Project:	Building resilient food and water secure communities in Ukambani, Kenya
Location:	Ukambani (Machakos, Makueni and Kitui Counties), South East Kenya
Timeframe:	August 2017 – July 2019
Grant:	£85,609
Agency:	Excellent Development Isle Of Man Ltd
Implementing Partners:	Africa Sand Dam Foundation (ASDF)
Report Period:	August 2017 – July 2019 (final report)
Grant Ref:	SG001.17

Summary

Isle of Man International Development Committee provided £85,609 to help build 4 resilient food and water secure communities in Ukambani, southeast Kenya. Thanks to co-funding received from a variety of trusts and rotary clubs, we were able to extend the project's impact to 7 SHGs rather than 4. These communities have been supported to either construct a sand dam and/or implement climate smart farming techniques.

Introduction

Ukambani is a tough place to live. Most of the population are rural farmers living below the national poverty line. Climate change is leading to frequent droughts and rainfall has become increasingly erratic. Despite annual rainfall similar to the UK, rains are concentrated into only one or two short flood periods. Most of the rain is lost as surface run-off, taking fertile soil with it. Around 66% of households have no access to clean water. During dry seasons, women and children can walk 6-12 hours daily to collect water. Very often that water is unsafe to drink.

Water shortage is a serious problem for these communities, as they depend on rain-fed agriculture to survive. In addition, ASDF has found a general lack of knowledge regarding soil and water conservation techniques and improved farming methods. This compounds the water scarcity problem and leads to high levels of food insecurity and reduced household incomes from farming.

The Isle of Man (IOM) Government's grant was used to support community-based Self Help Groups (SHGs) in Ukambani to address these problems through the construction of sand dams (in river channel rainwater harvesting techniques) and to support SHG farmers to practice climate smart agriculture.

Aims & Objectives

The overall aim of this project was to build resilient food and water secure communities in Ukambani. The project's objectives were:

- **Enhanced water security** for approximately 5,087 people
- **Improved water quality** for approximately 5,087 people
- **Reduced time/distance to collect water** for approximately 5,087 people
- **Increased agricultural yields** and household income for 100 farmers
- **Greater resilience to climate change** for 100 farmers
- **Enhanced empowerment** of 70 women farmers

These objectives have been pursued in an effort to address the following Sustainable Development Goals (SDGs):

SDG1 – End poverty in all its forms everywhere
SDG2 – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
SDG6 – Ensure access to water and sanitation for all

SDG13 – Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
SDG15 – Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

Achievements

The projects key achievements are:

- **Enhanced water security** for 13,519 people
- **Improved water quality** for 13,519 people
- **Reduced time/distance to collect water** for 13,519 people
- **Increased agricultural yields** and household income for 91 farmers
- **Greater resilience to climate change** for 91 farmers
- **Enhanced empowerment** of 61 women farmers

Beneficiaries

The communities supported by this grant are as follows:

Self Help Group	Members	Female members	Activities funded by the IOM Government
Katelembu Mazingira Initiative SHG	20	9	Sand dam construction in year 1
Mumo wa Mwambui	24	20	Sand dam construction in year 1
Ndaluni Ngamwone SHG	27	25	Sand dam construction in year 1
Heka Heka Syomwambya SHG	50	30	Sand dam construction and farming support in year 2
Kwa Mbithi Sand Dam SHG	17	13	Farming support in years 1 and 2
Wikwatyo wa Mativo SHG	11	7	Farming support in years 1 and 2
Woni Witu SHG	13	11	Farming support in years 1 and 2

75% of these SHG members are women and women currently hold 72% of the SHGs' committee roles.

Project Activities & Achievements

Over the course of this two year project four SHGs have built a sand dam; **Katelembu Mazingira Initiative SHG**, **Mumo wa Mwambui SHG** and **Ndaluni Ngamwone SHG** in Year 1, and **Heka Heka Syomwambya SHG** in Year 2.

Each sand dam can capture up to 40 million litres of water every rainy season. The water is stored safe from disease and evaporation within the sand, and can provide year-round water.

Each SHG invested their own time and manual labour into the building of the sand dams, including collecting local materials (sand and rocks), and clearing the dam site ready for construction. All four of the sand dams were sited and designed in consultation with the SHGs, ensuring they would meet the needs of the community. During construction ASDF were on hand to supervise construction, with *fundis* (skilled builders) on site to provide the technical support during the build.


Heka Heka SHG sand dam under construction (left) and complete (right)

Each SHG also built a shallow well to allow safe water abstraction from the sand dams. Based on the available village population data we have gathered, these sand dams are expected to serve at least **13,519 people** living in the wider communities.

"The distance covered in a bid to access water has reduced tremendously. Initially, we used to walk for more than 3km to get to the nearest water source where we would find very long queues. This consumed lots of time that would otherwise be channelled to other income generating activities. Now, it takes less than 30 minutes to fetch fresh drinking water from the shallow well. We are very happy about the water project because the whole community is reaping massive benefits." Esther Munanie Musyimi, Chairlady, Mumo wa Mwanbui SHG


Ndaluni Ngamwone SHG (left) and Wikwatyo wa Mativo SHG (right) collecting clean drinking water from the shallow wells connected to their sand dam

"I have lived in this area throughout my life and not one single time have I witnessed water running along this river bed for a continuous span of one year. This project has been a blessing in this community. The shallow well has had water all through the year, my family and the community members have been using it for drinking, for farming and for our livestock. The community members are now free from the burdens of carrying heavy jerry cans of water every day for extremely long distances." Wilfred Mwendwa Mutesya, Ndaluni Ngamwone SHG member

"Before the sand dam, the land was just bare. What was growing was just grass, so I just fed my animals. Life has changed. We are now in a position to grow different vegetables and trees like papayas, bananas, watermelon, kale and spinach. When I was young we used to depend on rain-fed crops but I believe that my grandchildren's lives will be totally different; they will be able to improve their standards of living through agriculture because the water is available for farming." Benjamin Molonzo, Wikwatyo wa Mativo SHG

As well as building a sand dam, ASDF has been working with **Heka Heka Syomwambya SHG**, **Kwa Mbithi Sand Dam SHG**, **Wikwatyo wa Mativo SHG** and **Woni Witu SHG** in order to build their capacity around climate-smart farming techniques, helping to increase agricultural yields and boost food production, in turn making these communities more resilient. We have worked with **91 farmers** in the four SHGs, **61 of them being female**.

Activities have included:

Tree nurseries – using water from the dams, the groups have already planted **3,516** trees to conserve soil on their farms to prevent erosion and retain rainwater. Trees also provide a much needed source of nutritious food, and an additional source of income from selling any surplus in the local market. Trees also provide fodder, fertiliser, fuel, shade and medicine.

Demonstration plots – demonstration plots provide a 'classroom' whereby groups can receive training on sustainable farming techniques, and enable farmers to test a variety of crops or farming techniques before using them on their own farms. Demonstration plots can also be used to grow communal crops for the community.

Seed banks – communal seed banks have been established, whereby farmers are expected to return seeds following their harvests. ASDF provided the SHGs with a diverse variety of drought-resistant seeds in order to boost food production and help to build resilience to increasingly unreliable rainfall patterns. The SHGs are responsible for managing the seed banks, and setting their own regulations and targets.

ASDF have also facilitated participatory agricultural training to build the capacity of these communities in order to be resilient and ensure they can be food and water secure. Training has covered soil and water conservation techniques such as terracing, which retains 95% of water run-off and up to 97% of top-soil vital for agriculture. A total of **5,925 metres** of terracing has been dug by the groups to date. Other techniques covered in the training include crop rotation, mixed cropping, and the importance of early-planting of crops.

Kwa Mbithi SHG (left) and Woni Witu SHG (right) terracing the land to conserve water and soil

Wikwatyo wa Mativo SHG (left) harvesting tomatoes, and a member of the Heka Heka Syomwambya SHG (right) using water from the sand dam to water his crops

"ASDF taught me the importance of trying different aspects of farming because our area receives little rainfall. I have been able to try my hand in fruits and crop production. Now I have managed to plant several mangos and pawpaw's which are faring well. This will provide enough income to educate my children and for food too." Mukonyo Simon, Kwa Mbithi SHG

"Working with ASDF has been of great benefit to us as a community. With the support of our local ASDF Field Officer we have been taught the importance of planting trees and good farming techniques, and have received numerous training on best farming practices including terracing, intercropping and pest control. This season, I have planted pigeon peas and cow peas which are doing well even in the prevailing conditions." Kitonga Musili, Woni With SHG

As a result of improved farming techniques implemented by the groups, income has already been boosted, through the sales of surplus food grown on their farms. Wikwatyo wa Mativo SHG alone has already generated **219,445 Kenyan Shillings** (over £1,600).

"My children are still in school and some are in secondary school and there we spend money. With the income from selling my tomatoes and watermelon it is now easier for me to pay school fees, and easier to get foodstuffs for my children. Also my standards of living have improved as I plan on improving the building of my home." Harrison Musyoka Kingangi, Heka Heka Syomwambya SHG

Through their involvement in the project women have been empowered, having had greater input into decision-making, since SHG members were responsible for planning their own projects. In turn, this enables them to make more decisions about farming of the land, and in how household assets can be used to generate income. Furthermore, with the distance to collect water now reduced, women will have more time to take part in other income generating activities such as farming.

"It used to be very hard for us as women of this village, we would walk for more than 3km up to Kwakotoe market or 4km to Kwa Kyambo market looking for water from kiosks because the river was always dry. But now, with the water from the sand dam, I have been able to plant pawpaw's, mangoes and kales, which are all doing well, and I have been able to sell the surplus to fund other activities such as paying school fees for my son." Ruth Nyanzi, Katelembu Mazingira SHG

Challenges to Implementation

Whilst this region in southeast Kenya experienced heavy rains during Year 1 of this project, during Year 2 the groups experienced the opposite problem, with the rains normally expected to come at this time of year being delayed. Due to their very nature, sand dams require sufficient rains in order to fill, often requiring 2-3 rainy seasons until they become fully mature. The delay in the rains this year is therefore causing the sand dams to fill slower than anticipated. As the sand dams mature over time however, more sand will build up behind them, which in turn will lead to more rainwater captured and stored.

This in itself demonstrates the need for sand dams as a water solution for people living in dryland areas like Ukambani; without them, communities are dependent on rainfall which is becoming increasingly unpredictable and erratic, causing widespread water poverty and food insecurity. Thanks to funding from the Isle of Man Government however, **Katelembu Mazingira Initiative SHG**, **Mumo wa Mwambui SHG**, **Ndaluni Ngamwone SHG** and **Heka Heka Syomwambya SHG** have been able to build a sand dam, and whilst not fully mature yet, each sand dam is already providing clean water for the communities living here.

The project reached fewer farmers then initially anticipated due to the smaller size of the four SHGs which received farming support. The average SHG size is 25 members.

Project Expenditure

We received the IOMIDC's instalment two, of £29,838 for the final year of the project in August 2017. Expenditure on this project is as follows:

	Year 2 Budget	Year 2 Actual	Variance	Total Project Budget	Total Project Expenditure	Variance
Community Engagement and Participatory Project Planning	£ 6,507	£ 6,507	£ -	£ 18,594	£ 8,594	£ -
ASDF Project Management	£ 3,123	£ 3,123	£ -	£ 8,201	£ 8,201	£ -
Construction of 4 Sand Dams (3 in Year 1 and 1 in Year 2)	£ 7,616	£ 7,381	£ 917	£ 34,760	£ 31,427	£ 3,332
Participatory Learning and Training on Agricultural Techniques, and SHG Organisational Capacity Building	£ 5,177	£ 5,177	£ 0	£ 10,587	£ 10,587	£ 0
Establishment and Maintenance of 4 Demonstration Farms	£ 1,040	£ 1,040	£ -	£ 2,080	£ 2,080	£ -
Establishment and Maintenance of 4 Seed Banks	£ 2,240	£ 2,240	£ -	£ 4,480	£ 4,480	£ -
Establishment and Maintenance of 4 Tree Nurseries	£ 2,104	£ 2,104	£ -	£ 4,208	£ 4,208	£ -
Project Transport	£ 1,952	£ 1,952	£ 0	£ 5,126	£ 5,126	£ 0
UK Monitoring , Evaluation and Audit Costs	£ 5,100	£ 5,100	£ -	£ 14,100	£ 14,100	£ -
Community Contribution	£ 16,264	£ 16,264	£ 0	£ 41,232	£ 41,232	£ 0
Total Budget	**£ 51,123**	**£ 50,888**	**£917**	**£ 143,368**	**£ 140,036**	**£ 3,332**
Less Community Contribution	£(16,264)	£(16,264)	£ 0	£ (41,232)	£ (41,232)	£ 0
Less Matched Funding	£ (5,021)	£ (1,688)	£ (3,333)	£ (16,527)	£ (13,194)	£ (3,333)
Amount Requested / Spent From IOM	**£ 29,838**	**£ 32,936**	£ (2,415)	**£ 85,609**	**£ 85,609**	£ (0)

This project received co-funding from Rotary, several Trusts and Foundations as well as various generous individuals.

Thank you

We are extremely grateful to the Isle of Man International Development Committee for your continued support of Excellent Development and the work we do. Without your generous grant, this project could not have taken place and the impacts would not have been achieved.

Report compiled July 2019
Approved by Christine Whinney, Head of Programmes