joint work with the UNGRD, the Dapard, and the CMGRDs. On May 12, during the evacuation ordered by the UNGRD, the Red Cross activated the call tree and sent bulk text messages to the community leaders and CMGRDs, who, following the instructions given in previous drills, moved to the meeting places defined by the Red Cross based on information of the flood patch for the most critical scenario (320,000 m³/s) established by the consulting firm (Integral).

The activities focused on three components:

1. Update of the contingency plan and formulation of the disaster risk management plan, pursuant to the provisions of Decree 2157 of 2017, and in accordance with the requirements of the ANLA; identification of new risk scenarios in coordination with the EPM’s Risk Department and Integral (the documents Response plan for downstream areas due to eventual failure of the dam and extreme discharge flow of the reservoir of the Ituango hydroelectric project were prepared at this stage); Emergency Action Plan (EAP) and EAP maps of Puerto Valdivia, Cáceres, Tarazá, Caucasia, and Nechí.

2. Risk reduction and setting-up: As part of this component, the company participated in the PMU meetings that were initially held 2 times a day, then every day, and, finally, every week. It also worked in coordination with the PADECs, increased the early warning systems in Puerto Valdivia, and installed others in Cáceres, Tarazá, Caucasia, and Nechí. In addition, the CMGRDs of all the downstream municipalities to Nechí were informed on the new risk scenarios of the project.

The requirement of the UNGRD to cover the risk management topics and communicate the new risk scenarios (flood patches of 8,100 m³/s, 16,000 m³/s, and 263,000 m³/s modeled by the IDEAM, Integral, and EPM) was fulfilled in the departments and municipalities of Sucre, Córdoba, and Bolívar, which were included in the yellow warning through Circular letter 034 of May 2018 and Circular letter 042 of June 2018.

Technical and social staff were sent to the municipalities and villages of Valdivia (Puerto Valdivia), Cáceres, Tarazá, Caucasia, and Nechí. The processes for training and strengthening the communities and CMGRDs were also reinforced.

The permanent availability of basic and medicalized ambulance service in works and offices of the project was guaranteed. Likewise, a basic ambulance was sent to Puerto Valdivia to provide health care services and give support after the contingency.
3. Response to injunctions by regulatory agencies; rights to petition; and other requests, claims, and complaints: The contingency has caused an increase in requests for information and claims that have been managed with the support of the Red Cross team. They are received from diverse instances: UNGRD, ANLA, Office of the Inspector General, Office of the Public Defender, Office of the Comptroller General, Dapard, municipalities, downstream community, among others.

On December 28, the updated version of the Disaster Risk Management Plan was submitted to the ANLA, with copies to the UNGRD and the Dapard. On December 4, the project's Emergencies and Contingencies Plan was presented in the PMU, including the new risk scenarios.

During the implementation of the contingency plan, its scope was extended to four departments: Antioquia, Córdoba, Sucre, and Bolívar. In the case of Antioquia, activities are being conducted in Valdivia (Puerto Valdivia), Tarazá, Cáceres, Caucasia, and Nechí, with the participation of the communities from 106 urban and rural sectors of the department. In Córdoba, activities are carried out along with the CDGRD and with the Ayapel’s CMGRD. In Bolívar, meetings were conducted with the CDGRD, as well as information sessions on risks in the municipalities of San Jacinto del Cauca, Nechí, and Magangué. In Sucre, meetings were held with the CDGRD and activities were performed with the CMGRDs of Guaranda, San Benito Abad, San Marcos, Caimito, Majagua, and Sucre.

EPM invited all the representatives of the CDGRDs, CMGRDs, and emergency response institutions from Antioquia, Córdoba, Bolívar, and Sucre to get to know the reality of the project; the progress in the construction of the dam and plastic shield and in the completion and operation of the spillway; as well as the current risks of the project.

Between February 2017 and November 2018, 53 workshops were conducted with the CMGRDs of 15 municipalities, which counted on the participation of 823 people; besides 5 drills with 1,178 people. With the communities of Ituango, Valdivia, Tarazá, Cáceres, Caucasia, and Nechí, 309 workshops on risk management and preparation for emergencies were held with an attendance of 11,251 people; 91 emergency kits were delivered; 442 evacuation leaders were trained; 101 drills were carried out with the participation of 6,269 people; 79 meeting points were established; and 38 early warning systems were installed by the Red Cross, which are linked to the project's TMC.
Activities performed as part of the implementation of the contingency plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Progress as of December 28, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early warnings installed by the Red Cross</td>
<td>15</td>
</tr>
<tr>
<td>Drills conducted with the downstream communities</td>
<td>102</td>
</tr>
<tr>
<td>Preparation workshops conducted downstream</td>
<td>363</td>
</tr>
<tr>
<td>Preparation workshops conducted upstream</td>
<td>4</td>
</tr>
<tr>
<td>People prepared for the response downstream</td>
<td>13,904</td>
</tr>
<tr>
<td>People prepared for the response upstream</td>
<td>106</td>
</tr>
<tr>
<td>APDD (% of progress)</td>
<td>81%</td>
</tr>
<tr>
<td>Endowment kits for communities</td>
<td>91</td>
</tr>
<tr>
<td>Workshops and drills by CMGRDs and CDGRDs downstream</td>
<td>53</td>
</tr>
<tr>
<td>Workshops and drills by CMGRDs upstream</td>
<td>9</td>
</tr>
<tr>
<td>Drill by CMGRDs downstream</td>
<td>5</td>
</tr>
<tr>
<td>Patients attended to in MAT and BAT</td>
<td>761</td>
</tr>
</tbody>
</table>

Early warning systems installed

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Location</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasia</td>
<td>Pueblo Nuevo neighborhood</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Caucasia’s urban area</td>
<td>1</td>
</tr>
<tr>
<td>Ituango</td>
<td>Puerto Valdivia-Dam road</td>
<td>7</td>
</tr>
<tr>
<td>Nechí</td>
<td>La Lucha neighborhood</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>La Palma neighborhood</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>San Nicolás neighborhood</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Caño Pescado</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Colorado</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Correntoso</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Las Flores</td>
<td>1</td>
</tr>
<tr>
<td>Tarazá</td>
<td>El Doce - Km 6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>El Doce - Puqui</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>18</strong></td>
</tr>
<tr>
<td>Municipality</td>
<td>CMGRD workshops</td>
<td>Workshops with the community</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
<td>No. of attendees</td>
<td>No. of workshops</td>
</tr>
<tr>
<td>Cartagena</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Montería</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Sincelejo</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Cáceres</td>
<td>41</td>
<td>78</td>
</tr>
<tr>
<td>Caucasia</td>
<td>44</td>
<td>111</td>
</tr>
<tr>
<td>Nechí</td>
<td>71</td>
<td>39</td>
</tr>
<tr>
<td>Tarazá</td>
<td>71</td>
<td>81</td>
</tr>
<tr>
<td>Valdivia</td>
<td>63</td>
<td>55</td>
</tr>
<tr>
<td>Achi</td>
<td>65</td>
<td>0</td>
</tr>
<tr>
<td>Ayapel</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>Caimito</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Guaranda</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>Magangué</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Majagual</td>
<td>63</td>
<td>0</td>
</tr>
<tr>
<td>San Benito Abad</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>San Jacinto del Cauca</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>San Marcos</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Sucre</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>Ituango</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Briceño</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Buritica</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ituango</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Liborina</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Olaya</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sabanalarga</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>San Andrés de Cuerquia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Santa Fe de Antioquia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Toledo</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>832</strong></td>
<td><strong>373</strong></td>
</tr>
</tbody>
</table>
4. Project recovery plan

4.1. Technical component

In response to the contingency, EPM deployed all its technical, logistical, and managerial capacity to safeguard, in the first place, the life and assets of all the communities that were affected, in one way or another, by this situation. In the second place, the efforts were aimed at guaranteeing the continuity of the works to reduce the level of risk, allowing the project to be completed in the future.

This is how, in communication and permanent coordination with the UNGRD, the Dapard, the ANLA, the Ministry of Housing and Territorial Development, the Ministry of Mines and Energy, the National Police, the National Army, and all the other government entities, EPM continued to provide permanent assistance to the affected communities and, at the same time, execute the works that are part of the contingency plan, namely:

- Excavation and construction of the main shield above the pressing dam fillings between elevations 380 and 435 MASL.
- Perforations and injections for the conformation of the pre-plug 1 in the right diversion tunnel.
- Construction of the gallery for the conformation of the pre-plug 2 in the right diversion tunnel.
- Construction of a gallery that connects with the G3 gallery, for the construction of the final plug in the right diversion tunnel.
- Excavation and handling of the slope of the upper part of the floodgates area.
- Repair and commissioning of the two gates located in the gate chamber of the auxiliary diversion gallery.
- Final treatments and reinforcement of the intermediate discharge tunnel in the floodgate area and upstream and downstream from it.
- Injections for treatments in the abutments of the dam.
- Completion of civil works in the floodgate wells and in the headraces.
- Works for the recovery of the tunnel to access the powerhouse and the ventilation and evacuation galleries.
- Civil works of the road tunnel in the km 12, located on the right bank of the dam, on the El Valle-Ituango substitute road.
All EPM’s efforts are currently focused on defining the date to start the process for progressively closing the passage of water from the reservoir through the powerhouse; an activity that depends, among other things, on the verification of the optimal operation of the intake gates, the spillway, the pressing dam filling, and the bentonite shield; the geotechnical behavior of the caverns due to the fluctuation of the reservoir; the effectiveness of the civil works to construct the pre-plug 1 of the right diversion tunnel; and the progress in the repair works of the closing gates installed in the gate chamber of the auxiliary diversion gallery. Although these works and mechanical components have operated properly during the second period of high flow of the Cauca River, the date to start the closing process has to be defined jointly with the ANLA, in such a way that the provisions of the environmental license and the instructions of the entity are guaranteed, especially those relating to the remaining flow. In this sense, the possibility of starting to close the intake gates during the first quarter of 2019 is being studied.

Once the cavern complex can be accessed, EPM will be in a position to conduct a clear and accurate diagnosis of the damages and adjust the estimates regarding the time for the interventions and the engineering and works necessary to fully recover this component of the project and, finally, put the first generation unit into operation; a milestone that is expected to be materialized by the end of 2021, according to the current information available on the damages and its technical implications.

In this way, EPM will keep contributing to the country’s energy growth, delivering, according to its policy, the highest quality standards in the provision of public utilities.

4.2. Physical-biotic component

The project will continue to meet the requirements of the environmental authorities to deal with the contingency. By the end of the year, it had received 237 injunctions, of which 227 have been fully fulfilled and the rest are being processed. These injunctions include:

- Rescue fauna.
- Monitor the water quality in the reservoir and downstream from the dam.
- Monitor instability, erosion, and morphometric changes from the Cauca River to La Mojana.
- Maintain a 450 m³/s flow downstream from the dam.
- Take the necessary measures to lift the precautionary measure imposed by the ANLA through Ruling 820 of 2018, after the report submitted by Poyry Ltda.
- Deliver the report that explains the causes of the contingency.
- Conduct bathymetric studies in the reservoir and downstream to La Mojana.
- Restore the connectivity for the communities affected by the May 12 emergency.
- Deliver the final alternative for the controlled decrease of the reservoir level.
4.3. Social component

In order to overcome the difficulties and return to normal, the company will take the following actions:

- Implementation of the return protocol for evacuated people.
- Agreement, adjustment, and execution of the specific action plan.
- Preparation to work jointly in the relocation of infrastructure in areas of unmitigable risk.

4.3.1. Return protocol

**Phase I**

- Definition of return zones based on technical information.

**Phase II**

- Characterization, property by property, for the identification of families.

**Phase III**

- Return.

4.3.1.1. Phase I

- 22 sectors defined based on the land use plans of the municipality and information provided by the community action boards. This work was part of the contingency plan (EPM-Red Cross agreement).
- Field corroboration of the toponymy of the 22 sectors and analysis with respect to the risk scenario of Circular letter 042 (8,100 m³/s).
4.3.1.2. Phase II

Development of a survey that makes it possible to characterize the property through the following data:

- Geographic location.
- Risk situation.
- Property information.
- Conformation of the household (head and members).
- Public utility availability.
- Activities performed in the house.
- Description of the work, description of the building.
- Photographic record.

Characterization outcomes:

Partial data for the rural settlements with temporary shelters and self-shelters.

<table>
<thead>
<tr>
<th>Rural settlement</th>
<th>Sector</th>
<th>Infrastructure in the spot of 8,100 m³/s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Camelias</td>
<td>La Coposa-Puerto Neri</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total Camelias</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
<tr>
<td>El Catorce</td>
<td>El Catorce-La Cancha</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>El Catorce-Miramar</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total El Catorce</strong></td>
<td></td>
<td><strong>19</strong></td>
</tr>
<tr>
<td>El Quince</td>
<td>El Catorce-La Cancha</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>El Quince-Alto</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>El Quince-Bajo</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>El Quince-Centro</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total El Quince</strong></td>
<td></td>
<td><strong>189</strong></td>
</tr>
<tr>
<td>La Paulina</td>
<td>El Pescado</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Paulinas</td>
<td>170</td>
</tr>
<tr>
<td><strong>Total La Paulina</strong></td>
<td></td>
<td><strong>178</strong></td>
</tr>
<tr>
<td>Las Palomas</td>
<td>Palomas</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Palomas-IER</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Palomas-Lavadero El Moreno</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total Las Palomas</strong></td>
<td></td>
<td><strong>98</strong></td>
</tr>
</tbody>
</table>
### Rural settlement Sector Infrastructure in the spot of 8,100 m³/s

<table>
<thead>
<tr>
<th>Rural settlement</th>
<th>Sector</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playa Rica</td>
<td>El Catorce-La Cancha</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>El Quince-Bajo</td>
<td>20</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>El Quince-Centro</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Playa Rica</strong></td>
<td></td>
<td>37</td>
<td>2</td>
<td>39</td>
</tr>
<tr>
<td>Puerto Raudal</td>
<td>El Pescado</td>
<td>36</td>
<td>17</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Palomas-IER</td>
<td>16</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Palomas-Potrero</td>
<td>20</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Pescadito</td>
<td>29</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Puerto Raudal 1</td>
<td>4</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Puerto Raudal 2</td>
<td>56</td>
<td>29</td>
<td>85</td>
</tr>
<tr>
<td><strong>Total Puerto Raudal</strong></td>
<td></td>
<td>161</td>
<td>76</td>
<td>237</td>
</tr>
<tr>
<td><strong>Total general</strong></td>
<td></td>
<td>706</td>
<td>278</td>
<td>984</td>
</tr>
</tbody>
</table>

### 4.3.1.3. Phase III

Stage 1: The PMU prioritizes the return of the families in the temporary shelters of the municipality of Valdivia.

Stage 2: Procedure for the return of the families in self-shelters of the municipality of Valdivia.

The following activities will be conducted during the two stages:

- Training in disaster risk management.
- Delivery of economic support.
- Delivery of groceries.
- Psychosocial support.
- Restoration of services for the population.
Economic support for the return of families

**Economic support**

Families that can return and receive the economic support only once

- **Temporary shelter**
  - COP 2,000,000

Families that return and will receive the economic support until the moment they occupy their homes.

- **Self-shelter**
  - COP 1,100,000 (less than five people)
  - COP 1,200,000 (more than five people)

**Psychosocial support**

The psychosocial support will be given to:

- Families that return.
- Families that cannot return.
- Families that cannot return, but already live in their homes.

**Restoration of services for the population**

- Energy: maintenance and reconnection.
- Water supply: diagnosis and recovery of the Puerto Valdivia water supply system.
- Sanitation: support of Emvarias to EMVAL for the provision of waste collection and cleaning services.
- Health: support to the Valdivia’s Secretariat of Health through the provision of mobile units.
- Education: maintenance of RECs.

Around 1,500 families will return to their homes.
4.3.2. Specific action plan

1. The formulation of the plan is the responsibility of the entity that declares the public calamity, in this case, the Antioquia Governor’s Office; subsequently, all the competent entities must be articulated and coordinated for the reconstruction and rehabilitation processes.

2. EPM is currently reviewing the plan submitted by the Governor’s Office, taking into account:
   - The relevance and responsibility of the activities.
   - Activities in which support is provided.
   - Discretionary activities.

4.3.2.1. Relocation of infrastructure in areas of unmitigable risk

The relocation of infrastructure of Puerto Valdivia is included in the action plan.

EPM also participates in the development of the Governor’s Office proposal to resettle families currently located in areas of high unmitigable risk.

Interested parties: National Government-Ministry of Housing, Departmental and Municipal Administration, and EPM.
2018 Sustainability Report