ND-GAIN
Notre Dame Global Adaptation Initiative

Ecuador // Latin America

Páramos Tungurahua Water Fund and Fight Against Poverty

UNIVERSITY OF NOTRE DAME

Country Information

Population

17.8 Million
(World Bank, 2022)

Intervention Information

$87 Million (USD)
Cost

2008–Present
Timeline

UNFCCC National Adaptation Plan

Yes, 2023

GINI

(Scale of 0-100)

(World Bank, 2022)

ND-GAIN Vulnerability Score

(Scale of 0-1)

(ND-GAIN, 2023)

Rationale for Selection

Cases were selected for review based on general screening criteria, including timeframe of intervention, location of implementation, and evidence-based outcomes, as available. This water fund was highlighted for its locally-led approach to conserving the Páramo ecosystem while providing alternative sustainable livelihood activities to those relying on it.

Outcome Area(s)

Land Management/Conservation: Improving Forest Governance and Reducing Deforestation, Improvement of Livelihoods through Agro-Environmental Activities, and Food Security

Funding Partner(s)

Governments of Colombia, Germany (KfW Development Bank), Norway, and the United Kingdom, and the Global Environment Fund

Implementation Partner(s)

Ministry of the Environment and Sustainable Development, Natural Heritage Fund (Fondo Patrimonio Natural), Colombian Government Amazonian Scientific Research Institute (SINCHI), and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Context of Intervention

The Páramo is an ecoregion distributed along the humid Andes between Peru, Ecuador, Colombia, and Venezuela. The Páramo form a neo-tropical, high-altitude ecoregion of mainly shrub and grasslands, between the timberline at 10,000 feet and snowline at 16,000 feet. Average rainfall in the Páramo is around 80 inches per year. The region is critical for water storage and regulation, as it captures large amounts of water during the rainy season and regulate water discharge through streams, rivers, and aquifers during the dry season. This is the case in Ecuador, where the Páramo ecosystem is the heart of the country's water source.

Ecuador's water and energy security is reliant on the Páramo. All of Ecuador's major watersheds providing potable water to its population originate in the Páramo. Even geographically distant coastal cities receive water from the Páramo. Located in the Páramos region, the Ecuadorian province of Tungurahua is home to over half a million people;[1] this high density threatens water availability, yet 90% of these people rely on the region's large reservoir that collects water from rain, fog, and glacial runoff. In the dry season, the water deficit in this basin can reach up to 40%.[2] The Páramo in Tungurahua is also home to indigenous and farmer communities who depend on it as a water source and the basis of their livelihoods. With over 90% of the population living in consumption poverty and dependent on agricultural and pastoral activities to support their families,[3] conservation efforts in the Páramo must also provide sustainable livelihoods as well. Finally, a significant proportion of hydroelectric generation in Ecuador, which makes up roughly 1/3 of national energy consumption, occurs in plants powered by rivers originating in the Páramo.[4]

Preservation of the Páramo watershed is also integral to providing crucial ecosystem services. The Páramo also represents 5% of Ecuador's national territory and is home to a significant proportion of Ecuadorian biodiversity, including many endemic species.[5] Unfortunately, human activity and the effects of climate change pose significant threats to ecological well-being. Expanding agricultural activities have accelerated erosion, while replacing native species with non-native trees and crops. Intensifying grazing and pastoral activities have contributed to land degradation.[3] In addition, rising temperatures and changes in rain patterns and cloud cover frequency affect the equilibrium of the watershed.[4]

Description of Intervention

Since the 1980s, several indigenous communities have been developing specific initiatives for stewardship of the Páramo. With time, communities, indigenous leaders, and local authorities began co-designing Páramo management plans, leading to the generation of the first provincial conservation policy in 2006. Drawing from these experiences, the United Indigenous Movements of Tungurahua, the local government, and public water and energy companies came together in 2008 and founded the Páramos Tungurahua and Fight Against Poverty Water Fund (The Fund).[6] This water fund, designed as a commercial trust for conservation management, has been operating as a financial mechanism that sustains the implementation of Páramo Management Plans (PMP). Programs and projects supported aim to protect, restore, and conserve the Páramo ecosystem while improving the quality of life of the indigenous and farmer communities.

Páramo's indigenous and farmers organizations lead the PMPs, which plan and manage instruments that establish a roadmap with clear responsibilities for all actors involved in balancing conservation, restoration, and promoting sustainable economic activities for the communities that live in the Páramo. In addition, indigenous and farmers organizations also integrate a socio-organizational component that ensures that all actors are involved and strengthen awareness, knowledge, and capacities for preservation of the Páramo.[2]

The Fund has supported various alternative livelihood activities, including value-added livestock products, particularly in the dairy sector. Furthermore, the initiative has introduced agroecological practices and promoted sustainable tourism as an additional income diversification.[3] Productive economic activities within the Páramo are co-designed with local communities to enhance livelihoods while decreasing the pressure on the Páramo ecosystem. The prioritization of economic activities is led by indigenous peoples and community members, integrating their local knowledge and lived experience.

Since 2012, The Fund has also supported an education program for children called *Futurhua Environmental Education*. This program is a key part of the long-term impact plan of the PMPs. It seeds a new environmental culture, with shared responsibility for the adequate management of natural resources and the Páramo ecosystem. Futurahua is based on a partnership between the Ministry of Education of Tungurahua, the Open Hands Foundation (Fundación Manos Abiertas), the Italian foundation ACRA, and the Institute of Ecology and Development of the Andean Communities (IEDECA).[3]

Intervention Funding

Since its establishment in 2008, the private sector, public entities, and civil society organizations, including the Nature Conservancy, ACRA Foundation, Germany International Cooperation Agency (GIZ), Tesalia CBC, and Corporación Favorite, have collectively contributed to The Fund, which now stands at $7 million USD. The Fund is divided, with 40% allocatable for the ongoing conservation and poverty-reduction activities of the Páramo Management Plans. The remaining 60% is invested to generate profit, procuring The Fund's long-term sustainability. In 2020, this growth fund was approximately $4 million USD, and its investment return reached more than $1.7 million USD.[3]

Outcomes from the Intervention and Dissemination

Local Leadership for Sustainable Development

One of The Fund's essential features is the quality of the involvement of indigenous peoples and local communities. The local communities not only participate but also hold leadership positions, which enable them to be involved in the design and decision-making processes of the PMPs. As a result of their active roles, community groups have been committed to ensuring the effectiveness of the PMPs and conservation efforts. Another tangible advantage of integrating local knowledge and representing community interests is the success of the alternative livelihood programs, which have reached around 400,000 people and raised local incomes by up to 30%. In addition, direct community involvement has led to the socio-organizational strengthening of communities, their enterprises, and the productive systems they own.[7]

Sustainable Resource Management and Creating a Culture for Perpetuity

A key measure of success for The Fund is land and water protection. Beginning in 2008, The Fund had 7,000 protected hectares. By 2019, it had more than 17 PMPs represented and an overall conservation commitment of 33,750 hectares out of the 50,000 ha available for conservation. This represents more than 60% of the area originally estimated conservation potential.[2] As a direct impact, over 600,000 people have experienced improved water access. In addition, a multi-temporal analysis of land use change with remote sensing imagery comparison over 20 years revealed that the loss of natural vegetation cover has been reduced from 0.78% annually in 2001 to 0.37% annually in 2019. To ensure sustainable water availability and long-term stewardship of the Páramo, another noteworthy achievement is The Fund's establishment of the Futurahua Environmental Education. By 2019, the program has reached more than 12,000 children since its 2012 inception and is integrated into the PMPs.[3]

Dissemination and Conservation Leadership Beyond Borders

The experience of The Fund has influenced local and national policies that support the protection, sustainable use, and restoration of Páramo ecosystems. It has informed the establishment of other water funds in four municipalities of Ecuador: Loja, Guayaquil, Rio Grande, and Santa Ana. Moreover, with the support of USAID, The Fund is international, serving as a base for establishing water funds in the Páramo regions of Peru and Colombia.[3] It is part of the Part of the Latin American Water Funds Partnerships, and has received recognition including the Water Changemaker Award, the UNDP Equator Prize, and the Latin America Green Awards.

Considerations

Balancing External Support and Local Control and Capacity

One of the strengths of the approach is the local planning and implementation. A key critique of The Fund is involvement of foundations who bring their own strategy to fund projects. Some local leaders view this as disempowering to communities and local governments. Similarly, The Fund has sometimes used external technicians, despite capacity existing within local communities.[2]

Managing Conservation and Community Well-Being

Balancing conservation and community well-being is one of the biggest challenges in conservation management, including preserving the Páramos ecosystem. For The Fund, by implementing management plans designed by local communities that establish which productive economic actions should be financed to increase the beneficiary family's incomes, it is able to prioritize actions most valuable to communities, while prioritizing conservation. The Páramo conservation plans include ecotourism initiatives that generate resources for communities, such as a project in the Chuquibantza sector

where residents have organized themselves to offer visitors guided tours of the Páramo. This creates economic activity for the community, expanding the knowledge of the Paramo and conservation awareness to national and international visitors.[2]

Financial Sustainability Strategy

Designing the initiative for sustainability is critical. For example, the fund dedicates 60% of its annual income to generates ongoing investment yields. Returns from the growth fund, managed by its Commercial Administration Trust, finances the fund's various plans, programs, and projects. The other 40% goes directly into ongoing conservation and poverty-reduction activities during the same year.[3]

Citations

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