Tools Assessment

Senegal

Information Systems for Agricultural Risk Management

Policy Brief

October 2016

Key message

1

Production risks linked to climatic stress – erratic rainfall, early cessation and/or delay onset of rain and extended drought – affects the agricultural sector of Senegal. Locust outbreak, bushfires and price volatility are also common

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National information systems like ANSD[1], ANACIM[2], DAPSA[3], ISRA[4], MSAS[5] and CSE[6] provide comprehensive information for risk analysis. Senegal also has well-laid information dissemination channels with great potential.

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Legal rules on confidentiality reduce access to relevant information. Some of the national systems lack historical data while others hardly update their information. ANACIM offers climate data but its meteorological stations are very few with limited geographical coverages, especially across the eastern part of Senegal.

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Enhancing the information systems requires enacting more friendly regulation on data confidentiality, increasing reliability of internet services, enhancing public-private partnerships for information delivery, initiating a system to manage long-term data and up-dating information.

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 Senegal IS-ARM report.

According to the 2016 **PARM Country Risk Profile for Senegal**, agricultural production risks are greater in terms of frequency and severity than market/trade related risks. In particular, the production risks are linked to climate-related causes such as drought and floods, in addition to outbreak of pests and diseases (including locust, Newcastle and lumpy skin disease), and bushfires. On average, floods occur twice every year, while lumpy skin has been endemic, recorded to be occurring virtually every year over the past 10 years. A major drought occurred in 2002 causing losses amounting to 50% of total agricultural production in Senegal. The estimates show that average annual production losses from 1990 to 2013 amounted to about 25% of yield losses in cowpeas and 16% in tomatoes. These impacts are not only felt by the poor rural farmers but also the government at the national due to lack of information to aid disaster preparedness and management initiatives.

Existing information sources and information systems

Several information systems are available for agricultural risk management in Senegal. As shown in Table 1, some of the identified national information systems deliver information on a single thematic area of agricultural risk management. Examples include the INP for soil information, Manobi Senegal (a private national system) and CSA for price/market, and MSAS for animal health related information. Several of the national information systems including ANSD, ANACIM, DAPSA, ISRA and CSE offer integrative information on two or more thematic areas. The ANSD for instance is the main agency in Senegal responsible for centralising and dissemination data summaries on agriculture, trade, energy, environment, health etc. generated by the national statistical systems. By performing its functions, the agency ensures that economic outlooks are made available for economic situation forecasting and management purposes. ISRA is another important national system with well-established connections to national, regional and international research institutions. It also provides research training and capacity building activities for information generation and dissemination purposes.

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1 Agence Nationale de la Statistique et de la Démographie (ANSD).
2 L'Agence Nationale de l'Aviation Civile et de la Météorologie (ANACIM).
3 Direction de L'analyse, de la Prevision et des Statistiques Agricoles (DAPSA).
4 l'Institut Sénégalais de Recherches Agricoles (ISRA).
5 Ministère de la Santé et de L'Action Sociale (MSAS).
6 Centre de Suivi Ecologique (CSE)

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

| 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	ANACIM / ANSD / INP	CSE	ANSD / Manobi Senegal / CSA	ANSD / DAPSA / CSE / PPEA / ANACIM / ISRA / DPV	ANSD / ISRA / MSAS / MEFP / MEPA	SAP	ANSD / DAPSA
Regional	ACMAD / AGRHYMET	AARSE / AGRHYMET	AfDB / RESIMAO / UNECA / AMITSA	AGRHYMET / AfDB / eRAILS / AfricaRice	AU-IBAR / WHO-Regional / Office for Africa	SPAIF / BCEAO / ARC	SIPSA / AfDB
International	CRED – IDD /FAO-Aquastat / WB – CCKP / ESDAC / ISRIC	NASA / ESA / USGS / CGIAR – CSI / ANACIM / UN (Spider) / Terra Remote Sensing	GIEWS-FAO / WFP-VAM / FEWS NET / FAOSTAT / USDA	CountryStat-FAO / FAO-crop calendar / Plantwise	Factfish / FAOSTAT / OIE / WHO-HSIS / EMPRES / IAEA / WB	GIEWS-FAO / FEWS NET / WFP / WB / IPC	WB

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

As shown in table 1, a number of national systems gather and deliver information for agricultural risk management on different themes. The information available on thematic areas of satellite image, prices, soil, communication and trade are recorded as the strongest (see table 2).

Comprehensive data: DAPSA carries out agricultural surveys and censuses. It has a dedicated portal for the dissemination of agro-survey results on production, cultivated area and yields. National statistics from ANSD are configured into annual yearbooks that provide wide range of socio-economic and sectorial information on agricultural households and their livelihoods. Data from national systems like the CSE are based on extensive fieldwork, with some robust data analysis and interpretive results published to reveal indexes related to crops and agricultural fires.

Well-laid information dissemination environment in Senegal: Compared to other African countries, Senegal has good mobile penetration and secured internet service providers. Systems are also in place to disseminate alerts and information to smallholder farmers in rural areas. A typical example is the Manobi, which is a private platform aimed at providing real-time commodity market/price information to farmers through SMS.

National information systems feed into regional and international systems: Some regional and international agricultural risk management information systems rely on the national systems as reference for their data compilation and analysis. As a main source of price information in Senegal, the CSA provides complete information that feeds the ANSD (also a national system), RESIMAO (a regional system) and FAO, WB, WFP (international systems) databases. DAPSA is the main provider of data to ANSD and FAO systems, and the ANSD further feeds to the UN Comtrade with trades indices, imports and exports across Senegal.

Weaknesses

Information on thematic and sub-thematic areas of commodity stock and input price, plant health, cost of animal diseases, and socio-economic and sectorial risk of endemic and emerging diseases are the weakest (see the scores in Table 2) for agricultural risk management purposes in Senegal. This indicates that the information systems in Senegal are not without flaws.

Restricted access information: Pursuant to legislation on information confidentiality in Senegal, some national systems are reluctant to give access to relevant information. For instance, ANACIM does not offer complete on-line information on meteorological and climate data series, even though some climate data can be obtained under strict request from research/academic institutions. Data on commodity stock and prices of food reserves from CSA and CSE are also considered as legally confidential, denying public access to the data and associated bulletins/reports. Alternative sources like ANSD have hardly had their websites to work properly, continually making it difficult to access market/trade and climate related risk information.

Historical data and up-to-date information: DPV which is a well-established plant health information system does not have any structured systems to collect and disseminate historical data on plant pests and diseases, yields losses and costs of infection. Data series for plant production and yields information on ANSD website covers a very few number of years without much historical insights. Even, the available data are not disaggregated to allow proper risk assessment and management. While ANACIM offers climate data, its meteorological stations are very few with limited geographical coverages, especially across the eastern part of Senegal.

Missing information: The Government of Senegal has piloted different socio-economic risk reduction initiatives including the National Agricultural Insurance Company of Senegal (CNAAS) and national agricultural warning systems but no systematic information about some of these projects exists on the websites of both ANSD and DAPSA who are noted for socio-economic data and information services. The assessment of national systems for foreign trade is rather poor while that for animal health – livestock, production, prices, demand and diseases – is also deficient from some national information sources like the ANSD and Ministry of Livestock (*Ministère de l'Élevage et des Productions Animales* (MEPA) in French). This constrains risk analysis on cost of animal health reduction and diseases.

The way forward

Build complete form of data for risk analysis: Historical and well-up-dated data are crucial for long-term risk analysis. The national information systems lacking long-term data series should initiate systems to build on data that span from over 30 to the most current year. They should make regional information systems as their main sources of reference. For instance, like AGRHYMET for historical climate data and RESIMAO for complete market/trade related information. Professionals and institutions with long-term experiences should also be included as the main point source of information on related thematic areas.

Provide friendly regulations on data confidentiality to allow for both private and public information dissemination agencies to access and render relevant information for agricultural risk management. Enforcements should be purely **public-private partnership oriented** and be guided by terms and conditions to prevent partners from utilizing the information in ways that may threaten the source agencies.

Improve data and information dissemination systems: While internet and mobile phone services in Senegal are noted for better penetration, the websites of some national systems do not work properly and not every smallholder farmer gets access to SMS services of private systems like the Manobi. There should be a strengthening framework to enable the communication technology providers to render internet services to specific standards. Private investors like Manobi should also be given more enticements to allow them to extend services to all areas and every farmer in Senegal.

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

Strongest information areas (%)		Weakest information areas (%)	
Satellite image	78	Commodity stock & inputs	10
Prices	75	Plant health	25
Soil	70	Cost of animal diseases	45
Trade	70	Socio-economic & sectorial	50
Communications	70	Risk of endemics and emerging disease	55
Meteorology & climate	60	Policies	55
Production levels & yields	60		

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