

## Project Overview

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In June 2016, the Rotary Foundation approved a Global Grant for \$96,224 to support subsistence farming communities in Makueni County, Kenya to improve access to water through building two sand dams and three sand dam extensions, and supporting four Self Help Groups (SHGs) to implement climate smart agriculture techniques, in order to improve food production. The report below details how the project has achieved its objectives.

## Project Objective

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The overall objective of this project was to address poverty and hunger in Makueni County, Kenya through increased access to water. This was achieved through supporting community (SHGs) to build five new/improved water sources – providing a year-round sustainable source of clean water for drinking, domestic use, farming and livestock – and supporting four SHGs to implement climate smart agriculture techniques, in order to improve food production.

## Meeting Project Goals

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- *Providing equitable community access to safe water and strengthening the ability to develop, fund and maintain sustainable water and sanitation systems*

This was achieved through the construction of five new/improved water sources – two new sand dams and three extensions to existing sand dams – which are providing communities with year round access to safe water, even during droughts. Water is safe as it is stored within the sand, protecting water from evaporation and contamination, reducing the incidences of water borne diseases. Communities used to walk 6-12 hours collecting water, but since building their dams, communities have access to safe water nearby (within 30 minutes to 1 hour from their homes). The dams have reduced the time people travel to collect water and can therefore invest this time in other activities such as improving their farming.

SHGs are recognised by the Kenya Government and all five sand dams have been registered and are owned by the community SHGs. Africa Sand Dam Foundation (ASDF) trained SHGs to manage their own dams and the water in them. All community members have equal access to water from the dams through scoop holes behind the dams. SHGs choose if they want a shallow well or pipes for additional water abstraction – and any charges for water through water pumps is in line with government guidelines and equal to SHG members and the wider community.

- *Improved sanitation and hygiene*

As water is stored within sand behind each sand dam, it is protected from contamination, evaporation and disease. This goal was achieved as communities have clean water to drink and wash with – improving hygiene and health. Communities have seen a reduction in the incidences of illness since their dams were built compared to before. Many had become ill from drinking contaminated water previously.

- *Supporting programs that enhance communities' awareness of the benefits of safe water, sanitation and hygiene*

This was achieved through training in Water, Sanitation and Hygiene (WASH) Training delivered by Field Officers from ASDF. SHGs were trained in basic hygiene principles and best practice in their homes. This includes how to collect, store and use water safely and facilitating discussions on health problems experienced by the community.

## The Beneficiaries

The beneficiaries of this project are the SHG members and their families. The other members of the villages where each SHG is based, as well as neighbouring communities, also benefit from access to water from the sand dams. Moreover, they benefit from increased and more diverse supply of produce at local markets which communities are now able to grow as a result of water from their dams.

The SHGs supported by this project to build new or improved water sources are: the **Kithunthi SHG**, and **Mutula Mango Growers SHG**, who each constructed one sand dam, and the **Kumina Wauni SHG**, **Nthangu East B SHG**, **Wasya wa Athi Ivinga Nzia SHG**, who each constructed an extension to existing sand dams – to enable them to capture and store more water. Details of these communities are as follows:

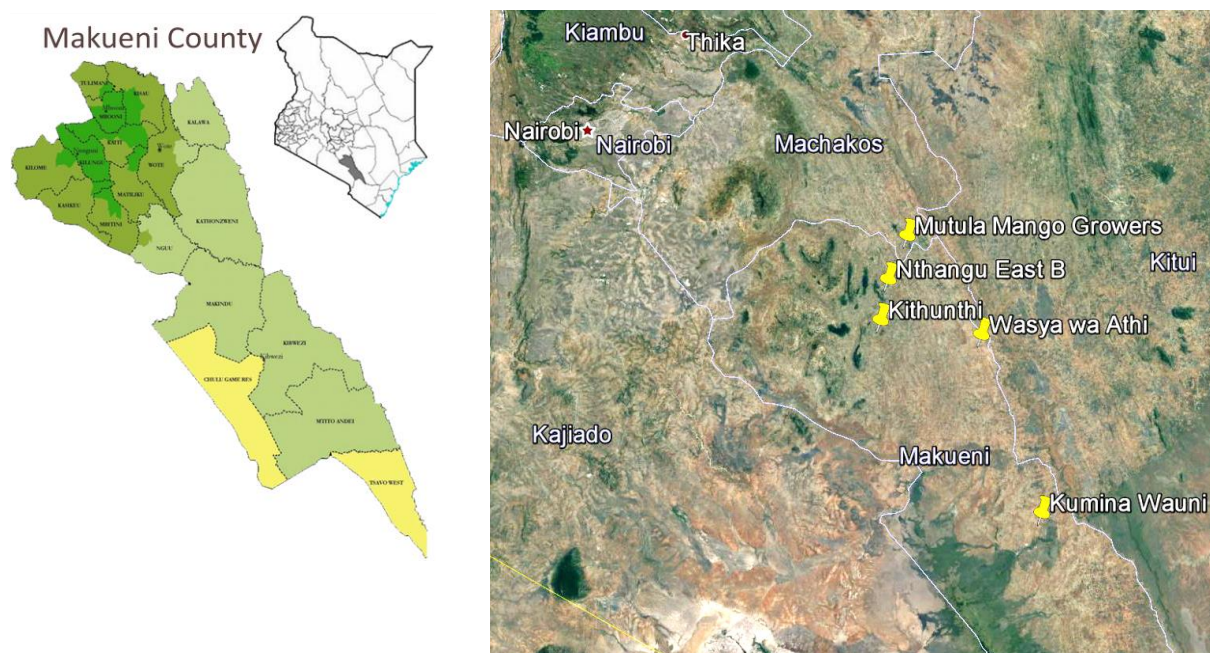
Improved water source	SHG Name	Villages	Village population	Female SHG members	Male SHG members	Total SHG members
Sand dam	Kithunthi	Kithunthi	342	15	27	42
Sand dam	Mutula Mango Growers	Nthangathini, Muthei, and Muvivye	1,231	10	6	16
Extension	Kumina Wauni	Kinzuu	660	25	13	38
Extension	Nthangu East B	Kyengau, Mituvu	628	2	4	6
Extension	Wasya wa Athi Ivinga Nzia	Utumo Mutheke	207	20	6	26
<b>Totals</b>	<b>5</b>		<b>3,068</b>	<b>72</b>	<b>56</b>	<b>128</b>

The SHGs supported by this project to implement climate smart agriculture techniques, to improve their food production, are: **Mutula Mango Growers SHG**, **Kyeni Kya Maluini SHG**, **Vinya Wa Kitulani SHG**, and **Wendo Wa Mwau SHG**. The latter three of these groups will have been enabled to construct sand dams by funding secured from other sources, leaving a funding need to be met to enable them to take part in the accompanying activities including training and support in water, sanitation and hygiene, and climate-smart agriculture. These communities are tremendously grateful to Rotary for making it possible for them to receive this support.

SHG Name	Villages	Village population	Female SHG members	Male SHG members	Total SHG members
Mutula Mango Growers	Nthangathini, Muthei, and Muvivye	1,231	10	6	16
Kyeni Kya Maluini	Katamani, Maluini, and Ndithini	994	14	26	40
Vinya Wa Kitulani	Katamani, and Konza	1,148	10	12	22
Wendo Wa Mwau	Isololo, Kakeani, Ngoi, Kasamu, and Yilani	1,017	12	20	32
<b>Totals</b>		<b>4,390</b>	<b>58</b>	<b>52</b>	<b>110</b>

<b>Grand totals</b>	-	<b>6,227</b>	<b>120</b>	<b>102</b>	<b>222</b>
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## Map showing sand dam locations



## Improved Access to Water, and Improved Agriculture and Food Production

This project addressed severe water shortages in Makueni County, Kenya through building two sand dams, and extending three existing sand dams, to conserve rainwater for year-round use. All five of these rainwater harvesting projects have subsequently filled with water that is being used for drinking, domestic and farming purposes as well as enabling people to support their livestock.

The total number of people with access to improved sources of drinking water is 3,068 – this is the total village populations of the SHGs as measured through our yearly surveys. Village population data was collected from the village chiefs by ASDF.

As part of the wider RIBI project, SHGs are also trained and supported in WASH and sustainable agriculture by ASDF (funded by other donors). This includes agro forestry, farming techniques and improved livestock management, which are designed to enable SHGs to maximise the opportunity provided by water from their sand dams.

### **Nthangu East B SHG – sand dam extension completed February 2017**

This grant enabled Nthangu East B self-help group to extend a sand dam that they had previously constructed, as it had become apparent that there was even greater potential for water to be stored when the initial structure had matured. The sand dam extension funded by this grant was completed in February 2017.

Nthangu East B self-help group is found in Kyeng'au village in Nthangu location, Makueni County. The area suffers the disadvantage of low rainfall and perennial drought which causes water shortage. It is these environmental challenges which have motivated the group to implement projects that can impact on their lives positively.





The group, through support from ASDF and Excellent Development Ltd was supported in the construction of a sand dam which this grant has enabled the SHG to extend – dramatically increasing its capacity to store water for the community.

Now completed, this extension has increased the height of the original sand dam and the wing walls have been extended outwards to create a much larger catchment of sand – to store far more water for the community behind the dam walls.

A recent visit to the group illustrated the successful completion of the sand dam extension and extent of impacts realized as a result of this project.





*“The dam is holding enough water for household chores. Our cattle no longer trek for long distances in pursuit of water. Above all, the shallow well has been the biggest solution providing clean water to the community all year round.”*

Mr. Elijah Kyalo, 42 (pictured left)



*“Before construction of the dam, getting water in our area was a big challenge. We could walk more than 5km only to come back home hours later with dirty water which was not suitable for drinking.”*

Faith Kiio, 40, group Secretary (left).

The group has started small scale irrigation farming along the dam.

*“We have planted maize and cow peas using water from the dam, they are doing well giving us good hopes of a food secure near future. We look forward to working together as a group to better our lives and the environment at large”, concludes Mrs. Kiio.*

The self-help group remains strong, holds regular meetings and the general cohesion is good.

### **Kithunthi SHG – sand dam extension completed September 2016**

The Kithunthi self-help group is located in Mumbuni sub location, Makueni County; an area widely classified as semi-arid land receiving little rainfall annually and prolonged dry periods. The group was supported by ASDF in collaboration with Excellent Development Ltd in the construction of a sand dam and shallow well – completed in September 2016 – geared towards mitigation of the effects of climate change and water crisis in the village.







The projects have been huge successes to the group members and the entire village at large, with the dam full of water and the shallow well providing clean water all year round. Locals came out to share their joy and benefits achieved by the project.

Eliud Kalani, 64 (pictured below), who has been serving as the group Secretary and hails from the Iviani village, told us:

*“The shallow well provides us with clean drinking water from a stone throw distance. The dam has been instrumental in providing water for cattle, household activities and for small scale agriculture.”*



Nicholas Kateng'e, 67 (left), told us about life before the projects and the transformation since the sand dam was constructed:

*"Water was a hard commodity to get. We could walk 4km to Malivani, take more than two hours at the channel queuing, only to come back home with dirty water. We thank ASDF and Rotary for their intervention in helping us get clean water and water for other household activities."*



Members of the group have been working around the clock to establish a community plot to maximise the benefits of the water from their sand dam, and SHG members living around the dam have also engaged in personal subsistence farming.

Jones Katenges' land borders the sand dam and practices small scale agriculture on his farm next to the dam: *"I have planted kales using water from the dam. This was not possible before the project. I now have enough for family use as I look into the possibilities of planting more for commercial purposes,"* says Mr. Kateng'e, 72 (pictured below).



The group remains committed to the bigger course of ensuring access to clean drinking water and environmental conservation at the village, holding regular meetings and working hard on preparations for the construction of another sand dam and shallow well.

*"We are thankful for the support already accorded to us. We are working on preparations for another dam construction,"* concludes Mr. Kalani. This will provide safe access to water closer to home for the members of the community who still have further to travel – as sand dams are sited to make water equally as accessible for all and self-help group may construct additional sand dams to make this possible.

#### **Wasya Wa Athi Ivinga Nzia SHG – sand dam extension completed January 2017**

At the heart of Ngomeni village in Kanthuni location, Makueni County, is a group of men and women who have dedicated their time, energy and resources to better the living conditions of the locals because their village has long suffered from acute water shortages and famine. Wasya wa Athi self-help group has been supported by ASDF in the construction of sand dams and shallow wells with the latest project, funded by this Global Grant, being a sand dam extension to enable a previously constructed sand dam to store considerably more water for the community.

A visit to the group sought to establish the benefits achieved from the sand dam extension as well as the general progress of the group and its future plans.





Above: the extended sand dam.

Anna Musyoka, 46 (right), told us;

*“The sand dam extension has brought more life to our village, holding more sand which has enabled the shallow well to provide water all year round. The general surrounding has greatly changed looking greener and enabling forestation activities.”*



Before the implementation of water projects, life was not easy. As Nduku Muli, 60 (pictured overleaf), puts it; *We remain focused as a group – we hold regular meetings and our goals will never be swayed out of achieving water and food security for the group members and the community at large.”*





***“Now water is available within 500 meters away from the shallow well with no queues.”***

**Nduku Muli**

The sand dam is already filled with sand, holding water for the community, and members of the group have opted to charge for extraction of water from the shallow well that they constructed with their sand dam, which has resulted in an average of KES 1,000 per month being added to the group savings.

#### **Kumina Wauni SHG – sand dam extension completed February 2017**

Kisayani area in Kibwezi sub-County, Makueni District, is a highly marginalized area suffering from low levels of infrastructural development.

The area also experiences low levels of rainfall leading to perennial drought and famine. In response to these challenges, locals came together and formed Kumina Wauni self-help group in an attempt to work together and better their lives through the implementation of water security projects and other climate change mitigation initiatives.







The group was supported by Rotary in collaboration with ASDF and Excellent Development to construct one sand dam extension.

A visit to the group was conducted to gather locals' views on the benefits achieved as a result of the project, supported by this grant.

*"Our sand dam is now filled with sand which has improved the water retention levels both upstream and downstream of the river. I fetch water for household chores fast as it is just from within [the sand stored behind the sand dam].*

*My cattle no longer travel long distances in search of drinking water."*

Ndululu Muteti (left), from Kinzuu village



*"Before construction of the sand dam, we really struggled to get water for both household use and watering our livestock.*

*We have suffered the consequences of water shortage for long. I used to walk for 2km and dig deep scoop holes upon reaching the river channel.*

*Long at the water points greatly derailed our general wellbeing as a community because we'd spent a lot of time at the river. This is now history."*

Josephine Musyoka, 69 (right)





*"The strides made so far are remarkable.*

*As a group we are strong and remain committed to working together for a better future for us and for generations to come.*

*We hold regular meetings and the group cohesion is strong, as evidenced by our excellent working relationships. We are also recruiting youthful members to ensure continuity of the group."*

Kamene Kilonzo, 39 (right)

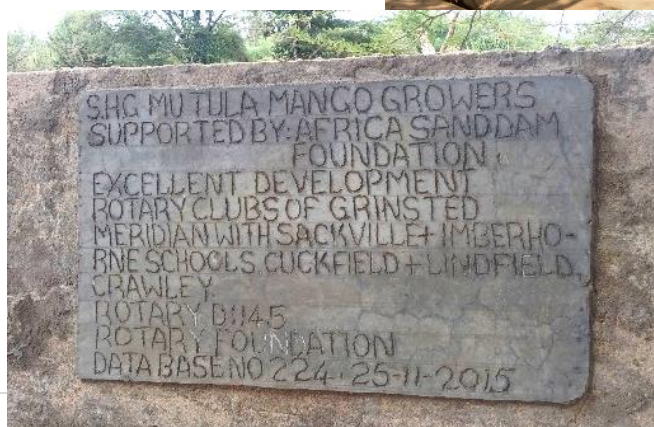
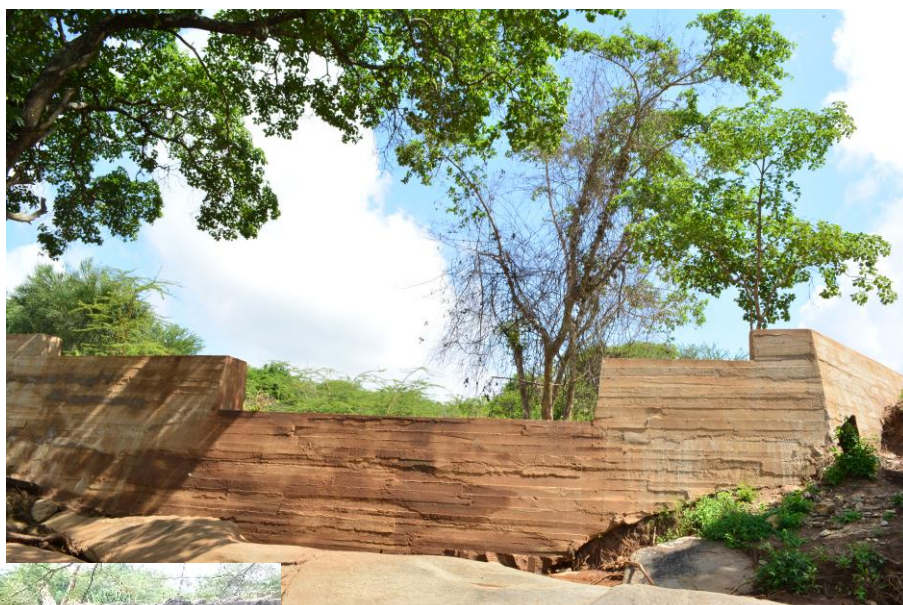


### **Mutula Mango Growers SHG – sand dam completed November 2016, and agriculture support.**

This grant also enabled Mutula Mango Growers SHG to build their second sand dam in November 2016 and to receive training and support to implement climate-smart agriculture techniques for one year.

This SHG is located in Nthangathini village in Kibauni area of Mwala sub-County, in Machakos, which suffers water challenges owing to the low levels of rainfall received across the entire region. It is in this village that a group of men and women formed Mutula Mango self-help group to work their way out of water shortage and the challenges that this presents.

Community members have been working hard, constructing sand dams, shallow wells, learning and implanting climate-smart agriculture techniques. Members of the group shared their experiences regarding the already implemented projects and their plans for the future, illustrating the positive impact of this grant.







*"We constructed a sand dam and a shallow well which are useful assets to this community at large. The sand dam is already filled with sand and this replenishes the shallow well with water, which serves the entire community throughout the year. Now we have access to clean drinking water from the well within a very short distance."* Mutuku Mukosi, 60 (left)

Esther Masila, 58 (pictured right), who serves as the group Chairperson, told us about the numerous strides made by the group: *"Before the implementation of this project, access to water was a nightmare*

*for locals. One had to wake up early in the morning to go to the river. The queues were long and the scoop holes provided us with water which was never trusted for drinking. We are thankful to ASDF for their support. The group members are happy and we look forward to implementing more life changing projects in this area. My crops are doing a little bit well now that the rain is gone because of the terracing."*



*"I have planted cow peas, pigeon peas and green grams in my farm this season. I am anticipating good produce."*

Mang`uu Itete, 64,  
Self-help group Treasurer (pictured left)

This grant also enabled the following self-help groups to attend workshops and receive training designed to provide capacity building and ensure projects are sustainable and deliver benefits over the long-term – which compliments sand dam construction.

This training – delivered by ASDF Dam Coordinators, Artisans, Field officers and Field Managers – covered topics including as governance and financial management, agro-forestry, farming techniques, and improved livestock management, designed to enable SHGs to maximise the opportunity provided by their sand dams and to help increase their food production.

ASDF's Water and Sanitation and Hygiene (WASH) Officer delivered WASH training, including discussion of health issues within the communities, hygiene behaviours, increasing understanding of disease transmission, and providing knowledge around the safe handling, storing and treatment of water. SHG members have taken these lessons back to their households and they will also influence their wider communities.



Communities learned and implemented climate-smart farming techniques to improve their crop production and resilience to climate change. Activities covered were as follows:

1. Establishing a tree nursery: trees fertilise the soil, prevent erosion and retain rainwater. Trees also provide food, fodder, fertiliser, fuel, lumber and a source of income.
2. Terracing: to help to retain 95% of water run-off and up to 97% of top-soil so vital for agriculture. The increase in groundwater levels improves the conditions for growing crops to improved harvests.
3. Establishing and managing a seed bank: an essential part of these projects was providing a community with drought-resistant seed varieties and ensuring seed security for the next five planting seasons. Each of these self-help groups established a seed bank, stocked with seeds for seven drought-tolerant crops. Experience shows that farmers typically return twice as many seeds to the bank as they withdraw, ensuring that there is always seed to plant at the start of each season.
4. Workshops and peer-learning: ASDF provided workshops and peer-learning exchange visits to enable community members to learn improved farming techniques – such as intercropping and zero grazing – to support and motivate each other. Self-help groups also set up demonstration farms to try out new crops and techniques.

### **Vinya Wa Kitulani SHG – agriculture support for 1 year**

Vinya Wa Kitulani SHG is found in the dry lands of Kibauni in Kalawa region. Most of the members practice subsistence agriculture in their small farms for food security. Through support from ED and ASDF the members were provided with seeds and farming trainings to help bolster their farming practices and produce. A visit to the group gave clear insights on the progress of the crops and farmers expectations as well as the challenges faced in the farming.

*“I never used to plant cow peas, green grams and Dolichos until ASDF provided me with the seeds. In the last season, I harvested two bags of cow peas and 50kgs of green grams.”* Alfonse Mutio, 43 (below)







*"I have planted pigeon peas, green grams and sorghum this season, their progress looks good – especially for pigeon peas and green grams which are favoured by the low rainfall levels we are currently receiving."*  
Muthwii Kavinga, 40, Self-help group Secretary (above)

### **Kyeni kya Maluini self-help group – agriculture support for 1 year**

Kyeni kya Maluini is a SHG found in Maluini village of the larger Kalawa region.

The area is highly arid, prompting residents of the area to seek support with their farming. Through support from Rotary, Excellent Development and Africa Sand Dam Foundation, the group has been supported with seeds for drought resistant crops, suitable to grow in their area, and support in soil and water conservation techniques – including digging terracing, planting trees, and inter-cropping. Members of the group told us about on their expectations and the progress of their crops.



*"I was provided with green grams, Dolichos, pearl millet and sorghum seeds which I have planted in my farm. The crops look to be progressing well despite the lack of rainfall for the last one month."*  
Kemene Nzangi, 32 (left)





*"I have witnessed change of my farming techniques since I started working with ASDF. This season I have planted pigeon peas, cow peas and green grams."* Tabitha Kimani, 66

#### **Wendo wa Mwau SHG – agriculture support for 1 year**

Wendo wa Mwau SHG is a community group found in Kakeani Village of Ng'oi area in Makueni County.

The people living in the area generally practice agriculture for food security – selling any surplus they are able to grow to provide for other family needs, including funds to pay their children's school fees. Through support from Rotary, Excellent Development and Africa Sand Dam Foundation, members of the group were provided with seeds to establish a community seed bank, training and support to improve their farming practices and crop yields.



*"I received cow peas, green grams, Dolichos, pigeon peas and sorghum seeds before the onset of the rains which I later planted in my farm."* Ngina Peter, 41, self-help group member (left)

*"I was provided with Green grams, Dolichos, sorghum, pigeon peas and cow peas seeds. Before the onset of the rains I had prepared my farm by digging terraces because my area [of farm land] is a bit sloped. Green grams, pigeon peas and cow peas are doing well."* Lakeli Syovata, 45 (below)





Overall, the project funded by this Rotary Foundation Global Grant succeeded in meeting all the intended objectives. Two new sand dams were constructed, and communities now have access to new, local, sustainable water sources, for drinking, domestic use, farming and livestock. Three more sand dams were extended to provide even greater benefit to those communities – by storing significantly more water, which will help to support agriculture activities and yields – and four self-help groups were trained and supported to implement climate-smart agriculture practices, including soil and water conservation, to enable them to grow enough food to eat and sell.

Progress of the project was monitored through a combination of monthly operational reports and annual surveys from Excellent Development Ltd and Africa Sand Dam Foundation (ASDF) as well as a visit by Evans Obuya from the Rotary Club of Nairobi North to the various locations.

### Long-term Impact

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We cannot overstate the value of our support for these communities. By far the greatest impact is the availability of local and reliable water supplies. This releases people from the drudgery of spending hours every day collecting water – which is time that they are now able to invest in farming and other activities to better their livelihoods. In addition, the skills, knowledge and experience people have gained through working on this project will enable them to continue to gain the fullest possible benefits from their sand dams and improve their food and water security in the long-term without external support.

Report compiled August 2017