Key message

Output price and production related risks such as constant currency depreciation, commodity market volatility, drought, epidemics and floods affect Mozambique agricultural sector in great frequency and severity.

Information from national systems including INGC₁, INE², MASA³, SIMA⁴, INFOCOM and INAM⁵ allow for comprehensive market/price risk analysis. There are prospects for enhanced access to information and better dissemination environment.

However, some of the risk information are short-length and do not present enough geographically disaggregated information.

Efforts to enhance the national information system should focus on building capacities for long-term data collect, data disaggregation at the most basic level, public-private partnership, and diversification of information across thematic areas.

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 Mozambique IS-ARM report.

According to the 2015 World Bank Risk Assessment and PARM 2016 country risk profile for Mozambique, output price and production related risks such as constantly depreciating currency, commodity market volatility, drought, epidemics and floods occur in frequency and with severity of impacts. The average annual output price losses to agricultural producers are about 12% from 2000 to 2004. Agricultural products most affected by the output price risks are cassava, meat and cashew. Price risks increase expenditures of consumers and cause losses to about 10% per year, and as high as 24% in 2006. Epidemics and floods occur on average once every year. The occurrence of these events affects the production of paddy rice, maize, sweet potatoes and sesame seeds with average yield losses recorded at 15% per annum from 1990 to 2013. 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 Mozambique. As shown in Table 1, some of the identified national information systems deliver information on a single thematic area of agricultural risk management; INGC and CENACARTA for satellite image information, SIMA and INFOCOM for market/price information and IAM for production related information. Only few national systems – INE and MASA – provide integrative information on two or more thematic areas. INE is a governmental body responsible for developing censuses, surveys and other statistical reports in Mozambique. Over the years the INE has focused on gathering data on production and yield, price/market, animal health and socio-economic. In recent years, it has extended its statistical activity into climate change and hazards (floods, drought epidemics) impact analysis. MASA on the other hand serves more as a central state organisation tasked to direct, organize and ensure the implementation of legislations and policies in the field of agriculture, livestock, agricultural hydraulic, agro-forestry plantations and food security. It therefore maintains information on satellite image, production levels, price/market and animal health that are useful for agricultural risk management.

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.

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1 Instituto Nacional de Gestão das Calamidades (INGC).
2 Instituto Nacional de Estatística/National Institute of Statistics (INE).
3 Ministério da Agricultura e Segurança Alimentar (MASA).
4 Sistema De Informação De Mercados Agrícolas De Moçambique (SIMA).
5 Instituto Nacional de Meteorologia de Moçambique (INAM).
Available information does not allow for holistic risk analysis. While SIMA is a no-
gated to portray micro level or individual farmer situations. The aggregation level for
socio-economic issues and production levels from INE are insufficiently disaggre-
iment purposes in Mozambique.

Weaknesses

Information for thematic and sub-thematic areas of commodity stock and input
price, plant health, cost of animal diseases, and risk of endemic and emerging dis-
eases, on the other hand appear to be weak (Table 2) for agricultural risk manage-
purposes in Mozambique.

Some of the available information is short-length. There are notable deficiencies
in terms of the length of information on climate/ meteorology and trade available
from both the National Meteorological Services and the Statistical Services (INAM
and INE). Information on commodity stock and input price is very poorly developed:
very limited and irregular. No direct report was found containing actual, as opposed
to estimated stocks assessments. Even though INFOCOM has some production/use
balances, it is not sufficient for risk management purposes.

The aggregation level is not well-suited for thorough risk analysis. IAM has com-
plete plant health information but only on one commodity – cotton. Information on
socio-economic issues and production levels from INE are insufficiently disaggre-
gated to portray micro level or individual farmer situations. The aggregation level for
the information from IAM and INE is by province and national level.

Available information does not allow for holistic risk analysis. While SIMA is a no-
table trade information system, it does not provide any information on commod-
ity stock/inputs markets. The INGC and MASA satellite information focus on only
flooding situations. Ministério da Saúde does not provide any database on animal
diseases, which makes it difficult to ascertain the risks and costs associated with en-
demic and emerging diseases. Policy and socio-economic information from the INE
also lacks the necessary content. They hardly capture some of the important initia-
tive in Mozambique such as Agricultural and Livestock Census (CAP) or the Travalho
do Inquérito Agrícola (TIA).

The way forward

Information/data sources/providers should seek to disaggregated data and vari-
ables for not only national, regional and provincial but also sub-provincial and in-
dividual farmer level dimensions. Mozambique should invest in geographically dis-
aggregated information.

Strive for holistic data systems: Deeper information on all the various risks the-
matic areas should be a priority. In particular, government should develop com-
plete satellite databases for all major disasters, and plant and animal pests/diseases.
Data should be connected to other thematic areas like climate/meteorology data, policy and socio-economic information to enhance a holistic risk manage-
ment approach.

Strengthen the capacity of national information systems to manage reliable data
and deliver timely information. The technical personnel require a great deal of
improvement in their expertise to allow for comprehensive collection of relevant
long-term and up-to-date statistics at national level and on frequent basis.

Seek public-private partnership to increase information dissemination: It is es-
tial that alerts systems be created so that farmers can receive information
through SMS or other means of communications, and prepare themselves against
potential vulnerability. Government should partner with potential private investors
to enhance effectiveness and efficiency in delivering information.

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

<table>
<thead>
<tr>
<th>Strongest score (%)</th>
<th>Weakest score (%)</th>
</tr>
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<tbody>
<tr>
<td>Prices</td>
<td>95</td>
</tr>
<tr>
<td>Satellite image information</td>
<td>95</td>
</tr>
<tr>
<td>Policy</td>
<td>88</td>
</tr>
<tr>
<td>Soils</td>
<td>85</td>
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<tr>
<td>Production levels and yields</td>
<td>84</td>
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<tr>
<td>Meteorological &amp; climate information</td>
<td>81</td>
</tr>
<tr>
<td>Trade</td>
<td>75</td>
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<tr>
<td>Stocks and inputs</td>
<td>70</td>
</tr>
<tr>
<td>Socio-economic &amp; sectorial information</td>
<td>66</td>
</tr>
<tr>
<td>Cost of animal diseases</td>
<td>60</td>
</tr>
</tbody>
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