BRIEF

CIF CLIMATE INVESTMENT FUNDS

Beneficiary Targeting and Maximizing Outcomes

The African Development Bank's (AfDB) Sustainable Land & Water Resources Management Project (SLWRMP) in Mozambique, falling under the banner of the Climate Investment Funds' (CIF) Pilot Program for Climate Resilience (PPCR), has the potential to address key welfare challenges faced by rural farming communities, including low and/or unequal incomes, food insecurity, and the effects of land degradation. The irrigation component of the project is achieving this by providing beneficiary communities with small-scale irrigation kits, contributing to an increase of farmers' incomes by expanding cultivation to the dry season (double cropping calendar); allowing for the cultivation of water-sensitive crops (diversification); and improving resilience to droughts. The impact evaluation of the project, currently being conducted by the World Bank Group's Development Impact Evaluation Group (DIME), asks several questions that inform these objectives. Namely:

- How can kits be distributed among beneficiaries in such a way that it maximizes the chances of their being effectively used and maintained?

- Does targeting for efficiency or sustainability force a trade-off with inclusion?

The evaluation compares the performance of two models used to select beneficiaries: one in which small-holder farmers are prioritized to receive the kits (i.e. smaller plots and a greater number of households), vs. unconstrained, community-determined provision of access to irrigation, which tends to skew usage to larger landholders.

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)

It is often assumed that efficiency gains of irrigation are maximized via the scaling and expertise potential of larger landowners. As a result, the efficiency-driven provision of access tends to exacerbate inequities in incomes between large and small land holders. Yet, the existence of this equity/efficiency trade-off remains an empirical question.

ARGUMENTS FOR TARGETING SMALLHOLDERS

With the intent to address rural poverty in tandem with climate vulnerability, logic would hold that access to irrigation should target the poorest potential beneficiaries. Targeting smallholders for poverty-reducing irrigation access would be built around the assumptions that:

- Smallholders are more likely be poor;

- Targeting smallholders = on average, a larger number of smaller plots irrigated = a greater number of households reached; and

- Diminishing marginal returns on capital = greater gains with a larger number of smaller plots.

## ARGUMENTS FOR TARGETING LARGER LANDHOLDERS

Based on the intent to reduce food insecurity and maximize efficiency gains in production, logic would hold that access to irrigation should be granted to beneficiaries with the potential for the highest returns on investment. Large landholders are likely to be more sophisticated in their use of agricultural technologies, and often hypothesized to be able to achieve higher returns to irrigation.

Moreover, focusing on a fewer number of users per kit would also stand to reduce the risk of collective action failure in the management of a public good.

METHODS OF TARGETING

The project deployed two alternate means of selecting beneficiaries. The first, preferencing smallholders, was done via score-based targeting, using a proxy means test (PMT) or poverty-score-card. The second, which leveraged community knowledge on those best suited to maximize outcomes, asked community leaders to choose beneficiaries . The protocols were randomly allocated across communities and the baseline showed that score-based targeting was more effective at targeting smallholders than the use of decentralized, community-driven targeting. Figure 1 shows an example of the allocation of kits via the decentralized approach, while figure 2 shows the allocation using the smallholder-centric approach.

FIGURE 1: DECENTRALIZED, COMMUNITY-DRIVEN ALLOCATION
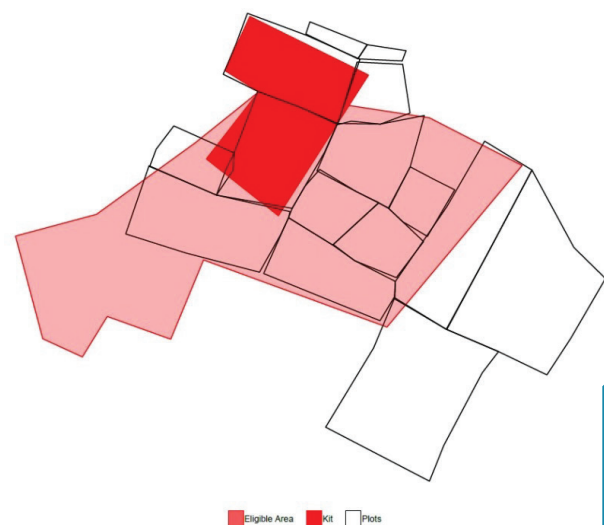
FIGURE 2: SMALLHOLDER-PRIORITISING ALLOCATION

Eligible Area ▮ Kit ▯ Plots
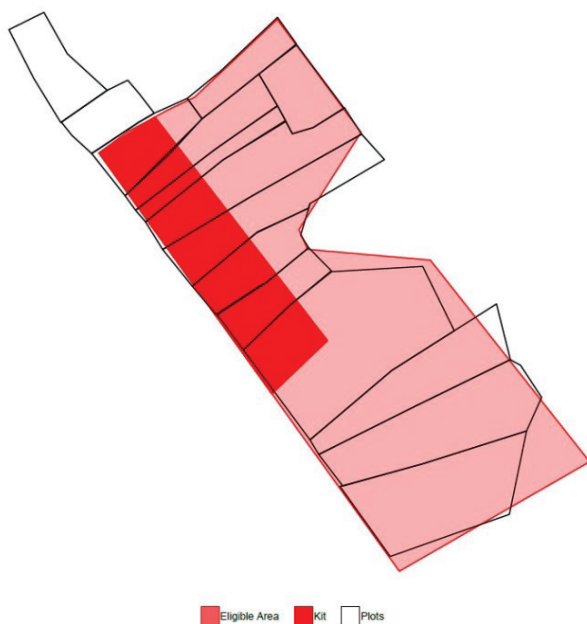
FINDINGS: EFFECTS ON KIT USAGE AND MAINTAINANCE

The midline survey in October 2018 compared efficiency gains between participants chosen via score-based and community-determined targeting.

Usage. Access to fuel remains the primary sustainability challenge of the project: 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. Contrary to established theory on collective action failures, it was found that kits provided to a greater number of users with smaller plots were less likely to face fuel shortages. The PMT-based targeting approach was shown to have a large and statistically significant impact on the average quantity of fuel used, with smallholders more effective in coordinating the fuel purchases needed to keep the kits running.

Maintenance. Kit failure remains the other major concern: less than three years after the first kits were installed, more than 30% are no longer fully functioning. Comparing the usage of larger numbers of smallholders against that of fewer numbers of relatively wealthier farmers showed that kit failure was no more likely among the former.

Implication. While the exact drivers and incentives that gave rise to these differences remain inconclusive, smallholder-preferential efficiency gains illustrate that projects such as SLWRMP, seeking to target larger concentrations of poorer demographics, may not need to worry about trade-offs in efficiency or sustainability. Where dividends are sufficient, smallholder operations may in fact be better positioned to coordinate and manage responsibility sharing than larger scale entities.

i2i DIME
TRANSFORM DEVELOPMENT

For more information, please visit
http://www.worldbank.org/en/research/dime
www.climateinvestmentfunds.org

AFRICAN DEVELOPMENT BANK GROUP