

Niger



Information Systems for Agricultural Risk Management

Policy Brief

October 2016

Key message

1

Production related damages caused by floods, drought, epidemics and storms are the most frequent and severe risks that affect the agricultural sector of Niger – a country with very dry weather conditions

2

At the moment, agricultural risk related information can be sourced from INS¹, DMN², SIMA³, INRAN⁴ and RECA-Niger⁵. Information from some of these systems are geographical representative and sufficient for risk analysis

3

However, there is restricted access and inadequate information on thematic areas of plant health, commodity stock and policies. Early warning systems are very weak, and communication channels are poorly developed.

4

An enhanced information system in Niger would require coordination between national systems (typically INS, DMN and INRAN), improve communication and early warning systems, and public-private partnerships to improve access.

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 Niger IS-ARM report.

According to the 2016 PARM country risk profile for Niger, production risks linked to epidemics, drought and floods are greater in terms of frequency and severity than market/price risks. Epidemics are the most recorded disaster from 1990 to 2015, and major flood events occur almost annually, about four times more than drought. The frequency of drought is recorded as once every 2 to 3 years. There are also recorded but infrequent cases of storms and insects infestations. The average production losses for twelve major crops cultivated in Niger from 1990 to 2013 amounted to about 6%, with losses as high as 21% in some peak years. Four most affected crops include; sesame seed, tomatoes, rice paddy and potatoes. These impacts affect not only 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 Niger (Table 1). Some of the information systems deliver information on a single thematic area of agricultural risk management; the DMN for meteorology and climate information, RECA-Niger for commodity price and market, and the Ministère de L'Élevage for animal and human health information. Only two systems (INS and INRAN) provide information that integrates two or more thematic areas of agricultural risks in Niger. The INS is the main statistical body of Niger. It has information on meteorology and climate, animal and human health, prices of commodities and market, and socio-economic related issues for agricultural risk management. Among the functions performed by the INS include coordination of Niger's national statistical systems and a centralisation of data from relevant departments. The INRAN is typically an agricultural research institute with centres across Niger. It develops scientific and technical information for knowledge building and inventories that contribute to agricultural policy. INRAN has relevant data and information on meteorology and agricultural production levels and yields but its website is rarely updated to provide most recent information.

- 1 Institut National de la Statistique (INS).
- 2 Direction de la Météorologie Nationale (DMN).
- 3 Système d'information sur les marchés agricoles (SIMA).
- 4 Institut National de la Recherche Agronomique du Niger (INRAN).
- 5 Réseau National des Chambres d'Agriculture du Niger (RECA).

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 Niger.

| 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 | DMN / INRAN / INS | | INS / SIMA / RECA-Niger | INRAN / INS | INS / Ministère de L'Elevage / Ministère de la Santé Publique | Dispositif National de Prévention et de Gestion des Catastrophes et des Crisi Alimentaires | INS |
| Regional | ACMAD / AGRHYMET | AARSE / AGRHYMET | AfDB / RESIMAO / UNECA / AMITSA / AFO / CILSS | AGRHYMET / AfDB / eRAILS / AfricaRice | AU-IBAR / WHO-Regional Office for Africa / World Bank | BCEAO / ARC | SIPSA / AfDB |
| International | CRED – IDD / FAO-Aquastat / WB – CCKP / ESDAC / ISRIC / GYGA | NASA / ESA / USGS / CGIAR – CSI / SOS Sahel / UN (Spider) / Terra Remote Sensing / ICARDA | GIEWS-FAO / WFP-VAM / FEWS NET / FAOSTAT / USDA | CountryStat-FAO / FAO-crop calendar / Plantwise / GYGA | Factfish / FAOSTAT / OIE / WHO-HSIS / EMPRES / IAEA / USAID / CDC | GIEWS-FAO / FEWS NET / WFP / WB / IPC | WB |

Source: PARM IS-ARM Report, Niger (2016). These information systems were identified during the Information Systems for Agricultural Risk Management Study in Niger 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 thematic areas of soil, price satellite image, trade and production levels and yield have the strongest score (Table 2). In these areas information is sufficient for agricultural risk management in Niger.

Good accessibility and geographical representativeness for plant production and yield information. The available data shows adequate frequency, aggregation level, and ten years data series, which is enough for a preliminary risk assessment. The INS disaggregates information for both national and sub-national levels. In particular, the Institut National de la Recherche Agronomique du Niger (INRAN) is currently active and improving the representativeness of climate data with meteorological stations in various agro-ecological zones.

There is sufficient information on prices and trade: SIMA and RECA-Niger provide data on prices of wide range of agricultural commodities produced in Niger. Data is given in accordance to the major market in the country. The prices are also available at different level of the food chain as well as for exports and imports for longer series.

Most of the national information systems including SIMA, RECA-Niger and INS have diversified information dissemination services. SIMA in particular, disseminates information on commodity and input prices in different markets, evolution of commodity prices, commodity offer and supply characteristics, perspectives, charts and graphics using weekly, monthly, quarterly and annual bulletin. The INS develops an annual year book containing information on climate, prices, socio-economic and plant health.

Weaknesses

Some thematic and sub-thematic areas may not allow for sufficient analysis for agricultural risk management. For instance, the scores for information on plant health, commodity stock and input, communication and policy had weakest records during the IS-ARM assessment in Niger (table 2). Information on costs of diseases and meteorology/climate have weak scores, which could be explained by a number of reasons:

Delay in weather forecasting at the websites of the Direction de la Meteorologie Nationale (DMN), and inadequate early warning and alert systems. The meteorological and climate information from the DMN's are not reliable and satisfactory enough to aid risk assessment due to poorly maintained infrastructures of the weather stations. INS climate information has missing data on important variables like solar radiation, humidity and wind speed, while its trade information is expressed only in monetary value, instead of in physical quantities. Also, its plant health information neither has a series nor trends on pests and disease impacts.

Restrictions in access to information: There is not any proper national information system for commodity stocks or inputs availability and satellite image information. The satellite image information can only be demanded from regional and international private systems offering this service, and the cost will be very high. With thematic areas having information from national system, the information is freely available online but the websites hardly work properly and information is rarely

up-to-date. Typical examples are the climate information from INRAN and production and yields data from INS websites.

Strong limitations in communications: There are low estimates for mobile penetration is (48/100), fixed telephone penetration is (5/100), internet users record at (5/100) and secured internet servers at (3/100). Broadcast media – the main channel for dissemination in Africa – also appears to be weak with TV estimates at (10/100) and Radio (12/100). This is strong limitation for agricultural risk management information dissemination.

Scarce and occasional information about policies related to agriculture and food. There is no systematic, periodic, updated and well-organized information on policies to facilitate risk analysis for emergency alerts and safety nets programming. In addition, the information on animal trade and movements is not regular, reliable nor updated: there is hardly any information on cost of endemic diseases.

The way forward

Build a system of coordination between INRAN, INS and DMN. The Institut National de la Recherche Agronomique du Niger (INRAN) is currently aiming at installing meteorological stations in various agro-ecological zones. Both INS and DMN should connect with the INRAN and secure access to relevant data for comprehensive information.

Improve communication systems for enhanced access to information. Media outlets like radio and TV should be extended to have wide coverages across Niger. Regulations and education should be enforced to increase phone penetration. This will enable smallholder farmers to access relevant agricultural risk management information from the media and through text messages. For this purpose, seeking public-private partnership becomes a key requirement.

Systematization of policy information is required to provide agricultural risk evidences on the ground to aid policy action. Past, present and future initiative in the areas of the seven agricultural risks thematic areas should be documented. Critical descriptive information should be provided, and supported with evidences of successes and failures. This would allow for adequate risk assessments.

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

| Strongest information areas (%) | | Weakest information areas (%) | |
|---------------------------------|----|-------------------------------------|----|
| Soil | 85 | Plant health | 10 |
| Prices | 80 | Commodity stock & inputs | 10 |
| Satellite image | 75 | Communications | 22 |
| Trade | 70 | Policies | 35 |
| Production levels & yields | 60 | Cost of animal diseases | 45 |
| | | Meteorology & climate | 50 |
| | | Socio-economic and sectorial | 50 |
| | | Risk of endemic & emerging diseases | 55 |

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

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