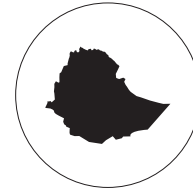


Ethiopia



Information Systems for Agricultural Risk Management

Policy Brief

October 2016

Key message

1

Many risks including livestock/plant diseases and pests, drought and food/crop price fluctuations are affecting the agricultural sector in Ethiopia. Efforts to reduce/mitigate them are constraint by limited risk management information.

2

The available national information systems include CSA¹, NMA², EIAR³, EGTE⁴, LINKS⁵, ECX⁶ and EVA⁷. Some of them provide comprehensive and elaborative information for ARM on market, satellite, meteorology and production levels.

3

However, there are weaknesses on the level of data aggregation, inadequate up-to-date information to allow for better analysis of plant/livestock pests and disease related risks, and limited communication and access for smallholder farmers

4

There is the need for effective communication packages for remote access, improvement in animal and plant health information and development of public-private partnership arrangement for IS-ARM in Ethiopia.

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 undertaken 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 Ethiopia IS-ARM report.

Like many African countries, agriculture forms the mainstay of the Ethiopia's economy. It accounts for nearly 85% of exports and employs over 80% of the active labour force. Major risk facing the agricultural sector as identified in the **PARM Risk Assessment Study (RAS) for Ethiopia** include drought, livestock/plant diseases and pests, and food crop price fluctuations. According to the study, drought incidences in Ethiopia are very frequent with total estimated annual losses of about US\$ 78.35 million. In addition, pests and diseases such as *busseola fusca*, *chilo partellus* and rift valley fever cause US\$ 570 million losses in plant and US\$ 210 million losses in livestock based on the occurrence at epidemic level reported in EM-DAT. These rampant consequences to smallholder farmers' income and national food security are the result of several constraints including limited information on plants health and weak communication systems for climate-related risks.

Existing information sources and information systems

The information systems identified for the seven thematic areas of agricultural risk management in Ethiopia are listed in Table 1. Some national information systems deliver information on a single thematic area of agricultural risk management. Examples include the NMA for meteorology and climate information, ECX for commodity price information, and ESA for input price information. Others, including CSA, NBE, ATA, EVA and EIAR offer integrated information on two or more thematic areas. The CSA for instance is one of Ethiopia's federal agencies that reports directly to the Ministry of Finance and Economic Development. It carries out annual socio-economic and demographic surveys, and provides countrywide information on precipitation and temperature, trade and prices of commodities, production and yields for economic management. Another important national information system is the EIAR, which comprise of many research centres located across various agro-ecological zones of the country. The affiliate centers of EIAR establish and maintain information that are useful for different aspects of agricultural risks management including, climate variability, prices and market, production and yield, policy and socio-economic.

- 1 Central Statistical Agency of Ethiopia (CSA).
- 2 National Meteorological Agency (NMA).
- 3 Ethiopian Institute of Agricultural Research (EIAR).
- 4 Ethiopian Grain Enterprise (EGTE).
- 5 Livestock Information Network Knowledge System (LINKS).
- 6 Ethiopia Commodity Exchange (ECX).
- 7 Ethiopian Veterinary Association (EVA).

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 Ethiopia.

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	NMA / CSA / EIAR / ATA / DRMFSS	DRMFSS / ATA	ECX / EGTE / CSA / ENADA / EIAR / LINKS / NBE / NAIA / ESA	CSA / EIAR / ESA / APHRD / EPHI / EVA / MoA / MoH / NAHDIC	CSA / MoA / APHRD / EVA / MoH / EPHI / NAHDIC / NVI	NBE / FAO MAFAP Ethiopia / EIAR	CSA / EIAR
Regional	ACMAD / IGAD – ICPAC	AARSE / RCMRD	AfDB / UNECA / COMESA / AMITSA / AFO	ASARECA / AfDB / AU – IBAR / WHO – Africa	AU-IBAR / WHO-Regional Office for Africa / DLCO-EA RustTracker	FEWS NET / HDE	AfDB
International	CRED – IDD / FAO-Aquastat, / WB – CCKP / ESDAC ISRIC / GYGA	NASA / ESA / USGS / CGIAR – CSI / RSAC / UN (Spider) / Terra Remote Sensing	GIEWS-FAO / WFP-VAM / FEWS NET / FAOSTAT / USDA	CountryStat-FAO / FAO-STATS / GYGA / EMPRES / IAEA / OIE / USAID	Factfish / FAOSTAT / OIE / WHO-HSIS / EMPRES / IAEA / USAID / WB	GIEWS-FAO / FEWSNET / WFP / WB / IPC	WB

Source: PARM IS-ARM Report, Ethiopia (2016). These information systems were identified during the Information Systems for Agricultural Risk Management Study in Ethiopia 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

In Ethiopia, the national systems that provide relevant information for agricultural risk management are NMA, EGTE, LINKS and ECX. These systems maintain and deliver information services that allow for sufficient analysis of agricultural risk management on thematic areas such as prices of commodities and inputs, policy, production and yields, and meteorology and climate. They are noted for providing:

Comprehensive information: In terms of commodity and input price information for risk management, the EGTE, LINKS and ECX jointly provides data on all important crops, which permit a deep understanding and monitoring of pricing situations in the market. Particularly, their data have a wider coverage of agricultural commodities throughout major markets in Ethiopia. Data also captures prices for different levels in the food chain, import-export commodities for an appreciable length of series. In addition, weather information from the NMA also appears to be very extensive. The agency has more than 1000 observatory stations and over 140 AWS, which permits a better analysis of climatic trends such as El Niño oscillations and Pacific Decadal Oscillations in Ethiopia.

Well-elaborated information: The websites of some information systems including LINKS and EGTE are well-organised to provide detailed recent information on animals and animal products. The information is categorized according to many characteristics and organized under different criteria including market/price situation for different commodities. There is continuity in the time series accompanied by a clearly explained data sources and gathering methods. Besides, datasets are easy to find using the search engine and search filters on the websites.

Alert systems for specific pests and diseases: Some regional systems provide updated information about risks of infestation and spread (Desert Locust Control Organization for Eastern Africa, DLCO-EA and RustTracker.org)

Weaknesses

Information on thematic and sub-thematic areas of communication, plant health, risk of animal diseases is recorded not to be sufficient (see Table 2 for the scores) for agricultural risk management purposes in Ethiopia.

Limited up-to-date information: There is hardly any recent information on soil and livestock endemics in Ethiopia, although the ATA's EthioSIS project was launched in 2012 to develop depository for soil related information across the country. CSA collects data on production/yield of livestock, and publishes an annual Report on Livestock and Livestock Characteristics. The most recent report was published 2010/2011 with a series since 1995/96.

Difficult access to information: The means of communication of ARM information is only through reports and bulletins published on websites but internet penetration and social media use is low in Ethiopia. In addition, satellite data on agricultural systems can only be downloaded or printed from websites of private institutions but come with a cost of a fee, which might exclude poor farmers.

Data is aggregated at national and regional level: the information on plant health, crop management, production, acreage and yield available at CSA website is aggregated at regional level, which is made up of about 100-150 households within an enumeration coverage. Besides, information on some of commodities relevant

for poor households' food security is not included. This does not permit an in-depth analysis of individual/farmer level situations.

Weak animal health information system: None of the national information systems had evidence on pests and disease prioritization programmes that are based on clear indicators. Rather, there is a continuity of report based on disease prioritized by the international community (particularly on impact on trade) or those with a high morbidity/mortality rates. Besides, animal diseases and endemic control information system appeared to be inadequate. There are little convincing evidences on disease control programmes. For the few ones that existed, there is hardly any progress or evaluation report on the detail description of the control programmes, as well as the costs, compensation or rewarding schemes and contingency plans.

The way forward

Build communication systems suitable for remote access. Mobile penetration in Ethiopia has grown remarkably in the last years. It should be complemented with cheaper and efficient internet services to allow information to be disseminated to smallholder farmers through SMS and social media platforms like twitter and Facebook that are increasingly becoming popular in Africa. Delivery and access mechanisms through TV/radio/producers associations and hard copy distributions should also not be undermined.

Improve plant and animal health-related information systems. There should be adequate surveys on animal movement dynamics to develop general assessment models for risk of further transmission of pests and diseases. Endemics within local areas should be prioritised rather than those of international recognition. There should be priorities to expand insect pests and diseases' early warning information systems from local and regional institutions.

Initiate public-private partnerships and institutional arrangements. In the future the information systems management should integrate the private sector through public-private partnerships translated into enhanced institutional arrangements in financing and governing all forms of ARM information. Private actors should include professional and producer organizations, cooperatives, universities and private foundations and programs (e.g. Alliance for Green Revolution in Africa).

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

Strongest score (%)	Weakest score (%)	
Prices	95	Communications 30
Satellite image information	95	Plant health 50
Policy	88	Risk of endemic and emerging diseases 55
Soils	85	
Production levels and yields	84	
Meteorological & climate information	81	
Trade	75	
Stocks and inputs	70	
Socio-economic & sectorial information	65	
Cost of animal diseases	60	

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