Tools Assessment

Uganda

Information Systems for Agricultural Risk Management

Policy Brief

In collaboration with MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY & FISHERIES

October 2016

Key message

1 Many risks including crop pests and disease and post-harvest losses affect the agricultural livelihoods in Uganda. Efforts to manage them are constraint by limited access to agricultural risk management information.

2 National information systems like UBOS[1], UNMA[2], MAAIF[3], Infotrade Uganda and FARMIS[4] provide comprehensive and disaggregated information for proper agricultural risk management in areas of commodity prices and trade.

3 However, there are cases of poor representation, insufficient access and lack of historical data on plant health (crop pests and diseases), soils, commodity stock level and inputs availability, and animal disease and endemics.

4 Building human and financial resources for data collection, public-private partnership for investment in access to information, and a review of historical information/data is required to improve information for agricultural risk management.

Context

In October 2016, the Platform for Agricultural Risk Management (PARM) finalised a study that assessed **Information Systems for Agricultural Risk Management (IS-ARM)** in seven Sub-Saharan African countries conducted by CEIGRAM/VISAVET. The assessment and systematic scoring focused on information for seven thematic areas (see table 1) of agricultural risk management: meteorology, climate and soils, satellite image and communications, price of commodities, inputs and market, production level, yield and plant health, animal and human health, policy, and socio-economic and sectorial. This policy brief outlines the strengths, weaknesses and recommendations for the information systems as identified in the Uganda IS-ARM report.

Managing risks in agriculture involves seeking avenues and information to identify the opportunities and threats affecting farmers, both on-farm and off-farm. **The PARM Risk Assessment Study (RAS) for Uganda** conducted in 2015 identified crop pest and diseases such as coffee wilt disease (CWD) and banana xanthomonas wilt (BXW), and livestock pest and disease like Newcastle disease and helminth infections as the major risk for farmers. Other risks noted among the top four include crop price volatility and post-harvest loss. Pest and disease attacks are causing frequent crop failures and livestock death. The average estimated crop loss due to pest and diseases is about 10-20% during pre-harvest and 20-30% at post-harvest. Losses are as high as 90% for perishable horticultural crops. In addition, price fluctuations and post-harvest losses due to poor storage reduce earnings from farm investments. These rampant consequences are as a result of limited risk information services in Uganda.

Existing information sources and information systems

The information systems identified for the seven thematic areas of agricultural risk management in Uganda are indicated in Table 1. Some information systems deliver information on a single thematic area of agricultural risk management. They include Infotrade Uganda for commodity price and market information, Ministry of Health (MoH) for animal and human health information, and Bank of Uganda (BOU) for policy information on finance and income. Others such as UBOS, MAAIF, UCDA[5] and UNMA offer integrated information on two or more thematic areas.

The UBOS for instance is a semi-autonomous public body, which supervises and coordinates national statistical systems in Uganda. It has ample information on thematic areas such as trade, production levels, animal and human health and some socio-economic indicators like households' income, poverty trends and access to social services within the context of Uganda. Another important national information system in Uganda is the UNMA, a semi-autonomous department under the Ministry of Water and Environment. It establishes and maintains information on the conditions of climate in Uganda, which is useful for managing risk relating to meteorology and satellite image thematic areas. Both UBOS and UNMA have related risk information published on their websites, which requires farmers and stakeholders to have internet service for access. More to this, some weather data from the UNMA can only be accessed upon request, and FARMIS also requires payment of a fee..

1 Uganda Bureau of Statistics (UBOS).
2 Uganda National Meteorological Agency (UNMA).
3 Ministry of Agriculture, Animal Industry and Fisheries (MAAIF).
4 Farm Record Management System (FARMIS).
5 Uganda Coffee Development Authority (UCDA).

Study Conducted by: Research Centre for the Management of Agricultural and Environmental Risks (**CEIGRAM**), a research centre of the Universidad Politécnica de Madrid, Spain; **VISAVET**- Health Surveillance Centre, a research centre of the Universidad Complutense de Madrid, Spain

Table 1: Information systems for thematic areas of agricultural risk management in Uganda.

Type of information systems	Thematic areas of agricultural risk management						
	Meteorology, climate & soils	Satellite image & communications	Prices of commodity, input & market	Production levels, yields & plant health	Animal & human health	Policy	Socio-economic & sectorial
National	UNMA / UBOS	UNMA	UBOS / Infotrade Uganda / FARMIS / AgriNet Uganda / UCDA / UNADA	MAAIF / UBOS / UCDA	MAAIF / UBOS / MoH	MAAIF / DEWS / BOU /	UBOS
Regional	ACMAD / IGAD – ICPAC / MESA-IGAD	AARSE / RCMRD	RATIN / AfDB / Farmgain Africa / AFO / AMITSA / UNECA	AU-IAPSC / IPPC / AfDB / ASARECA / COMESTAT / AfricaRice	AU-IBAR / WHO-Regional Office for Africa	FEWS NET / HDE	AfDB
International	CRED – IDD / FAO-Aquastat / WB – CCKP / ESDAC / ISRIC / GYGA	NASA / ESA / USGS / CGIAR – CSI / RSAC / Terra Remote Sensing	GIEWS-FAO / WFP-VAM / FEWS NET / FAOSTAT	CountryStat-FAO / FAO-crop calendar / GYGA / Plantwise	FAOSTAT / OIE / WHO-HSIS / EMPRES / IAEA / USAID	GIEWS-FAO / FEWSNET / WFP / WB	WB

Source: PARM IS-ARM Report, Uganda (2016). These information systems were identified during the Information Systems for Agricultural Risk Management Study in Uganda finalised by PARM in October 2016. The classification of information systems are based on geographical scope or scale of information (national, regional and international).

Strengths

The most important national information systems in Uganda include both public and private initiatives such as FARMIS, UCDA, RATIN[6], Infotrade, UNMA, UNADA[7], UBOS and MAAIF. They provide significant information that allows for proper agricultural risk management on thematic and sub-thematic areas of commodity price, satellite image, policy, meteorology and climate, and trade in Uganda (see Table 2 for the score). The information gathered and delivered are:

Regular and comprehensive information: A wide range of agrometeorological and weather bulletins are available at the UNMA's website on daily to monthly basis. Seasonal forecasts are also provided at the beginning of every rainy season. In relation to trade information, the UBOS has a complete survey data and report on monthly informal cross border trading activities in Uganda. Farmgain and Infotrade also provide recent information on prices of about 46 major agricultural commodities and inputs in 23 central markets.

Disaggregated data at local-level: The MAAIF collaborates with Plantwise in efforts to diagnose, generate and disseminate district as well as community level data on plant pest and diseases. Information on socio-economic themes gathered through the UBOS surveys are reported at household level, making it possible to get a clear picture of individual farmer-level situations.

First-hand source of data for regional and international information systems: Information from the national information systems such as UBOS and InfoTrade are the main inputs into the systems of credible regional and international information sources like RATIN, GEWS-FAO, FEWS-NET and WFP-VAM. This help to prevent duplication of information on various agricultural risk themes

Weaknesses

In some cases, information on thematic and sub-thematic areas such as plant health (crop pests and diseases), soils, commodity stock level and inputs availability, production levels and yield, and animal disease and endemics are recorded not to be sufficient (see Table 2 for the scores) for agricultural risk management purposes in Uganda due to:

Insufficient access to information for stakeholders: Remote sensing data available at UNMA's website and commodity price information generated by the FARMIS are only available on-line. Limited internet connection in Uganda restrains access to these services. In some cases (like detailed information on prices by FARMIS and Farmgain) there is not free/open access to the information: access comes with a cost of a fee. Smallholder farmers may not be able or willing to pay for information.

Poor representation of information: ESDAC and ISRIC are the only available soil information system in Uganda. But their databases of soil profiles show insufficient information on Uganda. The ISRIC database presents only 13 soil profiles for Uganda, which are not enough for soil erosion and soil water management risk monitoring. In addition, very few of the weather and climate observation stations of UNMA are in service. This limits the spatial coverages for extensive climate risk analysis in Uganda.

Limited up-to-date information: Some of the most relevant national information systems such as UBOS and MAAIF provide good information services on various risk management themes, through census and surveys reports but the data are usually outdated. The latest MAAIF pest data was generated three years ago, in 2013/2014. Also, the UBOS data on socio-economic aspects of farmers' livelihoods are not updated on time. None of the information systems provide data on market of commodity stock and input.

Insufficient historical information: Not all the national information sources have relevant historical data that allow for robust risk analysis on agricultural systems. Historical data on production and yields of important commodities like coffee is not available on the UCDA's website. There is an initiative under the Plantwise programme to collect and share plant health information but no historical data exists on pests and diseases that affect crops. This hinders crop health trend and variability analysis for effective risk monitoring and management.

The way forward

Build human and financial resources for regular data collection and extensive coverage of useful risk related information. The government of Uganda and its private partners should invest adequate resources to hire and train more extension officers that are capable of identifying, gathering and analyzing different range of information useful for agricultural risk management. Highest priority should be placed on thematic areas with the weakest information systems such as plant health (crop pests and diseases), soils, commodity stock and input market, production levels and animal diseases information.

Negotiate for public-private partnerships for improved access to information, especially in remote rural areas. The Ministry of Agriculture, Animal Industry and Fisheries should undertake persuasive discussions with multinationals and local communication firms on the need for investment in ICT packages and internet services in rural areas. Negotiations should be incentivized to induce the investors to render quicker and cheaper communication services that will enable smallholder farmers to access all forms of risk-related information.

Initiate a national system to review historical data to provide long time series and geographically disaggregated information on production and yields, commodity stock, and pest and disease risks. Regional and international food balance sheets should be an important starting point.

Develop a system of coordination among all the national information systems. The focus of the coordination should be directed to increasing credibility, reducing duplication and cost associated with disseminating agricultural risk information.

Table 2: Scores for information on thematic & sub thematic areas of ARM in Uganda.

Strongest information areas (%)		Weakest information areas (%)	
Prices	90	Plant health	30
Satellite images	85	Soils	36
Policies	74	Stocks and inputs availability	40
Trade	70	Costs of Animal diseases	50
Meteorological and Climate	70	Production and yields	50
Socio-economic & sectorial	62		
Communications	61		
Risks of endemics & emerging diseases	60		

Source: PARM IS-ARM Report, Uganda (2016).

6 Regional Agricultural Trade Intelligence Network (RATIN).
7 Uganda National Agro-Input Dealers Association (UNADA).

PARM Secretariat **International Fund for Agricultural Development (IFAD)**

Via Paolo di Dono 44 - 00142 Rome (Italy) parm@ifad.org www.p4arm.org @parminfo