



# Financial Services for Climate-Resilient Value Chains: The case of the Centenary Bank in Uganda

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This briefing note presents the results of case study research on financial services and climate risk management along agricultural value chains, focusing on the Centenary Bank's services to rice value chain actors in Eastern Uganda. It discusses the need for climate risk management (CRM) along agricultural value chains, the role of financial services in enabling CRM by value chain actors, and practical options for financial service providers to realize their potential in this area. It also provides recommended areas of action for researchers and practitioners to move forward on financial services for CRM.

## Key Points

- Financial services are critical in enabling climate risk management (CRM) along agricultural value chains.
- Access to savings and credit already supports some aspects of CRM, notably by facilitating diversification of livelihoods and income sources, while also providing a buffer when shocks are experienced.
- More can be done to ensure that financial services are affordable, equitable and appropriately designed for a changing climate. This will likely involve a combination of new and adjusted financial products, as well as complementary services.
- Researchers and practitioners can contribute to evidence building and capacity development for financial service providers that can support their efforts to integrate CRM in their decision making and activities.
- Investments in climate information services are needed to enable better decision making by all actors involved in value chain development.



## Introduction

Climate change represents a significant threat to the sustainable development of agro-commodity value chains. Rising temperatures, changing precipitation patterns and more frequent extreme events will increase the risk of crop losses, transportation challenges and commodity price fluctuations. This increased risk and uncertainty is already beginning to create challenges for actors along entire value chains, from inputs through production, processing and marketing, to consumption. As actors along the value chain are interdependent, the negative impacts of climate change at one link in the chain can have a ripple affect along its entire length. By extension this interdependency also means that sustainable and profitable value chains can only be achieved if all actors along the value chain collaborate to manage climate risks (Dekens & Bagamba, 2014).

The role of financial services in facilitating adaptation to climate change is receiving increasing attention (Haworth, Frandon-Martinez, Fayolle & Simonet, 2016; Agrawala & Carraro, 2010; Dowla, 2009; Hammill, Matthew & McCarthy, 2008). Analysis by IISD has also found that financial services are a key enabler for climate risk management along agricultural value chains (Dekens & Bingi, 2014), providing value chain actors with a range of options to absorb shocks and adapt to changes over time. At the same time, the impacts of climate change have the potential to affect financial service providers' activities by exposing their investments to increased risk. A better understanding of these dynamics is needed to create an enabling environment for CRM by both value chain actors and financial service providers, including those in the private sector.

To inform research in this area, IISD collaborated with the Centenary Bank (a commercial bank in Uganda), to explore how financial service providers, notably commercial banks, can support CRM by different actors along agricultural value chains. The collaboration took place as part of a broader research project focusing on the role of private sector investment in developing climate-resilient agricultural value chains. The results of the research with Centenary Bank are presented in this briefing note, linking the findings to current knowledge on financial services and value chain CRM and identifying recommended areas of action for researchers and practitioners working in working on microfinance, agricultural value chains, food security and climate resilience in developing countries.





## The Case Study: Centenary Bank in Eastern Uganda

The Centenary Bank, a private commercial bank in Uganda, was established in 1985 with an objective of serving the rural poor and contributing to the country's economic development. It was registered as a full-service commercial bank in 1993. Currently, the bank provides a range of financial services to over 1.4 million clients, with a focus on microfinance. It operates through 63 branches across Uganda as well as through ATMs and mobile banking services. The bank's vision and mission emphasize microfinance services for people in rural areas with an aim of providing these in a sustainable manner (Centenary Bank, 2016).

In 2013, Centenary Bank established its agricultural finance department, which provides financial services to different actors involved in agricultural value chains. In 2015, agricultural finance represented about 12 per cent of the bank's lending portfolio (Centenary Bank, 2016). In addition, the bank provides credit and savings services for actors involved in processing, transport and marketing of agricultural products. The products offered by the department include loans for production, equipment and marketing, as well as savings accounts. The case study research focused specifically on the bank's services to actors along a particular rice value chain in Eastern Uganda. The area of the value chain includes the rice growing districts of Bukedea and Butaleja, as well as Budaka District,<sup>1</sup> where the bank is providing services to rice millers, traders and transporters (see Figure 1 for the location of the districts).

The case study investigated the types of services, financial products and terms that are most effective in enabling CRM along the value chain and most robust in relation to potential future climate scenarios. The initial phase of the research process involved semi-structured interviews with rice farmers, millers, traders and transporters to explore the current effects of climate hazards on their activities and how they are responding. Building on these findings, the research team organized a workshop that brought together experts in the fields of agricultural finance, microfinance and crop insurance to identify options for investment by Centenary Bank, and other financial service providers, to better support value chain actors in managing climate risks. The options identified were presented to the value chain actors and bank staff and a multi-criteria analysis process was used to identify priorities. These priorities were then analyzed for robustness in relation to projected changes in climate in Uganda. Finally, a policy dialogue was held to discuss the implications for policy development and implementation.



**Figure 1:** Location of case study research in Uganda

<sup>1</sup> In 2010, Budaka was divided to create a new district, called Kibuku. The Centenary Bank clients in this new district were registered before the division occurred, so they are registered as living in Budaka. Consequently, some of the clients interviewed as part of the Budaka sample may now reside in Kibuku. As the context and conditions in the two districts are similar, we have chosen to maintain consistency with the bank's database.



## Key Findings

This section presents the key findings from the case study research, linking them to the broader context in relation to CRM, value chains and financial services.

### CRM is needed along agricultural value chains

Uganda's climate is changing, with implications for agricultural value chains now and in the coming decades. Although determining trends in Uganda's climate is challenged by incomplete data (due to insufficient coverage of weather stations) and the country's diverse topography and agro-climatic systems (United States Agency for International Development [USAID], 2013a), a number of recent studies have provided some insight. Generally speaking, the studies show that temperatures have increased by approximately 0.2°C per decade across all seasons and regions of the country since the 1960s (Funk, Rowland, Eilerts & White, 2012; Daron, 2014; Climate Service Center, 2013; Mubiru, Komutunga, Agona, Apok & Ngara, 2012), and that the country has experienced an increase in the frequency and intensity of droughts and floods in recent decades (USAID, 2013b).

Climate projections suggest that temperatures in Uganda will continue to rise, potentially at a faster rate than experienced to date (USAID, 2013a). Rainfall projections are inconclusive, however most studies predict a shift in the distribution of rainfall over the year, with more rain falling during the dry season (USAID, 2013a; Rautenbach, Botai, Nsubuga, Shongwe & Beucher, 2014; Climate Service Center, 2013). An increase in the frequency of extreme events is expected (USAID, 2013a; Rautenbach, et al., 2014), with higher intensity and frequency of heavy rainfall events, especially during the short rainy season, as well as longer, more frequent and more severe heat waves and droughts (Climate Service Center, 2013).

The research explored the current experiences with climate hazards and changes in the case study area, from the perspective of different value chain actors. The key climate hazards identified were droughts, floods, hailstorms and changing rainfall patterns. All stages of the value chain are being affected by these hazards; however, farmers are particularly vulnerable due to the potential for crop losses. For example, flooding in Butaleja and Bukedea in 2011 was so severe that rice fields were submerged for periods ranging from two weeks to three months, causing total loss of the rice crop. When such events occur, even when some of the affected crop can be recovered, harvesting the rice is more difficult—demanding more time and labour—which also has cost implications. All of these scenarios have consequences for farmer incomes and consequently for their livelihood security, particularly if they have taken a loan with the expectation of a good harvest and the income that it would generate.

Crop losses experienced by farmers have consequences for all other stages of the value chain. The most direct effect is that there is less rice available for milling, trading and sale to consumers, and that what is available may be of poor quality, resulting in more breakage during processing. When supplies are low due to losses or low yields, prices for raw rice are higher, which affects the profit margin for millers. Flooding also disrupts transportation links between farms, mills and markets, affecting traders and transporters who need to move around to conduct their business. When it comes to consumption, one major outcome of extreme and erratic weather affecting crop production is an increase in prices for staples, including rice. Following the aforementioned flood in Butaleja, for instance, the price of a kilogram of rice rose by almost 30 per cent, according to interview participants.

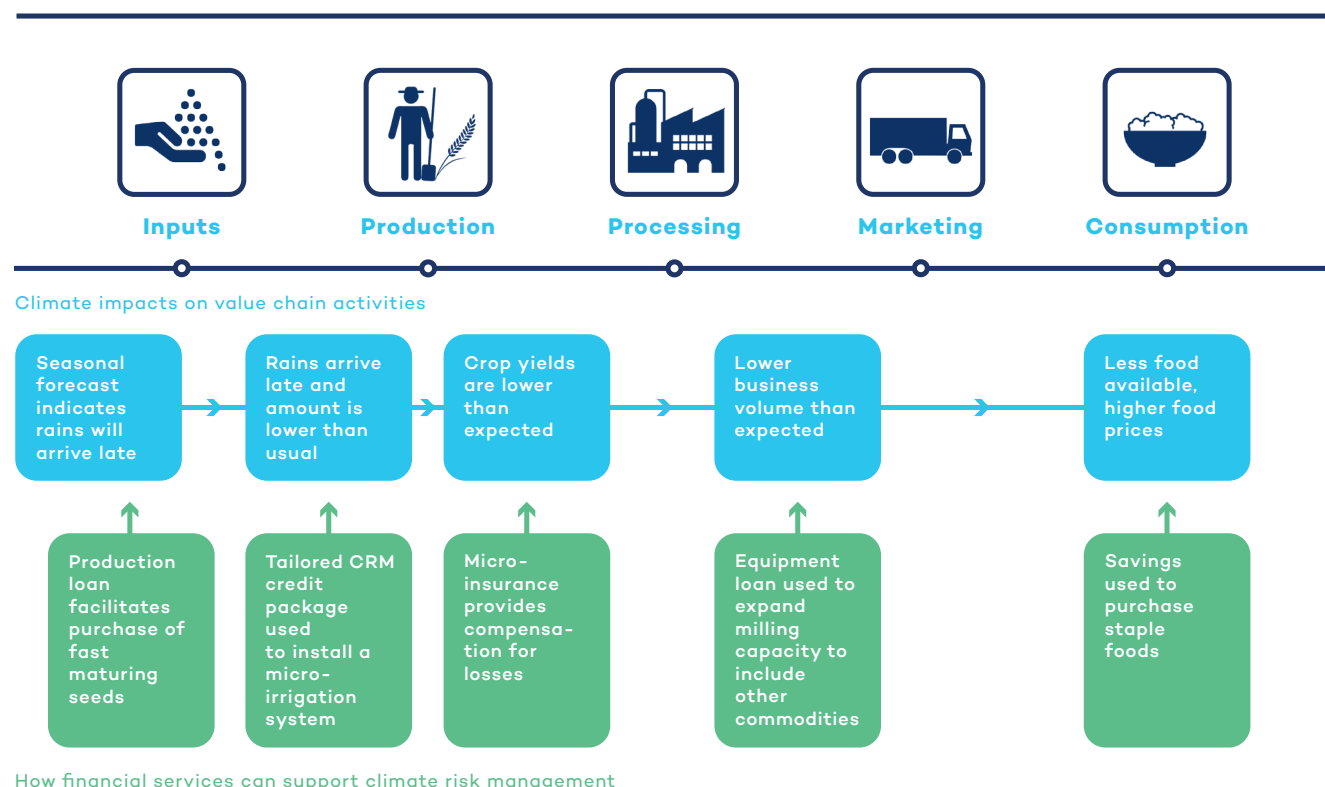
These findings are in line with a recent vulnerability assessment by the United States Agency for International Development (USAID), which examined the sensitivity of key agricultural value chains in Uganda to climate change, including those for coffee, maize and rice. The analysis found that climate change affects the entire value chain for these commodities, and that rice and Arabica coffee are particularly at risk. It was noted that rice production is highly vulnerable to increasing rainfall variability and to extreme weather events, with implications for the entire value chain, notably processing.



The study recommends a range of actions to support CRM along agricultural value chains, emphasizing the need for locally driven responses (USAID, 2013a). The International Fund for Agricultural Development (IFAD) has also emphasized the need for CRM along agricultural value chains, noting that the economic viability of some agricultural value chains may be under threat in as little as 20 years due to climate change impacts on production. IFAD also notes that investment in these climate-sensitive value chains may expose value chain actors to greater economic risks and higher opportunity costs, making them more vulnerable to climate variability and change (IFAD, 2015, p. 3).

### Financial services play a key role in CRM along agricultural value chains

The role of financial services (both commercial and non-commercial) in supporting CRM along agricultural value chains has been emphasized in a number of recent analyses (IFAD, 2015; Dekens & Bingi, 2014; USAID, 2013a). Climate risk management along agricultural value chains is understood as an ongoing process that aims to reduce the negative impacts associated with climate hazards and changes. It involves three core functions: climate risk assessment; adaptive management; and responding to shocks (IISD, 2016). Of these three functions, financial services play a particularly important role in supporting adaptive management of value chain activities. They achieve this by, for example, providing capital for investing in the implementation of CRM strategies such as irrigation and climate-resilient seeds. There is also potential for financial services to enable responses to shocks. Both savings and credit services are helpful in smoothing fluctuations in income when value chain activities are affected by climate hazards, while micro-insurance can provide compensation for losses experienced. Figure 2 presents practical examples of how financial services can facilitate CRM at different points along the value chain.



**Figure 2:** Financial services and CRM along value chains: Practical examples



Discussions with Centenary Bank clients revealed some of the ways in which the savings and credit services offered by the bank already provide benefits that enable CRM. Credit has facilitated diversification of income sources by some of the actors. For example, some farmers have used part of their loan money to start up small trading businesses. Millers, traders and transporters have also established additional businesses such as retail shops. Value chain actors also indicated that they have used the loans to meet other household needs such as housing, school fees, clothing, food and medical expenses when their incomes have been affected by climate hazards. Savings have provided a buffer when farmers have experienced crop losses, and they have also played a role in facilitating income diversification for some actors. However, the findings indicate that more can be done to ensure that financial services are affordable, equitable and appropriately designed for a changing climate.

### **CRM by clients benefits financial service providers**

Supporting CRM along value chains benefits not only the value chain actors, but also the financial service providers, as they may themselves be negatively affected by the impacts of climate change (Allianz Group & World Wildlife Fund, 2005; Finley & Shuchard, n.d.). In addition to the direct effects of climate extremes on institutional infrastructure and operations, these institutions potentially face an increase in default rates, decreases in savings deposits, and more frequent claims on insurance products where they are offered. The result is that investment by microfinance institutions in the agricultural sector may be less profitable (Dowla, 2009).

This was found to hold true in Uganda, where some evidence was provided that extreme weather events have led to farmers being unable to make their loan payments. This has two major implications for the Centenary Bank: increased operating costs and an increased rate of defaults on loans. The effect on operating costs results from the need to follow up on loan payments and, where crop damage has been reported by the client, to assess the extent of the damage. This requires credit officers to spend more time in the field, with associated expenses. The credit officers' assessment informs decisions about next steps, which may involve loan rescheduling, refinancing or restructuring. In the worst cases, the loan is written off, generating a loss for the bank and/or requiring access to their loan guarantee options.

### **Options exist for investment in financial services to support CRM along agricultural value chains**

The results of the case study demonstrate the need for CRM along agricultural value chains and the role that financial services can play, as well as the consequent benefits for financial service providers. Several investment options for financial service providers to better support CRM along agricultural value chains were identified through the case study's expert consultations. The options identified fall into three key categories, as described below:

- **Adjustments to existing financial products and services**, for example by offering a preferential interest rate for loans to clients who are implementing particular CRM strategies.
- **Development of new financial products and services**, such as weather index insurance, which is currently not widely available in Uganda.
- **Provision of complementary services**, such as dissemination of climate and weather information through existing communication systems used by financial service providers (including direct interactions, community radio and mobile phones).





These different options were presented to the value chain actors in Eastern Uganda, and a multi-criteria analysis process was used to determine their priorities. All of the value chain actors prioritized options that would enable them to engage in more informed and forward-looking decision making (Africa Climate Change Resilience Alliance [ACCRA], n.d.), for example through training in climate risk analysis and identification of CRM options, as well as the dissemination of weather and seasonal forecasts. They also positively assessed options that would enable them to adjust their value chain activities to minimize climate risks, such as through access to a lower interest rate on loans as an incentive for implementing CRM actions.

When the options prioritized by value chain actors were presented to the Centenary Bank they were also viewed as beneficial, noting that they are interlinked; a combination of these complementary approaches would likely be the most helpful in enabling value chain actors to manage climate risks. Because they focus on increasing knowledge, facilitating more informed decision making and incentivizing actions that will reduce risks to value chain activities, these options are also promising in terms of empowering people to manage climate risks into the future as the impacts of climate change become more pronounced.

Like most financial service providers, the Centenary Bank considers risk management a priority and part of its core business. Bank staff are aware of the impacts of climate hazards on their clients and the consequences for the services that they provide. As a result, they are enthusiastic about the potential to apply the learning generated through this research. Some entry points already exist; for example, the bank already uses radio programs and mobile phones to communicate with its clients. These channels could potentially be used to disseminate seasonal forecasts and weather information. However, the research also identified barriers faced by the bank in integrating CRM in a more systematic way. Not least among these is its own ability to access relevant climate and weather information and to interpret it for use in decision making.

## **Moving Forward on Financial Services for CRM: Recommendations for researchers and practitioners**

It is clear from the research in Uganda, as well as recent literature, that affordable, equitable and appropriate financial services are critical in enabling CRM along agricultural value chains. Investments in value chain development, climate resilience and food security must therefore be designed with recognition of the role that financial services can play. Moving forward, there are a number of areas for further research and action to strengthen the ability of financial service providers to realize this potential:

### **Strengthen climate information services**

Access to climate and weather information remains a barrier to actors wanting to invest in CRM. This includes financial service providers, as well as other service providers and actors along the value chain. Addressing this challenge is beyond the scope of the agricultural finance sector and requires further investment in infrastructure and capacity building for meteorological agencies (and other climate information service providers), to ensure that the information they generate is timely, reliable and disseminated in formats that are accessible and relevant for decision making.

### **Enhance the capacity of financial service providers to integrate climate risks into decision making**

In order to support their clients in managing climate risks, whether through information provision, training or tailored services, financial service providers themselves must have the capacity to access, understand and use information on climate risks and changes and appropriate CRM options. This will also enable them to better manage risks to their own operations. To build this capacity, training, tools and resources will be needed, targeting all levels of financial institutions, from senior management to frontline staff such as credit officers.



## Support learning on financial services for CRM

The research in Uganda has identified options for new and adjusted products and services that could be incorporated in the portfolio of financial service providers, including commercial banks. These initial ideas need to be tested, evaluated and refined in order to determine the most effective options in enabling CRM by value chain actors, as well as those providing the most benefits to the financial service provider. Additional resources and technical assistance will likely be required for financial service providers to engage in these learning processes, involving piloting, monitoring and evaluation.

## Build the evidence base on insurance

Recognizing that extreme weather events are expected to occur more frequently and with greater severity, insurance is a promising option for value chain actors, as part of a broader package of financial services. However, in the Ugandan context, as in many developing countries, there is limited experience with insurance products targeted toward value chain actors, such as weather index insurance for farmers.<sup>2</sup> Further research and partnerships are needed to replicate experiences from other countries, to adapt the products to specific contexts and value chains and to communicate the costs and benefits to financial service providers and their clients.

### Private Sector Investment in a changing climate: Resilient rice value chain development in Uganda (PSI-Climate)

The PSI-Climate initiative explored how domestic private sector investment decisions can enable climate risk management by different actors along the rice value chain in Uganda. Led by the International Institute for Sustainable Development, the project was implemented in partnership with the Economic Policy Research Center and the Ministry of Finance, Planning and Economic Development during the period 2014–2016. Case study research was conducted in collaboration with a domestic seed company, Equator Seeds Ltd in Northern Uganda, and the Centenary Bank Ltd., a commercial bank in Eastern Uganda. The research utilized a participatory and qualitative approach, with data collected through focus group discussions, semi-structured interviews and dialogue processes with key actors along the selected rice value chains, as well as relevant experts. For more information about the initiative, please see: <http://www.iisd.org/project/psi-climate-uganda>.

<sup>2</sup> While weather index insurance was included on the list of options presented to the value chain actors, it was not prioritized. This may be because there is limited experience with insurance and they did not fully understand how weather index insurance would work. Centenary Bank also ranked this as a lower priority than the other options presented due to a lack of solid evidence on the benefits for clients and the bank itself.





## References

- Africa Climate Change Resilience Alliance (ACCRA) (n.d.). *The ACCRA Local Adaptive Capacity framework*. Retrieved from [http://community.eldis.org/.59d669a7/ACCRA%20Local\\_Adaptive%20Policy\\_new.pdf](http://community.eldis.org/.59d669a7/ACCRA%20Local_Adaptive%20Policy_new.pdf)
- Agrawala, S. & Carraro, M. (2010). *Assessing the role of microfinance in fostering adaptation to climate change* (OECD Environmental Working Paper #15). Retrieved from <http://www.oecd.org/environment/cc/44844835.pdf>
- Allianz Group & World Wildlife Fund (WWF) (2005). *Climate change and the financial sector: An agenda for action*. Retrieved from [http://www.wwf.org.uk/filelibrary/pdf/allianz\\_rep\\_0605.pdf](http://www.wwf.org.uk/filelibrary/pdf/allianz_rep_0605.pdf)
- Centenary Bank (2016). *2015 Annual Report*. Retrieved from <http://www.centenarybank.co.ug/sites/default/files/reports/CB-report-2015%20.pdf>
- Climate Service Center. (2013). *Climate Fact Sheet Uganda*. KfW Development Bank, BMZ and Climate Service Center Germany.
- Daron, J. D. (2014). *Regional climate messages: East Africa* (Scientific report from the CARIAA Adaptation at Scale in Semi-Arid Regions (ASSAR) Project). Retrieved from [http://www.assar.uct.ac.za/sites/default/files/image\\_tool/images/138/RDS\\_reports/EAST-AFRICA/East%20Africa%20RDS%20full%20report%20-%20revised.pdf](http://www.assar.uct.ac.za/sites/default/files/image_tool/images/138/RDS_reports/EAST-AFRICA/East%20Africa%20RDS%20full%20report%20-%20revised.pdf)
- Dazé, A., & Dekens, J. (2016). *Enabling climate risk management along agricultural value chains: Insights from the rice value chain in Uganda*.
- Dekens, J., & Bagamba, F. (2014). *Promoting an integrated approach to climate adaptation: Lessons from the coffee value chain in Uganda* (Briefing note). Retrieved from [http://www.iisd.org/sites/default/files/publications/value\\_chains\\_coffee\\_uganda\\_briefing\\_note.pdf](http://www.iisd.org/sites/default/files/publications/value_chains_coffee_uganda_briefing_note.pdf)
- Dekens, J., & Bingi, S. (2014). *Agro-value chain finance and climate adaptation: The role of the banking sector* (Briefing note). Retrieved from [http://www.iisd.org/sites/default/files/publications/agro\\_value\\_chain\\_bank\\_sector.pdf](http://www.iisd.org/sites/default/files/publications/agro_value_chain_bank_sector.pdf)
- Dowla, A. (2009). *Climate change and microfinance*. Grameen Foundation and Oxfam America. Retrieved from <http://www.grameenfoundation.org/resource/climate-change-and-microfinance>
- Finley, T. & Shuchard, R. (n.d.). *Adapting to climate change: A guide for the financial services industry*. BSR. Retrieved from <http://www.bsr.org/en/our-insights/report-view/adapting-to-climate-change-a-guide-for-the-financial-services-industry>
- Funk, C., Rowland, J., Eilerts, G. & White, L. (2012). *A climate trend analysis of Uganda* (U.S. Geological Survey Fact Sheet 2012-3062). Famine Early Warning Systems Network—Informing Climate Change Adaptation Series. USGS and USAID. Retrieved from <http://pubs.usgs.gov/fs/2012/3062/>
- Hammill, A., Matthew, R., & McCarter, E. (2008). *Microfinance and climate change adaptation*. International Institute for Sustainable Development. Retrieved from [https://www.iisd.org/pdf/2008/microfinance\\_climate.pdf](https://www.iisd.org/pdf/2008/microfinance_climate.pdf)
- Haworth, A., Frandon-Martinez, C., Fayolle, V. & Simonet, C. (2016). *Climate resilience and financial services* (BRACED working paper). Retrieved from <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10316.pdf>
- Mubiru, D. N., Komutunga, E., Agona, A., Apok, A., & Ngara, T. (2012). Characterising agrometeorological climate risks and uncertainties: Crop production in Uganda. *South African Journal of Science*, 108(3-4), 108–118. Retrieved from <http://www.sajs.co.za/characterising-agrometeorological-climate-risks-and-uncertainties-crop-production-uganda/mubiru-drake-komutunga-everline-agona-ambrose-apok-anne-ngara-todd>
- Rautenbach, H., Botai, J., Nsubuga, W. F., Shongwe, M., & Beucher, O. (2014). *Economic assessment of the impacts of climate change in Uganda. Regional-scale climate change projections of annual, seasonal and monthly near-surface temperatures and rainfall in Uganda*. Climate Change Unit, Ministry of Water and Environment, Uganda and Climate & Development Knowledge Network. Retrieved from [http://www.ccu.go.ug/images/CDKN/baastel\\_uganda\\_cc-scenarios\\_26jun14\\_clean.pdf](http://www.ccu.go.ug/images/CDKN/baastel_uganda_cc-scenarios_26jun14_clean.pdf)
- United States Agency for International Development (USAID). (2013a). *Uganda Climate Change Vulnerability Assessment Report*. Retrieved from <https://www.climatelinks.org/resources/uganda-climate-change-vulnerability-assessment-report>
- USAID. (2013b). *Uganda: Climate Vulnerability Profile*. Retrieved from <https://www.climatelinks.org/resources/uganda-climate-vulnerability-profile>

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