

# Community micro-projects improve the livelihoods of rural families in Madriz, Nicaragua



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The Partners for Resilience (PfR) put their integrated approach and vision of community resilience into practice to improve the livelihoods of rural communities in Nicaragua. In the municipalities of San Lucas and Las Sabanas, their micro-projects consist of specific interventions and management actions, which combine Disaster Risk Reduction (DRR) with Climate Change Adaptation (CCA) and Ecosystem Management and Restoration (EMR). The communities are directly involved in each phase of the micro-projects: from the risk analysis and design to the actual implementation.

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## Community self-management in the design of micro-projects

The Partners for Resilience organisations in Nicaragua, i.e. CARE-Nicaragua, Institute of Human Promotion (INPRHU), the Madriz Association of Municipalities (AMMA), the Nicaraguan Red Cross, Wetlands International, and the Red Cross/Red Crescent Climate Centre, involve communities in each project phase.

Community members are more than mere project implementers; they are direct and active participants in the process to identify the different risks, hazards, vulnerabilities and capacities of the communities. They brought forward their needs based on their own experiences. The actions to be taken have been chosen in consensus with all the stakeholders involved in the area.

In the following case studies, communities have identified the causes of vulnerability of their livelihoods, as well as other of aspects related to their well-being, including water shortage. These causes have been analysed using the *Watershed Management and Ecosystem Restoration* approach. This allowed for the identification of bad practices in natural resource management, such as deforestation and the slash-and-burn agricultural technique, as the origin of their problem.

In the identification and design of the micro-projects the Eco-Criteria for 'ecosystem-smart' disaster risk reduction<sup>4</sup> were applied. The criteria describe the required steps to develop an 'ecosystem-smart' approach in the design, implementation and evaluation of risk reduction programmes. They provide guidance on the required capacities, partnerships, institutional set-up and planning needs and make sure that ecosystems are included in actions to be implemented.

**Criteria for the implementation of Disaster Risk Reduction and Climate Change Adaptation programmes that include ecosystem management (Eco-criteria)**

The purpose of the Eco-criteria tool is to successfully shift the paradigm on to an approach in which the preservation and restoration of ecosystem services will contribute to the integrated design of programmes and projects for local development, climate change adaptation and disaster risk reduction.

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<sup>4</sup><http://lac.wetlands.org/Publicaciones/Nuestraspublicaciones/tabid/3079/mod/1570/articleType/ArticleView/articleId/3499/Default.aspx>

The first step of the methodology is to do a vulnerability assessment. CARE-Nicaragua applied their Climate Vulnerability and Capacity Assessment (CVCA<sup>5</sup>) in Malpaso and the Red Cross their Vulnerability Capacity Assessment (VCA<sup>6</sup>) in the community of El Pegador. Both methodologies contribute to the micro-project participatory implementation logic and include the following steps: identification, formulation, implementation, and evaluation.

The micro-projects also apply the Red Cross / Red Crescent Climate Centre's "Minimum standards for local climate-smart disaster risk reduction<sup>7</sup>". This is a practical control list used for identifying potential future risks related to changes in climate. The micro-projects also take the principles of resilience into account, which have been established by the Partners for Resilience<sup>8</sup>.

Each PFR partner is responsible for the process and implementation stages of the micro-projects, including follow-up, monitoring and evaluation. The following are two micro-projects as implemented with the Partners for Resilience framework:



Definition of the design of the water harvesting reservoir of the community of Malpaso, San Lucas

## Micro-project "Improving the community lagoon and preventing erosion in the community of Malpaso, municipality of San Lucas, Madriz"

### Bismarck Benjamín Rodríguez Bermúdez, a community leader from Malpaso:

*"The creation and implementation of the micro-project began in 2012. It is the result of the foremost and acute problem we face in the community: shortage of water for human consumption. The shortage is so severe that during the summer we have to travel to a community 2 kilometres away to get water rations – 2 or 3 jerry cans – per family. Then CARE-Nicaragua, INPRHU, AMMA and Wetlands International came to our community. With their collaboration we gave priority to this micro-project, as water shortage affects everyone and has done so for many years. The project to rehabilitate the lagoon required an investment of approximately 10.000 dollars, distributed among all the participating institutions, and the community contributed a matching fund of 10-20%."*

The Malpaso community is located to the West of the municipality of San Lucas, in the department of Madriz, Nicaragua. Its relief is inclined with some flat areas.

The community is well organised to achieve the common good; this includes climate change adaptation.

The micro-project consisted of applying erosion mitigation and conservation measures to restore the 11,104 m<sup>2</sup> lagoon, which has a water storage capacity of 1,100 m<sup>3</sup>.



Advisory process and community work in the micro-project located in the Malpaso, community in San Lucas

<sup>5</sup>[http://www.careclimatechange.org/cvca/CARE\\_CVCAHandbook.pdf](http://www.careclimatechange.org/cvca/CARE_CVCAHandbook.pdf)

<sup>6</sup><http://www.ifrc.org/Global/Publications/disasters/vca/whats-vca-en.pdf>

<sup>7</sup><http://www.climatecentre.org/downloads/File/Minimum%20Standards/Minimum%20Standards%20for%20climate-smart%20DRR%202020.0%20NOV%202013.pdf>

<sup>8</sup><http://www.climatecentre.org/downloads/File/PFR/PIR%20Resilience%20vision.pdf>

The Climate Vulnerability and Capacity Assessment determined water shortage as the main threat, putting the lives of families at risk due to a lack of food, the impact on agriculture, livestock and all other community activities. Therefore, and also based on the assessment's recommendations, the micro-project included strategic actions to be taken by the community adopting a climate change adaptation vision, taking existing hazards into account and applying a risk prevention culture that ensures the sustainability of the existing livelihoods.

With the use of machinery the lagoon was levelled at its deepest part. This resulted in increased water capture during the rainy season.



Water harvesting reservoir, Malpaso community in San Lucas

With the participation of 85 community members water pipes were installed to fill a trough where animals come and drink and to provide water for household use. Also, a 12 m long retaining wall was expanded and compacted, and a 600 m perimeter was demarcated using wire.

All these measures contribute to maintaining water quality, while in the past the population would carry out their activities and have livestock roam in the vicinity of the lagoon, thereby contaminating it.

In parallel, the community took soil conservation actions in 2.8 hectares (or 4 manzanas) of mountainsides, including the building of containment dykes and planting of 4.400 trees (mahogany, cedar, macuelizo). This reduces runoffs and related erosion and improves the quality of the water flowing into the lagoon. In the past, sediments settled in the lagoon and saturated the water very quickly, causing the lagoon to overflow and floods put the lives of inhabitants at risk.



Photo: Bathing and washing facility, built with a water harvesting reservoir, Community of Malpaso

Plans for the second stage of the micro-project include alley cropping in neighbouring hillsides and planting rapidly growing trees, such as Moringa and Madero Negro, in an 800-metre radius of the lagoon.

## Micro-project “Community ecotourism as a means to strengthen livelihoods” in El Pegador community, Las Sabanas Municipality

The “Municipal Heritage Site of La Bruja lagoon” is located in the community of El Pegador and part of the sub-basin of the Inalí River. In this mountainous region, the Inalí River is a significant tributary to the Coco River, part of Watershed No. 45.

La Bruja lagoon is volcanic in nature<sup>9</sup> and covers an area of 2.81 ha. It is characterized as a wetland and site for natural conservation with hydric potential. Therefore it is necessary to manage the lagoon wisely, and the micro-project represents an alternative to link the conservation of the lagoon with the sustainable use through community-based tourism. This type of management includes the diversification and strengthening of local livelihoods for the population consisting of 138 people that benefit from the generated income.

The lagoon's main threats are sedimentation and eutrophication<sup>10</sup>, as they generate the growth of plant species that reduce the size of the water mirror, which has direct consequences on this aquatic ecosystem.

This micro-project was identified and formulated through a participatory process that started in 2013 and applied the same integrated approach that combines Disaster Risk Reduction with Climate Change Adaptation and Ecosystem Management and Restoration. Implementation began in 2014 with the joint collaboration of all participating stakeholders.

This initiative brought together Partners for Resilience organisations (Nicaraguan Red Cross and Wetlands International), the municipality of Las Sabanas, the community through its Family, Community and Life Cabinet, producers cooperatives, local providers of eco-tourism services, and state institutions, including the Ministry of Natural Resources and Environment (MARENA) and the Tourism Institute (INTUR).

One of the objectives is to strengthen sustainable development, through capacity building for community ecotourism, as an alternative for nature conservation and generation of socioeconomic benefits for the community.

Through the Partners for Resilience programme in Nicaragua, the implementation of this microproject has reached a few initial milestones, among which the development of a local organisation process with the participation of 30 community members, representatives from MARENA, INTUR, and the municipality of Las Sabanas. Sites were also geo-referenced in order to prepare a local map and place markers around the lagoon that define its geographic boundaries.

A study determined the necessary equipment for eco-tourism: a floating dock for small boats, wildlife watching, and the design of a booth with tourist and environmental information, as well as a hiking trail. At the same time, the project procured the required certified forest lumber to build the dock and booth as well as two fiberglass rowing boats with oars and life jackets. Deposits for solid organic and inorganic waste were also designed. Local youth participated in activities to clean up of solid waste in the community.



Eutrophication and sedimentation are closing the water mirror of the La Bruja lagoon, in the El Pegador community in Las Sabanas



Members of the Municipal Mayor's office of Las Sabanas, community members and institutions representatives during the formulation of the community's micro-project.

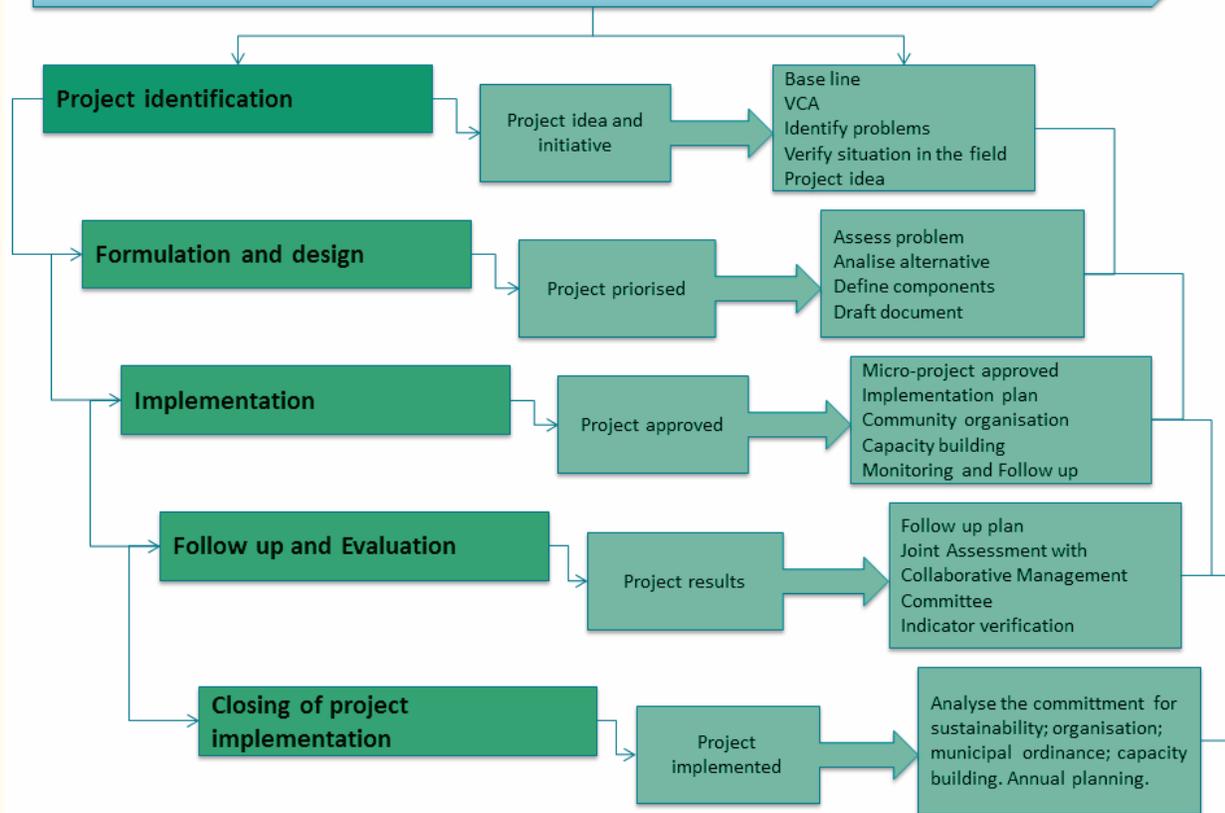


Community members presenting the micro-project to a group of NGOs and institutions participating in a workshop on the use of ecocriteria. May 2013

<sup>9</sup>Municipal Development Strategic Plan in Las Sabanas municipality (2005-2017).

<sup>10</sup>Eutrophication is a type of chemical contamination of the waters that advances gradually with sedimentation. It is the result of excess nutrient inflows into an aquatic ecosystem. Phosphorous and nitrogen are its main culprits. Eutrophication caused by human activity alters the characteristics of the aquatic ecosystem environment, it alters the trophic chain and increases ecosystem disturbance.

## Micro-project Development Flowchart "Community Ecotourism to Strengthen Community Livelihoods"



The Collaborative Management Committee manages the lagoon with the participation of the community organisation, Partners for Resilience organisations, a producers' cooperative, Las Sabanas municipality, MARENA and INTUR. Through a participatory process, several regulations have been established on the organisation and responsibilities, the management of a funding mechanism and an environmental fund, as well as on the public use and recharge capacity of the lagoon.

This process created the foundation for social, economic and ecological sustainability as it consolidates the Collaborative Management Committee, which is the governing body for the implementation of project activities and ensures its continuity.

### Best practices

Both communities identified water management as their main priority for a micro-project, which indicates that it is one of their biggest problems. The topic brought communities and PfR organisations together. They worked side by side from a land-use planning perspective, linking all efforts to the public sector planning strategies at a broader scale.

The best practices adopted by community members in the La Bruja lagoon indicate that they are motivated to ensure the micro-project's sustainability on the long-term. These best practices include: continued reforestation, lagoon maintenance, clean up, and installation of additional tree nurseries in each parcel and in the community itself.

Training by PfR on disaster risk reduction has helped to identify community vulnerabilities and improve their disaster preparedness. Furthermore, the agroforestry system management workshop in Malpaso applied the ecosystem management and restoration (EMR) and climate change adaptation (CCA) approach. The 50 families that participated in the workshop adopted the practices of alley cropping, and established clean tree and eco-forestry coffee crops with accompanying soil and water conservation measures.

Active participation from the community throughout the micro-project process (assessment, formulation, implementation and follow-up) was key to reaching the foreseen goals. The communities contributed their time, organisation, local know-how and many person-hours to the activities.

## Lessons Learned

### Lesson 1:

Due to the fact that it sought to solve a widely shared problem, the micro-project as proposed by the community was successful in achieving the desired outcome. The micro-project assured water availability for household use, reduced erosion and sedimentation of the lagoon.

### Lesson 2:

Everybody in the community was actively included and involved in a non-exclusive or divisive manner in the project. This resulted in the integration and articulation of all the organised expressions in the community (Water Committee; the Family, Community and Life Cabinets; health committee and education committee) to reach the community's common goal of improving their livelihoods.

### Lesson 3:

Micro-project implementation, using participatory methodologies (such as CVCA and VCA, community talks, consultation meetings and trainings) helps to increase the community's self-management capacities by creating interdisciplinary alliances and links that strengthen beneficiary communities.

### Lesson 4:

The Eco-criteria is a tool that helps micro-projects to apply Ecosystem Management and Restoration efforts in a practical way. In Malpaso they were used to analyse the adequate uses of ecosystem services and as a planning tool for the micro-project. In El Pegador, they helped to identify the ecosystem services the lagoon provides to the community and its proper use. The use of the Minimum Standards assured that the micro-project took the changing climate into account. In El Pegador, the community analysed how the trends of changing risks (chemical sedimentation and pollution of the water that cause the growth of plant species that reduce the water mirror and deteriorate the aquatic ecosystem) could affect the decision-making and community planning processes.

### Lesson 5:

The communities participated and contributed 10% in person-hours to all the stages of the micro-projects. This motivated the municipal offices to also contribute financial resources from the municipal budgets (up to 10% of the total amount of the micro-projects funded by Partners for Resilience) in 2013 and 2014. The municipality of Las Sabanas, for example, contributed land with an estimated value of USD 20,000 (without including the value of its ecosystem services), additional to the contributions for environmental clean-up services of USD 1,500, the improved access to La Bruja lagoon for USD 1,500 and the erosion mitigation and protection measures in the "Municipal Heritage Site of La Bruja lagoon" for USD 7,183.

Community members played an active role in the implementation of these two community-based micro-projects in the San Lucas and Las Sabanas municipalities of the department of Madriz. They were their own agents of change and transformed their own lives and that of their communities, as they now have improved access to water and improved livelihoods. They have become more resilient to disasters and the effects of climate change.

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