

# Feasibility of Implementing a Risk-Contingent Credit (RCC) program in Zambia: Stakeholder engagement

Anne G. Timu<sup>1</sup>, Apurba Shee<sup>2</sup>, and Liangzhi You<sup>1</sup>

## Background

Changes in frequency and intensity of climate and weather events are a key challenge to agricultural production among farmers in Zambia. Climate variability reduces farm productivity, which in turn contributes to household food insecurity, income variability, and reduced overall economic growth. Using improved technologies such as mechanization, improved seed varieties, irrigation, and fertilizer can improve climate resilience and farm production among smallholder farmers. However, in Zambia, as in many countries in sub-Saharan Africa, most farmers lack sufficient access to credit to purchase these technologies. Limited access to credit is mainly attributed to lack of collateral, fear of losing collateral in case of a default, and low financial literacy among smallholder farmers (Balana et al. 2022). Information asymmetry also makes it risky and expensive for lenders to serve smallholder farmers, thus they ration the quantity of credit offered and/or raise the interest rates making credit too expensive and inaccessible for millions of smallholder farmers.

Bundling agricultural credit with insurance, commonly referred to as risk-contingent credit (RCC), provides a mechanism for addressing some of the credit access constraints faced by smallholder farmers in developing countries. RCC is a loan product that is bundled with an insurance component. RCC seeks to enhance long-term resilience to climate uncertainties by promoting optimal farm investment and productivity among smallholders through sustainable access to credit markets. Under RCC, qualifying

---

<sup>1</sup> International Food Policy Research Institute, Washington, DC.

<sup>2</sup> University of Greenwich, Kent, UK.

smallholder farmers borrow funds for agricultural production from formal financial institutions such as banks and microfinance institutions with minimum collateral requirements. The borrower's ability to repay the loan is linked to climate outcomes, which are highly correlated with farm productivity. 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 insurance is triggered and part or all of the borrower's liability is transferred to the insurer. If the underlying risk remains below the threshold, the borrower repays the loan at the agreed upon interest rates and is also obligated to pay the insurance premium, as part of the loan repayment. Linking farmers' loan repayment obligations to an underlying risk, as opposed to stringent collateral requirements, is expected to reduce the borrowing constraints faced by many poor farmers. At the same time, de-risking the lender by transferring a portion of risks to the insurance market is expected to promote credit supply, hence expanding the rural credit market (Shee et al. 2019).

To evaluate the feasibility of implementing RCC in Zambia, researchers from the International Food Policy Research Institute (IFPRI) in collaboration with the University of Greenwich conducted a scoping mission in October 2023. This mission aimed to provide a deeper understanding of the smallholder farmers' production practices, production risks, credit needs, and constraints to credit uptake. It also sought to understand the types of credit and insurance products already available for smallholder farmers; the private financial sector's challenges in serving smallholder farmers; and any existing government policies guiding smallholder access to agricultural production credit. This project note presents the findings from the scoping mission. We present a brief overview of the RCC product, methods used in the stakeholder engagements, and findings from the different stakeholders, and we conclude with the key opportunities and challenges to implementing RCC in Zambia.

## **RCC overview**

RCC was first piloted in Kenya in 2017 as a collaborative effort among several partners. The product was designed to promote credit supply and enhance credit access at the beginning of the cropping cycle among maize and bean farmers in Machakos County of eastern Kenya. The program has since expanded its operations to Embu County, also in eastern Kenya, and five *woredas* (districts: Adama, Bora, Dawo, Dugda, and Woliso) in Ethiopia. RCC is offered as a short-term loan with a payoff structure linked to a dynamic trigger that captures risks within each crop phenological stage. This is aimed at reducing inter-temporal basis risk (the within-season discrepancy between actual losses and losses reflected by the insurance index). The RCC insurance index is based on the Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) rainfall measures (see Shee et al. 2019 for more information). To ensure that the credit is used only in the agricultural production process, RCC farmers are given vouchers which they use to collect inputs from local agrovet supply shops.

RCC has two main characteristics that make it more attractive than conventional credit and complementary agricultural insurance products. First, RCC links the farmers' ability to repay a loan with their most important crop and with the season's rainfall/drought outcomes, rather than collateral. This increases farmers' access to credit while also reducing their likelihood of defaulting. Second, unlike conventional, stand-alone agricultural insurance products that require upfront premium payments, RCC premiums are paid at the end of the cropping cycle. This can help farmers overcome liquidity constraints, as evidenced by other agricultural insurance experiments across the globe (Casaburi and Willis 2018; Liu et al. 2020).

## **Methods**

Participants for the scoping mission in Zambia were purposively selected based on the project needs. Two focus group discussions (FGDs) were held with smallholder farmers from Mumbwa District in the Central Province. Mumbwa District was selected because of its agroecological characteristics, climate risks, the role of smallholder production in the community, diverse types of smallholders, and its proximity to the capital city. A total of 131 farmers (39 percent men and 61 percent women) were interviewed about various aspects of production including: their main agricultural production activities, crop production cycle, use of improved inputs, sources of agricultural inputs, agricultural production risks, and credit demand and uptake. Information was also collected about crop phenology and moisture requirement during the different stages of growth. This was aimed at improving the quality of the RCC index trigger and reducing intertemporal basis risk. Based on a game outlined in Shee et al. (2015), farmers were introduced to agricultural credit, farm investment, and the role of RCC in reducing downside risks related to drought and floods.

In addition to the FGDs with farmers, key informant interviews and open-ended discussions were held with representatives from the private financial sector, including three banks and two insurance companies. These firms were selected based on their past experiences with offering tailored agricultural credit and insurance products to smallholder farmers. To understand the types of insurance products available for Zambian farmers, key informant interviews were also held with three insurance aggregators who work with smallholder farmers across the country. Finally, discussions were held with representatives from the Ministry of Agriculture and the Meteorological Department.

**Table 1: Interviews by gender**

	Total	Women	Men
Farmers	131	78	53
Banking sector	7	1	6
Insurance companies and intermediaries	8	5	3
Government	8	2	6
Total	154	86	68

## Findings

### *Farmers*

**Agricultural production activities:** All farmers in the FGDs indicated that they are smallholder farmers who produce mainly for subsistence purposes. The most commonly produced crops are maize, groundnuts, soybeans, and vegetables. The cropping season begins in mid-November and ends around early June, depending on the crop type and the crop variety used. All farmers in the FGDs indicated that they use modern inputs including improved seed varieties, both planting and top-dressing fertilizers, and chemicals such as pesticides and herbicides. Although most farmers have access to subsidized government inputs, these inputs are usually insufficient, and farmers have to supplement them with purchases from private agrovets.

**Agricultural production risks:** Farmers in the FGDs indicated that climate risks, especially droughts, and unfavorable rainfall distribution through the cropping cycle are the main production challenges. Droughts, especially those that occur during the crop germination and flowering stages, cause up to 40 percent crop losses on average. Flood risks were also highlighted by some farmers. Other risks include disease and pests, such as the fall armyworm that attacks maize; lack of input and output markets; lack of liquidity to purchase inputs; and low output prices.

**Agricultural credit:** Almost 97 percent of the farmers in the FGDs had never borrowed for agricultural production purposes. Three percent had borrowed from microfinance institutions (MFIs). The farmers indicated that the interest rates were too high, which discouraged borrowing. In addition, the banks have stringent conditions in terms of collateral and guarantee requirements. Most farmers are unable to provide collateral because they live on ancestral and communally owned land, without land certificates that can be used as security against borrowing. Farmers also noted that it is easier to borrow as a group than as individuals. Due to the lack of formal credit infrastructure for small farmers, some borrow through informal channels like friends and family. The farmers indicated that lack of agricultural credit leads to sub-optimal

farm investment, which lowers their yields. Some farmers are also forced to switch to crops such as soybeans that are less demanding in terms of inputs.

Through RCC games and participatory learning, farmers received training on different farm investment options, including high potential production practices that involve use of agricultural credit. Farmers were informed about the pros and cons of credit under different weather outcome, including high returns under good weather outcomes and the negative returns under bad weather outcomes. The role of RCC in reducing downside risks related to bad weather outcomes was emphasized. Farmers were also informed about the extra premium payment under the RCC production regime, which can result in marginally lower returns under good weather outcomes. Regardless of the extra premium payment, all farmers in the FGDs preferred the insurance protection provided by the RCC production regime.

### ***The government sector***

The discussion with the government sector was aimed at understanding existing government initiatives for smallholder farmers, specifically farm credit, input, and insurance support. We found that the government has put in place a Farmer Input Support program (FISP), which enables eligible households to purchase fertilizer, hybrid seeds, and pesticides at subsidized prices. The program focuses on smallholder farmers who own land and live in their villages. To enhance long-term sustainability, the government is now moving toward an inclusive Comprehensive Agricultural Support Programme (CASP) that aims at reducing government input support and promoting sustainable access to agricultural production credit. The CASP also encompasses a comprehensive development agenda, including infrastructure, irrigation, livestock, extension services support, farm block development, and climate change adaptation. In addition to the government programs, a number of donor-funded programs support farmer access to credit and input markets, for instance, the Africa Development Bank's initiative to support 45,000 smallholder farmers with production inputs in 2023.

### ***Commercial banks***

The meeting with the banks was geared toward understanding their relationship and lending practices with smallholder farmers, the value chain of focus, interest rates, and their local networks. We also discussed the banks' experience in offering products like RCC. We found that within the agricultural sector, the banking sector in Zambia mostly lends to large-scale commercial operators who constitute only about 3 percent of farmers in the country. The banks also lend to organized groups of smallholder farmers through cooperatives and to farmers under contractual production agreements. The banks' interest rates vary between 10 and 23 percent depending on the borrowers' risk profile, the loan amount, and the currency—the interest rates are lower for US dollar credit products. Banks also lend money to MFI, who in turn lend to smallholder farmers at higher interest rates—which can reach 60 percent. The banks

highlighted that the key barriers to serving the smallholder farmers are lack of collateral, lack of credit history, the risky nature of agricultural production, and lack of data on individual farmers to ease tracking.

### ***Insurance and insurance intermediaries***

Some insurance companies have agricultural insurance products designed for both livestock and crop farmers in Zambia. This ranges from traditional indemnity-based products, weather-based index insurance products, and area yield insurance. They also have bundled products such as agricultural insurance bundled with agricultural inputs, agricultural advisories, and other private insurance products. Insurance companies are also responsible for delivering government initiatives like FISP and CASP. The insurance intermediaries work primarily through aggregators along the agricultural value chain to develop agricultural insurance products to address a range of relevant risks. They also provide services such as facilitating smallholder access to microfinance, supporting reinsurance and local underwriting, pricing insurance products, and providing training to aggregators, farmers, and other clients.

## **Way forward**

The findings from this scoping mission will provide the RCC researchers with important information for the development of the RCC product, including the role of agricultural production among smallholder farmers, the most important crops produced by smallholders in Zambia, climate risks faced by the farmers, crop phenology, and the crop germination cycle. The findings are also important in understanding the existing private and public infrastructure that can support RCC implementation. Below, we highlight the key opportunities and challenges to RCC implementation in Zambia.

### **Opportunities for implementing RCC in Zambia**

***Thriving private sector:*** Zambia has a well-established private financial sector, including banks and insurance companies with experience in offering products similar to RCC.

***Partnerships with existing programs:*** One of the main contributions from the scoping mission is an in-depth understanding of existing government and donor-funded programs such as FISP and CASP. Working with both the government and private sector to jointly design and deliver RCC programs will not only increase RCC reach and the benefits available to the farmers, but also it will significantly reduce the cost of delivery.

***Leveraging digital platforms:*** Private banks in Zambia have developed digital service delivery platforms for their clients. By leveraging these platforms, RCC can digitalize its services including farmer recruitment, farmer credit scoring, credit application, agro-advisories, use of electronic vouchers, and linking farmers to input and output markets. Using digital platforms to deliver RCC will significantly reduce transaction costs and expand the services available to farmers.

**Farmer willingness to take up the product:** During the FGDs, farmers indicated their willingness to use credit to improve their farm productivity. In addition, farmers showed greater interest in using RCC, given its ability to reduce farmers' payment obligations in seasons with bad weather outcomes.

### **Challenges to implementing RCC in Zambia**

**High interest rates:** The formal interest rates in the country are extremely high, which makes credit expensive for smallholder farmers. Adding the RCC premiums will increase the cost of borrowing.

**Lack of data and exclusive banking system:** The banking infrastructure for lending to individual farmers is not well developed. Developing the system will involve building a credit scoring system for individual farmers, which is a challenge since farmers do not have previous borrowing experience. The banks also lack critical farmer data such as geographical location, agricultural production practices, and incomes. Finally, the banking infrastructure is either missing or not very well developed in rural areas; this will make it very expensive to deliver individualized credit products such as RCC.

**Risk coverage:** All the stakeholders in the study indicated that, in addition to drought, farmers face other production risks such as pests and diseases, soil degradation, and price risks, yet RCC only covers drought-related risks. Moreover, the farmers produce a wide array of crops and livestock, but RCC is narrowly focused on specific crops. This might reduce farmers' willingness to pay for the product and its long-term sustainability as a climate resilience tool.

**Crop production cycle:** Zambia has only one growing season; this means that the interventions such as RCC need to be well coordinated and delivered in a timely manner.

---

## **ABOUT THE AUTHORS**

Anne G. Timu is an associate research fellow in the Foresight and Policy Modeling Unit, IFPRI, Washington, DC. Apurba Shee is an associate professor of applied economics, University of Greenwich, Kent, UK. Liangzhi You is a senior research fellow in the Foresight and Policy Modeling Unit, IFPRI, Washington, DC.

---

## **ACKNOWLEDGMENTS**

The authors would like to thank Niza Banda, Adam Mwiwa, and Stanley Banda for their help in making the scoping mission a success. We would also like to thank the farmers who participated in the FGDs, and the participants from ABSA Bank, Zanaco Bank, First National Bank, Acre Africa, Pula Insurance, Risk Shield, Professional Insurance, Mayfair Insurance, Ministry of Agriculture, Ministry of Lands, Meteorology Department, and the University of Zambia who were generous with their time and information.

---

## REFERENCES

- Balana, B.B., Mekonnen, D., Haile, B., Hagos, F., Yimam, S. & Ringler, C. (2022). Demand and supply constraints of credit in smallholder farming: Evidence from Ethiopia and Tanzania. *World Development*, 159, (106033).
- Casaburi, L. & Willis, J. (2018). Time versus state in insurance: Experimental evidence from contract farming in Kenya. *American Economic Review*, 108(12), pp.3778-3813.
- Liu, Y., Chen, K. & Hill, R.V., 2020. Delayed premium payment, insurance adoption, and household investment in rural China. *American Journal of Agricultural Economics*, 102(4), pp.1177-1197.
- Shee, A., Turvey, C.G. & You, L. (2019). Design and rating of risk-contingent credit for balancing business and financial risks for Kenyan farmers. *Applied Economics*, 51(50), pp.5447-5465.
- Shee, A., Turvey, C.G., & Woodard, J. (2015). A Field Study for Assessing Risk-Contingent Credit for Kenyan Pastoralists and Dairy Farmers. *Agricultural Finance Review* 75 (3): 330–348.

This work was carried out with support from the CGIAR Initiative on Climate Resilience, ClimBeR. We would like to thank all funders who supported this research through their contributions to the [CGIAR Trust Fund](#).

## INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

*A world free of hunger and malnutrition*

IFPRI is a CGIAR Research Center

1201 Eye Street, NW, Washington, DC 20005 USA | T. +1-202-862-5600 | F. +1-202-862-5606 | Email: [ifpri@cgiar.org](mailto:ifpri@cgiar.org) | [www.ifpri.org](http://www.ifpri.org) | [www.ifpri.info](http://www.ifpri.info)

© 2023 International Food Policy Research Institute (IFPRI). This publication is licensed for use under a Creative Commons Attribution 4.0 International License (CC BY 4.0). To view this license, visit <https://creativecommons.org/licenses/by/4.0>.