

Monitoring Irrigation

Mozambique is a severely climate vulnerable country ranking as the third African country most exposed to multiple weather-related hazards. An ongoing impact evaluation of African Development Bank's (AfDB) Sustainable Land & Water Resources Management Project (SLWRMP) in Mozambique, is assessing several pressing issues, including the connected challenges of climate change, rural poverty, food insecurity and land degradation. This impact evaluation is supported by the Climate Investment Funds' (CIF) under its Pilot Program for Climate Resilience (PPCR) and is implemented in collaboration with the Development Impact Evaluation Group (DIME)¹ and the AfDB.

The project seeks to strengthen the capacity of farmers and boost the productivity of the agriculture sector through sustainable management land and water resources in 56 priority communities. As part of the impact evaluation currently underway to assess the SLWRMP, there has been a focus on investigating and promoting the use of irrigation equipment among small hold farmers (less than 2 ha). The impact evaluation team conducted a midline survey in Nov/Dec 2018 to assess how the project communities have been using irrigation kits. This real-time impact evaluation approach to data collection allows for the project to make adjustments to the course of the project as necessary as opposed to simply collecting information at the completion of the project to inform future design.

USAGE TO DATE

To date, 52 of the 56 project communities have installed irrigation kits and 47 communities are regularly using the kits. The kits were installed between June 2016 and October 2017. Across the beneficiary communities, each kit serves an average of 13 households and irrigates an average area of 4.85 ha.

1. At the time of the mid-line survey in Nov/Dec 2018.



COUNTRY Mozambique

PROJECT Sustainable Land & Water Resources Management Project (SLWRMP)

CIF FUNDING \$15.75M from PPCR

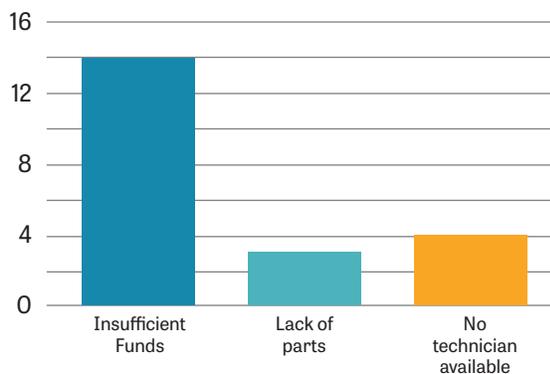
MDB African Development Bank

PRODUCT TYPE Development Impact Evaluation (DIME)

MAINTENANCE PATTERNS

At the time of midline survey in late 2018, 21 communities had a kit where a piece was broken. The malfunctioning parts in these 21 communities were the pump (10 communities), tubes (12 communities) and the sprinkler head (2 communities). A total of 32 communities have repaired the kit at some point between when the kit was received and when the midline survey was conducted.

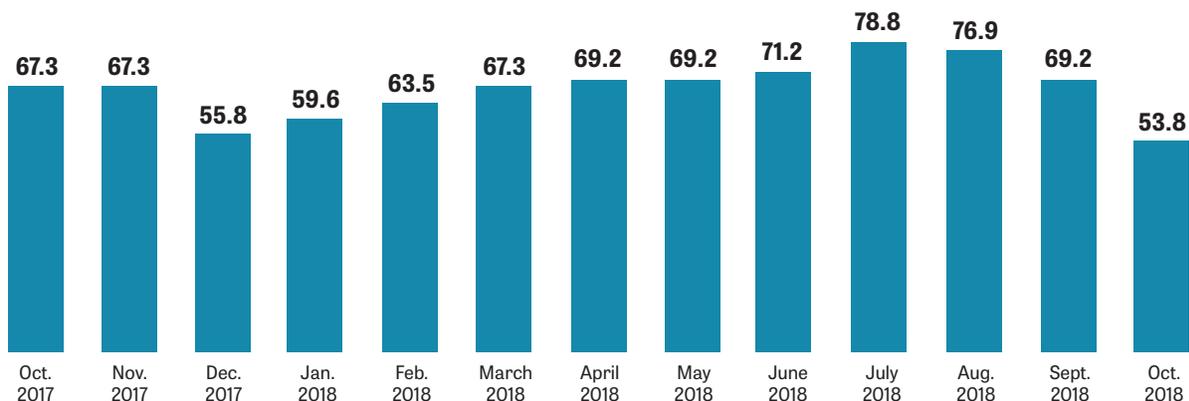
FIGURE 1: REASONS FOR LACK OF FUNCTIONALITY



USAGE PATTERNS

Of the communities where irrigation kits have been installed, at least half of the communities are using the kits every month. Figure 2 indicates the percentages of communities that used the kit each month. As would be expected, kit usage is at its minimum during the rainy season and peaks over July and August which is the height of the dry season.

FIGURE 2: PERCENTAGE OF COMMUNITIES USING A KIT EACH MONTH



EMERGING LESSONS

The midline survey has highlighted important lessons that may support the overall success of the project. It has emerged that a limitation on the use of the kits is the availability of fuel for the pump unit. Taking local constraints into account, thought needs to be given to how to capture usage data in the long term so that the impact of the irrigation can be gauged over time.

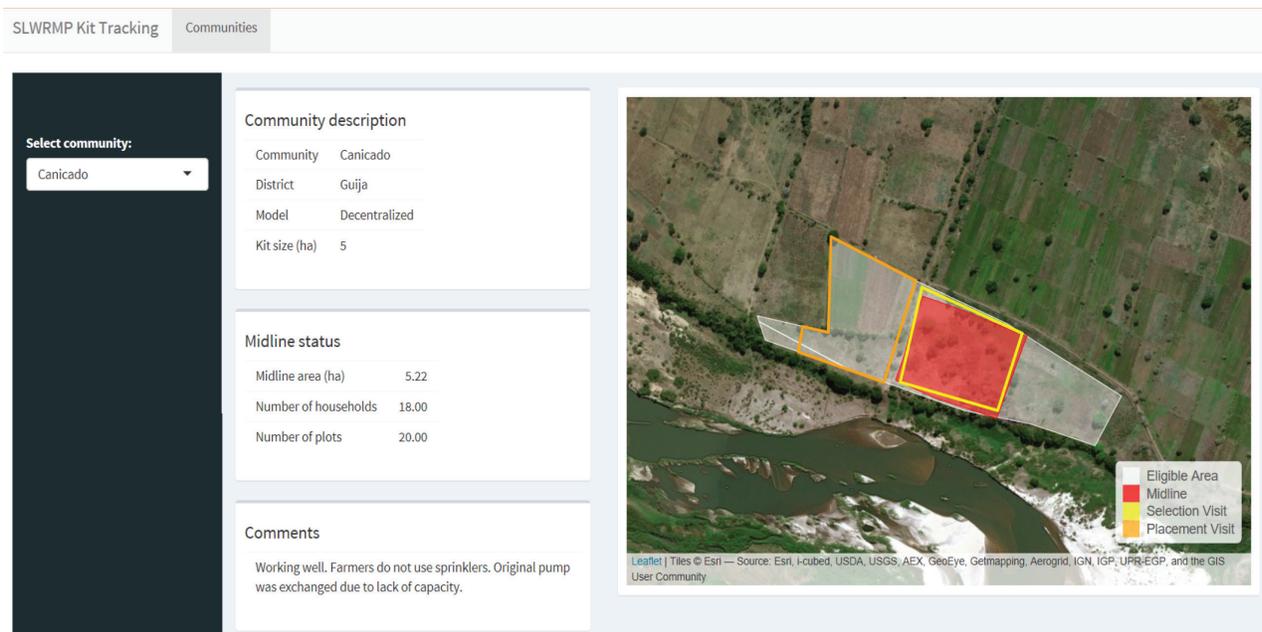
Equipment sustainability is a concern. Monitoring data has shown that the sustainability of both the equipment and the fuel to power the equipment is a concern. Less than three years after the first kits were installed, more than 30% are no longer fully functioning. Equipment failure is a common issue with pump and tube problems the most recurrent ones. There may be a need to consider delivering additional community training to ensure that kits are repaired effectively, and that related costs are shared by the community so that the resource can still be utilized by all.

Access to fuel is a challenge. In more than 40% of communities where kits were installed, users reported that at some point during the previous year, they could not buy sufficient fuel to use the kits as planned. Beneficiaries of the kits are seemingly reluctant to contribute to fuel costs as it is a resource consumed by all project beneficiaries whether the equipment is being used to irrigate their specific land or not. Given that this issue has been identified during the course of the project, there is now the possibility to work with the AfDB to pilot the use of solar pumps to overcome this constraint.

The importance of ongoing monitoring. The impact evaluation team, working in concert with the project team, has been developing a monitoring dashboard. This dashboard will provide a clear overview of the current situation in each community. The dashboard shows the current location of the kit relative to where it was supposed to be placed (as determined during the selection procedures), previously known usage locations and size of area being irrigated. The dashboard can be used to identify communities where the kit is not working

or being under-utilized which can then allow the project team to make rapid adjustments or address issues. Figure 3 indicates the dashboard interface, including the area eligible to be irrigated, the area chosen to be irrigated at the placement and selection visits as well as the area actually being irrigated at the time of the midline review. This information is coupled with community descriptors and other relevant information from the midline review.

FIGURE 3: SLWRMP MONITORING DASHBOARD



The World Bank's Development Impact Evaluation (DIME) group generates high-quality and operationally-relevant data and research to transform development policy, help reduce extreme poverty, and secure shared prosperity. It develops customized data and evidence ecosystems to produce actionable information and recommend specific policy pathways to maximize impact.

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