

Small steps for big changes:

Micro-projects to Strengthen Community Resilience



Photo: Pool de Trainers

To build the resilience of 23 communities with a high disaster risk rating, the Partners for Resilience (PfR) run micro projects, applying the integrated approach that combines Disaster Risk Reduction (DRR) with Climate Change Adaptation (CCA) and Ecosystem Management and Restoration (EMR). These communities have analysed their needs and solutions to be dealt with in a micro project. Furthermore, community beneficiaries are trained and their awareness is raised to help them understand how micro projects will contribute to risk reduction, climate change adaptation and ecosystem management and restoration.

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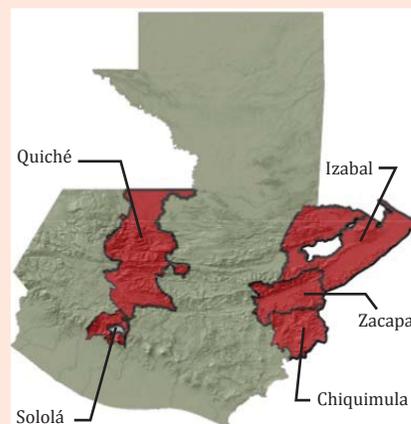
The communities are located in five departments in Guatemala: Quiché (Santa Cruz, Sacapulas, Joyabaj and San Bartolomé Jocotenango), Sololá (Nahualá, Santa Catarina Ixtahuacán), Zacapa (Cabañas), Chiquimula (Concepción Las Minas and Camotán), and Izabal (El Estor).

The communities are mostly rural, with mestizo and indigenous populations consisting of the following Mayan groups: K'iche', Sacapulteko, Chortí and Q'eqchi; all living in precarious socio-economic conditions. Malnutrition, dietary problems, and high mother-child mortality rates are some of the ways in which the poverty of this population is visible, while problems with education and illiteracy, discrimination, racism and exclusion are equally rampant. In addition, there are water-related threats in the majority of PfR communities, specifically due to droughts and deforestation.

How were the micro-projects designed?

Partners for Resilience initiated micro-project activities in two main phases of the programme. First, the DRR Committees and Local Coordinators for Risk Reduction (COLRED) identified the needs and solutions for risk reduction, climate change and ecosystems through a participatory diagnosis. Then a training and awareness process helped beneficiaries to understand how micro projects also contribute to risk reduction, climate change adaptation and ecosystem restoration.

Map 1. Departments in Guatemala where micro-projects are being implemented



1. Facilitators from Caritas Zacapa Diocese /Cordaid.
2. Micro-project technician, Wetlands International.
3. Red Cross/Red Crescent Climate Centre.
4. In Guatemala, Partners for Resilience includes the following partners: Caritas Diocese Zacapa/Cordaid, Guatemalan Red Cross, CARE/Vivamos Mejor Association, Red Cross/Red Crescent Climate Centre and Wetlands International.
5. According to UNDP poverty estimates in 2006, 51% of the population of Guatemala lives in poverty and 15% in extreme poverty.

Criteria to implement DRR and CCA programmes that include ecosystem management (Eco-criteria)

Eco-criteria are a set of criteria that can be applied to all micro projects implemented by the Partners for Resilience to facilitate the integration of ecosystem and natural resources management in DRR related activities. These criteria describe the steps required to develop an approach that includes ecosystem management in the design, implementation and evaluation of DRR programmes. They provide guidance regarding the requirements in terms of capabilities, partnerships, institutional structures and planning.

Technicians from each partner organisation assisted the beneficiary community in the creation of micro-project profiles to guarantee the information about the area was correct for the subsequent actions. Each profile was shared with PFR Coordination, Wetlands International and the Red Cross/Red Crescent Climate Centre. They provided advise,

comments, and suggestions according to their area of expertise. As part of the process, each micro-project organised a workshop concerning How to Apply the Eco-criteria.

The following table includes details of the micro projects implemented as part of the PFR programme in Guatemala.

Table 1. Micro projects implemented in Guatemala

TYPE OF MICRO PROJECT	PARTICIPATING PFR PARTNER	BENEFICIARIES	
		FAMILIES	COMMUNITIES
Fuel-efficient cooking stoves (to reduce the use of firewood)	Guatemalan Red Cross (GRC), CARE/Vivamos Mejor Association (AVM), Caritas Zacapa Diocese/Cordaid, Wetlands International	494	12
Training centers for rural development (CADER)	CARE/AVM	36	6
Water harvesting systems for the CADER Training Centers	CARE/AVM	6	6
Eco-filters (potable water for human consumption)	Caritas Zacapa Diocese/Cordaid	120	3
Composting latrines	Caritas Zacapa Diocese/Cordaid	101	5
Improved water system for consumption	Caritas Zacapa Diocese/Cordaid	1426	11
Build kitchen to prepare food for temporary shelters	CRG	275	2
Prepare area for temporary shelter	CRG	65	1
Strengthen beekeeping and meliponiculture*	Wetlands International/AVM	40	17
Green filters for household grey water treatment*	Wetlands International/ Caritas Zacapa Diocese/Cordaid	15	2
Reforestation and multipurpose greenhouse**	GRC/Wetlands International	3,696	1 urban area

* Implemented in coordination with the corresponding local partner⁶

** Co-funded by the local partner

6. In Guatemala, local partners are organisations that participate in a specific area, being: Caritas Zacapa Diocese/Cordaid, Vivamos Mejor Association and the Guatemalan Red Cross.

Every partner organisation has been responsible for the micro-project implementation process, as well as for its monitoring and assessment, using a variety of methods and instruments to do so. Following is a specific example of a micro-project: Green Filters for Household Greywater Treatment.

From the puddle to the table: Green Filters to strengthen resilience in the El Arenal community

El Arenal community is located in the dry corridor of the country, where droughts have been responsible for failing crops and the subsequent food scarcity. El Arenal contains 114 families and is located in the municipality of Cabañas, in the department of Zacapa.

In El Arenal and in the Sunzapote community, the PfR programme proposed a pilot project consisting of 15 green filters to reutilise grey waters as an alternative for home gardens, following the permaculture method. This project presented an alternative for their home gardens by reusing greywater; green filters improved health conditions, reduced the proliferation of mosquitoes, and reduced environmental pollution. The micro-project was communicated to 40 families of which seven were selected. One of the families is Mr. Dionel Cabrera's family.

Permaculture to promote resilience

Permaculture is the production method that promotes the optimal use of space in a home, plot or unused land to grow vegetables in a sustainable and environmentally friendly manner. Permaculture not only applies to vegetables; it includes fruits, repellent or medicinal plants and plants that can be used as fodder for domestic animals (pigs and chickens). This technique helps to grow healthy vegetables and meat without the use of chemicals.

Dionel and his wife Patricia are subsistence farmers who grow corn and beans in the El Arenal community. Their family lost its crops three years in a row due to droughts. The absence of water has resulted in food scarcity in their home during certain seasons and as a result, Dionel had to migrate to the Southern coast to work as a labourer during the tobacco harvest season. Despite not being literate, the wit and abilities of community people, such as Dionel and Patricia, are clearly noticeable.

Dionel and Patricia were very excited about the micro-project because they did not have sewers and were utilising much water for their domestic activities –despite the limited amount available–, so they enrolled

as beneficiaries to set the example for their neighbours. Beneficiary families were selected considering an important technical aspect related to the green filter design, i.e. plots with a slope. Installing a green filter irrigation design requires a certain incline and an area to set up the home garden.

Figure 1. Diagram of the green filter components and the water trajectory during treatment leading down to the home garden.



<https://t.co/zomcs0s1MJ>



Mr. Dionel Cabrera and his son with their newly built green filter

Let's get to work! Micro-project implementation in the communities

Working conditions were defined before the construction of the green filters began. It was agreed that beneficiaries would contribute manpower. Dionel, for example, contributed approximately one week of unqualified labour and Patricia contributed by preparing the plot for farming. Wetlands International contributed the materials needed to construct the green filters, and the Cáritas Zacapa Diocese/Cordaid supplied the technical assistance and monitoring. Also, 15 beneficiary families received training on the use, management and maintenance of the green filters. Dionel and Patricia's green filter was used as an example during the training.

The proceedings were monitored throughout the green filter construction, which was carried out by the Cáritas delegates and a Wetlands International technical officer. Monitoring consisted of verifying the progress and giving technical advice to construction workers.

What has been the impact of the Green Filters?

The implementation of the green filter micro-project benefitted 15 families in two communities (El Arenal and Sunzapote); they were able to optimise their water resources by reusing 200 litres per day per family, or 90,000 litres per month for the 15 filters. The recycled water is now being used to water a 100 m² area per filter with an efficient, autonomous and

permanent irrigation system. Health conditions have improved for the 15 families (75 persons). None of the families has suffered any diseases caused by mosquitoes or diarrhoea to date.

Vegetable crops grown with a permaculture approach have contributed to an increased production and access to food grown in an environmentally friendly manner.

The cost of constructing a green filter is Q3.000 (USD\$400); a cost-benefit analysis will show that the amount of water being recycled annually, the contribution to the environment, and the health of the families is beyond valuation compared to the investment.

The communities have learned to make better use of their resources and to increase their plots' productivity organically and at a low cost. The story has a happy ending. Thanks to Dionel and Patricia's enthusiasm and hard work they now have a home garden where they grow cabbage, fruits, chard, radish, eggplant, and more.

The implementation of green filters to reutilise for permaculture home gardens is not common practice in the region; it was, therefore, a pilot. The lessons learned from it will be shared and used to encourage this type of initiative that benefits communities and the environment directly. It is also a system that includes the integrated approach to disaster risk reduction, climate change adaptation and ecosystem management and restoration.

Vegetable gardens that reutilise greywater using green filters are a viable alternative and can be

7. USD1 = approx. 8 Quetzales guatemaltecos (2014)

replicated where communities see vegetable gardens as a measure to reduce food scarcity. It can be adapted to any geographic area as long as it meets the basic technical requirements: the plot must have a moderate slope suitable for gravitational water flow, and an area for planting.

The added value of formulating and implementing micro-projects as an alliance

Micro projects have served as an opportunity to share experiences; this has aided member of PfR especially to familiarise themselves with the reality and context of the communities concerning methodological tools. This was useful when integrating the DRR/CCA/EMR approach to all the micro projects. Using eco-criteria for the micro-projects also helped to better articulate the EMR element of the processes.

Another added value of working as Partners was the financial aspect of the cooperation. The construction of Green Filters and Reforestation and Greenhouse in El Estor micro projects was made possible as a result of the financial contributions by the partners.

Also, thanks to the PfR cooperation model, the trust and work relations initiated with the participants in the communities were strengthened. This experience will help to guide potential coordinated efforts in the future among the involved partners.

Best practices for future experiences

The following are the recommended approaches for the implementation of micro-projects:

- **Community participation** throughout the micro-project process (diagnosis, formulation, implementation, and follow up) is key to ensure legitimacy, ownership and support of the operations. Beneficiaries contribute their time and local resources; they participate in training sessions and attend pre-, during and post-project meetings to ensure their contribution to the project (10% minimum), such as unqualified labour, local resources and – in some cases – monetary contributions (e.g. construction workers were paid to install the fuel-efficient stoves proposed by the GRC and Wetlands International).
- **The signing of formal cooperation agreements** between the community and the partner organisation ensured the fulfilment of commitments and responsibilities
- **Coordination on inter-institutional level in the region was fundamental for better coordination and implementation of resource optimisation**, greater investment capacity and impact in the communities. Coordination with INTECAP⁸, MARN⁹, AMASURLI¹⁰, MOSCAMED¹¹ and municipalities encouraged participation and even funding for the micro project.
- Training, talks and institutional monitoring by Partners for Resilience during the project resulted in a successful micro-project implementation.
- Linking micro-projects to study recommendations contributed to a comprehensive approach of the problems.
- The official handover of the micro-project to the community with the participation of local and municipal authorities, government officials, and NGOs, gave legitimacy.
- The exchange of experiences between communities intended for micro-project implementation encouraged the exchange of knowledge and of innovations.

8. Technical Institute for Training and Productivity

9. Ministry of Environment and Natural Resources

10. Authority responsible for the Sustainable Management of Lake Izabal

11. Programme for the Eradication of the Mediterranean Fruit Fly in Guatemala



<https://www.youtube.com/watch?v=0H4g51Ao6cQ>



- In situ monitoring was well received by the beneficiaries, as it increased togetherness and trust.

The use of recording instruments contributes to the development of assessments with communities and enables verification of the proceedings, such as meeting minutes, photos and videos, and documentation about micro-projects and the official handover.

Lessons learned

As a result of micro-project implementation and the interaction with the Partners for Resilience, the lessons learned include:

- Beneficiary participation and involvement in the planning, training and implementation processes contributed to the sustainability of the micro project, as was evidenced with the green filters.
- Experiences should be disseminated to give them a wider ranging effect, allowing other communities to learn about the importance of a green filter, the fuel-efficient stove, or any other innovative micro-project developed by PFR that is suitable for replication.

- Communication and dissemination of the experiences has to be done using different means, such as photographs, videos, newsletters, and press releases to display the progress or results for different audiences.
- Eco-criteria are tools that give practical guidance to micro projects concerning ecosystem management and recovery; they can be applied to local development projects.
- The active community participation method for micro projects gave communities a development perspective and reduced the paternalistic approach.

The micro-projects implemented by Partners for Resilience benefit communities and improve their living conditions by helping to reduce their vulnerability to natural disasters. The micro-projects were useful by teaching beneficiaries how to anticipate risks, respond when a disaster happens, adapt to changing risks, and transform to address the underlying factors causing the risks.

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