

UGANDA

POLICY NOTE

Unlocking Agriculture Finance and Insurance in Uganda: The Financial Sector's Role in Agricultural Transformation

August 2019



© 2019 International Bank for Reconstruction and Development / The World Bank 1818
H Street NW Washington DC 20433
Telephone: 202-473-1000 Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Disclaimer : The sole responsibility of this publication lies with the author. The European Union is not responsible for any use that may be made of the information contained therein.

Cover photo: A'Melody Lee / World Bank

Contents

Abbreviations	3
1. Context: An overview of the agriculture sector in Uganda	4
2. Relevance: The Government of Uganda’s vision for transforming the agriculture sector	6
Purpose	7
Methodology	7
Main message	8
3. The problem: Suboptimal levels of agriculture finance and insurance in Uganda	9
Access to credit	9
Access to insurance	9
Enabling environment for credit and insurance	10
4. The solution: A holistic approach to financing and de-risking the agriculture sector to support its transformation	12
Scale up public support to promote agriculture finance	13
Accelerate digital financial services in the agriculture sector	14
Enlarge UAIS’s scope of supply	15
5. Investment components to support sustainable agriculture finance and insurance in Uganda	19
Agricultural finance and investments	20
Agricultural insurance	22
Enablers	24
6. Costing	26
7. Summary of recommendations	28
Annex 1	29
References	31

Abbreviations

ACDP	Agriculture Cluster Development Project
ACF	Agricultural Credit Facility
AIC	Agricultural Insurance Consortium
ASSP	Agriculture Sector Strategic Plan
AWS	Automatic weather stations
AYII	Area Yield Index Insurance
CCE	Crop cutting experiment
DRF	Disaster risk financing
GDP	Gross domestic product
GoK	Government of Kenya
GoU	Government of Uganda
KLIP	Kenya Livestock Insurance Program
LU	Livestock unit
MFD	Maximizing Finance for Development
MFI	Microfinance institution
MoFPED	Ministry of Finance, Planning and Economic Development
MPCI	Multi-peril Crop Insurance
MSC	Microfinance Support Center
NAP	National Agriculture Policy
NDP II	National Development Plan II
NDVI	Normalized Difference Vegetative Index
PFI	Participating Financial Institution
SACCO	Savings and Credit Cooperative Organization
SPDII	Satellite-Based Pasture Drought Index Insurance
SMEs	Small and Medium Enterprises
TLU	Tropical Livestock Unit
TSU	Technical Support Unit
UAI	Unit Area of Insurance
UAIS	Uganda Agriculture Insurance Scheme
UNMA	National Meteorological Agency
VSLA	Village Savings and Loan Association
WII	Weather Index Insurance

1. Context: An overview of the agriculture sector in Uganda

This note was written by Tenin Fatimata Dicko, Toshiaki Ono, Barry Patrick Maher and Emiko Todoroki of Finance, Competitiveness & Innovation Global Practice of the World Bank.

As a key pillar of the Ugandan economy, the agriculture sector is a critical driver of economic growth and poverty alleviation. Agriculture accounts for 22.8 percent of Uganda's gross domestic product (GDP) (2015 estimate) and approximately 50 percent of the value of exports, and agricultural exports represent about 20 percent of the country's total foreign exchange earnings (Walker et al. 2018). The major cash crops are tea, accounting for 35.5 percent of exports in 2015; coffee, accounting for 21 percent; fish, accounting for 19.7 percent; and cotton, accounting for 7.6 percent (AXCO 2018). The main food crops are plantain bananas, cassava, sweet potatoes, millet, maize, beans, sorghum, groundnuts, and sesame. The livestock subsector contributes 4 percent of the GDP (World Bank 2018) and plays an important role in providing food security. Approximately 75 percent of Ugandans reside in rural areas, with one in four rural Ugandans living in poverty (compared to just one in 10 urban Ugandans). It is estimated that 87 percent of the working poor are primarily engaged in agricultural activities (MAAIF 2016). Increasing the productivity and commercialization of the sector is therefore critical as a driver of poverty reduction and economic growth, and this goal is recognized in the World Bank's strategy for Uganda and for the Africa region at large.

Uganda's agricultural sector is dominated by smallholders with low levels of productivity. Smallholders represent 85 percent of farming households in Uganda (Mesharshand Robert 2018), a much higher proportion than in comparable countries in Africa, with average farm sizes ranging from 0.8 to 1.6 ha (Anderson, Leach, and Gardner 2016). Livestock ownership is widespread, with 71 percent of total households rearing some form of livestock or poultry (UBoS 2010). The average cattle herd size is seven per cattle-owning household, but regional differences in livestock ownership are substantial. In Eastern region, households own an average of four cattle, compared to an average of 21 cattle in Karamoja. The national agricultural output has grown at only 2 percent a year over the last five years, lower than GDP growth of 5.2 percent and population growth of 3 percent over the same period (Walker et al. 2018). This constrains the impact of the sector on development and economic growth. From 2010 to 2015, yields declined for key crops (bananas and plantain, cereals, root crops and pulses) (MAAIF 2016), leading to large yield gaps (between 50 percent and 75 percent) (AGRA 2017). Investment in farming practices and mechanization is low, with 10 percent of farmers using animal traction, and 1.2 percent using tractors (World Bank 2018).

The agriculture sector is highly exposed to covariant risks, which include weather, biological, infrastructure (post-harvest loss), price, and market risks. This plethora of risks suppresses appetite for investment in the sector. Uganda is among the countries most vulnerable and simultaneously least adapted to climate change, scoring 155

¹ The Notre Dame Global Adaptation Initiative (ND-GAIN) country index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience.

out of 188 countries on the ND-GAIN index. Annual losses are therefore high, between 11 percent and 14 percent of agriculture GDP and between 2.3 percent and 3.1 percent of overall GDP (PARM 2015), with crop losses due to drought averaging US\$44 million per year (7.3 percent of total losses). Acute vulnerability to weather risk arises from the reliance on rain-fed farming. Irrigated agriculture comprises only 1.3 percent of the total cultivated (World Bank 2018; Olet 2017). The livestock subsector is also highly exposed to climatic risk. The 2008 census estimated the livestock population in Karamoja at about 6 million head, representing about 19.8 percent of the national cattle population. According to a survey by the Food and Agriculture Organization of the United Nations (FAO 2014), the overall numbers of livestock had declined by about 70 percent to only 1.2 million head of cattle between the 2008 census and FAO survey in 2013. This sizable reduction was due to lack of pasture, grazing, and water to maintain the herds; epidemic pests and diseases; and government policy.

Despite the sector's contribution to the economy, farmers' access to finance remains a major constraint.

Only 12.2 percent of overall credit goes to the agricultural sector (BoU 2018), with only one-third of this amount going toward primary production (BoU 2017). Furthermore, when scaled only to the agriculture sector, the agriculture credit for production of UGX 670 billion is only 2.8 percent of agricultural GDP (BoU 2017). This is in stark contrast to 13.3 percent of the total private sector credit to GDP, and it highlights the low levels of credit flowing into agriculture production, despite its important contribution to GDP. Expansion of credit is limited by rural populations' lack of access to financial services. According to FSD Uganda (2018), 58 percent of farmers are formally financially included, but the uptake of formal credit remains at 11 percent. This challenge extends beyond the agricultural sector: 46 percent of adults (8.5 million) have borrowed money in Uganda, but only 3 percent (0.3 million) of the borrower have borrowed from formal lending institutions.



2. Relevance: The Government of Uganda's vision for transforming the agriculture sector

The National Development Plan II (NDP II) recognizes the agriculture sector as the backbone of Uganda's economy and prioritizes it as one of the five key sectors for investment. To execute the plan on agriculture stipulated under the NDP, the Government of Uganda (GoU) adopted a National Agriculture Policy (NAP) and Agriculture Sector Strategic Plan (ASSP). The overall objective of the NAP is to achieve food and nutrition security and improve household incomes through (i) coordinated interventions that focus on enhancing sustainable agricultural productivity and value addition; (ii) provision of employment opportunities; and (iii) promotion of domestic and international trade. The ASSP aims to implement the policy set by the NAP over the period 2015 to 2020 with the objective of transforming subsistence farming to sustainable commercial agriculture.

The GoU initiated several interventions to achieve the goals set under the ASSP. These interventions include subsidies to improve access to high-quality seeds and fertilizers, as well as access to finance and improved agriculture risk management.

The GoU is building on international best practice to implement the ASSP, having introduced an e-voucher subsidy scheme for fertilizer in 2017/18. This e-voucher system allows farmers to purchase fertilizers, seeds, and equipment for post-harvest handling and processing with agro-dealers. The e-voucher system is mobile-based and uses a matching grant mechanism that requires the farmer to contribute a share. Farmers must register and open a mobile money account to receive the matching grant.

Recognizing agriculture finance's critical role in the agricultural transformation agenda, the GoU is supporting several initiatives to unlock agricultural finance. The Agricultural Credit Facility (ACF) established in 2009 is a public wholesale credit facility managed by the Bank of Uganda, which provides interest-free loans to participating financial institutions (PFIs) for on-lending to farmers and agro-processors at favorable terms. Banks are required to match 50 percent of the loan from their own funding sources, while the contribution of micro finance deposit-taking institutions and credit institutions is limited to 30 percent. The interest rate to the final borrower is capped at 12 percent a year. The GoU also established the Micro finance Support Center (MSC), an entity for promotion of micro finance institutions (MFIs) and cooperatives that have agriculture sector financing as one of their priorities. The MSC provides business development support as well as wholesale and retail loans to Savings and Credit Cooperative Organizations (SACCOs), MFIs, primary cooperatives, Village Savings and Loan Associations (VSLAs), and small and medium enterprises (SMEs). Finally, Agricultural Business Initiative Finance

² Bank of Uganda, "Agricultural Credit Facility Brief to the Clients," <https://www.bou.or.ug/bou/bou-downloads/Agricultural-Credit-Facility/Brief-to-Clients-on-the-ACF-V.pdf>.

(aBi Finance) is a nonprofit entity established by the Governments of Uganda and Denmark in 2010 to support agribusiness development and agriculture finance with credit lines and partial credit guarantees; it is currently supported by DANIDA (Danish International Development Agency), USAID (U.S. Agency for International Development), Sida (Swedish International Development Cooperation Agency), and KFW.

To manage the financial impacts of production shocks, the GoU seeks to use agricultural insurance to de-risk rural lending and expand access to rural credit for smallholders. In partnership with private insurance companies, the GoU launched the Uganda Agriculture Insurance Scheme (UAIS) as a five-year pilot in July 2016. The objectives of the scheme are to ensure that Ugandan farmers are protected against the effects of agriculture risks, especially production risks; to increase farmers' access to credit; and to make crops, livestock, and aquaculture insurance affordable to smallholder producers. The UAIS offers a range of crop, livestock, poultry, and aquaculture insurance coverage to Ugandan farmers, and is promoted by the GoU through the provision of premium subsidies.

UAIS has achieved significant uptake: more than 67,000 policies were sold in its first 18 months of operations. Most of the policies sold are for multi-peril crop insurance (MPCI), including 40,000 through Centenary Bank, the leading commercial bank in Uganda. The total premium underwritten is UGX 8.6 billion, of which UGX 5.7 billion (67 percent) is premium subsidies. The scheme has paid total claims of UGX 4 billion, equivalent to a loss ratio of 47 percent, as of June 30, 2018. The scheme successfully crowded in efforts by the private sector to act as risk carrier, with 11 insurance companies forming a consortium (the Agricultural Insurance Consortium, AIC), housed in the Uganda Insurance Association, to pool expertise and resources for underwriting agriculture insurance products. The products are distributed through seven participating rural banks.

Against this background, the GoU requested technical assistance from the World Bank to provide a technical review of the UAIS. The objective of the review was to provide recommendations for enhancing the scalability and sustainability of the GoU's approach to promoting agriculture insurance in Uganda. Recognizing the critical role agricultural finance at large plays in the agricultural transformation agenda, it was agreed with the Ministry of Finance, Planning and Economic Development (MoFPED) that the scope of the analysis be expanded to include a rapid assessment of agriculture finance.

Purpose

With the objective of supporting and accelerating the transformation of the agricultural sector in Uganda, this policy note aims to identify the areas of investments (with costing) that the Government of Uganda may consider as part of the effort to scale up agriculture finance schemes and the UAIS. The analysis adopts the Maximizing Finance for Development (MFD) approach, seeking to use public sector resources to leverage and crowd in private sector capital for investment and risk management.

Methodology

The recommendations in this policy note are drawn from an in-depth technical report, *Toward Scaled-Up and Sustainable Agriculture Finance and Insurance*. The report was based on intensive in-country missions undertaken to analyze the UAIS, and on a rapid assessment of agriculture finance in Uganda. These

³ Since 2013, Centenary has required that all its agricultural loans to agro-processors and primary producers must be protected by a combination of crop and livestock credit insurance and creditlife insurance.

⁴ The loss ratio is a measure of underwriting performance used by the insurance industry that is equivalent to the ratio of total claims to total premium. It is expressed as a percentage.

recommendations draw on the international experience of the World Bank in helping client countries develop private sector–led sustainable agriculture finance and insurance markets that meet the needs of agricultural producers, including smallholder farmers and herders. The MFD approach is essential to ensure that market-based solutions are deployed, and that the GoU's interventions mobilize the private sector to achieve their policy objectives. During the missions, the team met with key stakeholders in both the public and private sectors to review the UAIS and agriculture finance schemes, identify gaps, and discussion options for the GoU to use in scaling up the schemes. The team also met with ultimate beneficiaries, namely farmers and their cooperatives, to discuss the challenges they face in accessing credit and insurance. This policy note serves to summarize the key policy recommendations in the technical report.

Main message

While the GoU has launched several schemes to support access to credit and insurance for farmers, more needs to be done to promote financing and risk transfer in the agriculture sector; government interventions should be geared toward addressing the unmet needs of smallholder farmers (85 percent of farmers) and SMEs while applying MFD principles to crowd in private investment throughout the value chains. The ambitious goal of agriculture transformation requires the financial sector to play a bigger role. Strengthening resilience for different farmer segments in Uganda through financial products such as savings, insurance, and credit is important. Government investments are also needed to catalyze the private sector financing and investments. In this regard, six areas of investments for the GoU to consider have been identified: (i) expanding investments in high-quality agrometeorological data; (ii) scaling up and adjusting the public schemes promoting agriculture finance; (iii) expanding investments in digital financial services; (iv) adopting a smart premium-subsidies regime for farmers and pastoralists; (v) expanding investments in financial education and awareness creation; and (vi) investing in private sector capacity development by establishing a technical support unit (TSU); see further details in section 5 on investment components.



3. The problem: Sub optimal levels of agriculture finance and insurance in Uganda

Access to credit

Access to financial services and products, especially credit, is one of the most critical enablers for agriculture transformation and commercialization. More market-oriented agriculture requires investments in high-quality inputs, farming equipment, and processing equipment, along with better practices, that allow farmers and SME processors to meet market demand for high-quality products. However, the use of improved seeds, inputs, and mechanized traction in Uganda is one of the lowest in Sub-Saharan Africa (Sheahan and Barrett 2014). Over 75 percent of agro-processing companies are small in scale and informal and produce low-value products with limited innovation (EPRC 2018). Formal credit to production, processing, and marketing is expanding in the well-organized value chains such as coffee and tea. However, less than 1 percent of the farming households use credit to buy fertilizer or agrochemicals (Sheahan and Barrett 2014), and only 6.3 percent of small-scale agribusiness companies have access to a loan or line of credit, as opposed to 44.1 percent in Kenya (Walker et al. 2018). Along with access to savings and payment solutions, access to formal credit is critical for SMEs and smallholders, especially semi-commercial and commercial farmers seeking to upgrade and expand their productive activities.

Public support schemes contributed to the recent surge of agriculture credit. However, their overall contribution is relatively small, and the unmet demand is still significant. The total annual loans facilitated by ACF and aBi Finance are estimated at UGX 130 billion, just 10 percent of the total agriculture loan disbursement in 2018 (UGX 1,315 billion). Even with the aBi guarantees that cover the loans of UGX 75 billion and the Uganda Development Bank loans of UGX 48 billion, the contribution to total loans remains relatively small. ACF's average loan size is quite large, at about UGX640 million, indicating that it mainly targets larger capital investments by SMEs. On the other hand, aBi's average loan size, about UGX2–4 million, indicates that its main target is smallholders.

Although total agriculture credit has been growing in recent years, the current growth is still far behind the potential demand from smallholder farmers and SMEs. There are several explanations for this: (i) **demand-side issues**, such as limited organization and capacity that restrict access to high-quality input and output markets; (ii) **exposure to systematic risks**, such as climatic events, and inadequate mitigation mechanisms, such as irrigation schemes and agriculture insurance; (iii) **lack of acceptable collateral**; (iv) **suboptimal public schemes** that have not induced adequate private sector investments, including effective usage by financial institutions; and (v) **limited outreach by financial institutions** in rural areas, which makes transaction costs for access to finance prohibitively high (use of agents and digital transactions is still limited).

Access to insurance

Initial data on UAIS suggests that while the scheme is seeing some success in reaching smallholder farmers, the majority of premium subsidies are being captured by medium and large producers. The Drought Weather Index Insurance (WII) product and the Area Yield Index Insurance (AYII) product, which account for approximately 12,250 farmers (23 percent of total insured farmers), have premiums costing UGX 11,000–21,000 (US\$3–5). These products are most appropriate for smallholder farmers (details on how to scale up these products are in section 4). However, approximately 65 percent of policies underwritten and 90 percent of the premium—and therefore premium subsidies—are for multiple peril crop insurance. This product has an average premium of UGX 180,000 (US\$48), which is unaffordable for smallholders. While the data on farm size per policy sold are unavailable, this analysis indicates that it is medium and larger farmers (with an average farm size of 5+ ha) who are benefiting from the scheme.

While MPCl may be suitable for medium to large farmers, it is not suitable for most smallholder farmers in Uganda. MPCl is most appropriate for mono culture farms, but not for the mixed cropping adopted by smallholders. The costs of administering MPCl are relatively high, with up to three on-farm inspections, making such products uneconomic for smallholder farmers. In addition, a precondition for MPCl is 7–10 years of historical crop yield data, which do not exist at the smallholder level.

The absence of risk-based pricing under UAIS could undermine the financial sustainability of the scheme. UAIS charges a single flat premium rate for each crop, irrespective of where it is grown and the differential risk exposures faced (for example, to drought and floods). Additionally, the average premium rates are considerably lower than the published premium rates. Risk-based pricing, where the price of an insurance product is based on the underlying risk, sends important signals to banks and farmers. Crops that pose a higher risk will cost more to insure. Risk-based pricing can incentivize farmers to grow crops more appropriate for their location by identifying the most or least risky crops. With flat premium rates, by contrast, farmers growing higher-risk crops are more likely to purchase insurance, which they would see as good value, while farmers growing lower-risk crops would see the insurance as expensive and decline to purchase it. Incentives of this type could lead to significant inequity and anti-selection, which could threaten the sustainability of the scheme.

The extremely limited access to agriculture and meteorological data poses a challenge for the design and implementation of both indemnity-based and index-based crops insurance products. Data are crucial for informed decision making in the agriculture sector in general, but they are the critical backbone for agriculture insurance. In designing indemnity-based and index-based crop insurance products, the following types of data are critical: (i) timeseries crop area, production, and yield data at individual farmer level and local (village, parish) level; and (ii) timeseries meteorological weather station data. Routine crop production data collection was formerly conducted by National Agricultural Advisory Services–Ministry of Agriculture, Animal Industry and Fisheries (NAADS-MAAIF), but this system broke down many years ago. The Uganda Bureau of Statistics is also involved in agricultural data through the agriculture and livestock censuses conducted every 10 years, the last of which was conducted in 2008/09. The National Meteorological Agency (UNMA) is responsible for recording and reporting weather data; however, its network of ground weather stations is inadequate to support the development of WII. Although in 2015 UNMA had a network of 39 weather stations throughout Uganda, including automatic weather stations (AWS), backed up by manual recording stations, some of the stations are not operational due to lack of staffing, inadequate maintenance, or vandalism. The density of ground weather stations is far too low to support WII, and investment is required in strengthening the network—both for weather monitoring and reporting for farmers, and for the implementation of WII.

⁵ Calculated based on UAI-Agro Insurance Consortium data.

Enabling environment for credit and insurance

The limited capacities of key stakeholders represent a major barrier to agricultural transformation and commercialization. Farmers and pastoralists have low levels of financial literacy, which limits the uptake of formal financial services, including savings, credit, and insurance. On the supply side, prior to UAIS, few insurance companies had been involved in agriculture insurance. Both the public and private sector recognize the need to develop capacities and raise awareness of UAIS at all levels.

The existing strong foundations of UAIS should be built upon to strengthen implementation of the program. Crop insurance is a highly technical area, and the first step will be to clarify exact roles of the public and private sectors under the UAIS, a public-private partnership scheme. This can be achieved by strengthening the existing arrangements within and between the public and private sectors (for example, expanding the ToRs of the Steering Group and Technical Working Group of UAIS), and by having the GoU make strategic investments to provide key public goods and address market failures (see section 5).

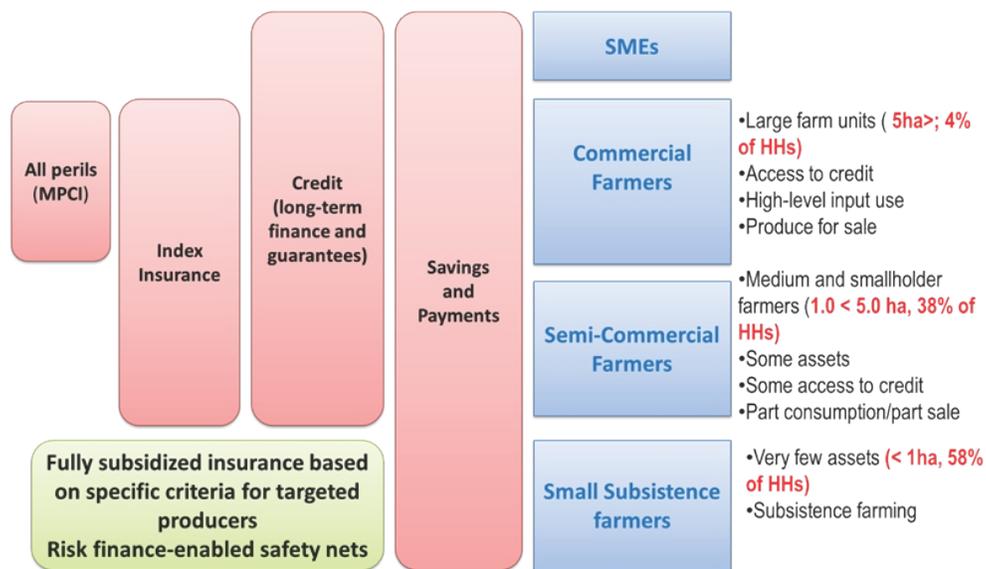


4. The solution: A holistic approach to financing and de-risking the agriculture sector to support its transformation

The interventions described in this section are suggested to further promote financing and risk transfer in the agriculture sector; the interventions are particularly geared toward addressing the unmet needs of smallholder farmers (85 percent of farmers) and SMEs while applying MFD principles to crowd in private investment throughout the value chains. A significant effort will be required to meaningfully address these issues, but successful implementation will likely yield high payoffs in terms of farmer welfare and risk management for farmers and creditors, and will thus enable overall gains in agriculture productivity and commercialization. The solutions presented below relate to the supply side of agriculture finance and insurance, with government interventions focused on creating an enabling environment to unlock private sector investment, expertise, and capital. Public investments in generating, collecting, and managing agriculture and meteorological data are critical for the success of both indemnity-based and index-based crop insurance products. To date in Uganda, government interventions in the agriculture finance and insurance markets have been through a public-private partnership approach with risk-sharing arrangements. Further strengthening this best practice can help ensure that every shilling invested by the government achieves maximum impact. This approach is also in line with the private sector-led agriculture finance market development envisaged in the draft Agriculture Finance Policy prepared under MoFPED's auspices.

Products and services offered to farmers should be appropriate for their needs on the basis of market-based solutions. Government support is minimum to none for the segment of farmers who have access to commercial financing and insurance. The poorest and most vulnerable households are best served through safety nets and fully subsidized insurance. Small and emerging farmers can be targeted by partially subsidized insurance. Savings and payments help farming households smooth income and expenses as well as cope with idiosyncratic shocks with less severe but more frequent impacts. By contrast, insurance addresses less frequent shocks with more severe impacts. Credit products would be more suitable for commercially oriented farmers (commercial and semi-commercial) and agribusiness SMEs. Figure 1 illustrates the segmentation of farmers and the interaction of the different products with other each other and with each segment.

Figure 1: One size does not fit all: Public sector support to mobilize private sector financial solutions for different farmer segments in Uganda



Note: HH = household.

Scaleup public support to promote agriculture finance

Given the challenges that financial institutions face in reaching smallholder farmers and SMEs, existing support schemes can be adjusted and scaled up to address critical bottlenecks. Commercial banks, the largest formal lenders in the sector, possess ample liquidity, but such excess funds are not necessarily translated into smallholder and SME lending due to perceived risks and high transaction costs. Long-term finance is still limited despite some government interventions to address this challenge. There are other sources of finance, such as agribusiness companies (supplier financing) and investment funds. However, they may not be the immediate targets of the government policy interventions in agriculture finance. Agribusiness companies rely on business transactions in the value chains that require broader efforts for upgrading. Investment funds are still nascent, yet there are already multiple funds specialized in the sector that seem to target a rather small universe of investment-ready companies. What is critically needed is demand-side support to increase the number of potential investment targets and facilitate long-term debt financing.

Accordingly, the following instruments are suggested for leveraging private sector lending from commercial banks, MFIs, and potentially SACCOs:

1) Longer-term wholesale financing for on-lending to agribusiness companies, including SMEs, and potentially to farmers and farmer organizations. Leading financial institutions in the agriculture sector heavily rely on wholesale credit to provide long-term loans (five years and more). Other funding sources including deposits are not suitable for this purpose. The growing demand from food processing companies and farmer organizations requires financial institutions to provide long-term funds. Currently available long-term wholesale financing is limited. To scale up, the existing scheme (like ACF) is well positioned, as the main supplier can be further leveraged. In addition to its focus on SMEs, the scheme could play a significant role in smallholder financing, which is largely not addressed. To take on this role, the scheme should introduce different eligibility

criteria, streamlined procedures, and pricing for small holders, whose risk profile differs from that of SMEs. To scale up, the scheme will need to increase its capital and review and adjust its criteria and procedures (further details are provided in the section 5).

2) Partial credit guarantees that share risks with the partner financial institutions in agriculture lending. The guarantees are widely used by financial institutions, especially for smallholder lending, where lack of physical assets for collateral is one of the major obstacles. As the recent evaluation of the existing guarantee scheme suggests, its capital would need to be increased to respond to the growing demand from existing and new partner institutions for smallholder and SME financing. Increased capital will offer additional security in lending to these borrowers and help unlock the liquidity in the financial institutions. In addition, the scheme's operational capacity and procedures may need to be strengthened for further scale-up.

3) Other public sector initiatives that can be strengthened and scaled up, including the warehouse receipt pilots led by the Uganda Warehouse Receipt System Authority as well as technical assistance and credit lines from the Micro finance Support Center or other development finance institutions. Detailed assessments would be required to identify specific actions on these schemes. The draft Financial Sector Development Strategy and the Agriculture Finance Policy suggest that a review of development finance institutions would be a useful step. Rationalization and enhancement of these institutions would be indispensable to achieve a private sector-led agriculture finance market, as the draft policy envisages.

While they are beyond the scope of this policy note, the demand-side interventions are equally important. Key interventions that require close collaboration with relevant stakeholders (such as the MAAIF) include enhancement of production, value chain development, access to high-quality inputs and market, promotion of climate-smart agriculture, and organization of farmers for aggregation and commercialization. These activities would make the sector more resilient and productive and would create healthy demand for financial services, facilitated by the supply-side actions in a coordinated manner. There is also a need for increased collaboration and coordination with other development partners that are involved in related activities and projects.

Accelerate digital financial services in the agriculture sector

The rapid expansion of mobile money presents an unprecedented opportunity to scale up agriculture finance to those most in need, including the smallholder farmers. Given the high costs of servicing smallholder farmers, innovative and efficient means of extending financial services to this market segment are required. According to a study conducted by McKinsey Global Institute (2016), digital technologies cut the cost of providing financial services by 80–90 percent. With 56 percent of adults now using mobile money in Uganda (FSD Uganda 2018), the GoU can promote digital payments in agriculture value chains and facilitate innovation in agriculture finance by leveraging mobile technology. Uganda has seen numerous digital finance pilots, usually supported by development partners, which have spread into the agriculture sector. For example, fintech companies are trying to minimize information asymmetry between lenders and farming households by building a database with information on farmers' use of land, crops and livestock raised, sales to buyers, and use of inputs, in addition to the household information. The pilots involved indigitizing agriculture transactions reached a large number of farmers in major value chains. Many of these initiatives rely on partnerships, which are often induced by public support, with financial institutions, mobile network operators, agribusiness companies, farmer organizations, fintech services providers and other stakeholders. Well-designed public support could facilitate new collaborations in digital financial services and strengthen pilot-stage initiatives for scaling up without overlapping with like-minded donors.

Digital financial services are also expected to close the financing gap between male and female farmers.

While overall levels of financial inclusion for Ugandan women (77 percent) were similar to those for men (78 percent) in 2018, Ugandan women use formal financial services 9 percent less than men. As a result of their higher usage of informal financial services (VSLA), women have fewer consumer protections than men, fewer opportunities to build credit histories, and fewer opportunities to grow their business and support their families through larger loans and more secure savings options. Digital financial services, particularly mobile money, create a digital footprint that can be leveraged to access credit and other financial services. Innovations in mobile money technologies offer women and their VSLAs ways to access a convenient, safe, and private savings platform. Evidence from Tanzania and Kenya show that improved access to mobile savings accounts increased the amount of savings and had a positive effect on poverty reduction, especially for women and female-headed households (Suri and Jack 2016; Bastian et al. 2018).

Enlarge UAIS's scope of supply

Based on the technical review of the scheme and the GoU's policy priorities, new products that build on UAIS's achievements to date should be promoted in order to scale up the scheme in a sustainable manner; in this way it can become a critical instrument for de-risking Uganda's agricultural sector. It is recommended that GoU support for UAIS should focus on and scale up two insurance products targeting smallholder farmers and herders where the support is not currently reaching:

- 1) For smallholder farmers, AYII is proposed as an alternative to MPCI. AYII has been demonstrated to reach smallholder farmers in other countries and can overcome many of the drawbacks of MPCI for smallholders.
- 2) For livestock producers, a Satellite-Based Pasture Drought Index Insurance (SPDII) is suggested in rangeland areas of Uganda (the cattle corridor), which are not currently served by the UAIS.

While insurance provides risk mitigation, it is not sufficient on its own and should be part of a broader agriculture risk management framework. The agriculture sector faces many risks and constraints, and insurance is not a panacea. It is essential to adopt a risk-layering approach that first mitigates risk through climate-smart agriculture techniques, use of improved seeds, accumulated savings, and other approaches, and then transfers residual risk to insurers. Insurance should be applied only for residual risks after all other risk management options are utilized. Such an approach and combination of different instruments will help to effectively manage shocks of different frequency and severity.

The appropriate division of labor between insurance and guarantees should be explored. Leading financial institutions in Uganda's agriculture sector often use both insurance and guarantees to cover their agriculture loans. The cost of the two instruments is charged to the final borrower without clear understanding of benefits and implications. Mainly due to the delay and uncertainty in the insurance claim process, no standard rules seem to exist on the effective use of the two products. In reporting to the credit bureau, the banks treat both willful and non-willful defaults (arising from climate events) as defaults. If the defaults are covered by insurance when the cause of the defaults is related to production shocks, this will defend the ability of the farmer to borrow for the next production cycle. However, if the guarantee is claimed for the same default cases, the borrowers may be blacklisted as a result, affecting their ability to borrow.

Area Yield Index Insurance as an alternative for smallholder farmers

AYII should be scaled up under the UAIS to expand access to insurance for smallholder farmers. AYII is a product that does not indemnify crop yield losses at the individual field or grower level; rather, an AYII product makes indemnity payments to growers according to yield loss or shortfall against an average area yield (the index) in a defined geographical area (e.g., the region or the paddy production zone). The average yield for the insured crop is established by sample field measurement (usually involving crop cutting) in the defined geographical area, and insurance payouts are made if this yield estimate falls below a predetermined threshold. AYII is best suited to the insurance of annual cereal crops, including maize, rice, wheat, sorghum, millet, and oil seeds such as soya beans, which tend to be cultivated on a large scale by many farmers in a defined geographical area, which are sown and harvested in defined periods of the cropping season, and for which area yields can be relatively easily measured. Table A1.1 in annex 1 presents the advantages and drawbacks of AYII, as well as the preconditions for rolling out such a product.

It is recommended that the expansion of AYII under UAIS target maize, rice, beans, and cassava, all of which are receiving support from the Agriculture Cluster Development Project (ACDP). Maize should be targeted first: it is an important food crop (second most important after cassava) for most Ugandan smallholder farmers, and it is the top source of income from the sale of crops. After the initial focus on maize, other crops could be added, including rice, beans, and cassava, as capacity is built up.

AYII should build on the improved agriculture extension network and agriculture statistics supported by the World Bank and MAAIF. ACDP is targeting five value chains (maize, rice, coffee, cassava, and beans), and the initiative provides an excellent opportunity to start offering an AYII product for targeted crops, as the ACDP will be measuring yields through crop cutting experiments. Additionally, MAAIF has reestablished a network of crop and livestock extension workers in each region and district of the country, which could be utilized to provide farmers with sensitization and capacity development on insurance.

AYII can be bundled with credit, unlocking access to credit for smallholder farmers. Many lending institutions are reluctant to lend to small farmers, who are seen as posing a high risk. By bundling crop credit with a crop or livestock insurance cover, the bank's loans are protected against default in the event of major climate-induced crop failure or the death of the animal. Experiences from Mexico, Brazil, India, Pakistan, and Kenya demonstrate that when bundling is adopted, banks are generally more comfortable extending loans to small farmers.

Satellite-Based Pasture Drought Index Insurance for livestock producers in the cattle corridor

SPDII can be introduced under UAIS to extend drought insurance cover to smallholder livestock producers who are involved in extensive ranching on natural pasture and rangelands. These households face significant climatic risk, but there are currently no insurance products to protect them. SPDII covers are based on Normalized Difference Vegetative Index (NDVI) technology. In rangeland locations, NDVI provides a very good indicator of pasture growth and vigor over time (typically satellites take imagery every 10 days), and it can be used to construct an index to measure loss of pasture and grazing resources due to progressive drought. The NDVI policies trigger payouts during the early phase of drought and as grazing resources get depleted. These payouts have been shown to build the resilience of pastoral households, enabling them to make timely purchases of

fodder and supplementary feeds to keep their core breeding animals alive until the drought has passed and the pasture and grazing lands have regenerated.

An SPDII product will be suitable only for regions of extensive pasture or rangeland and livestock grazing in Uganda. The recommendation is therefore to start a pilot in Karamoja. This subregion already has experience in the use of satellite data for drought-related disaster risk financing (DRF) under the Northern Uganda Social Action Fund project (World Bank 2015). This DRF mechanism uses NDVI data to trigger payouts to vulnerable households throughout Karamoja in times of severe drought. The SPDII program could be expanded to other areas where livestock are predominantly open-grazed on communal rangelands (the cattle corridor), but a feasibility study will be required to ascertain the suitability of the SPDII for this purpose.

SPDII could be marketed both as a voluntary commercial product for pastoralists with partial subsidies and as a fully subsidized livelihood protection insurance cover for the most vulnerable pastoralists. The level of subsidies provided will ultimately be a policy decision of the GoU. Under the latter approach, targeted vulnerable pastoralists would be provided with a fully subsidized insurance cover, which in the event of drought would provide them with rapid payouts as part of the GoU's drought mitigation strategy for vulnerable livestock communities in the cattle corridor. These payouts could be used by the households to manage the impact of the drought and at the same time lessen the GoU's financial obligation to mobilize aid for these households. Thus, the fully subsidized insurance cover would enable the GoU to transfer some of the financial exposure of drought response from the budget to private sector insurance companies. The GoU could also provide in parallel a partially subsidized insurance cover for less vulnerable pastoralists who have the capacity to pay (partial) insurance premiums. An example of a similar scheme is the Kenya Livestock Insurance Program (KLIP) launched by the Government of Kenya (box 1).

Box 1: How the Government of Kenya supports pastoralists through livestock insurance

With the support of the World Bank, the Government of Kenya (GoK) launched the Kenya Livestock Insurance Program in 2015. The program is implemented through a public-private partnership between of GoK and the private sector. The government tenders the business, and prequalified insurance companies compete for the business. KLIP policies are based on a vegetation availability index (NDVI).

Under KLIP, the GoK purchases an annual drought insurance cover from private insurance companies on behalf of vulnerable pastoralist. The GoK fully subsidizes the premium for more than 18,000 vulnerable pastoral households. Even though the livestock insurance is purchased by the government, insurance companies pay claims directly to the beneficiaries in the event of a payout triggered by drought. Payouts are made to beneficiaries' bank accounts or mobile money accounts. The cost of the annual premium subsidies for the GoK is US\$2.1 million. Such a volume of premium from the government-supported initiative makes the agriculture insurance market attractive and may encourage private sector insurers to invest in and further develop the market in the future.

In February 2018, an El Niño drought triggered a payout of approximately US\$7.2 million, directly benefiting 12,000 people enrolled in KILP.

Bank assurance portfolio protection cover for financial institutions

A meso-level crop-credit portfolio protection cover can be designed to protect farmers. Under such an arrangement, a financial institution purchases a single policy from an insurer on behalf of large numbers of its borrowers. Here the farmers are deemed to be the direct beneficiaries of the insurance, with varying rules on how the insurance operates. It may include a requirement for the farmers to pay part or all of the premium. In case a payout is triggered, the lending institutions must use the funds to write off some or all of the loan and/or distribute the payout to the farmers.

Some financial institutions in Uganda make insurance mandatory to access their seasonal crop loan. The introduction of bancassurance in Uganda increased the appetite of financial institutions to bundle insurance and credit and also increased interest in portfolio insurance protection. Bancassurance allows agriculture insurance companies to utilize banks' network of field agents to promote and market the crop, livestock, poultry, and aquaculture policies. The critical aspects to be clarified when offering bancassurance are (i) the suitability of the insurance product and the roles of other risk management mechanisms such as guarantees, and (ii) the payout distribution when the smallholder farmer is the direct beneficiary of the insurance protection (i.e., whether to distribute part or all of the payout to the borrowing farmer). With this in mind, a meso-level portfolio protection cover is recommended and could benefit from government subsidy. UAIS stakeholders could explore options for developing a general meso-level portfolio protection cover for all financial institutions lending to farmers and livestock producers in Uganda.



5. Investment components to support sustainable agriculture finance and insurance in Uganda

International experience demonstrates that successful agriculture finance and insurance programs must have active participation and engagement from both the public and private sector. Public or private sector-only programs do not reach scale and usually fail. Only through active engagement from both sectors—a public-private partnership approach—can the scheme be successful.

Achieving large-scale sustainable agriculture finance and insurance markets requires long-term commitment from the government, with adequate budget allocation. Should the GoU wish to develop the agricultural finance and insurance markets in Uganda, international experience demonstrates that a longer-term approach should be adopted, with a long-term public sector commitment and associated financial support.

To implement the holistic solutions described in section 4, six areas of potential GoU investments have been identified that would support public agriculture finance instruments and UAIS in reaching scale and sustainability. These suggestions are based on the findings of the in-depth technical review of the UAIS and the rapid assessment of the agriculture finance landscape, drawing on international experiences. Investment areas are grouped into three categories—agriculture finance, agriculture insurance, and enablers as listed below. They are depicted in figure 2 and described in more detail in the following subsections.

Agricultural finance:

- 1) Adjusting and scaling up the public support schemes to reach their potential

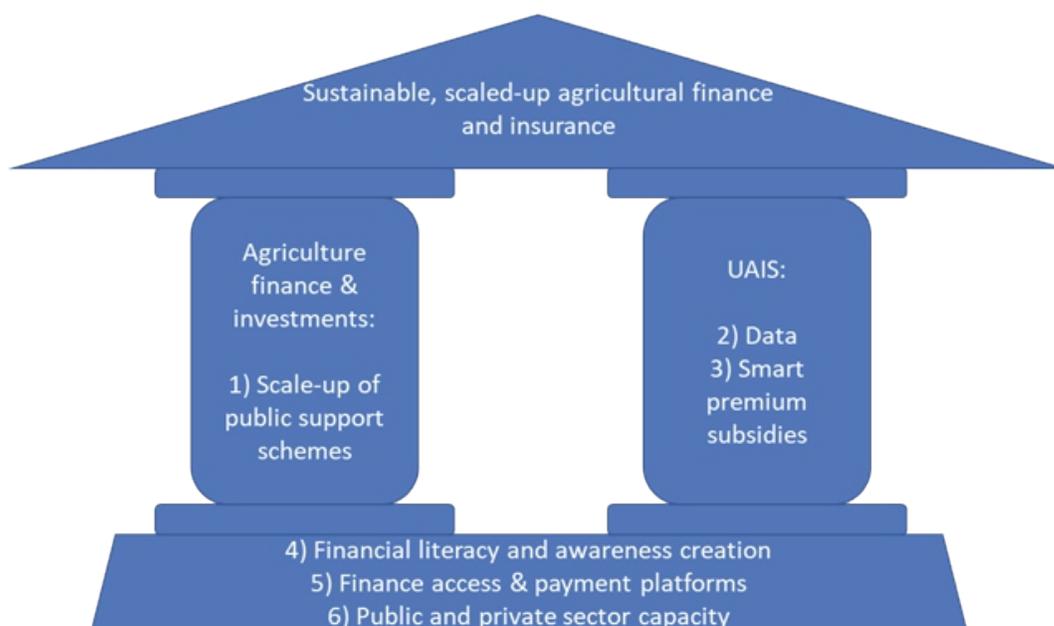
Agriculture insurance:

- 2) Expanding investments in high-quality agro meteorological data
- 3) Adopting a smart premium-subsidies regime for farmers and pastoralists

Enablers:

- 4) Expanding investments in financial education and awareness creation
- 5) Expanding investments in digital financial services
- 6) Investing in public and private sector capacity

Figure 2: Areas of support for scaled-up and sustainable agricultural finance and insurance



Agricultural finance and investments

1) Scale up public support schemes

Scaling up public-private schemes that catalyze agriculture finance. The immediate focus would be the public wholesale scheme and the partial credit guarantees as catalysts in expanding credit to the agriculture sector. Existing schemes such as ACF and aBi Finance (or those that can provide similar functions) could be considered for this vehicle; however, some adjustments would be critical to increase the impact. Other support initiatives, such as the warehouse receipts schemes and the Microfinance Support Center, could be added once a detailed analysis is completed (as identified in the draft Agriculture Finance Policy and the draft Policy Implementation Strategy documents as part of required assessments on existing public interventions).

If ACF is considered for scaling up, the following actions to strengthen the scheme are suggested: revise and adjust ACF loan procedures and criteria. For example, the current appraisal process where the Bank of Uganda approves every single loan could further slowdown the disbursements as the number of applications increases. Several steps could potentially improve the situation:

- **Moving to a portfolio approach in wholesale lending.** As scaling up would mean further due diligence cost, it is advisable to set eligibility criteria for participating financial institutions and work with a manageable number of PFIs that have met the criteria. This allows ACF to move away from every loan appraisal to a portfolio approach with wholesale lending.
- **Reviewing the interest ceiling.** The interest rate ceiling of 12 percent should be reviewed to allow PFIs to recover their operational costs and ensure sustainability of the service delivery while the ACF promotes competition and operational efficiency among PFIs.
- **Reviewing the guarantee arrangement in case of default.** ACF has not been able to execute this function, as the decision on loan write-offs requires approval by the Parliament. Removal of the

guarantee might be an option if this issue persists.

- **Expanding the PFIs to include Tier IV institutions.** Tier IV institutions have better presence in rural areas. Those well-functioning Tier IV institutions that meet set criteria could be included in the PFIs to promote agriculture finance in rural areas.
- **Setting separate funding windows for different types of beneficiaries.** Currently there are no separate assessments or eligibility criteria for borrowers (SMEs or smallholders) or loan size. It may be useful to create separate funding windows with unique sets of eligibility criteria.

Scaling up partial credit guarantee scheme. GoU could inject additional capital to the aBi Finance guarantee fund. Given the ample liquidity in the financial market, the risk aversion of the financial institutions, and the limited assets for collateral in smallholder and SME financing, partial credit guarantees would be effective to increase the lending activities in the agriculture sector. Because aBi Finance has been managing the guarantee scheme efficiently and has a proven track record, leveraging the existing scheme would be more cost-effective than creating a new public guarantee scheme. However, aBi's operation needs to be scaled up to meet market demand and potential; this step should be coupled with an awareness program and technical assistance support for aBi and PFIs as required.

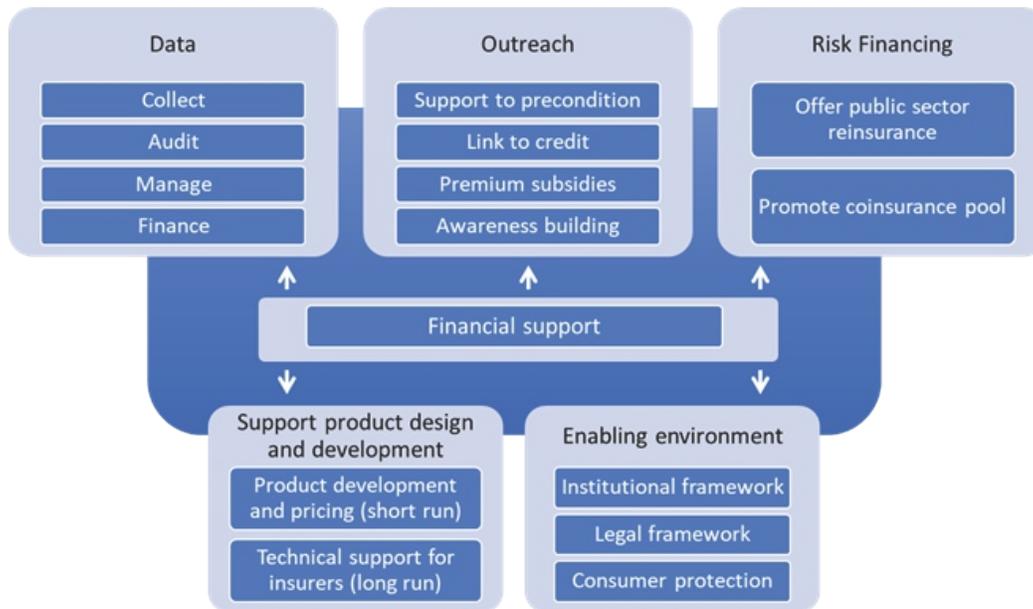
Linking GoU interventions in agriculture finance and agriculture insurance. In many countries, governments actively promote compulsory crop or livestock insurance for farmers who borrow through formal credit. Examples include India, whose national agriculture insurance program Pradhan Mantri Fasal Bima Yojana is mandatory for all borrowers (loanees). Mexico takes a private sector-led approach, where all the commercial banks make access to their loans conditional on the farmer purchasing crop insurance. The GoU already has an active intervention in facilitating access to agriculture finance through subsidized credit lines and partial credit guarantees, among others. In addition, some commercial banks in Uganda make the linkage between their seasonal loan and crop insurance mandatory. Building on the successful practices of bundling seasonal crop loans and insurance in other countries (for example Kenya, where the National Agricultural Insurance Scheme covers over 200,000 farmers), the GoU may want to look into such a policy in coordination with a financial service provider, as agriculture insurance allows financial institutions to manage risks in small farmer financing.



Agricultural insurance

Figure 3 illustrates the roles the GoU could play in supporting sustainable agriculture insurance markets. Recommendations focus on data, outreach, support to product design and development, and enabling environment.

Figure 3: Roles for the Government of Uganda in supporting agriculture insurance



2) Data: Expand investments in high-quality agrometeorological data

Data are crucial for informed decision making in the agriculture sector in general but form an especially critical backbone for agriculture insurance. The GoU should strengthen collection, audit, and management of agricultural data. For rollout of AYII and SPDII, the following investments are required to strengthen the quality, timeliness, and coverage of crop and livestock data:

- Strengthening collection of crop data by establishing a systematic methodology for recording and reporting on major cereal and row crops—including crop sown and harvested area as well as production and yields at parish, subdistrict, district, regional, and national levels.** This exercise would also usefully extend to the identification of homogeneous agro-climatic crop zones for each major crop, which in future would form the Unit Area of Insurance (UAI) for the operation of the AYII program. The ACDP project plans to improve agriculture statistics in 42 districts for five crops. The project will build extension capacities in data collection, at the district and sub county level, which UAIS can make use of.
- Strengthening crop cutting experiments (CCE) for area yield estimation.** The government could support investment in introducing, conducting, auditing, verifying, and storing CCE data; in creating a web-based database for the agriculture sector; and in adopting mobile phone or electronic tablet technology to record the CCE data and transmit them in real time to an online crop insurance web portal. The ACDP project will be measuring yields through crop cutting experiments and will leverage technology solutions to deliver high-quality knowledge and information to farmers; this step represents a real opportunity to start offering AYII products for targeted crops. The introduction of CCE yield estimation procedures could start with main crops

throughout Uganda. The portal data could be made accessible to underwriters and other stakeholders. In India, this technology has already been developed and tested and is now under large-scale implementation as part of the Pradhan Mantri FasalBima Yojana program.

- **Strengthening the automatic weather station network** under UNMA. The current density of weather stations in Uganda is low, and the quality of information they provide is unreliable due to poor maintenance. Investing in AWS technology would have significant benefits for the agricultural insurance programs for smallholder farmers (AYII and WII). It would also strengthen UNMA's weather reporting services for the agricultural sector, which would in turn strengthen agricultural production statistics, leading to more accurate production estimates and improved agricultural planning.
- **Registering livestock producers (pastoralists).** All pastoralists would need to be electronically registered for insurance and would provide mobile phone contact details and transaction account details. At registration the pastoralists would be assigned to a UAI where their animals are normally located for grazing purposes. A UAI is likely to be based on a grouping of districts or counties and subcounties according to its NDVI signature.

3) Smart subsidies: Follow best practice for subsidy provision in the agricultural sector

GoU could review the subsidy policy for agriculture insurance and extend premium subsidies to AYII and SDPII. Under the current scheme, the GoU has allocated a budget of UGX 5 billion per year for 2017 and 2018 for premium subsidies. The premium subsidies are scaled to the size of the farmers: for large farmers, a 30 percent premium subsidy is provided, and for smallholder farmers the subsidy level is 50 percent of the cost of premium. Initial UAIS data suggest that policies written under the UAIS tend to be sold to large farmers: this group represents 65 percent of policies underwritten and 90 percent of the premium collected. There is a need to enhance outreach to smallholders, for whom government support is critical. It may also be necessary to refine eligibility criteria for subsidies such that smallholder farmers are better targeted, or to introduce or extend subsidies to products like AYII and SDPII that are usually targeted to smallholders.

Subsidies can be structured in a “smart” way, through linkage to inputs and/or credit. In a scheme linked to inputs, farmers receiving inputs would also receive an (electronic) coupon that entitled them to a subsidy on their insurance premium. Farmers would then present the coupon and claim the subsidy on the insurance when they collect their inputs. Linkage to credit works in a similar manner. Administering such smart subsidies has two key advantages: (i) it facilitates the linkage of agriculture insurance to credit and/or input provision, which in turn helps achieve wider-scale outreach of insurance; and (ii) it makes it easier to change the level of the subsidy, as the value of the coupon provided to the farmer can be readily changed in response to a shift in the GoU's fiscal position or policy priorities. Establishment of smart subsidies should be implemented through a phased approach to allow the GoU to develop capacity and learn lessons as implemented. In Uganda, the e-voucher system for the fertilizer subsidy, which will be introduced through the ACDP, is a scheme that could be linked to insurance premium subsidies.

For SPDII, the level of premium subsidy will depend on the type of coverage offered (voluntary and/or fully subsidized livelihood protection cover) and the expansion plans for coverage. It is proposed that both

voluntary and fully subsidized SPDII be launched simultaneously. Under such an approach, there will be a larger number of pastoralists insured in initial years. This in turn will generate larger premium volumes, which will attract more insurance companies into the market. The subsidies could be allocated in a smart manner, whereby the volume of the fully subsidized business is allocated to the same insurance company but in proportion to the volume of the company's voluntary sales in a given year. This would result in lower administration costs and therefore be attractive to insurance companies. To make the insurance coverage more affordable for small-scale livestock producers and to encourage uptake, the GoU could consider the following two options: (i) a 50 percent premium subsidy for the voluntary cover, which is in line with the existing GoU subsidy level for smallholder farmers under the UAIS scheme; and(ii) for the most vulnerable livestock producers, a 100 percent premium subsidy as part of the livelihoods protection strategy for vulnerable pastoral households in Karamoja subregion.

Enablers

4) Financial education: Expand investments in financial education and awareness creation

Promoting awareness and financial literacy among smallholder farmers and pastoralists is fundamental to the scalability and sustainability of both agricultural finance and insurance markets in Uganda. MoFPED has committed to having a budget for creating awareness about insurance going forward. The GoU could consider developing a financial education and awareness strategy and broadening the scope of awareness creation to include savings and credit (in addition to insurance); this programming could be made available to all stakeholders along the agriculture value chains. It is essential that farmers and livestock producers are provided with education and training on financial products to ensure that they understand them and that they become active participants in the financial sector. Such awareness is essential to stimulate demand for credit as well as crop and livestock insurance. Because financial products are ultimately about trust, the financial education and training programs should be convened through actors and channels that farmers trust and deal with regularly. Financial education on agriculture insurance and finance instruments should be part of a broader program to bolster financial capability and consumer protection, in turn contributing to both financial stability and inclusion. Financial capability - defined as the capacity to act in one's best financial interest, given socioeconomic and environmental conditions - is a key driver for responsible financial inclusion (CPMI and World Bank Group 2016), as it is fundamental to increasing trust in and use of formal financial services. Consumer protections ensure that consumers have access to products they understand with appropriate disclosure and transparency. The National Financial Inclusion Strategy (2017–2022) and a draft Financial Sector Development Strategy (2019/2020–2024/2025) identify financial literacy, financial education, and consumer protection as essential in expanding financial inclusion and contributing to the development of the stable and inclusive financial sector.

The GoU could consider creating a capacity development curriculum for distributors (banks, MFIs, SACCOs, input providers, mobile network operators, etc.). While the government might run awareness campaigns, financial institutions and input providers could also contribute to providing information and education on the products. The awareness creation activities could use voice/text SMS, given that 46 percent of adults in rural areas have a mobile phone.

⁶ Financial capability encompasses knowledge (literacy), attitudes, skills, and behavior of consumers with respect to managing their resources and understanding, selecting, and using financial services that fit their needs.

Further, working with the MAAIF, existing extension structures and resources could be leveraged to promote financial education for farmers. The extension officers could be trained on key financial products, including credit and agriculture insurance. Thereafter, performance indicators to expand awareness of financial services could be added to their performance review and remuneration package to incentivize awareness creation activities.

5) Digital financial services: Expand investments to reach smallholders

GoU could consider establishing an agriculture finance innovation facility for select initiatives to stimulate innovation and investment in digital finance in the agriculture sector. Digital finance is critical for cost-effectively providing financial services to smallholders in rural areas. Use of digital technologies also facilitates better data capturing, whether agriculture data or financial data, leading to better access to financial services, especially credit. An agriculture finance innovation facility could be established to promote innovation and facilitate collaborations between the key stakeholders—financial institutions, mobile network operators, agribusiness companies, farmer organizations, input providers, etc. Past experiences suggest that holistic support would be required to test, scale up, and sustain innovative agriculture financial services, especially digital solutions, where a wide variety of providers and supporting actors play important roles. The recent change in the mobile money tax (reduction to 0.5 percent and only for withdrawals) might bring an opportunity to revitalize the momentum, scale up the existing innovations, and test new ideas. The facility could partially cover key initial investments that, among others, introduce new services to farmers and SMEs, scale up newly developed financial services, and trigger collaborations among stakeholders. The beneficiaries should be selected competitively and the partnerships among various actors, including financial providers, should be encouraged. Along with the partial grant facility, other interventions might also be required, including the development of rural infrastructure and enhancement of the regulatory framework.

6) Capacity development: Develop public and private sector capacity through a technical support unit

The GoU could establish a TSU to strengthen the capacity of government bodies and the private sector in designing and developing agriculture finance and insurance programs. Agriculture finance and insurance is a highly technical area and requires specific expertise. To develop the market, it is crucial to build the capacities of the stakeholders. The case in point is Centenary Bank, a leading lending bank in the agriculture sector, which benefited from comprehensive technical assistance on agriculture finance offered by development partners, including the World Bank, through the Agrifin program.

The TSU would be a unit of technical staff, working for the Government of Uganda with technical expertise in key functions related to agriculture finance and insurance. It is suggested that the MoFPED host the TSU. The TSU would oversee the implementation of the Agriculture Finance Policy and the Policy Implementation Strategy, including public sector-supported agriculture credit and insurance programs, programs; it would provide the analysis of the program to ensure value for public sector funds; and it would provide recommendations regarding targets and levels of subsidies. The TSU could also support public policy regarding agriculture finance bundled with UAIS crops and livestock insurances. For the agriculture insurance, the TSU should also be responsible for (i) capacity development and training;(ii) monitoring of the UAIS scheme; (iii) development and management of databases; and (iv) analysis of public sector support to UAIS (subsidies), among other things.

6. Costing

To support commercialization and transformation of the Ugandan agriculture sector, as well as to meet the unmet needs of smallholders (who represent 85 percent of farmers in Uganda), agriculture finance and insurance need to respond to the current and future demand. Greater productivity and commercialization of the sector are both important drivers of poverty reduction. Scaling up agricultural finance and insurance programs will bring significant benefits not only to farmers, but also to financial institutions, the government, and the economy at large.

Considering the incremental absorption capacity in the next five years and one-time capital investments required for infrastructure such as agrometeorological data, a total GoU investment of \$111–146 million is suggested. The significant part of the investment comes from expanding the agriculture credit for investments to offer longer-term financing and expand the credit market, catalyzing commercial lending.

The agriculture finance investments are estimated at around US\$40–55 million for ACF, and US\$20–40 million for aBi. The partial grant facility for the digital financial services is around US\$6.2 million. The key underlying assumptions of the ACF and aBi investments are that (i) the agriculture credit (outstanding and disbursement) will continue to grow at the compound annual growth rate (CGAR) of the recent years (23.7 percent and 15.2 percent respectively) until the end of the project period of five years (2020–2024); (ii) the share of ACF and aBi in the total agriculture credit will remain at the same level as the most recent year when the data were publicly available; and (iii) the current leading financial institutions will continue to rely on external borrowing and guarantees. These are preliminary figures and need to be confirmed through further assessments.

The fiscal implications of a large-scale insurance program depend on who the beneficiaries are, how much they contribute to the cost of financial protection, and what the ratio of cost sharing is between national and regional governments. Everyone needs financial protection against disasters, but the government may assume a greater or lesser share of the costs depending on the commodity or geographical area. First, the size of fiscal implications depends on how many policyholders will be eligible for insurance coverage. Second, the size of public subsidies determines the size of fiscal implications. Third, public cost could be shared between central and regional governments. For example, subregions could be offered the choice to opt in or out of any national agricultural insurance program, with those that opted in participating in cost sharing with national government and farmers.

⁷ The technical report provides the assumptions and details budget calculation.

The technical report provides a detailed costing analysis of three different scenarios (low, medium, and high) for uptake of insurance, different coverage level of average area yields for maize (55 percent to 85 percent), and different premium rates for the livestock. The costing varies significantly depending on these variables. Table 1 illustrates estimates for a medium uptake by farmers and herders, a medium coverage level of the average area yield (65 percent to 75 percent), and an estimated premium rate of 15 percent for livestock. Based on this scenario, the GoU could facilitate crop insurance coverage for a cumulative number of 525,000 farmers by year 5 with a total fiscal cost estimate of US\$15.9 million (UGX 59,752 million); and it could facilitate livestock insurance coverage for a cumulative 337,500 herders for about US\$29.7 million (UGX 111,375 million). This medium-level scenario is assumed as the most likely level of coverage of the schemes. Should the GoU wish to revise these estimates up (i.e., insure more farmers), the cost of the program would increase, as the GoU would have to pay more premium subsidies; the opposite would be the case if fewer farmers were insured. The investment costs also include investment in data infrastructure and collection, financial education, and establishment of a support unit. Table 1 summarizes illustrative five-year costing; assumptions for the costing are in annex 1.

Investment areas	Cost US\$ millions				Total
	Agriculture finance	AYII maize	SPDII fully subsidized	SPDII voluntary	
1). Scaled-up public support	60-95				60.0-95.0
2). Data strengthening		3.5	1.5	0.4	5.4
3). Premium subsidies		9.8	22.9	1.4	34.1
4). Digital financial services		6.2			6.2
5). Awareness and education		4.5			4.5
6). Technical support unit		0.9			0.9
		Total			111.1-146.1

7. Summary of recommendations

Proposed solutions for de-risking the agriculture sector and supporting its transformation
<ul style="list-style-type: none"> ➤ Scaleup public support to promote agriculture finance. ➤ Enlarge the scope of supply of UAIS. ➤ Accelerate digital financial solutions in the agriculture sector.
Investment components to support the proposed solution
<p>1. Scale up and adjust the public support schemes promoting agriculture finance:</p> <ul style="list-style-type: none"> • Review and upgrade ACF rules and procedures, including detailed PFI eligibility criteria. • Set up smallholder financing window and increase the ACF capital. • Negotiate with aBi Finance and donors, and increase aBi Finance capital for guarantees. • Review other public support schemes for possible interventions. • Link GoU interventions in agriculture finance and agriculture insurance.
<p>2. Expand investments in high-quality agrometeorological data:</p> <ul style="list-style-type: none"> • Strengthen data collection for crop insurance by building on ACDP project implemented by MAAIF. • Strengthen the crop cutting experiments for area yield estimation in collaboration with ACDP. • Strengthen the automatic weather station network under UNMA. • Establish and populate an electronic system for registering livestock producers.
<p>3. Develop medium-term implementation plan for UAIS and adopt a smart premium-subsidies regime:</p> <ul style="list-style-type: none"> • Have GoU review its strategy for promoting access to agricultural insurance and develop a medium-to long-term plan for support to the agriculture finance sector, with increased budget allocation. • Engage with the Agricultural Insurance Consortium and the regulator (Insurance Regulatory Authority) to discuss options for banc assurance. • Bundle AYII with the e-voucher scheme being rolled out under ACDP and provide smart premium subsidies linked to inputs. • Review premium subsidy eligibility criteria to ensure alignment with GoU policy priorities. • Review coverage levels for SPDII and select fiscally sustainable option (voluntary coverage 50 percent subsidy; fully subsidized cover for vulnerable herders).
<p>4. Expand investments in digital financial services:</p> <ul style="list-style-type: none"> • Design and establish a partial grant facility to promote digital financial service for the agriculture sector. • Identify specific needs among grantees and provide additional support, such as development of rural infrastructure and enhancement of regulatory framework.
<p>5. Expand investments in financial education and awareness creation:</p> <ul style="list-style-type: none"> • Develop a financial education and awareness creation strategy-not limited to insurance and credit-with an action plan. • Utilize voice and text SMS to deliver financial education and awareness messages.
<p>6. Invest in public and private sector capacity:</p> <ul style="list-style-type: none"> • Agree on scope of activities for a technical support unit. • Decide where to house the TSU. • Draft ToRs for staff. • Establish and hire expertise for TSU.

Annex 1

Table A1.1: Advantages and Disadvantages of AYII

Preconditions	Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Homogeneous producing areas with high correlation between yields of different farms (Unit Area of Insurance, UAI) 2. Minimum of 10 to 15 years of historical yield data for the defined UAI 3. Availability of an accurate system for measuring actual average yields in UAIs, which requires a large number of trained professionals to carry out crop cutting experiments (CCEs) at harvest time and an efficient data management system 	<ol style="list-style-type: none"> 1. Policy offers comprehensive loss of yield protection against systemic risks at defined area level. 2. Moral hazard and adverse selection are minimized. 3. Costs of administering the coverage are much lower than for MPCI (no need for direct visits and loss assessments on individual farms, although yield sampling is needed in each UAI). 4. By directly estimating the average yield for the area, exposure to basis risk is lower than for WII, since basis risk is limited to its idiosyncratic component (i.e., localized mismatches between the average yields of the area and yields of individual farmers). 	<ul style="list-style-type: none"> • The approach entails basis risk, which in the case of AYII can be defined as the risk arising from the potential difference between the average yield in the selected area and the yields achieved by individual farmers. • Basis risk can arise due to localized perils (e.g., hail, flooding) that may affect only some of the farmers in the UAI, or by marked heterogeneities in the yields of the selected insurance areas.

Table A1.2: Advantages and Disadvantages of SPDII

Preconditions	Advantages	Disadvantages
Conduct of previous activities such as interpretation and calibration of satellite images.	Index insurance contracts may be designed to protect different insurable interests: <ul style="list-style-type: none"> ▪ Macro insurance ▪ Meso insurance ▪ Micro insurance 	Product involves very high start-up costs: <ul style="list-style-type: none"> ▪ Database generation ▪ Land use surveys ▪ Insurance contract design ▪ Client awareness & education
Elaboration of detailed land use/vegetation cover maps	Product does not require in-field loss assessments, and does not suffer from moral hazard or anti-selection.	It cannot be implemented in regions and zones of mixed cropping and livestock grazing but requires homogeneous rangelands
Education and training to ensure that the policyholder understands index insurance and NDVI as a proxy for pasture degradation.	The transparent structure of NDVI insurance products may facilitate understanding of the contract wording.	Basis risk is present (although it is lower than in other types of index contracts).

Table A1.3: Assumptions of the costing

<p>AYII maize</p>	<p>The following assumptions are made considering the individual maize farmer:</p> <ul style="list-style-type: none"> • Insured maize area per insured farmer =2 hectares • Sum insured based on inputs costs/credit=US\$250 per hectare • Sum insured per farmer=US\$250 • Low coverage level (55–65 percent of expected yield): Indicative premium rate = 5.0 percent • Medium coverage level (65–75 percent of expected yield): Indicative premium rate = 7.5 percent • High coverage level (75–85 percent of expected yield): Indicative premium rate = 10.0 percent • Insurance awareness creation and education: GoU will contribute US\$5.00 per farmer per year. • Premium subsidies: 50 percent • Strengthening yield data collection at the area level: US\$1.50 per insured acre/year • Area-based yield estimation through CCEs: US\$50 per CCE; on average 1 CCE will be conducted for every 50 hectares of insured crop • Investment in automatic weather stations: US\$2,000 per weather station (covering the capital cost of the station, installation, training for UNMA staff, and annual maintenance cost) with a density of 1 station per 2,500 hectares of insured crop. <table border="1" data-bbox="367 831 1458 982"> <thead> <tr> <th>Number of Insured Farmers</th> <th>Year 1</th> <th>Year 2</th> <th>Year 3</th> <th>Year 4</th> <th>Year 5</th> <th>Year 6</th> </tr> </thead> <tbody> <tr> <td>Option 1. Low Farmer Uptake rate</td> <td>5,000</td> <td>10,000</td> <td>20,000</td> <td>35,000</td> <td>50,000</td> <td>120,000</td> </tr> <tr> <td>Option 2. Medium Farmer Uptake rate</td> <td>25,000</td> <td>50,000</td> <td>100,000</td> <td>150,000</td> <td>200,000</td> <td>525,000</td> </tr> <tr> <td>Option 3. High Farmer Uptake rate</td> <td>50,000</td> <td>100,000</td> <td>200,000</td> <td>300,000</td> <td>400,000</td> <td>1,050,000</td> </tr> </tbody> </table>	Number of Insured Farmers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Option 1. Low Farmer Uptake rate	5,000	10,000	20,000	35,000	50,000	120,000	Option 2. Medium Farmer Uptake rate	25,000	50,000	100,000	150,000	200,000	525,000	Option 3. High Farmer Uptake rate	50,000	100,000	200,000	300,000	400,000	1,050,000
Number of Insured Farmers	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6																							
Option 1. Low Farmer Uptake rate	5,000	10,000	20,000	35,000	50,000	120,000																							
Option 2. Medium Farmer Uptake rate	25,000	50,000	100,000	150,000	200,000	525,000																							
Option 3. High Farmer Uptake rate	50,000	100,000	200,000	300,000	400,000	1,050,000																							
<p>SPDII livelihood protection program</p>	<p>The following assumptions are made:</p> <ul style="list-style-type: none"> • Uptake scenarios: (i) Low: 25,000 pastoralists by year 5; (ii) Medium: 100,000 pastoralists by year 5; and (iii) High: 150,000 pastoralists by year 5. • Insured TLUs: 5 • Cover period: 8 months cover period from March to end September • Sum insured per Tropical Livestock Unit (TLU) per month: The sum insured is based on the nutritional requirements to maintain one livestock unit (LU) (based on an adult cow) for one month: US\$12 per LU per month • Indicative commercial premium rate: 15 percent premium • Registration of the livestock producers: GoU will contribute US\$2.0 per TLU • SPDII insurance awareness creation and education: GoU will contribute US\$10.0 per livestock producer • 100 percent premium subsidy 																												
<p>SPDII voluntary program</p>	<p>Same assumptions except the premium subsidy level. For the voluntary cover: 50 percent premium subsidy.</p>																												

References

- AGRA. 2017. "Uganda Operational Plan." <https://agra.org/wp-content/uploads/2018/01/agra-uganda-final.pdf>.
- Anderson, J., C.E. Learch, and S.T. Gardner. 2016. "National Survey and Segmentation of Smallholder Households in Uganda: Understanding Their Demand for Financial, Agricultural, and Digital Solutions." CGAP Working Paper, Washington, DC.
- AXCO. 2018. "Uganda Non-Life (P&C). Insurance Market Overview."
- Bastian, G., L. Bianchi, M. Goldstein, and J. Montalvao. 2018. "Short-Term Impacts of Improved Access to Mobile Savings, with and without Business Training: Experimental Evidence from Tanzania." Global Center for Development Working Paper 478, Washington, DC.
- BoU (Bank of Uganda). 2017. Annual Supervision Report. Issue No. 8. December. <https://www.bou.or.ug/bou/bou-downloads/asr/2017/Dec/Annual-Supervision-Report-2017.pdf>.
- . 2018. Financial Stability Report. Issue No. 10. June. https://www.bou.or.ug/bou/supervision/Financial_Stabilty/Financial-Stability-Report.html.
- CPMI (Committee on Payments and Market Infrastructures) and World Bank Group. 2016. "Payment Aspects of Financial Inclusion." April. Bank for International Settlements and World Bank Group.
- EPRC (Economic Policy Research Centre). 2018. "Fostering a Sustainable Agro-industrialization Agenda in Uganda." Presentation. Kampala, Uganda. <http://www.eprcug.org/research/presentations/550-fostering-a-sustainable-agro-industrialisation-agenda-in-uganda>.
- FAO (Food and Agricultural Organization of the United Nations). 2014. "FAO/GIEWS Livestock and Market Assessment Mission to Karamoja Region, Uganda." Special Report. Food and Agricultural Organization of the United Nations, Rome. April 3.
- FSD Uganda (Financial Sector Deepening Uganda). 2018. "FinScope Uganda: Topline Findings Report." June. <http://fsduganda.or.ug/finscope-2018-survey-report/>.
- MAAIF (Ministry of Agriculture, Animal Industry and Fisheries). 2016. Agriculture Sector Strategic Plan.

McKinsey Global Institute. 2016. "Digital Finance for All: Powering Inclusive Growth in Emerging Economies." https://www.findevgateway.org/sites/default/files/publication_files/mg-digital-finance-for-all-full-report-september-2016.pdf.

Mesharsh, K., and T. Robert. 2018. "Public Sector Provision of Free Agricultural Inputs in Uganda: The Rationale and Challenges of Operation Wealth Creation Programme." *Journal of Public Administration and Governance* 8 (2).

Olet, E. 2017. "Investment in Improving Irrigation Infrastructure and Service in Uganda: Discussion Note." Unpublished manuscript prepared for the 2018 World Bank study "Closing the Potential-Performance Divide in Ugandan Agriculture."

PARM (Platform for Agricultural Risk Management). 2015. "Risk Assessment Uganda: Agricultural Risk Assessment Study." October.

Sheahan, M., and C. B. Barrett. 2014. "Understanding the Agricultural Input Landscape in Sub-Saharan Africa: Recent Plot, Household, and Community-Level Evidence." Policy Research Working Paper 7014. World Bank Group, Washington, DC.

Suri, T., and W. Jack. 2016. "The Long-Run Poverty and Gender Impacts of Mobile Money." *Science* 354(6317): 1288–92.

UBoS (Uganda Bureau of Statistics). 2010. Crop Area and Production Report. Vol. IV of Uganda Census of Agriculture 2008/09. Uganda Bureau of Statistics. December.

Walker, Richard Ancrum, Tihomir Stucka, Friederike Mikulcak, and Rachel K. Sebudde. 2018. Developing the Agri-Food System for Inclusive Economic Growth. Uganda Economic Update no. 12. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/678231542382500879/Uganda-Economic-Update-12th-Edition-Developing-the-Agri-Food-System-for-Inclusive-Economic-Growth>.

World Bank. 2018. "Closing the Potential-Performance Divide in Ugandan Agriculture." World Bank Group, Washington, DC.

World Bank Group 2015. "Disaster Risk Financing Sub-Component: Technical Report." Third Northern Uganda Social Action Fund Project (NUSAF 3). World Bank, Washington, DC.



This note was co-financed by the United States Agency for International Development (USAID) and European Union (EU) - funded Africa Disaster Risk Financing (ADRF) Initiative, managed by the Global Facility for Disaster Reduction and Recovery (GFDRR).

