

# MASLAGO: A sustainable landscape management approach to save the lake that feeds Nicaragua's cities



## Quick Facts

**Main objective:**

Preserve and sustainably manage Lake Apanás

**Place:**

Jinotega, Nicaragua

**Lead organisation:**

Rikolto

**Timeframe:**

2017-2021



## Background

Lake Apanás, Nicaragua's third-largest lake is an artificial water reservoir built in 1964 to generate electricity. Around 3,500 coffee farmers cultivate in the Lake Apanás basin, accounting for about 55% of the basin's planted area. The production of staple grains accounts for about 30% of this area, with about half of the harvest going to farm household consumption. Three thousand smallholders cultivate vegetables on 15% of the total planted area in the basin, supplying about 60% of the vegetables consumed in the larger cities of Nicaragua. Fish from the lake provide protein to those living around the lake and livelihoods for the roughly 100 fishermen who commercially fish on the lake. Forests around the lake provide wood for household cooking and heating.

## Challenges and Objectives

Over the past 30 years, uncontrolled deforestation and harmful farming practices have deteriorated the environment around Lake Apanás to such an extent that the lake could disappear completely in the next five years due to sedimentation. Vegetable cultivation, in particular, has had a high impact on environmental quality in the lake basin due to intensive year-round cultivation in which ground is broken, leaving soil exposed and subject to erosion. The objective of the project is to preserve and sustainably manage Lake Apanás through use of an integrated landscape

management approach mobilizing all stakeholder groups, particularly vegetable farmers, other producers, and fishermen who benefit from the lake.

## Trade-offs and Synergies

In the short term; interventions to reduce harmful farming practices and deforestation could lead to increased demands on vegetable farmers' time for sustainability activities, reductions in vegetable production, lower farm incomes, higher vegetable prices for consumers and a reduction in wood for cooking and heating. In the long term, better environmental conditions around the lake could support improved farm productivity, higher farm incomes, and lower vegetable prices making vegetables more affordable for local consumers. Improved lake health could lead to healthier fish stocks, thereby improving incomes of fisherfolk, and increasing the availability of fish, a high-quality protein, at lower prices for consumers. Improved lake health could also increase or stabilize hydropower generation.

## Strategy

Rikolto's strategy was to use the Integrated Landscape Management guide developed by EcoAgriculture Partners to mobilize stakeholders to prioritize action and develop and implement a plan for the sustainable management of the area around Lake Apanás. This strategy built on previous Rikolto projects that focused on bolstering other aspects of the Lake Apanás food system. One such project focused on improving incomes for vegetable and fruit farmers and increasing the availability and affordability of healthy fruit and vegetables for consumers in Nicaragua. For this project, Rikolto facilitated the formation of an association of 4 horticultural cooperatives, which successfully contracted with large retailers and small and medium-sized enterprises (SMEs) to supply reliable, safe, quality-guaranteed produce in return for stable demand and long-term income security for farmers. Development of a mobile app will allow direct sales to consumers, which could lead to an improvement in prices to farmers. Rikolto also implemented a cookstove project to reduce the need for firewood, helping to reduce deforestation and improve indoor air quality.



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## Actions

- As a first step, Rikolto brought together stakeholders in the Lake Apanás food system to form MASLAGO, a multi-stakeholder group composed of 20 organizations, including the indigenous community of Jinotega, vegetable cooperatives, coffee cooperatives, fishermen's cooperatives, local, national and international NGOs, agro-input and technology distribution companies, food marketing companies, and four of the most prestigious national universities and trade associations in Nicaragua.
- Second, Rikolto worked with MASLAGO to develop a common understanding of the landscape and to define two strategic lines of work: one on reducing sedimentation of the lake and the other on reducing agricultural chemical contamination of the lake. Each member of MASLAGO committed to working around one of these two lines according to their own vision and mission.
- Third, Rikolto worked with MASLAGO to develop and implement an action plan for the sustainability of one of the eight micro-basins of Lake Apanás. This action plan brought together professionals and investment from the actors that make up MASLAGO.

## Results and Impacts

### Social cohesion

- All of the actions undertaken by Rikolto and MASLAGO helped to build social cohesion and inspire community action to improve the sustainability of the Lake Apanás basin and to invest time and resources to the protection of the lake.

### Environmental

- Academic researchers, with the support of Rikolto and MASLAGO, have completed studies on sedimentation and contamination and the implementation of model farms with environmental plans to showcase the sustainability of productive landscapes in Sisle river, one of the eight micro-basins of the lake. This research is an important first step in convincing stakeholders about the need for changes in production practices and to empower them to make meaningful improvements.
- As the result of the campaign to collect agrochemical containers for their recycling, in 2018, over 120,000 containers were collected. By 2019 this had

increased to over 150,000 containers.

- Based on data from 2019, 28% of the families inhabiting the Lake Apanás micro-basin of Sisle implemented at least 1 practice related to erosion control, including reduced drainage speed, and trapping of sediments to reduce the impact of erosion. By 2021, the project expects a 25% increase in the number of families implementing Good Environmental Practices.
- Over 250 eco-stoves have been installed in the Lake Apanás basin. Eco-stoves can reduce consumption of wood in a home by up to 40%. Over five years, such a reduction would translate into a savings of up to 30 eucalyptus trees for each family using a stove. This means that the 250 eco-stoves installed by the project have the potential to save 7,500 trees.

### Economic

- With Rikolto's support in helping farmers establish contracts with large retailers and SMEs, the average farmer's income from vegetables increased by almost 50% between 2017 and 2019.



## Lessons learned

Three factors helped to enable project successes to date: validated tools and methodologies on integrated landscape management; neutral, third-party facilitation of the process (in this case Rikolto), and the leadership and participation of local actors as the NGO CUCULMECA, the Indigenous community and the cooperatives.

Success has been hampered by a lack of government participation and inadequate financial support. MASLAGO and its partners should have secured non-reimbursable funding to implement pilot projects. Ideally, for better support and greater impact, MASLAGO should have involved private transnational food and beverage companies (the buyers of the crops produced around the lake) and international institutions working on environmental conservation and food security.

Another lesson learned is patience. This kind of landscape project takes at least four to five years to yield results and evidence.