



## CASE STUDY

# Honduras: Benefits of action and costs of inaction in agricultural water reservoir project in Azacualpa

Drought in the central American region is characterized by a variation in rainfall distribution, manifested by a few rainy events among long periods without rainfall within the rainy season. This situation severely affects production cycles of agricultural producers, who heavily rely on rain-fed agriculture and lack adequate technology to face droughts; negatively influencing overall economic and social stability, and wellbeing.

## Background

Azacualpa is a community located in the outskirts of Tegucigalpa, the capital city of Honduras, with a population of approximately 1,600 people. Their main economic activity is horticulture production to be sold in Tegucigalpa; and to a lesser extent, basic grains for their own consumption. Some of the producers belong to the small horticultural community enterprise 'Vegetables producers from Izopo and Azacualpa- PROVIASA', created with support of the Rural Enterprise Development Foundation (FUNDER) in 2007.

Azacualpa has a favourable micro-climate for horticultural production, despite being located in the Dry Corridor. The dry season runs from December to April - 246 days without rain - and the rainy season runs from May to November, showing increasing variability in rainfall patterns. During the last years, surface water flows have decreased, affecting up to 70% of productivity to meet market demands of 12 farming communities, aggravated by lack of adequate technology and efficient irrigation systems. The threat becomes more serious considering the high risk of desertification, which involves land degradation in arid, semi-arid and sub-humid environments, because of factors associated with climate variation and human activity. In the Honduran agricultural sector, drought mainly manifests itself through crop loss, reduced crop acreage and water supply problems in terms of both quantity and quality.

## Actions taken

At national level, the Presidential Commission for Coordination of the Water Sector in Honduras (CONAGUAH) was created in 2015 to promote activities for drought-stricken communities, coordinated by the Minister of Agriculture and Livestock (SAG). Also, the Governmental Drought Action Plan for Food Security, provides food assistance to 161,403 families in municipalities affected by severe and moderate drought. Within this framework, the Irrigation and Drainage Directorate of SAG, through its National Water Harvesting Project, developed a strategy to build 27 reservoirs to address the problem.

The reservoirs range from 3,100 to 67,000 m<sup>3</sup> in volume, and from 2.75 to 8 meters in depth, with the potential to provide year-round irrigation to 128 hectares. The project

included capacity building and support for technical and organisational aspects for operation, maintenance and sustainability; including an irrigation system maintenance program, as well as the start-up of the Irrigation Districts.

The Irrigation Districts establish a need-based irrigation schedule to ensure all users have equal access to water; and have a legal structure recognised by national authorities to exploit the reservoirs. Reservoirs were built following technical design criteria that would ensure the best possible outcome from the intervention. Only 11% of reservoirs had to be waterproofed due to the type of soil. All other reservoirs are fully functional. The project prompted a local private initiative to build eight additional reservoirs, expanding the area under irrigation to a total of 183 ha.

## **Outcomes**

The reservoirs allowed staggered planting, strengthening of the horticultural value chain, increasing sales and production cycles, employment, income generation, and the local distribution of economic benefits, transitioning to commercial production. Per capita income rose from US\$ 1.60 per day to US\$ 3.84 per day (41.5%), moving beyond the poverty line in the international poverty rate indicator.

They have also increased the diversification of the type of crops grown from 10 to 15, and the number of cycles from 2 to 4, for those with irrigation, and from 1 to 4 for those who had no irrigation prior to action, increasing the capacity to meet market demands. The irrigation districts have joined other community organizations, increasing the sense of community belonging, well-being and usefulness generated through the reservoirs, also contributing to labour and family stability, and to social cohesion; by encouraging and reinforcing the population's roots to the site. In addition, the project has enabled greater participation by women in family productive activities.

## **Lessons Learned**

It is important to frame every action within national policy, for decision making effectiveness, and to have timely communication systems that provide information from the field to public offices.

Achievements are largely due to holistic approach and comprehensive response undertaken by institutions (national authorities, NGOs, market actors and financial system), and the willingness of population involved to become organised into irrigation districts, which proved to be a key factor.

Land owners must be willing to legally cede the land for reservoirs via agreements subscribed among parties before any construction work is undertaken.

A participatory approach that includes existing community based organisations in every stage of the project is necessary, to avoid conducting activities that, may not be deemed important to population, which negatively affect sustainability, and to ensure producers support compliance thereof.

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National Adaptation Plans  
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