



Risk Assessment

Uganda

AGRICULTURAL RISK ASSESSMENT STUDY

October 2015

Foreword

The Platform for Agricultural Risk Management (PARM), a G8-G20 initiative hosted by the International Fund for Agricultural Development (IFAD), is a multi-donor partnership co-financed by the European Commission (EC), Agence française de Développement (AfD), Italian Government and IFAD, to support Governments and stakeholders on Agricultural Risk Management (ARM). The Platform works in strategic partnership with NEPAD / CAADP in African countries to mainstream agricultural risk management into the national agricultural policy and investment plans (www.p4arm.org). Current work supports ARM assessment and policy process in Cabo Verde, Cameroon, Ethiopia, Liberia, Mozambique, Niger, Senegal, The Gambia and Uganda.

This Risk Assessment Study is part of the ARM process in Uganda. The report was coordinated by Jan Kerer (international consultant) and Herbert Talwana (Associate Professor, Applied Entomology and Nematology, Makerere University). The study has benefited from the guidance of Bernard Bashaasha (Principal, College of Agricultural and Environmental Sciences, Makerere University) and inputs from many experts and researchers, among them, Josephine Muchwezi Mukibi (consultant) and Ibtissem Taghouti (intern at IFAD) deserve a special mention.

The Government of Uganda and, in particular, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), has largely contributed to this report with inputs and suggestions. PARM thanks the engagement of the MAAIF, and in particular Tom Mugisa, who guided the risk assessment process and led the organization of the Agricultural Risk Management Validation Workshop in Kampala on the 29th and 30th of July 2015. Many stakeholders were able to contribute to this report through their active participation in the discussions of that workshop.

Executive Summary

Introduction

Scope of study. This Risk Assessment Study (RAS) provides a comprehensive mapping and assessment of agricultural risks in Uganda through a holistic approach. The report provides stakeholders with data and information on priority risks for Ugandan agriculture in order to develop appropriate policy solutions aimed at improving agricultural risk management (ARM) in the country. The guiding policy framework for this work is the recently developed Agricultural Sector Strategy Paper 2014/15-19/20 (ASSP). The discussions with the stakeholders on a first draft of this study during the Risk Assessment Validation Workshop organized by the Government of Uganda in 29-30 June 2015 have contributed to improve this study.

The country context

Importance of agriculture. The agricultural sector is still the mainstay for a large part of the Ugandan population. But while the contribution to GDP (22.5% in 2013/14), exports (54% in 2014) and employment (70%) is still high, the growth rate of the sector is way below average GDP growth. The low

growth rate can be attributed to weather hazards, economic downturns, limited availability of improved inputs, diversion of investment into the industrial sector, and/or insurgencies in neighbouring countries.

Focus on smallholders. The current production structure of agriculture in Uganda is dominated by small-scale farmers comprising of an estimated 2.5 million households (90% of the farming community), the majority of who own less than 2 acres of land each. Despite good agro-climatic conditions with two rainy seasons in most parts of the country, yields of smallholder farmers remain low. Limited access to quality inputs, low adoption of modern technology, and lack of storage and market infrastructure are constraints to the sector.

Identification of agricultural risks: country risk profile

Range of risks. Farmers are faced by a plethora of risk. The majority of risks are linked to specific stages in the

agricultural value chain (e.g. the input risk during the planting and growth stage of the crops). Policy risk, safety risk, and health risk, on the other hand, may occur during any stage of the agricultural production cycle. The major risks are:

- *Input risk:* The problem is a consequence of a poorly developed seed sector where the informal seed system accounts for an estimated 87% of planted seed.). The total demand for grain crop seeds is estimated at approximately 110,580 MT, while total sales from the formal seed market account for only 12,000 MT. The supply shortages create incentives for substandard and/or counterfeit seed; studies suggest counterfeiting affects 30-40% of purchased seed.
- *Weather risk:* Ugandan agriculture is mostly rain-fed making it vulnerable to weather hazards and climate change. Therefore, drought has affected the highest number of people in Uganda. Often drought and flooding follow each other. In the last 30 years (1985-2015), Uganda has experienced fourteen riverine floods, which affected more than one million people and killed more than 200 people. Landslides and mudslides usually occur in the Eastern region. The population pressure and environmental degradation of the hilly areas around Mt. Elgon are root causes for the frequent occurrence of landslides.
- *Biological and environmental risk:* A range of pests and diseases have caused crop failures and livestock deaths in Uganda in the recent past. On the crop side, Cassava Brown Streak Virus African, Cassava Mosaic Virus, Banana Bacterial Wilt (BBW), Maize Streak Virus (MSV), Maize Lethal Necrosis Disease (MLND), and groundnut rosette are severely affecting food crops and threatening food security in Uganda. For cash crops diseases such as Coffee wilt and Coffee rust are still not properly managed. On the livestock side, the endemic Newcastle disease in poultry and the sporadic and cyclic outbreaks of African swine fever in pigs wipe out stocks of poultry and pigs in the country every year. Other diseases such as foot and mouth disease, Bovine pleuropneumonia, East Coast fever, and Black quarter although largely managed by routine vaccination still occur in livestock.
- *Logistical and infrastructural risk:* The lack of sufficient storage capacity, both at the farm level and the crop trading system, leads to high losses for farmers due to attacks from pests and animals. Uganda has 550,000 metric tonnes (MT) of storage capacity, but estimated demand for storage facilities totals 2.3 million MT. In 2012 alone an estimated 18.3% of cereal production was lost in post production activities.
- *Market risk:* Uganda experiences high price fluctuations on account of weather conditions, low level of stocks, low level of organization of producers in the value chain, and segmentation of regional and domestic markets. Farmers are exposed to both inter-annual and intra-annual price volatility. Yet the country lacks price stabilization instruments.
- *Public policy and institutional risk:* The legal environment for the agricultural sector is conducive but implementation of many initiatives has been poor in the

past due to a lack of institutional and financial resources. The ongoing restructuring of the extension system has created many challenges for farmers to access advisory and other support services.

- *Political and security risk:* The security situation in the country has improved greatly since the containment of the Northern Insurgency. Still, regional security threats such as the Karamoja cattle raiding are a constraint for the development of agriculture in some regions of Uganda.

Mapping of existing Agricultural Risk Management policies and tools

Policy environment. The Government of Uganda (GoU) is trying to tackle these risks through various policies, most notably the National Development Plan II (NDP II). In the past, risks have not been handled in a comprehensive manner but the recent ASSP contains a section on ARM. The Ministry of Agriculture, Animal Industries, and Fishery (MAAIF) is driving this process with other public sector entities (e.g. Office of the Prime Minister, Ministry of Water and Environment), and non-state actors playing an important role as well. Lack of capacity and financial constraints are impediments to improved risk management from the government.

Risk management landscape. Major risk initiatives are currently being implemented:

- *Information systems:* A broad range of state and non-state actors (e.g. MAAIF, UBOS, UNMA; Infotrade, Farmgain) currently provide farmers and other stakeholders with data on specific aspects of agricultural risk, e.g. weather, market prices. Despite the broad range of service providers, timely and accurate information does not yet always reach the target audience. The absence of effective extension services is a major factor contributing to this situation.
- *Initiatives related to input risk:* MAAIF is currently in the process to finalize the National Seed Policy aimed at improving quality assurance in the seed sector. The private sector, particularly the Uganda National Agro-Input Dealers Association (UNADA) is involved in this process. The issue of quality assurance, in particular concerning the use of counterfeited inputs is addressed by a number of initiatives from donors and the private sector. Yet access to quality inputs remains a key issue in the sector.
- *Initiatives related to weather risk:* Despite significant investments in recent years (USD 25 million in 2013), the irrigation potential remains largely untapped, in particular small-scale irrigation. The irrigation potential for Uganda is estimated at 445,041 ha at an investment cost of USD 2.3 billion. Other initiatives related to weather risk have mostly been driven by the insurance sector; the introduction of weather based insurance (such as the Kungula Agrinsurance by a consortium of companies) has witnessed some early success.
- *Initiatives related to biological risk:* Pest and disease

management are mostly the domain of MAAIF and/or respective value chain organizations (e.g. UCDA in the coffee sector). Still, access to support services for plant protection remains low. Decentralization and privatization of clinical veterinary services and downscaling of civil service since the 1990s have severely constrained the access to animal health services for farmers.

- *Initiatives related to infrastructure risk:* Post harvest losses are at the centre of a few recently implemented initiatives, most notably a project on Post-Harvest Food Loss Reduction by the WFP that has reached 16,600

farmers since 2014. There is, however, much scope to expand the outreach of such initiatives on low-cost storage for smallholders to many more households in Uganda.

- *Initiatives related to market risk:* Currently, no price control mechanisms are found in the food crop sector. For various cash crops such as coffee, tea, and cotton a range of price setting mechanisms are applied that provide some level of protection to these sub-segments. Still, fluctuations on international markets, for example for coffee, directly affect farmers and price drops directly translate to income loss for farmers.

Risk analysis: a systematic quantification of impacts and likelihood

Cost of risk. The overall economic impact of agricultural risk is estimated to amount to USD 606 million to USD 804 million per year. Based on an agricultural GDP of USD 5.71 billion, losses therefore amount to between 10.61% and 14.08% of total annual production, which is between 2.3% and 3.1% of the GDP of Uganda.

Ranking of most severe risks. An evaluation of all risks was carried out based on average frequency and severity, and the impact of the worst case scenario. The following table provides an overview on the scoring:

Risk	Average Severity	Average Frequency	Worst Case Scenario	Score
Crop pest & diseases	very high	very high	very high	5.00
Post-harvest loss	very high	very high	high	4.75
Price risk food & cash crops	very high	high	high	4.35
Livestock pest & diseases	medium	very high	medium	4.10
Droughts	medium	medium	very high	3.50
Counterfeit inputs	low	very high	low	3.40
Karamoja cattle raids	very low	high	very low	2.37
Floods	very low	high	very low	1.75
Hailstorms	very low	high	very low	1.75
Thunderstorms	very low	high	very low	1.75
All other natural risks	very low	high	very low	1.75
Northern Uganda insurgency	very low	very low	medium	1.50

The top six risks make up more than 99% of average annual losses in Uganda. These major risks in terms of severity are:

1. *Price fluctuations:* Inter-annual price variability is a major concern for all major food crops and cash crops. For example, coffee has experienced shocks of up to 49% every 3 years. Matooke/banana are similarly affected while cassava, maize, and potatoes have seen smaller shocks in recent years. On average, losses for farmers due to price risk are estimated at USD 262.22 million p.a.
2. *Crop pests and diseases:* Average crops losses in Uganda due to pests, diseases, and weeds are estimated at 10-20% during the pre-harvest period and 20-30% during the post-harvest period. The annual losses for major

crops are in the range of USD 113 million to USD 298 million (mainly banana, cassava, coffee, and cotton).

3. *Post harvest losses:* The weight loss resulting from attacks of pests and animals to major cereals (mostly for maize, but also barley, millet, rice, sorghum, and wheat) cause losses of USD 97.17 million p.a. This figure does not yet include opportunity cost for farmers that were forced to sell at low market prices directly after harvest due to lack of proper storage facilities.
4. *Livestock pests and diseases:* The economic impact of diseases on farming households are diverse: farmers incur cost for disease control, treatment, and vaccination. Direct losses are associated with animal mortality, reduced milk production, and use of animal

for traction. The total economic cost for diseases in cattle alone are estimated at USD 76.5 million p.a.

5. *Droughts:* Uganda has been hit severely by droughts in recent years (2002, 2005 to 2008, and 2010/11). The return period of large-scale droughts that affected 25,000 people or more is 5.3 years. The average annualized losses amount to USD 44.4 million. But, drought has the highest probable loss of all risks in Uganda. For example, the drought period of 2010/11 caused extensive damage of USD 383.45 million in 2011 alone.
6. *Low quality inputs:* Yields for maize, millet, rice, and sorghum are only 20% to 33% of the potential yield for rain-fed agriculture and even less for irrigated

Conclusions and recommendations

Required changes in the institutional framework. ARM has not been managed in a holistic manner in the past. In the future more efforts and funding is required by MAAIF to tackle the issues raised in the report. Establishment of an ARM unit within the ministry in charge of monitoring risks and developing policy responses is proposed. Dedicated ARM personnel within the Planning Department of MAAIF is in charge of coordinating with other MAAIF departments and the stakeholder forum on ARM in Uganda.

Building up capacity for ARM. The starting point for improved use of ARM tools in Uganda is investment in human resources: trainings for MAAIF officials at national and local level, for extension workers, farmer organizations, and other important stakeholders is required to build up capacity in the country on risk analysis and management.

Improved data collection and analysis. Improving data collection and analysis of risk related information is one important strategy to reduce the key risks (pests and diseases for both crops and livestock, and intra-annual price fluctuations). This assessment report has suffered from the lack of information on risks at farm or district level, including information on production, yields and losses. A key issue for improving information systems and early warning is the dissemination of information to smallholder farmers which is currently often lacking.

Risk reduction. It is critical to raise awareness of farmers on their individual risk exposure and on the best way to protect their livelihoods. This requires well trained and informed

agriculture. A major factor is the lack of good-quality, higher-yielding, more vigorous, drought-resistant, and disease-free seeds and planting material. A pronounced problem is the issue of counterfeit inputs that lead to losses to farmers of USD 10.7 to 22.4 million p.a.

Impact. Apart from turning to relatives and friends in times of need, selling of livestock, reducing expenditures, and reducing the food intake are the most common reactions by farmers to distress. Poorer farmers (i.e. smallholders) are affected stronger by risk than commercial agriculture.

extension officers that can provide practical advice to farmers. Integrating risk management into the core extension messages is important to help farmers understand how they can reduce, transfer, or cope with risks. Improving the value chain for inputs and developing low-cost storage options for farmers are two other important areas that require further attention.

Risk transfer. The current outreach of agricultural insurance still leaves much room for further increasing penetration amongst farmers. Further analysis of the current constraints and opportunities should be carried out for the GoU to develop a support strategy for agricultural insurance. Government support is required to enhance farmers opportunities to transfer some of their risk to the market.

Risk coping. Formal social safety nets are non-existent in rural areas. In the past, many emergency response programs have supported farmers after external shocks. GoU should analyze this experience and decide ex-ante what support mechanisms for farmers are established for times of distress. This helps to avoid profiteering after disasters from criminal groups or individuals and ensures that the help really reaches to smallholder farmers that have been affected most by a shock.