

# The Mozambique Climate Resilience Program

Activities and lessons learned  
from the first pilot year.

1 July 2017 – 30 June 2018



the sustainable  
trade initiative



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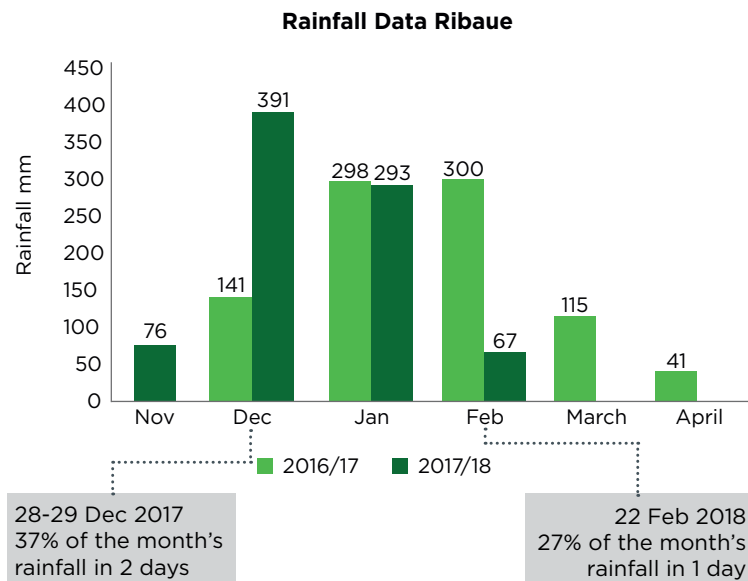
# Introduction

## The importance of climate resilience in Mozambique

Mozambique's agricultural sector accounts for 22% of the national Gross Domestic Product (GDP). This sector gives employment to 73% of the country's workforce<sup>1</sup> and approximately 95% of the total agricultural workforce consists of smallholder farmers.<sup>2</sup>

Due to Mozambique's geographic position and predominant dependence upon rain-fed agriculture, smallholders are increasingly becoming more vulnerable to the effects of anthropogenic climate changes, especially as most of the country's agricultural production is subjected to large floods and droughts<sup>3</sup>. In the next 10 years, average temperatures are expected to increase between 1 and 5 degrees Celsius, with a prolonged dry season (June to November) and higher annual rainfalls in the northern areas of Mozambique (December to February).

When scrutinizing average rainfall data beyond the annual and monthly averages, the effects of climate change is evident. There is a dramatic decrease in consistent rainfall with high proportion to the monthly rain occurring in single days. The impact can be destructive - houses and roads are impacted and top fertile soil for agriculture is dislodged.







An average smallholder cotton farmer that farms 0.8 hectares of cotton produces approximately 500 kg yield per hectare, from which he is able to earn about 70 USD. The impacts of climate change and extreme weather events like droughts, floods, and cyclones significantly affect their livelihood and food security making them increasingly more susceptible to external shocks. This is the reality for a large majority of Mozambique's rural population that is dependent upon agricultural production for their source of income with 25% of the population currently vulnerable to natural hazards and 35% suffering from chronic food insecurity.

Ensuring resiliency of smallholder farmers against volatile weather patterns is essential to secure the agricultural productivity and, in turn, health and well-being of Mozambique and its people. It requires mitigating the impact of climate change by de-risking farmer livelihoods by maximizing all possible and existing assets. This starts with developing the household and community as a reliable safety net and requiring a holistic livelihood approach for robust 'asset' development and risk mitigation.

## The Mozambique Climate Resilience Program

Since 2016, IDH has partnered with four private sector organizations: Olam, San JFS, Plexus, and SANAM, with additional technical support from Action for Food Production (AFPRO) to convene a program providing smallholder farmers with access to inputs, knowledge training on sustainable cotton cultivation, and technology and information for multiple food cropping and animal husbandry. The program is designed to increase farmers' resilience against extreme conditions and poverty by employing a coordinated approach to provide farmers with diversified income, improved food intake, and training on sustainable agriculture production. Pilot projects are now running to support villages in the provinces of Niassa, Nampula, and Cabo Delgado.

Through the IDH cotton program and the existing collaborations between IDH and the public and private sectors with different sector-specific expertise, this program was developed as an alternative approach to development and inclusive growth.

<sup>1</sup>Agriculture percentage of total GDP: <https://www.cia.gov/library/publications/the-world-factbook/geos/mz.html>

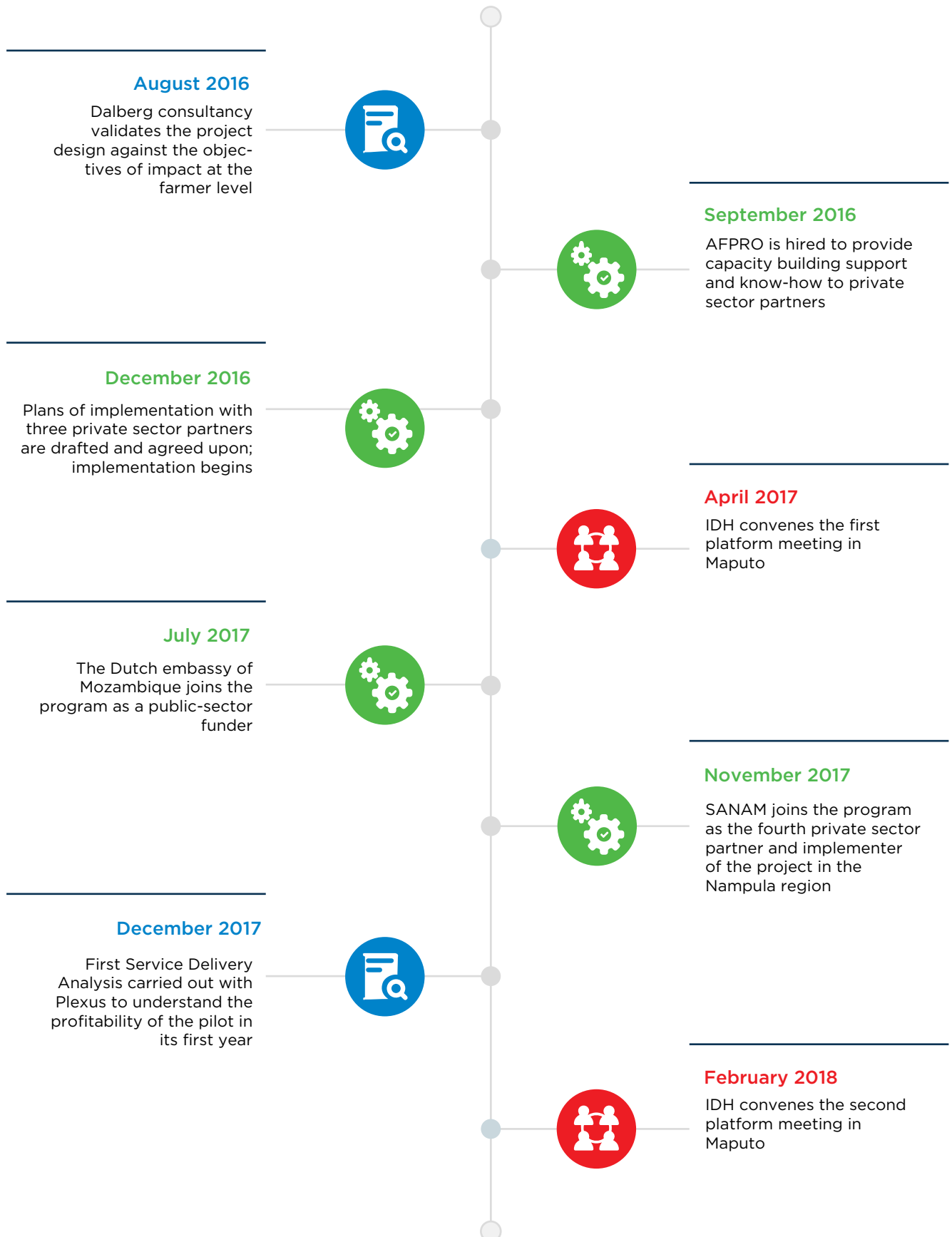
<sup>2</sup>Agricultural employment statistic: <https://idea.usaid.gov/cd/mozambique?comparisonGroup=region>

<sup>3</sup><http://www.fao.org/mozambique/fao-in-mozambique/mozambique-at-a-glance/en/>

Working towards a holistic solution, the Mozambique Climate Resilience Program promotes and builds on the need to empower farming communities with the ability to make informed decisions as entrepreneurs and community members. By promoting governance mechanisms and sensitizing communities on the power of a group, it offers a greater chance to institutionalize a system change and achieve long-lasting impact.

The funding structure for this program and the implementation of the field-level projects is based upon matched funded support between public funders, (the Dutch Embassy of Mozambique and IDH), and the private partners of the program. Due to such public-private partnerships, innovative approaches like these can be de-risked and tested. Additionally, to achieve impact at field level, IDH supports the program in its three roles of convening, piloting, and co-funding.

# Timelines





# The year that was (2017-18)

In an exciting first year, the Mozambique Climate Resilience Program delivered the implementation of four pilot projects in northern Mozambique. Olam, Plexus, and San JFS joined the project in 2017 as private partners and project implementers. The number of project sites expanded to include a fourth private sector partner - SANAM - at the end of 2018, who demonstrated an interest in joining the program. Capacity building support coming from AFPRO and IDH since 2017 has also expanded to ensure the needs of the program were met as a result of this expansion.

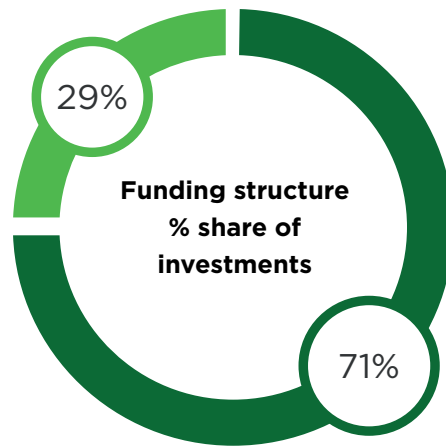
Working across four sites and with different partners has proven to be a very effective way of testing the program's theory of change and understanding the common denominators for maximizing the impact at the farmer and business levels. While the pillars of our work remain the same, the local conditions and organizational approach of each of our partners vary. These differences have enriched our experiences, yielding the best practices that can be shared with and applied by others.

As a result, in 2017, nearly 219 farming households have been reached through the Program, as per the present outcome level indicators. In 2018, we project the figure to double.

The investment in the 2017-18 season reached a total of approximately €470,000, combining both public and private sector contributions. As each site is unique, slightly different investments from each are required. However, as a rule of thumb, the program ensures that principles of fairness and equality apply. As a result, the differences between partners' individual projects remained almost identical.



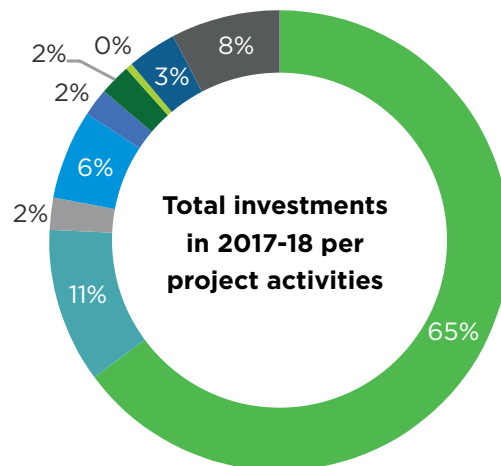




■ Public sector ■ Private sector

This first year of the implementation has been essential for determining the basis of our engagement with the communities and with the concessionaire partners for the upcoming season. Overall, the progress has been positive, especially at the community level, as water availability improved living conditions and brought new opportunities.

We were also able to identify areas for improvements while remaining faithful to the project design and concept. Such reflection has helped drive the implementation plan for the upcoming season.



- Creating water sources structures
- Building soil conservation & land management structures
- Establishing water irrigation infrastructures
- Provision of service for crop production (cotton)
- Provision of service for crop diversification
- Provision of service for animal husbandry
- Generating access to energy
- Service Delivery model Analysis



# Improving access to water and minimizing the effects of weather-related shocks and stresses

## Establishing community-based watershed structures

### What are the differences between water harvesting structures and soil conservation structures?

Water harvesting structures. Water structures in catchment areas such as open wells, ponds, and reservoirs allow water to be utilized for longer periods throughout the season.

Soil and land conservation. Structures like water absorption trenches, farm bunds/trenches, and gully plugs are very useful to control land erosion and the loss of fertile soil especially with heavy rainfall. Additionally, it increases soil moisture as it allows water to penetrate the soil deeper.

IDH supports the development of water structures including water management techniques (e.g.: community water harvesting, dug wells, and dams) and water storage techniques (e.g.: soil conservation and land development through bunds and furrows). Additionally, IDH supports the creation of water catchment areas (e.g.: open wells, ponds, and reservoirs) to allow water to be utilized for longer periods throughout the season.

Unlike other water-based technology, such as large-scale drip irrigation, water intervention can be implemented and maintained at a relatively low cost since it does not require high technology inputs and can be maintained by the communities themselves once ownership is established. In addition, it is highly adaptable to the hilly topography of northern Mozambique as it is designed to take advantage of the landscape's features to capture and channel rainfall.

Creating water structures at the village level is a key intervention to enable communities to:

**Increase access to additional water.** Depending on the capacity of the water harvesting infrastructure, communities can access water for 3-4 months after the rainy season to support additional cultivation.



**Increase soil moisture and soil health.** Soil and land conservation structures help maintain topsoil and, in the case of excessive rainfall, avoid destructive landslides. Water can penetrate the deeper strata of the soil, replenish underground water reserves, and increase moisture for additional cultivation.

**Improve health and sanitation.** Refurbishing water tanks and wells decreases health and sanitation issues and reduces exposure to associated diseases via appropriate coverages, materials used, and methods for harvesting water.

## Key activities in 2017-18

Beginning in 2017, a key priority has been to ensure supporting infrastructures were built across different project sites. In total, 38 different structures were built in four villages with a capacity of more than 55,000 m<sup>2</sup> of water.

A wide range of structures was built for water conservation and water harvesting, soil conservation, and irrigation to gain a better understanding of the associated costs and benefits at the field level.

For water conservation and water harvesting, designs such as earthen embankments, rubble masonry work, farm ponds, bore wells, and open wells have been applied. Earthen embankments are used to support and recharge open wells while creating catchment areas for water to be stored. Rubble masonry work usually increases the yield of bore wells and improve water quality. Farm ponds and bore wells help recharge supplies of groundwater and improve soil moisture. Finally, open wells provide a sustainable source of water

for protective irrigation for crop production and adjacent industrial requirements.

For soil conservation, gully plugs (or loose boulders) and farm bunds (or contour bunds) can be used. Gully plugs control soil erosion and farm bunds improve soil moisture during periods of drought.

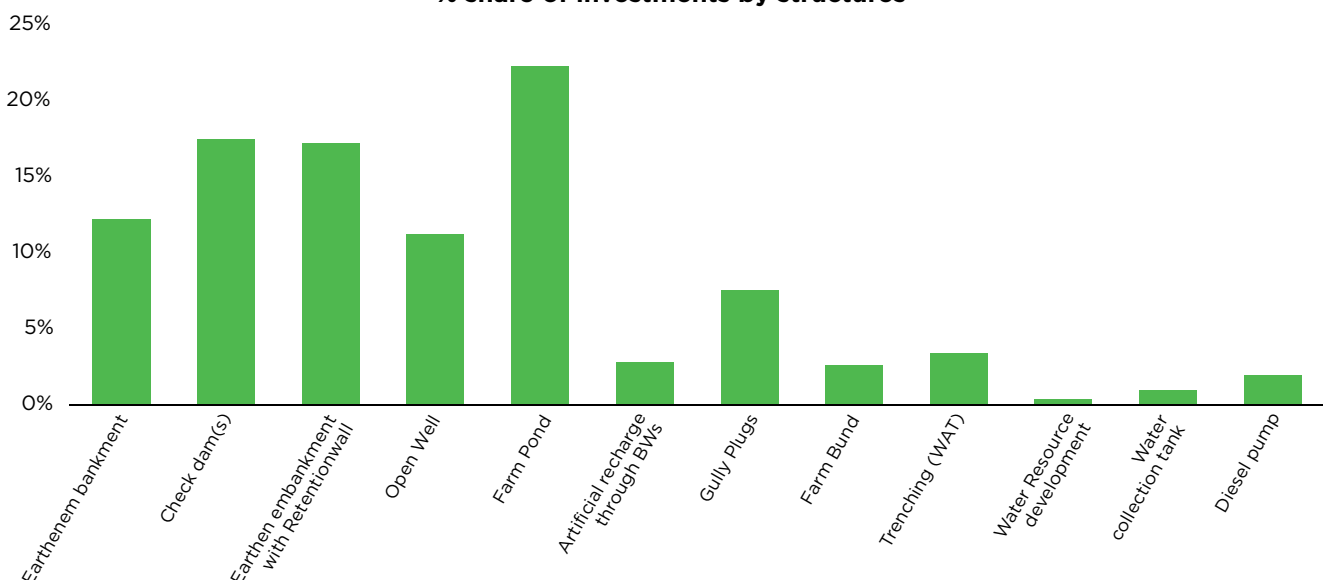
To make use of the additional capacity, lift irrigation pumps are installed and water is shared amongst community user groups. Across the project sites, user groups have been asked to plan, design, and contribute to a lift irrigation scheme to establish responsibility for operating and maintaining the system. In one of the project sites, an irrigation scheme was established that charged users MZN 2,000 and in total, they were able to collect a total of MZN 10,000.

## Investment strategy

Investing and building the water structures accounts for a significant portion of the total cost in the project's annual budget. To help de-risk the investments made by the private sector partners, we matched their contribution with public sector funding. This investment approach has been crucial in securing their involvement and developing a business case for the private sector.

In 2017-18, the total investments for creating water source structures, soil conservation and land management structures, and water irrigation infrastructures accounted for 78% of the total costs (at an aggregate level). In the upcoming season, understanding how we can normalize the capital costs will be essential to the cost-benefit analysis for replicating the model across other villages.

**% share of investments by structures**





## Ownership and involvement of communities

Sustainable and consistent maintenance of these structures is vital. The objective has been to involve and incentivize communities to participate in construction activities as much as possible. Not only does this reduce the labor cost but, by providing in-kind support, communities have increased ownership. Ultimately, it helps build their capacity for future maintenance. Approximately 240 individuals from the villages have been involved in the activities with the support of the engineers brought by AFPRO. When machinery and more specialized assistance was required, local agents were selected based upon their capacity and price competitiveness.

## Highlights from our partners

### Achievements

Across the four project sites, our partners have reported improvement in soil moisture, structure, and fertility, resulting in minimized erosion. Farmers are acquiring technical knowledge and water structures have demonstrated success in water harvesting. There is now an increased availability of potable water in the communities for domestic consumption.

### Challenges

Finding reliable and skilled contractors for some of the machine-related work has been challenging as these structures are relatively innovative in the region. Working with inexperienced constructors meant building their capacity from scratch to help foster the precise enabling environment for the future. Another implication of building the capacity of the local contractors from scratch, meant that additional repair work was needed in 2018 to mitigate the small mistakes and operational failures of the first year of work.

## Story from the field

“My name is Vincent Mario Sauje, village leader of Muape. Honestly, at the beginning I had my doubt about the impact of this project for Muape village, but today, after almost one year I am very happy because the activities done by the project is bringing very good impact.

The well which was constructed and rehabilitated by the project. It is providing safe water for 2,845 families (Muape village and surrounding). Earlier, families were collecting drinking water from traditional wells, in which the water was not clean, and they were suffering a lot from diseases such as stomach pain and cholera. But this year, even by the end of the rainy season we didn't have any case of cholera at our community.

In addition, the water harvest and soil management structures, have helped protect the houses near to the mountain. All water coming from there is being captured and collected in the dams, avoiding destruction of houses. Last year, 7 families lost their house, but this year all houses are safe.”



# Providing alternative livelihood opportunities for increasing income and food security

## Diversification of crop production

“ Within a short time that the group was involved in the production of vegetables has aroused interest of more villagers to explore the land, which was considered as infertile, for horticulture. The two dams that were installed under the Program, brought added value in terms of water conservation for different household tasks, such as bathing, washing clothes and watering animals.”

**-Plexus Mozambique.**

Crop diversification provides farmers with both income diversity and food security to ensure resilience against external shocks. This is essential given that one-third of Mozambique's population is already food insecure due to low returns in agriculture that do not provide enough income to maintain entire households.

By enabling farmers to grow secondary crops through the provision of agricultural inputs, fertilizers, pesticides, and farmer training in modern agricultural practices, farmers can grow additional crops for self-sustenance and added income. The additional income generated allows farmers to save and develop buffers in case of poor harvest seasons and it allows them to purchase additional goods and services to support their needs and long-term vision (e.g.: sending their children to school). While the benefits of increased food security to the communities' health is undeniable, it also allows them to make better decisions on their cash crop production during the rainy season. Decisions that are less driven by hunger and starvation are more based on financial understanding.

### Key activities 2017-18

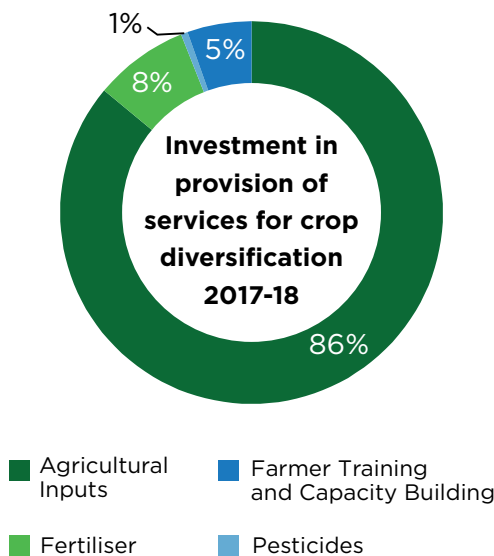
IDH hired a local agronomist to help plan and execute second cropping in all villages and to provide on-site training and demonstrations at each of the project sites. In addition, the program partners provided farmers with seeds, fertilizers, and pesticides.

Groups ranging in size from 10 to 25 farmers were created to support them with inputs and training on nursery raising, transplantation, irrigation, and application of fertilizers and pesticides. Monthly visits were also made by the agronomist to the field sites.

In total, 16 farmers across five villages and covering an area of 15 hectares have started cultivating second crops including cabbage, tomato, onion, lettuce and sweet pepper.

## Investment strategy

In 2017, 2% of the total budget was invested in providing services for alternative livelihood opportunities. Demonstrating the potential of secondary crop agriculture with small groups of front-runners has been the rationale behind a cost-effective investment strategy. Consultations with all farmers at the beginning of the season were carried out to allow the most interested and motivated individuals to come forward. Training and inputs were provided to each of them, in exchange for their perseverance and motivated engagement. These motivated farmers are results-driven and are inspiring others to follow.



## Highlights from our partners

### Achievements

Due to the additional water availability, project villages have started to successfully cultivate vegetable crops including cabbage, onion, tomato, lettuce and sweetpeper. Partners have reported that farmers are already able to start selling their harvest, which is adding to their income. This additional income is also reported as being used to make long-term investments; increasingly more farmers are becoming involved

in the project as social income is increasing amongst existing beneficiaries. Production of vegetables by the front-runners of the pilot has sparked increasing interest amongst villagers to explore the land that was previously considered infertile for horticulture.

The availability of more fresh produce is allowing families to consume more proteins and minerals, helping them fulfill food and nutritional needs. Partners report the general perception amongst farmers of the project was a great deal more positive in comparison to last season when the project started.

### Challenges

The planning of area and crops for cultivation around the water structures is a key challenge, along with expectation-setting within the farming communities. While additional agriculture during the dry season is now possible as a result of the water structures installed, they neither provide unlimited supply nor can they all be sustained for the full year. Consistent and repeated messages are important and preparing the groups to work through water-sharing principles is vital to avoid conflict in the future.

It is in the interest of the partners to invest and support the development of secondary crops. Farmers are more likely to be in better health due to their nutritional needs being met and therefore less susceptible to diseases. This, in turn, leads to their additional capability to improve yields across various crops. However, results are not yet detectable for the first year of implementation. Support for secondary crop activities is seen as going beyond the mandate and capacity of the private partners and their team on the ground. As such, additional support in organizing farmers and providing guidance for planning in the first years of implementation is needed.

## Story from the field

My name is Disciplo Victor. I am 39 years old and I am member of this community since 1999. Last year, I joined second crop group with 10 other farmers from the village.

By selling my produce, I gained 9,000.00 MT. In addition, I could provide some vegetables for my own family consumption. With the money earned, I could pay my children's fees, buy uniform for them and others material needed at school. In 2018, I further increased my vegetable area so that next year my children can continue to go to school.





# Providing alternative livelihood opportunities for income diversity and food security

## Animal husbandry

Diversification of income and dietary options is enabled further by providing animal husbandry services as an additional activity to second crop cultivation. Poultry and goat farming can be good supplementary opportunities emerging from access to additional water as communities' report that the prolonged dry season renders the survival of the animals risky.

As a result, the intervention focuses on providing services at three complementary levels to promote effective and sustainable impact. Firstly, by providing animals to a selected group of voluntary beneficiaries (self-promoted and identified based on motivation). Self-help groups (SHG) were created to promote group-based management models as they can spur better and faster results with an increased scale. Secondly, by training the group on good management and providing an advanced veterinary capacity building of 1-3 members elected as community veterinarians. Finally, by assisting the groups in the procurement and provision of vaccines, feed, and housing materials for the animals.

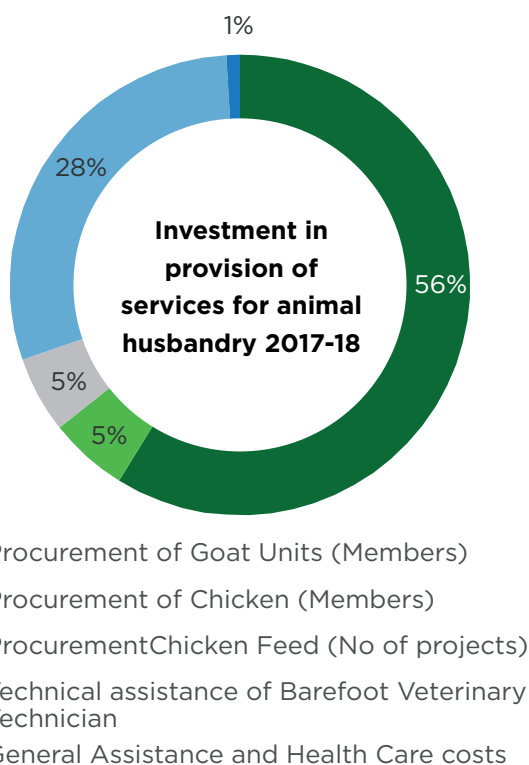
### Key activities in 2017-18

Throughout the season, the program provided animals to 94 selected beneficiaries. 10 Self-help groups have been formed and advised on governance structures, roles, and routines. Accountability mechanisms were provided to help carry out the management of animals in more cost-effective ways.

In addition, training was provided at all sites by local consultants and refresher training sessions provided at regular intervals. Based on the knowledge gaps identified, these sessions would focus on animal health management, housing, and feeding practices. This was coupled with the provision of vaccinations and de-worming operations. In total, 17 community veterinarians were trained by AFPRO's expert in 2017, to ensure at least one individual at each site can be available to advise the rest of the beneficiaries on animal health management.

## Investment strategy

In 2017, 2% of total costs was spent on the provision of services for animal husbandry. Cost of the activities was driven by procurement of animals and inputs such as vaccines and the hiring of a veterinarian for training and refreshers. The remaining costs for building the houses and supplementing inputs given by the partners were invested directly by the beneficiaries themselves.



## Highlights from our partners

### Achievements

Poultry activities were generally well received by communities, especially by women, as consumption of chicken is accepted and carried out by most households. Yet, the knowledge required for taking care of the animals was clearly not sufficient to ensure successful management of their survival in the long-term. As a result, advisory and training activities have been reported as helpful and needed at most sites where the interest was high.

Establishing training of trainer activities for individuals at village level have benefited broader communities and are demonstrating a long-lasting potential. In most cases, a high impact was achieved with relatively few resources.

A year later, the additional work on animal husbandry is gaining increasingly more support from local government agencies with adequate linkages and outreach. Additional and more consistent support by local public agencies could be explored further.

### Challenges

Lack of cohesion and trust amongst farmer groups has been a critical bottleneck, which has resulted in confusion of responsibilities and ownership amongst the communities. It also made organizing and mobilizing the farmers more difficult than expected. In some cases, short-termism of farmers led to lack of motivation as they only see incremental benefits in comparison to the additional work required. There is also an overall lack of interest in collective management. It has been observed that, in most cases, individual beneficiaries of animal husbandry services are managing this activity much better independently than under a collective management arrangement.

Finally, prevention and a high response speed in case of diseases are key when managing animals as an infection can spread rapidly and bad timing can easily become deadly for the animals. The first year of implementation led to some severe losses of chickens, as capacity building of beneficiaries requires more time and effort to ensure adequate risk mitigation and crisis management.

## Story from the field

“My name is Sabau Chaumane. Last year, my group and I received 26 sheeps to start developing animal husbandry activities. I, along with other members, were trained in animal care.

I am very happy because I can advise other members of the group and the community on how to take care of animals. I wish to see increased of number of sheeps. However, due to some organizational reasons, the number of animals received didn't increase.

I am happy for the opportunity given by the project, I hope this organizational issue will be solved and we will have good result by end of this year.





# Increasing productivity in cotton

## Providing GAP training, access to inputs and to markets

Cotton is a major agricultural crop in Mozambique, ranking sixth in total export value. It is the main source of income for more than 300,000 smallholder households in central and northern Mozambique. Ultimately, the cotton sector has the potential to drive a household poverty reduction in the target villages. However, this potential is currently clouded by low productivity, low utilization of inputs and technology (less than 3% of farmers use fertilizers), and limited connectivity and commercialization (8 in 10 farmers are disconnected from reliable all-weather road networks and do not sell their production).

Good Agricultural Practices (GAP) are the most important determinants of cotton yields<sup>4</sup>. As a result, the program builds on the existing work for the promotion of the Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA). In 2013, BCI signed an agreement with the Mozambique Cotton Institute (IAM), which saw BCI's Minimum Production Criteria embedded in the country's cotton legislation and national guidelines of the farmer extension services. The latter is carried out by cotton concessionaires, who in turn provide training as per the BCI principles to the farmers.

The Better Cotton Standard System and CmiA are holistic approaches to sustainable cotton production that covers all three pillars of sustainability - environmental, social, and economic. Each of the elements - from the Principles and Criteria to the monitoring mechanisms that show results and impact - work together to support the Better Cotton Standard System, the credibility of Better Cotton, and BCI. The system is designed to ensure the exchange of good practices and continuous learning for improving farmers' knowledge.

In addition to training good practices, cotton companies provide packages of inputs and credit to all smallholders at key stages of the production cycle.

### Key activities 2017-18

The 2017-18 season started with high expectations from farmers and cotton concessionaires as prices of cotton against competing crops were high and consistent, as compared to last season. Farmers' appetite and commitment to grow cotton increased and partners were able to service 168 farmers in each village.

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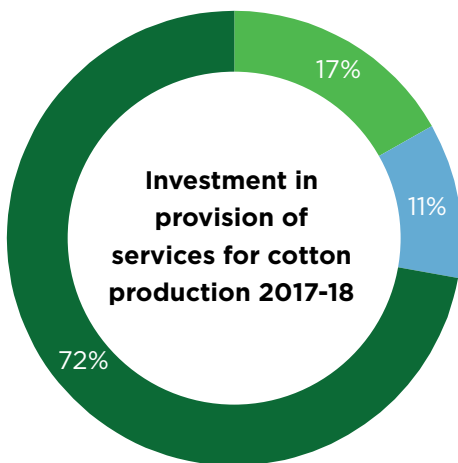
<sup>4</sup>Dalberg, Business validation for climate resilience in Mozambique, 2016 report.



In some cases, partners chose to invest in improved input packages to take advantage of the growing momentum in the communities. Capacity building on Good Agriculture Practices followed the production principles of BCI: minimize harmful impact of crop protection practices, promote water stewardship, care for health and soil, enhance biodiversity, preserve fiber quality, promote decent work, and operate an effective management system.

### Investment strategy

In 2017, 6% of total costs) was invested in the provision of services for cotton production. Not all costs of implementation are accounted for in this project because partners are providing accounting services on a much larger scale than this project. The investments are accounted beyond specific villages at the regional level, which makes it difficult for partners to segregate for this program.



- Farm implements (L/s - No of projects)
- Farmer's training & capacity building on the modern agricultural practices (Covered under BCI prog)
- Provision of Input (seeds, fertilizers, pesticides)

## Highlights from our partners

### Successes

By working with cotton concessionaires, farming communities have a secure market to sell their products and are guaranteed support to improve their yield. No other market agency in the region is currently promising top-level support to these communities and enabling them to develop a reliable income stream.

In return of purchasing power security and almost zero risks of side selling, cotton companies can also make upfront investments to support farmers in their efforts to drive productivity. This is one of only two industries in the country that is regulated in such a way that both sides should theoretically be more comfortable with making long-term and upfront investments.

### Challenges.

Despite its strength, increasing the cotton yields continues to be an ongoing concern for the industry. Yield data for this year indicates progression and the increasing area under cotton cultivation is a good sign of growth. For improved results, a good deal more work must be done on capacitating farmers with input supply and training on good agriculture practices. Moreover, price competition continues to cause fluctuations in the number of farmers planting cotton; this has significant ramifications on the return on investment for private companies.

The 2017-18 climatic conditions and extreme rainfall patterns did not ease the case for yield improvements. Despite a stronger appetite from the companies to invest in farmers based on projections of increasing acreage and productivity, the result of the harvest did not meet expectations with volumes not high enough for it to be considered a successful season.



Photograph by F H Mira, License: <https://creativecommons.org/licenses/by-sa/2.0/legalcode>

# Providing solar energy capacity and access to technology

## Training village level entrepreneurs in solar energy business models

Access to energy and information technologies is fundamental to building resilience. Technology is growing rapidly and the cost of procurement is getting lower and more affordable. By harnessing low-cost technologies, the projects provide solar panels at the community level along with appropriate implementation schemes to ensure they can be credited and reimbursed through viable financial models.

Access to solar energy will be rooted on the provision of solar energy panels and the development of community-level entrepreneurs as service providers. By combining access to energy with other types of energy-based services that can be serviced at a fee, such entrepreneurs would receive enough funding to support the business. In addition, it will enable the development of products that typically require a power supply. These products will be given to the selected entrepreneur in each village, supplying him/her information for providing additional services to communities.

### Key activities in 2017

As a starting point for this intervention, 3 individuals received solar panels during the first year. Guidelines were also discussed with entrepreneurs for the maintenance of the solar kit and expansion of activities in the village.

Partners and beneficiaries worked jointly on the development of business models and repayment mechanisms of the technology to ensure ownership and accomplishment of the long-term vision. Entrepreneurs agreed to pay between 30% and 50% of the cost for the solar panel and equipment, which was match-funded by the project investments. As a result, the total investments that were needed to cover this activity during the season have been close to zero.

## Key highlights of partners

### Achievements

Developing simple repayment models based upon mobile charging units available to the community has initially proven effective for encouraging investment in solar energy panels by communities. There is a need to develop this further next year to gradually build a stronger business model that can benefit larger communities. Moreover, if done correctly, this activity can be leveraged to provide light, ICT tools, and crop-related rechargeable tools.

### Challenges

Providing inclusive and sustainable models on solar energy has been one of the more challenging activities to implement due to the lack of adequate supply and maintenance services in the regions and limitations of the model for including more household beneficiaries.

In some cases, the lighting kit, consisting of the solar panel, battery, and lamps is seen as too expensive for replication. The beneficiary family currently does not have enough customers for recharging phones and viewing movies to be able to encourage other members of the community to make similar investments. It was reported that further investments are needed to see an impact.

## Story from the field

“My name is Ramalho Estefano. My family was one the beneficiaries of the solar panel model for implementation. I am very happy because I can use the solar panel to produce light to illuminate houses during the night, recharge cell phones, listen to radio and music and provide services of cell phone recharge to my neighbours.

To recharge one cell phone, it cost 10.00 MT. Since I have just started the service and most of my neighbours do not have cell phones because of lack cell phone recharge services, I am recharging about 2-3 cell phones every day, collecting 20.00 to 30.00 MT per day. I believe that in the coming month the number of families with cell phone will increase due recharge services now available.

To maximize the utility of the solar panel, I bought a DVD and television to project cinema during the weekend at my home. The cost to watch the cinema will be 10 MT per person.”





“ The women’s saving group successfully completed the year, with the group saving MZN 22,000 during the first year. The women’s group has been more efficient in all the activities they participated in, such as, saving and raising chickens. Now the men of the association, have also convinced themselves that they should follow the same path. In the village, other women have already approached the project team and shown interest in being part of the savings group. ”

–Plexus Mozambique.

# Institutionalizing community-based cooperation

## Setting up Self Help Group

Defining our cooperation with the communities is vital for ensuring that implementation is delivered in an effective and inclusive way and builds the foundation for ownership by the communities. Therefore, the overarching objective is to develop an appropriate engagement strategy for all the additional activities that are provided.

To answer this need, the approach taken in the program is two-fold.

Firstly, the program works with community members that are demonstrating an interest to join and to invest themselves in the opportunities offered through the program as they see their own benefit in driving results. Ultimately, the choice of each community member to join the program’s activities is voluntary. As this is an innovative approach, testing it with the front-runners and enthusiasts will increase the likelihood of success. In time, when results with the front-runners will be demonstrated, others will be inspired to join and replicate the model, until it becomes a critical mass.

Additionally, the program seeks to create self-governed models with communities in order to reduce dependencies and strengthen the potential through collaboration, risk sharing, and accountability mechanisms. This is especially

relevant for opportunities (or challenges) that cannot be carried out alone or when working together will be much more efficient and effective. One example is the maintenance of water structures. The project is aimed at helping communities (the same group of front-runners) establish self-help groups by providing knowledge on how to work together, the accountability protocols and governing rules that can be followed and, facilitating resolutions of issues when and if they arrive.

In Muape, Plexus helped establish a women’s saving group including 13 women. The program advised them on setting various rules for collaboration such as meeting schedules, establishing roles and responsibilities, principles for saving, borrowing and repaying, security, accountability, etc. In one year, they were able to save a total of MZN 22,000 with each member contributing MZN 50 per week. The women were able to use these savings to buy clothes, home coverage, ID processing, and small business start-ups such as selling dumplings and other snacks. The women also utilized the chickens as a form of savings; selling them for cash if needed. The men in the village have observed this success and have now set up a saving group with 11 members. Their aim is to save MZN 220 per week to purchase petrol for the irrigation pump.

## Bringing engineering know-how from India

IDH's capacity to develop innovative models for delivering services to farmers depends, to a large extent, on its partners and the solutions they can bring to the table. In the context of the Mozambique Climate Resilience Program, bringing solutions such as watershed development and food security might not have been possible without the inclusion of expert partners such as AFPRO in the global ecosystem of IDH's operations.

AFPRO is a not-for-profit organization registered in 1967. It provides short- and long-term institutional and technical support linked to water, sanitation and hygiene, watershed development and food security, and sustainable livelihoods. The organization consists of hydro-geologists, hydrologists, geologists, geophysicists, civil engineers, sociologists, and specialists in agriculture, fisheries, forestry, and livestock. IDH has worked with AFPRO since 2011 and under the IDH cotton program, AFPRO has been a long-term partner to deliver farming services to more than 64,500 farmers in different parts of India.

Once IDH's concept was developed and the intervention logic was validated by a third-party consultancy, AFPRO agreed to deploy itself in Mozambique for this specific project. Its role was first to support the sharpening of the design of the intervention and then to transfer their knowledge to the local implementing partners. This, in turn, has helped build their internal capacity for managing the field level project.

In practice, this means AFPRO has been actively engaged with the field level partners to coordinate and provide technical guidance on the implementation of project activities linked to land and resource management, crop production and food security, access to energy, and community capacity building. Additionally, they have provided support in developing a framework to help monitor and evaluate the pilot's overall progress.







## Building the business case for holistic community engagement

Demonstrating tangible business benefits for the service provider (implementer) of our intervention is also essential. There is an obvious negative impact on production when farmers are unable to cope with poverty, food insecurity, and the adverse effect of climate change. By providing the project services and making these investments, partners should see an impact on their bottom line (independent of grant support).

In this context, the intention of the pilot is also to understand whether private service providers can see their business improving when engaging with the farmer holistically. In theory, the program should see an increase in loyalty from the farmers, improved yields, and increased sustainable production. In essence, a stable and secured supply. Additionally, depending on the appetite of the private partners to deepen its engagement in other markets, such a program presents the opportunity for increased business growth in other value chains.

To accelerate the learning process, IDH developed a systematic, data-driven approach to understand and improve these models. The approach is based on an analysis of the ranges of services provided through the program: the relationship between the cost of providing them and the revenue they generate at the level of the community and the service provider. Ultimately, it makes the business

case for service delivery to investors, service providers, and farmers.

In 2017, a Service Delivery Analysis was carried out with Plexus. While the program implementation was just starting, the results show a positive return on investment after a few years. Higher cotton yields are expected with the construction of additional water source structures and soil conservation and land management structures, as soil degradation will be minimized and soil moisture will increase.

The analysis also demonstrated the impact on cotton production (higher yield) from the water structures is still to be seen due to other variables which fall outside the scope of this program. It showed that cotton planting is not high enough to cover the cost of infrastructure development at the village level, especially when there is no appetite for the cotton business to diversify by entering into new markets (e.g. animal farming or large-scale production of a second crop).

As the pilot implementation enters its second year, the intention is to carry out other Service Delivery Model (SDM) analysis to realize the benefits of our private partner over the course of the project and see whether changes have to be made to increase the farmers and their benefits in this enterprise.





## Conclusion

2017-18 has been an eventful year for the farming communities, our implementing teams, our funding partners, and for IDH – setting up the path for a journey of delivering impact, increasing the farming communities' resilience, and changing the way the private sector does business with them.

As the program enters its second year of implementation, the focus will be on further leveraging the water structures for cotton, second crop, and animal husbandry activities.

Additionally, other activities related to solar energy and ICT development continue to develop with a balanced and steady approach that works on continuous improvements without over-burdening our teams and communities. Finally, IDH and its partners will continue to sharpen their understanding of the local realities through their engagement with communities – both the successes and the failures. In 2018, a gender analysis and additional service delivery model analysis will be carried out to create learning loops and help us improve towards the final year.

# Annexure 1: The Programme KPIs

Output indicators	2017
Number of structures	38
Volume of water harvested - in Metric Cubes	55,700 M <sup>3</sup>
Irrigated by additional sources of water - in Hectares	32 Ha
Number of individuals involved in building and maintenance of infrastructures	240
Number of farmers trained in food crop production (tomato, onion, cabbage)	10 Men 6 Women
Hectares where sustainable production/sustainable intensification interventions are implemented (Tomato, Onion, Cabbage)	1.5Ha
KG of sustainable production resulting from trainings (Tomato, Onion, Cabbage)	20.5 KG
Number of women groups formed in poultry farming	4
Number of women trained in animal husbandry	44
Number of male groups formed in sheep and goat farming	4
Number of men trained in animal husbandry	85
Number farmers trained in Better Cotton and Cotton made in Africa Standards	142 Male 26 Female
Hectares where sustainable production/sustainable intensification interventions are implemented (Better Cotton & Cotton made in Africa)—in Hectares	137 Ha
MT of sustainable production resulting from trainings (Cotton)	27 MT
Number of households that have been provide solar energy panels	3

“ [In] Palacua, more and more farmers want to be involved in the project due to the benefits they are seeing every day. [There is] improvement of social income, availability of fresh produce that is source of proteins and minerals for the farmer families, availability of potable water in the communities for domestic consumption (wells), and improvement of the soil health and fertility, which is minimizing soil erosion. There is also increased trust and engagement between farmers and Olam. ”

**-Olam Mozambique**



# Colophon

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## **Disclaimer:**

Although every effort has been made to ensure that the content of this report is up to date and accurate, errors and omissions may occur.

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