LORTA Country Brief

MALAWI

GREEN CLIMATE FUND | Independent Evaluation Unit

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IMPACT EVALUATION REPORT FOR FP002 'SCALING UP THE USE OF MODERNIZED CLIMATE INFORMATION AND EARLY WARNING SYSTEMS IN MALAWI'

The IEU's Learning Oriented Real-Time Impact Assessment (LORTA) programme provides capacity-building and incorporates state-of-the-art approaches for impact evaluations to measure results and learn about the effectiveness and efficiency of GCF funded projects. The LORTA programme, in April 2022, published its very first impact evaluation report, which looked at GCF's FP002: Scaling Up the Use of Modernized Climate Information and Early Warning Systems (M-CLIMES) project in Malawi, and specifically, the Participatory Integrated Climate Services for Agriculture (PICSA) component of the project. This brief provides a quick summary of LORTA's impact evaluation report on FP002.

The M-CLIMES project

The timely provision of seasonal and short-term weather and climate forecasts is crucial for designing better adaptation strategies in agriculture and disaster risk management. With support from the United Nations Development Programme (UNDP), the Government of Malawi secured funding from the GCF to launch the M-CLIMES project. The purpose of the project is to strengthen the planning for and monitoring of disasters, mobilize resources for disaster management and improve the resilience of local communities to climate-related shocks.

The project supported the installation of 37 hydrological water-level recording stations and installed 34 automatic weather stations. These stations extend existing coverage servicing both hydrological forecasting and localized weather data. The project also co-developed tailored weather- and climate-based agricultural advisories for dissemination through mobile, print and radio channels. The overall project cost is USD 16.3 million.

The project is co-financed by the GCF (USD 12.3 million), UNDP (USD 1.8 million), and the Government of Malawi (USD 2.2 million) to support government efforts to respond to the challenge of climate change. The project is being implemented by the Department of Disaster Management Affairs in 21 of the country's 28 districts, over the period of June 2017 to July 2023, and has been supported by other governmental agencies in Malawi.

The PICSA intervention

One of the pillars of the M-CLIMES project is PICSA. Designed by the University of Reading in the United Kingdom, PICSA makes use of historical climate records, participatory decision-making tools and forecasts to help farmers identify and better plan agricultural activities that are suited to local climates and farmers' livelihoods. In Malawi, the PICSA approach involved the Department of Agricultural Extension Services in partnership with the National Smallholder Farmers' Association of Malawi. The Association conducted trainings with groups of lead farmers ahead of the agricultural season. The aim of the training was two-fold: to help analyse historical climate information and to use participatory tools in order to allow smallholder farmers to develop and choose crop, livestock and livelihood options. Between 2018 and 2020, PICSA was rolled out in 14 districts in Malawi.

The PICSA approach is implemented in a wide range of countries and LORTA's impact assessment report provides the very first causal findings of the impact of PICSA on farmers' adaptation decisions and food security. The results of the impact evaluation can provide lessons for similar interventions in similar contexts. The report highlights the challenges and obstacles encountered during implementation in order to enhance learning for future implementation and scaling-up of the project, as well as challenges encountered during the evaluation. Finally, the report is a part of LORTA's capacity-building efforts in impact evaluations of climate change adaptation and mitigation for the local monitoring and evaluation and project teams.

The report answers the following key evaluation questions:

1. Were PICSA lead farmers more likely to make adaptations to their crop and livestock activities after being exposed to PICSA training?
2. Did they increase agricultural yields (e.g. maize)?
3. Did they improve their wellbeing by reducing their work on the farms that belong to other farmers (a practice known as ganyu)?
4. Did they improve their level of food security?

Methodology

To answer these questions, baseline and endline household survey responses were collected before the start of the project and two years after the first implementation, respectively. To estimate causal impacts, propensity score matching was employed between the lead farmers who participated in the PICSA training in 2018 and those in districts where the PICSA training was to be rolled out in 2020 (after the endline data collection). It was followed by an analysis on a sample of 397 lead farmers surveyed in a total of eight districts in October 2020. Also, quantitative findings were then triangulated with the results from endline qualitative interviews with farmers, implementing partners and other stakeholders.

To estimate the causal effects of PICSA on several outcomes for lead farmers, different algorithms were applied to ensure our results are not driven by the choice of method. Our results suggest that PICSA had a statistically significant and positive impact on building the adaptation capacity of lead farmers who are facing the risks of climate change and climate variability.

Results and outcomes

The report finds significant impacts on both intermediate and long-term outcomes, with magnitudes that are relatively similar across matching algorithms. With respect to intermediate outcomes, the report finds that PICSA lead farmers are much more likely to use seasonal forecasts to plan farm decisions and are more likely to make crop variety decisions. Similarly, the likelihood that PICSA lead farmers will make changes in crop activities is double that of non-PICSA farmers. The report does not find statistically significant effects on the number of crops grown or on the likelihood to make changes to livestock activities (at least, not systematically).

For long-term outcomes, the report finds that, as a result of PICSA, lead farmers in the treatment group register more than 434 to 505 kg/ha in annual maize yields than their peers in the control group. This represents a 60 per cent increase in yields compared

to the control group. This finding largely diverges from the literature evidence on the effect of similar smallholder farming interventions and the very large effect size urges us to be cautious in the interpretation of this finding.

Finally, it is observed that PICSA lead farmers are less likely to work on other farms (known as ganyu in Malawi) as a secondary source of income. The report does not find significant impacts on food security. The level of food security was measured using data on food expenditures or the subjective measure of farmers worrying about food shortage during the past 30 days. Overall, positive evidence was reported on the use of seasonal forecasts, changes to crop activities, yields and income is in line with benefits reported by lead farmers who attended the PICSA training within the M-CLIMES project during the 2019 performance monitoring assessments.

However, we also acknowledge that our evaluation suffered from a range of challenges and limitations, which include data quality and inconsistencies across two waves of data, including measurement errors in self-reported crop yields, missing information and other limitations. Despite this, the report provides the first causal evidence from a GCF project that contributes to the literature on the effectiveness of adaptation projects and programmes.

Considering the positive impacts of the project and the national agenda of Malawi to promote farmer-to-farmer knowledge exchange on adaptation practices, some policy suggestions for Malawi and similar contexts are provided at the end of the report.

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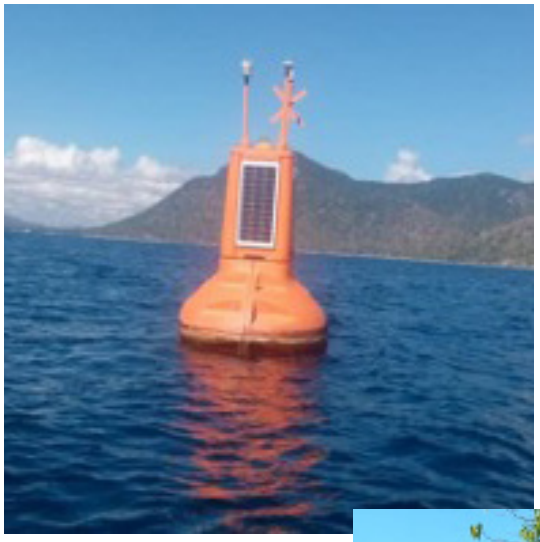

Photo credits
(pg 1) Local fishermen go fishing for livelihoods, ©BRKShots/ Green Climate Fund
(pg 4, from left to right): (1) the lake buoy; (2) the automated early warning system; (3) data acquisition unit in river upstream. ©LORTA teams

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