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A year after the contingency, the hydroelectric project Ituango is making progress in its recovery for risk mitigation

- **EPM invested \$168,675 million in community care and environmental care during the contingency of the future power plant**
- **All decisions have been made to protect the integrity of the communities downstream of the hydroelectric project**
- **During its construction, the project revitalized the development of the Northeast of Antioquia, with social and infrastructure investments in the millions**

On April 28, 2018, the history of the Ituango hydroelectric project was split in two, as on this date, it had already reached 87% of its construction with timeline and budget fulfilled. On that day, the plugging and natural clearing of the Auxiliary Diversion Tunnel (galería auxiliar de desviación, GAD) occurred, which marked the start of a contingency in which EPM has dedicated every effort and resource to protect the community (to date there has not been one victim), protect the environment and regain control of the future power generation plant to mitigate the risks downstream of the dam.

The CEO of EPM, Jorge Londoño De la Cuesta, said that “in this first year of the contingency we have made progress in many social, environmental and technical aspects, thanks to the support, effort and commitment of each of the organization’s officials and their commitment to service. I would like to send a special thank you to the community and each of the institutions and authorities that have worked with us. All of this energy helps us continue to work to overcome the situation and move the project forward to contribute to the wellbeing of the people and the development of the country.”

One year since the contingency, this is the social, environmental and technical progress EPM has made in the Ituango hydroelectric project:

Social progress

EPM implemented a Recovery Plan for the municipalities of Ituango, Valdivia, Tarazá, Cáceres, Caucasia and Nechí, impacted by the project contingency, structured in eight work streams, which today present these achievements:

Social Work Stream

- ✓ EPM has granted 16,684 financial contributions worth \$20,361 million, to families evacuated from the town of Puerto Valdivia, located at the Bajo Cauca antioqueño region, downstream of the project.



- ✓ 17,184 people equivalent to 5,626 families have been accommodated.
- ✓ A collective investment fund was created for the municipalities of Valdivia, Tarazá, Cáceres, Caucasia and Nechí for a value of \$50 million each.
- ✓ 3,045 psychosocial support services have been conducted by expert staff.
- ✓ 3,939 families (1,547 Puerto Valdivia, 1,442 Tarazá and 950 Cáceres) were accompanied to return to their homes.
- ✓ Start of community information program with leaders.
- ✓ Investments were made for close to \$13.5 billion in training in family and emergency community plans, first aid and emergency kit delivery; performing 127 drills with 4,621 participants, installing 58 early alert systems and 20 projected for 2019. In addition, the delivery of 99 basic emergency kits for the community (JAC and families) and educational entities, as well as 14 basic emergency kits for the Municipal Councils for Disaster Risk Management (Consejos Municipales para la Gestión del Riesgo de Desastres , CMGRD) and relief agencies in the territory.
- ✓ An office was opened with permanent service open to the public in Puerto Valdivia.

Housing Work Stream

- ✓ 46 negotiations have been achieved for restitution of life conditions with the same number of families wholly affected in the municipality of Valdivia due to the flood in the Cauca River on May 12, 2018. The process continues with 33 other families. To this number we can add 12 more families from the municipality of Briceño.
- ✓ We have made progress in the personalized care process of the 162 families whose homes were partially affected.
- ✓ The comprehensive EPM intervention proposal comprises restitution of housing, economic activity, furniture, belongings, and clothing, as appropriate.

Accessibility & Transportation Work Stream

- ✓ The fluvial transport service was implemented in the reservoir with three ferries and five speedboats. Between May 2018 and April 2019, 160,824 people and 30,776 vehicles have been transported free of charge.
- ✓ 81,029 people were transported in road caravans for work on the project.
- ✓ The designs, hiring process and resources for the construction of the pedestrian bridges of Simon Bolivar (Puerto Valdivia), Palestina and Turcó (between Ituango and Briceño) are now ready, after having been affected by the Cauca River flooding on May 12, 2018. It is important to note that construction cannot be done until the National Unit for Disaster Risk Management (Unidad Nacional para la Gestión del Riesgo de Desastres, UNGRD) lifts the red alert (memo 042 from 2018).



- ✓ The El 12-Barro Blanco Bridge had a partial repair, when the red alert is lifted by UNGRD the final repairs can proceed.

Health Work Stream

- ✓ Permanent epidemiological surveillance is maintained.
- ✓ Attention for the provision of health services in the town of Puerto Valdivia, through the agreement with Hospital San Juan de Dios of Valdivia, for an amount of \$293 million.
- ✓ An external medical consultation space was rented for the community, with verification by the Health Office of Antioquia.
- ✓ 229 people have been assisted with ambulance support for emergencies.
- ✓ \$394 million was contributed for the purchase of a Mobile Health Unit for Puerto Valdivia.
- ✓ Supporting communities through the psychosocial support program.
- ✓ We made progress in the process of obtaining the property for the relocation of the health center in Puerto Valdivia.

Public Services Work Stream

- ✓ Support for rural electrification, knowledge transfer regarding aqueducts and sewage systems.
- ✓ Cauca has a pumping system for the uptake on the Man River.
- ✓ Educational campaigns for the efficient use of public services.

Education Work Stream

- ✓ EPM has invested more than \$318 million in the maintenance of six rural educational institutions in Puerto Valdivia: Puquí Rural Education Center, Nutabes Rural Educational Center, Marco A. Rojo Rural Educational Institution, Playa Rica Rural Education Center, La Paulina Rural Educational Center and Buenos Aires Zorras Rural Education Center.
- ✓ In the short term, new improvements will be made at these institutions: Cachirimé, Puerto Nerí, Palomas, La Barca Cautiva and El Pescado.
- ✓ Hiring five 41 passenger buses for school transportation and microbus for the transfer of faculty in Valdivia municipality.

Livelihoods

- ✓ We are making progress in the process of identifying merchants affected by the preventive evacuation. More than 1,000 records have been received, which are at the information analysis stage.
- ✓ 85 companies from Bajo Cauca were enrolled as suppliers of goods and services from EPM.



- ✓ The feasibility analysis of productive projects for fishermen at the lower Cauca River basin is being carried out.

Environmental Progress

EPM is working on the compensation for short, medium and long-term environmental impacts. The actions taking place include:

- ✓ 94,395 cubic meters of floating material have been extracted from the reservoir, equivalent to approximately 56,000 tons.
- ✓ Since May 2018, 64,528 individuals have been rescued in the reservoir and freed.
- ✓ 125 individuals have been treated at the Center for Wildlife Recovery.
- ✓ EPM signed an agreement with Corantioquia for the protection, conservation and restoration of 20 muddy ecosystems with a socio-ecological focus, which allows for the involvement of local communities in the conservation of biodiversity and associated ecosystem services.
- ✓ Promoting the creation of a social program of 90 Guardaciénagas (Marsh Guards) with local communities associated with the muddy marsh ecosystems.
- ✓ An ecosystem study is carried out with the Javeriano Institute of Water and advised by the Alexander von Humboldt Institute of Biological Resources Research.
- ✓ The live collection of Cauca River fish is created for the Explora Aquarium of Medellin.
- ✓ EPM contributes to the safeguarding of genetic diversity for the mid and low basin of the Cauca River at the Santa Cruz Fishery Station in the municipality of Caucasia. This initiative is being advised by the AUNAP (*Autoridad Nacional de Acuicultura y Pesca* [National Authority for Aquaculture and Fisheries]) and the University of Cordoba.
- ✓ EPM is continuing to meet the agreement with Universidad Nacional, which since 2011 has conducted genetic analysis of populations of fish of interest in the area.
- ✓ In agreement with the AUNAP, EPM supports the fishing ordering processes in the project reservoir, based on the study of potential and complementary uses of the reservoir conducted by the Universidad Nacional.
- ✓ With AUNAP and Explora Park, EPM estimates to conduct environmental awareness and education programs for fishermen of the Lower Cauca.



Technical Progress

In three 24/7 shifts, 3,600 people work on the various aspects of the Ituango hydroelectric project:

Machine House: the main cavern, transformer zones and beacon 1 have been inspected. The cleaning and pumping of water continue. An international firm will determine the pathology of the projects, the state of the machine house, and the work needing to be done for its recovery.

Dam: today it is at the level (height) of 418 meters above sea level. On the right side it is at the level of 420. The goal is to reach 435 meters above sea level. The bentonite screen is 100% finished.

Right Deviation Tunnel Plugging: Right Tunnel Pre-Plug 2 is already designed and will be carried out this month. It consists of 138 pilots and the installation of a filter and spheres that will create the hydraulic plugging.

Auxiliary Diversion Tunnel System (GAD) Plugging: divers have already gone into the chamber to assess the situation. The cleaning of sediment and repair of both gates are underway in order to make them operable. When both gates are able to be closed, each with a weight of 300 tons, the construction of a 22-meter plug will proceed and the tunnel will be permanently sealed.

Intermediate discharge: the plugs and shielding zone of the structure were reinforced. The tunnel is already depressurized and what remains is to put the plugs in place, close the GAD gates, reinforce the discharge, remove a cave in, and demolish the existing plug.

Spillway: it is optimally operational with its validated and tested gates. On average it is delivering 1,200 m³/s. The operation of the spillway is a good guarantee for communities downstream of the project, because it prevents flooding during the winter season, such as now.

“Romerito” Slope: the access road for the treatment of the collapse in the upper part of the dam gate basin was finished, which began the excavation of the slope, the terracing, and the placement of anchor bolts.

Vial tunnel: repairs, treatments, lighting, and a fire system were made.

Road to Ituango: it is expected that in the middle of the year the 435 meters above sea level will be reached in the dam, which will allow for the construction of the road to connect the municipality of Ituango with Puerto Valdivia for free circulation.

This is the progress EPM has made in risk mitigation, always thinking about the lives of the communities, caring for the environment, and recovery from the future electric plant, which will contribute 17% of the energy that the country and Colombians need to continue growing and increase their wellbeing.