

## Standing Committee on Finance inputs for the Next SCF Forum: Financing Nature-based Solutions

Paraguay considers that due to the imperative changes demanded by the COVID-19 pandemic, this scenario should be used to introduce demands for financial links with solutions to climate change, in order to ensure sustainable food production, a wide distribution range and provision of drinking water and for production purposes, coverage of health and education services, avoiding the growth of vulnerability by leveraging public and private investments and promoting the allocation of funds in the national public budget for climate actions like low greenhouse gas emissions productive practices, increased carbon capture practices and climate resilience aimed at a wide range of recipients including local isolated communities and indigenous populations.

Paraguay also deems important to include as one of the points to be discussed at the next Standing Committee on Finance (SCF) Forum and especially through the *Coalition of Finance Ministers* the need to introduce budget lines or categories in the National Budget specifically identified as **Climate Change**, as a *sine qua non* element for the progressive development of financial-economic-commercial, legal, regulatory, scientific and cultural climate actions analysis, evaluations and due-course decision-making.

Taking into account the limitations of resources, Paraguay is seeking to direct those tangible sources of financing from international cooperation, resources of its bi-national hydroelectric plant Itaipú (Paraguay-Brazil) to its climate action. An example is hereby presented through the attached case study on “Water Management in the Paraguayan Chaco”, case experience open for free circulation which consists of investments and alliances of diverse sources, national, international, public and private.

### Executive Summary – Case Study Water Management in the Paraguayan Chaco

Nature-based Solutions encompass a wide variety of climate change adaptation and mitigation measures by conserving the environment, creating habitats for endangered species, and reducing carbon emissions. They include a number of innovative approaches such as Ecosystems Based Adaptation (EbA). The EbA concept, as it is well known, refers to: “the use of biodiversity and ecosystem services as part of a global adaptation strategy to help people adapt to the effects of climate change” (Convention on Biological Diversity, 2009). Examples of the benefits of EbA include water security, as they maintain and improve water quality, flow rates and aquifers recharge, thus reducing also the impact of floods.

In that context, in the Chaco region, the Paraguay River and the Pilcomayo River, which border this region, are the only water bodies that have water throughout the entire year, since many of the channels and sources are only temporary. The main source of water in this region is underground, however, the presence of salts among the sediments of most of the springs seriously limits its use, and many of these sources are exposed to contamination or exhaustion due to bad practices in their use. Although the number of inhabitants is one of the lowest in the region, even with this density, there are serious water problems for the consumption of people, and the most vulnerable people are more affected, who in long periods of the year must be subsidized with water transported in water wagons from distant places. In that sense, reference is made to four experiences of water management in the Western Region of Paraguay:

- i) Water collection system in Collection Surfaces;
- ii) Water collection system of the municipalities of *Irala Fernández* and the community of *Campo Aceval*;

- iii) Experiences of planting and harvesting water from the Mennonite Cooperatives; and
- iv) The use of solar energy, through solar panels, in pumping water intended for human consumption in isolated communities.

The Paraguay River Aqueduct Project –cities of *Puerto Casado*, *Loma Plata*, *Filadelfia*, *Neuland*, *Tte. Irala Fernández*, *Lolita*, whose objective was to provide drinking water for human consumption, benefiting some 70,000 inhabitants at the start of the operation, of whom 40,000 are from indigenous peoples of the Central Chaco. The project considers the purification in *Puerto Casado* and the initial pumping of 13,000 m<sup>3</sup>/day (13 million liters per day) of drinking water to the Central Chaco, through a 202 km main aqueduct and pumping systems.

The water collection system of the municipalities of *Irala Fernández* and the community of *Campo Aceval*, was one of the options that has been used with relative success for the collection of water for consumption, as well as for productive uses. This project consisted of the collection and storage of rainwater in catchment areas called ridges, through which the water is channeled to a *lung water reservoir* from where it is then pumped, with pumps that use energy generated by windmills, to another reservoir called the Australian Tank. The system offers several advantages such as: better collection, up to 60-65% of the rain, in normal times, a rain of 100 mm, the surface harvesting system captures 80% of the rainfall, with this surface collection system of water 2.5 m<sup>3</sup> of water is gained for every m<sup>3</sup> of earth removed, and the cost per liter would be 2 Guaraníes (Paraguayan currency).

On the other hand, in the Central area of the Chaco, specifically in the Mennonite community, most of the surface water used through a system in the use of *paleocausas* (paleochannels) and burial of rainwater and subsequent pumping, the importance of which constitutes the formation of usable groundwater. The hydrogeological characteristics of the *paleocausas*, allow the practice of artificial recharge by infiltration and formation of the lens with fresh water in soils with sandy layers in the soil profile to increase the volume of water usable for supply, present functions such as: storage of freshwater in the aquifer with salt water, decrease in the salinity of the aquifer and treatment of the water by natural purification in the subsoil.

And finally, within renewable energies is solar energy, which takes advantage of electromagnetic solar radiation by capturing the light and heat emitted by the sun. In that context, two large solar Parks have been installed in the Paraguayan Chaco with a photovoltaic panel system, whose objective was the implementation of hybrid power systems that take advantage of the potential of renewable energies and guarantee electricity supply through the use of photovoltaic solar energy in isolated localities of the Paraguayan Chaco. Thus, they have become the largest hybrid Solar Parks in Paraguay, which are fully operational, in the town of *Joel Estigarribia* and *Pablo Lagerenza*, generating energy to meet the demand of the military detachments of the 3<sup>rd</sup>. Cavalry Division *General Bernardino Caballero* (*Joel Estigarribia* detachment) and of the 5<sup>th</sup>. Infantry Division *Mayor Pablo Lagerenza*, 24 hours a day. Currently, the Hybrid Power System, solar instant water heaters (*termocalefones solares*) and the solar pumping system are in full operation, where a generation of approximately 1400 kWh of electrical power was recorded, according to the remote monitoring system. Through this system, a cumulative saving was calculated to the date of *G.1.724.492.577* (Guaraníes: Paraguayan currency) in fuel expenses, which represents an avoided CO<sub>2</sub> of 834 tons in total.

## INVESTMENTS

Measures	Status	Costs (U\$S)	Financing source and type
Itaipu experience to install solar panels in <i>Joel Estigarribia</i>	160 installed panels	256.000	Itaipú (Bi-national entity)
Itaipú experience to install solar panels in <i>Lagerenza</i>	160 installed panels	256.000	Itaipú (Bi-national entity)
Planting and harvesting of water from Mennonite Cooperatives in the use of <i>Paleocaustes</i> , burial of rainwater and subsequent pumping	Installed	500.000	Cooperativa Chortitzer (private)
Aqueduct	Installed	90.000.000	Ministry of Public Works and Communications (MOPC) of Paraguay (Public)
Water harvesting system in the communities of <i>Campo Aceval</i> and <i>Irala Fernández</i>	Installed	231.000	Ministry of the Environment and Sustainable Development (MADES) of Paraguay.  (Internacional Cooperation: European Union)

Attached are also a Power Point summary presentation of our case experience and a more extensive document of it.

With our highest consideration.