Risk-Contingent Credit; A stakeholder engagement to inform project expansion in Kenya.

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1. Background

A large proportion of farm households in developing countries face a host of market and production risks that undermine their food security, make their income volatile, and make them hesitant to adopt new technologies or undertake new investments that might increase their long-term productivity and household welfare. Climate-related risks such as floods and droughts remain some of the most pervasive forms of production challenges. Adapting to climate variability and change is essential in safeguarding food security, ensuring economic growth, and advancing climate resilience among smallholder farmers. Recent research has shown that transferring some of the climate-related risks to the insurance market in exchange for a payout can shield the welfare of smallholders from the adverse effects of extreme weather conditions, while agricultural financing can help farmers to acquire and adopt agricultural inputs such as improved seed varieties, fertilizer, pesticides, and herbicides. However, in many developing countries, formal financial markets remain inaccessible to smallholder farmers.

The CGIAR Research Program on "Building Systemic Resilience Against Climate Variability and Extremes', or ClimBeR leads an action-oriented research portfolio that seeks to deliver science and innovations to help poor farmers improve their lives through transforming food, land, and water systems in the face of the climate crisis. One of the ClimBeR's objectives is to reduce risk in farmers' livelihoods and value chains at scale, by managing and reducing the impact of variable weather and extreme events, particularly through enhanced digital services and innovative financial products. ClimBeR is implementing a risk-contingent credit (RCC) project among smallholder farmers in Kenya and Zambia. The RCC project is aimed at improving smallholders' resilience to climate risks through improved access to insured agricultural production credit. This is in turn expected to improve farmers' investment in modern production technologies, leading to better farm yields and household food security.

This info note presents findings from stakeholder engagement regarding their previous experience of implementing and using the product, and the prospects of expanding RCC products to reach more farmers. The info note presents a brief overview of the RCC product, past and future implementation in Kenya, methods used in the stakeholder engagements, and the findings from these engagements. The info note concludes with a discussion and recommendations for expanding RCC in Kenya, and Zambia.

2. RCC Overview

RCC is a loan product that is bundled with an insurance component. The long-term purpose of RCC is to promote resilience and investment opportunities among smallholders by promoting sustainable access to rural credit markets, enhancing agricultural investment, and promoting gender empowerment. Under RCC, qualifying smallholder farmers are able to borrow agricultural production loans from formal financial institutions such as banks and micro-finance institutions with minimum to no collateral. The borrower's ability to repay the loan is linked to the productivity of their most important crop, which in turn depends on the climate outcomes. In order to reduce the probability of defaulting and the lending risks to the lender, an insurance company underwrites the climate risks (either in the form of drought or flood) such that if that underlying risk passes a certain threshold, the index is triggered and part or all of the borrower's liability is transferred to the insurer. If the underlying risk is not triggered, the loan must be repaid at the RCC interest rate. The RCC interest rate includes an insurance premium and is normally higher than the interest rate for a regular loan. It is expected that linking the farmers' loan repayment ability to an underlying risk as opposed to the stringent collateral requirement will reduce the borrowing barriers faced by poor farmers with no collateral, hence engendering borrowing even among the poorest households. De-risking the lender by transferring a portion of risks to the insurance market is also expected to promote credit supply, hence growing the rural credit market. Detailed information on the RCC product can be found in Shee et al. (2019).

3. RCC in Kenya

In 2017, the RCC project was piloted as a collaborative effort among several partners (including, the International Food Policy Research Institute (IFPRI), Columbia University, Cornell University, University of Greenwich, and the private financial sector) in Kenya. The product was designed to promote credit supply and enhance credit access at the beginning of the cropping cycle among maize and bean farmers (the most important food and cash crops) in the Machakos and Embu Counties of Kenya. The product was offered as a short-term loan with a payoff structure that is linked to the cumulative seasonal rainfall. The insurance index of RCC is based on Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) rainfall measures.

In Machakos, the project was conducted in the form of a randomized control trial (RCT); the project had a total of 1070 smallholder households. Each household was randomly assigned into one experimental group: traditional credit (placebo group; N=351), RCC (treatment group; N=351), and no credit (control group; N=351). Based on the average cost of farm production per acre, the RCC loan amount was set at Ksh 10,000. The interest rate applied to the loan balance was 14% per annum. For the RCC group, an additional Ksh 1,400 was incorporated to cater for the insurance premium. To ensure that credit was to be used only in production processes, farmers were provided with vouchers which they used to collect inputs from local agro vet supply shops. In Embu, RCC was implemented on a quasi-commercial basis in Mbeere

District where willing project farmers could self-select into the RCC uptake process. Both counties were purposively selected for the experiment because of their agroecological characteristics, access to commodity and financial markets given their rural-urban setting, and the importance of agriculture to smallholders in the county. RCC was implemented during the long rains of 2017/18 and 2018/2019.

4. Stakeholder Engagement Methods

The aim of this exercise was to gather the experience of stakeholders who have previously implemented and used the RCC products, and document lessons on what worked and potential improvements in RCC quality and delivery approaches. Participants in the stakeholder engagement were purposively selected depending on their project involvement in the past, and their interest in future participation. During these engagements, open-ended conversations were held with farmers and representatives from the banking and insurance sectors. Two focus group discussions (FGDs) were held with a total of 54 farmers (63 percent male and 37 percent women), from Ngoleni and Mitamboni locations in Machakos county. The farmers were interviewed about their previous experience with the RCC products, their relationship with the bank and personnel offering the product, and their perception of the benefits of using RCC. Information on challenges related to RCC access was also gathered from the farmers.

For the financial sector, open-ended conversations were held about the experience from the previous implementation, challenges, commercial sustainability of the product, terms of engagement, and the willingness to expand the scale of operations.

Table 1: Number of partners contacted by gender

	Total	Men	Women
Farmers	54	34	20
Insurance sector	3	3	0
Banking sector	9	8	1
Total	66	45	21

5. Findings

Farmers

All FGD attendants were smallholder farmers (98 percent full-time farmers) producing various crops including; maize, beans, avocado, pigeon peas, coffee, and vegetables, among others. The farmers indicated that they have two production seasons, short rains and long rains. Most farmers do not borrow credit for agricultural production purposes. The main reasons given for not borrowing include lack of collateral and lack of guarantor. Some farmers mentioned that they are not creditworthy because either they do not have a credit history, or they have been blacklisted due to previous loan defaults. Farmers also expressed their concern about the banking institution not being farmer-friendly; compared to farmers, individuals with a stable/less risky source of income like teachers and civil servants are more likely to get the attention of the bankers and be granted the loans they need. The farmers, however, noted that the banks might be more willing to lend to them when they are in groups.

When asked about borrowing credit from informal lending options, the farmers stated that they are not normally able to borrow from friends and family, because, during planting season, no one is able to lend to the other due to the common need for finances. Most farmers indicated that they either work with their own liquidity, which reduces farm investment, such as low or no use of improved seed varieties, and fertilizer. Some farmers indicated that they sell small animals such as chickens and ruminants such as goats and sheep to finance their input purchases.

Farmers' RCC uptake and perceived benefits

Approximately 97 percent of the farmers in the FGD attended the RCC training in 2017 and they were part of the RCC panel households. Below, we highlight the findings on their RCC uptake, perceived benefits, and challenges.

RCC uptake: About 35 percent of the farmers indicated that they took up RCC either during 2017/2018 and/or 2018/2019. The uptake was similar among men and women FGD attendants. These findings are highly consistent with quantitative data findings that show that 40 percent of the farmers, mostly women, in the RCC treatment arm took up the product.

RCC benefits: The farmers stated that the product helped them overcome liquidity constraints that are common at the beginning of the cropping season. The product also helped farmers to increase their investment in the farm. Most farmers who took the product in 2017/2018 stated that they were able to see great progress in the farms during the early stages of maize growth. Unfortunately, right before the flowering stage, a severe drought hit the area and destroyed their crops. Farmers who took RCC during the 2018/2019 long rain season stated that they experienced an increase in farm yield due to increased farm investment and good rain. Some farmers also stated that simply being in the RCC treatment arm gave them the confidence to physically access the banking halls and interact with the banking personnel; RCC improved their relationship with the bank.

RCC challenges experienced by farmers

Farmers were asked about the challenges they incurred using RCC. Below, we discuss some of the issues farmers raised about the RCC product and its implementation.

Timing of training and loan delivery: All farmers stated that the training and loan delivery was delayed by an average of three weeks. Currently, the

RCC training is conducted at the onset of the long-rain season (approximately the first two weeks of August), and farmers can access the loan products before the first week of September. However, farmers argued that normally, decisions on how they will allocate their lands to various production activities are made earlier (before the onset of the rainy season), and most farmers tend to practice dry planting, that is planting before the rain falls. Hence, the delay in RCC meant that they had to change their land allocation plans and do late planting or store the inputs till the next production cycle. There were also cases where some early-planting farmers were forced to liquidate their inputs by selling them to late planters in order to cater to other immediate needs such as financing hired labor.

Amount of loan: During the 2017/2018 and 2018/2019 RCC implementation cycle, farmers received a loan of Kshs 10,000 (USD 100) that was meant for production on a one-acre piece of land. Farmers in the FGD, however, stated that the loan amount was small, and they suggested an increase to about Kshs. 25,000 to cater for inflation, and the rise in the cost of inputs.

Risk coverage: Farmers stated that beyond drought, they face other production risks such as floods, pests and diseases, and soil degradation, yet RCC only covers drought-related risks. In addition, the farmers produce a wide array of crops and livestock, yet RCC is narrowly focused on maize and beans. The farmers requested that we expand the focus of RCC to capture wider risks and farm production activities.

Product and process understanding: Some farmers did not have a full grasp of the product, insurance trigger conditions, and loan repayment structure. Some farmers stated that the bank erroneously expected them to pay the loans, within a short period of time, yet insurance was supposed to take care of it. Some farmers mentioned that the allocation of three treatment arms in the experiment is discriminatory because other farmers get the benefits of RCC while some are intentionally locked out.

Financial partners

The meeting with the financial partners was geared towards understanding their relationship and lending practices with smallholder farmers, the value chain of focus, interest rates, and local presence (that is, the number of branches and staff in our areas of focus). Where applicable, we also discussed the financial partner's previous experience with the RCC product and forthcoming implementation including their willingness to increase the number of target households and the amount of loan offered, and prospects for scaling and commercialization.

We found that all three banks we interacted with are averse to lending to smallholders, especially those without any form of contractual production agreement with agro-processors. One bank mostly focuses on farmers who grow cash crops, specifically tea. This is because the farmer sells through a centralized form of quasi-contractual agreement with the Kenya Tea Development Authority (KTDA). The bank is however currently seeking to expand its portfolio to wider value chains such as cereals, and horticultural produce such as vegetables, macadamia nuts, and avocado. The focus is however on farmers who produce for commercial purposes, and those with contractual agreements with agro-processors. One of the banks does not usually lend to farmers with less than 20 HA of land, this means that more than 80 percent of smallholder farmers in Kenya who do not meet these lending conditions cannot obtain production credit from this specific bank.

Two out of three banks stated that their interest rates are based on risk-based pricing; this means that given the uncertainty in agricultural production, smallholder farmers are in the riskier lending category with higher interest rates of approximately 19 percent. One bank had relatively good interest rates of 13.5 percent.

Financial Sectors' RCC Experience

Two out of the three banks, and one insurance company had partnered in the 2017 to 2019 RCC implementation cycle. In the section below, we discuss some lessons and challenges experienced that are key in informing future implementation and expansion:

Transaction costs: The partners indicated the high levels of transaction costs incurred in delivering the product to the farmers in the previous implementation. This included the staff time and financial costs of training and monitoring the agronomic practices of the individual farmers. It was suggested that in order to reduce transaction costs, RCC should adopt a digitalized loan delivery system; for instance, using an e-voucher system that has been adopted by the government of Kenya and using mobile phones to follow up with borrowers on loan repayment.

Expanding the scale of operation: One of the key discussions with the financial partners was exploring their interest in expanding the scale of operation within and outside the current counties. For Embu County, the project seeks to reach more counties beyond Mbeere, and also expand to Murang'a County on a commercial basis. All partners agreed that this is the first step towards scaling and commercialization. Expanding RCC's geographical target will also reduce adverse selection and balance the profit portfolio for the private financial sector.

Expansion of risks and value chain of focus: In line with the farmers, the financial partners agreed that in the future, RCC should expand and focus on more value chains in addition to maize and beans and cover more diversified risks, such as floods. This would ensure that more farmers are adequately covered, and it also presents a strong business case for the private sector.

Loan amount: All partners agreed that factoring in inflation and the cost of inputs, the Kshs. 10,000 is not sufficient. Increasing the loan amount by approximately 50 percent will ensure that farmers' input needs for optimal production practices are appropriately catered for.

Government sector involvement: To enhance project sustainability beyond the donor funding cycle, it was suggested RCC should involve both the county and federal governments; the government could contribute in terms of offering extension services, or insurance premium subsidies. Leveraging the government's well-established extension system, and other digital services such as the e-voucher system could reduce the transaction costs of delivering the product thereby increasing its sustainability.

6. Discussion and Conclusion

This info-note presents findings from a stakeholder engagement that was held with farmers and financial partners in Kenya. The engagement was aimed at documenting the lessons learned from the previous implementation of the RCC program in Kenya and seeking new and continued partnerships for RCC expansion. A total of 66 partners including smallholder farmers, and representatives from the financial sector were engaged. The engagement with farmers was done through two focus group discussions (FGD), while those with financial partners were done through targeted one-on-one discussions. We found that about thirty-five percent of the farmers in the FGD took up RCC. Given the increased intensity of input use under RCC, the farmers who took up the product in 2017/2018 were able to realize promising yields, but unfortunately, a severe drought destroyed their crops before attaining maturity. In 2018/2019, farmers who took RCC were able to realize increased farm productivity. Some of the challenges that RCC farmers faced were late input access, low amount of loans, limited focus of RCC in terms of value chain and type of risk covered, and low product understanding.

It was found that most smallholder farmers do not meet the threshold of borrowing from the formal financial sector because of various reasons including, small scale of operation, subsistence-oriented production, non-contractual production systems, and generally the uncertainty in agricultural production. Some of the RCC issues that came up with the financial sector include discussion on the approaches to reduce transaction costs, increase the number of target households, expansion of the type of risks covered, and government involvement.

Way Forward

Given the previous RCC experiences and challenges raised by all actors, future implementation in Kenya and Zambia will incorporate the following actions.

1) Reduce downside basis risk by adjusting the RCC index to capture the differential growth-stage moisture requirements within each phenological stage by designing a dynamic index with multiple triggers, as opposed to cumulative rainfall triggers.
2) Provide early and continuous RCC training; farmers will be trained weeks before the onset of rains. In addition, beyond the one-day training that is not likely to support the need of all farmers, especially women, and farmers with low financial literacy, the training will entail videos that will be translated into the local language, and brochures to support continuous learning.
3) Digitalization of the loan process to reduce transaction costs; this involves using mobile applications and SMS to issue e-vouchers and follow up on loan applications.
4) Involving the government sector in the RCC activities in order to reduce transaction costs, influence policy at a larger scale, and work toward sustainability.

5) Expanding the target regions to reduce adverse selection and make a profit case for the private sector.

7. Further Reading

Shee, A., Turvey, C., You, L. 2019. Design and rating of risk-contingent credit for balancing business and financial risks for Kenyan farmers. *Applied Economics 51, 5447–5465.*