

**GEF Small Grants Programme
Community-Based Adaptation in Small Island Developing States - SIDS CBA**

TITLE: Construction of Water Harvesting Infrastructure and improving the Community's Adaptive Capacity to Natural Hazards

Project No: JAM/SIDS-CBA/12/01
Grantee: Clarendon Parish Development Committee Benevolent Society (CPDCBS)
Location: Pleasant Valley, Clarendon, Jamaica
SGP Contribution: US\$50,000
Cash Co-Financing: US\$22,895.07
In-Kind Co-Financing: US\$59,453.14
Project Duration: 12 months (August 2012-September 2013)
Number of people served: 1,500
Focal area: Adaptation

Background

The project sites are located in the towns of Pleasant Valley and White Chapel, in the southern part of Jamaica's Clarendon Parish. They are home to approximately 1,500 people, 50% of whom are estimated to be less than 35 years old. While bauxite-mining was the main economic activity until 1969, agriculture has been the communities' primary source of livelihood for the past 40 years. The area is nationally recognized as a climate hot spot. Climate change-driven events such as increasing temperatures, droughts, irregular rainfall, torrential rains and flooding have impacted the soil quality, water availability and water quality in these areas. In turn, the agricultural production and sufficient arable land, which used to provide comfortable sources of livelihood, have been destroyed. Lastly, long-term climate forecasts in the region include the continual increases of temperatures, increases in the occurrences of heat waves and decreases of precipitation. Therefore, the community members needed to adapt to the climate change impacts that were threatening their livelihoods and ecosystems.

Project Objectives and Key Activities

The project's objective was to strengthen the communities' resilience to climate change impacts, and its variability, through awareness-raising and capacity building activities in water security and natural resource management. Building on local knowledge and using a participatory approach, awareness-raising workshops were held on climate change, its short-term and long-term impacts on the communities, how they can cope in a sustainable way and how national policies can be influenced by their actions.

The project activities for water security included the rehabilitation of the community water catchment that was out of use for 40 years; the construction of an earth pond system (which also supports the objectives of the Pleasant Valley Reforestation Project); the development of a sustainable water harvesting system; and the awareness-raising of community members on the productive use and care of rainwater harvesting ponds and catchment. These activities improved water availability and quality for irrigation especially during incidences of floods and droughts.

The water management initiatives supported agro-forestry activities. In this regard, adaptive management tools in Sustainable Land Management (SLM) were applied accordingly and together have led to improved production in agriculture and/or other land-based/cottage industries. In turn, these have led to food and water security, as well as income generating activities.

Environmental Impact

To combat the water shortages in the project sites due to less rainfall and increased evaporation, the catchment tank has been rehabilitated and can now hold up to 100,000 litres of water in seven storage tanks that have been installed as part of the project. The water obtained from these structures is used for domestic purposes.

On the other hand, an earth pond has been constructed, protected by a 4,000-meter chain-link fence and harvested for water that is solely used for irrigation. Additionally, 1,625 square meters of land, previously used for bauxite mining, is now being managed using sustainable agro-forestry management techniques. Increasing water storage has reduced the stress on agro-forestry systems while providing better potable water security for residents.



Figure 1: View of earth pond water is used for irrigation purposes. Because of this pond farmers have increased their crop planting which has significantly contributed to their income generating capacity. Photo by: Hyacinth Douglas, 2013.

In conjunction with the benefits of water availability and sustainable land management, the project introduced the concept of renewable energy in the communal catchment facility. A solar-power system was installed to produce electricity for the water pump. This system prevents carbon emissions compared to gas- or diesel-powered generators and is the first of its kind used in the parish. Additionally, the water structures have replaced the trucked-in water tankers as the irrigation modality for agro-forestry, especially during extreme climactic events such as the 2009 drought. These interventions have diminished the burning of fossil fuels for transportation fuel.



Figure 2: Solar panels are the energy source for the pump. Co-financing provided by the Environmental Foundation of Jamaica. Photo by: Hyacinth Douglas, 2013.



Figure 3: One of the refurbished community communal tanks with a water storage capacity of approximately 100,000 litres (58,000 gallons). Water is used for domestic purposes and is purified in partnership with the Parish Council. Photo by: Hyacinth Douglas, 2013.

Socio-Economic Impact

Rainwater harvesting is now the nationally endorsed and most viable water security strategy in Jamaica. The SIDS CBA project had several positive socio-economic impacts driven by the knowledge-sharing and capacity-building training sessions on adaption to climate change that engaged at least 100 residents at the community level. The stakeholders included Producers Marketing Organisation (PMO) members, CPDCBS, National Association of Parish Development Committees (NAPDEC), the Forestry Department, Rural Agricultural Development Authority (RADA), National Irrigation Commission (NIC), Parish Council, Social Development Commission (SDC), Jamalco, Schools and the Parent Teachers Association (PTA).



Figure 4: A photo of increased vegetation around the earth pond area which is another project site within another community. Photo by: Hyacinth Douglas, 2013

At least twenty percent (20%) of the local population has attended the awareness-building programmes to increase their understanding of the risks and opportunities associated with climate change. In addition, 40 people, including children, were trained in water resource management including watershed management and rainwater harvesting. As seen in the vulnerability reduction assessment (VRA) scores, the community members are confident that they now have the skills, coping mechanisms and capacity that make them less vulnerable to droughts.

Additional immediate and long term benefits, in terms of sustainable livelihoods and other social benefits from the project are outlined in the table below:

Community Immediate Benefit	Long Term Benefits
✓ Improvement in healthy domestic practices	✓ Sustainable water supply
✓ Access to water to irrigate crops	✓ Improved agriculture productivity
✓ Strengthened local governance through community cooperation	✓ Community is better prepared and organized to undertake more development projects
✓ Reduction in hygiene related illnesses	✓ Reduction of diseases

Moreover, the local governance group established a maintenance plan for the tank and pump, including a roster of trained community maintenance volunteers. They have also strengthened their partnership with the Parish Council which has enabled them to gain support for additional training in chlorination and other critical aspects of tank management which were unforeseen at the beginning of the project. The Parish Council has employed one community member for maintenance of the agro-forestry catchment area and the group also plans to develop fundraising initiatives to assist with the maintenance costs of the pump system.

Policy Impact

The project has influenced the local authority who are now seeking funding to improve the community water scheme (Community Tanks) in the neighbouring Mocho Area. Other indications of policy impacts from this project are illustrated by the Minister of Water, Land, Environment and Climate Change, who, at the official handing over ceremony, said in his speech that this initiative was welcomed given that the Ministry of Water, Land, Environment and Climate Change is in the process of preparing a policy on Rainwater Harvesting and will draw some the lessons from the Pleasant Valley and White Chapel communities' experiences.



Figure 5 (back row) Allison Rangolan-McFarlane, project partner from Environment Fund of Jamaica; Sharnette Mitchell, Project Manager; Hyacinth Douglas, SGP National Coordinator; Dr Arun Kashyap, UNDP Resident Representative; Minister Pickersgill; Sean Barnswell, Parish Mayor; and local students at the official handing over of the water harvesting infrastructure. Photo by: Hyacinth Douglas, 6 November 2013.

Youth Engagement and Participation

From the initial stage of the project, youths and school children have been engaged, given their important role as tomorrow's leaders. Some community members also participated in project activities such as planting of trees and attending agricultural training. At the handing over ceremony, the Minister commented that he prepared his speech for an adult audience, but was very surprised and pleased to see the turnout of so many young people and school children.

Gender Mainstreaming

Every effort was made to involve both sexes during and after the project. A total of 57 community participants (inclusive of men, women, youths and elderly) benefitted in an equitable manner. In total, there were 34 men engaged (inclusive of 8 elderly, 15 youths) and 23 woman. The women received the most direct benefits as they now no longer have to walk great distances to source water for domestic use. They also benefited from the different training sessions, particularly in water management. Women were involved in the planning stage and at the decision-making level. Most women indicated that due to the project, they now feel a sense of belonging and ownership of water management in their community: *"we feel we have equally contributed to something that benefits the entire community and have an equal role in the management of our local resources"*. They have also indicated that they are more respected by their male peers, most of whom did not know women could do activities culturally deemed *"a man's job"*.

Replication and up scaling

This project has served as a demonstration plot for others to follow. The neighbouring communities, such as the Mocho community, will replicate the project's processes and rehabilitate water tanks. The CPDCBS has submitted a proposal to an international donor for the rehabilitation of 12 catchment facilities in surrounding communities. With several media coverage due to its best practices, several groups and individuals from around the country have expressed interest in replicating the project. In addition, the project is now serving as a demonstration site, visited by several groups who have expressed interest in replicating the project in their communities.