Platform For Agricultural **Risk Management**

Managing risks To improve farmers' livelihoods



Information Systems for Agricultural Risk Management

Informational Assessment in 7 Africa Countries Cabo Verde, Cameroon, Ethiopia, Mozambique, Niger, Senegal and Uganda

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- 1. Why info systems (IS) are crucial for agricultural risk management (ARM)?
- 2. What is the scope and method of the study by CEIGRAM+VISAVET for PARM?
- 3. Data sources and evidences
- 4. Results
- 5. Policy Conclusions



1. Why info systems are crucial for ARM?



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ARM tests are based on:

- Who uses it, who benefits from it
- How efficient they are in avoiding/mitigating impacts
- Reducing cognitive dissonance
- Preparedness for disaster/crisis
- Recovery after a disaster/crisis occurs
- Private sector innovation



ARM's potential rests on:

- The analysis of historical data and facts
- Capacity to relate processes
- Establish and discover causalities
- Capacity to model processes
- Capacity to gauge probabilities
- Capacity to evaluate costs of events





8 Thematic Blocks // 7 African countries

Blocks

Meteorological and climate information

Satellite image information & Communications Prices of commodities and inputs, and timely access to information about markets, transportation and input availability Production levels and yields, Plant health

Animal and human health

Policy

Socio-economic and sectorial info

Integrated systems of information

Cabo Verde, Cameroon, Ethiopia, Mozambique, Niger, Senegal and Uganda



Benchmark of Information Systems

 The benchmark is the ideal ARM information system, a canonical system whose components, structure and logic are defined according to decades of experience, assessments and best practice.





The components of **Bchmk-ARM-IS** are:

- i. Primary data / variables
- ii. Images
- iii. Indicators
- iv. Services
- v. Integrated systems

Examples

- X (daily precipitation) → I (Drought index) → M (Biomass in pastures)
- X (wind velocity and direction) →I (Vector mobility) →M (Disease warning)
- vi. Institutional framework and capacity to monitor
- vii. Technical support and human capacity

Components (i)-(vii) can be defined or expressed by Data (X), Indicators (I), Markers (M), Other elements (O).





IGAP, Information Generation and Asssesment Process;

Bchmk-ARM-IS

A benchmark for Agricultural Risks Management Information Systems (ARM-IS).

X_{ijk}, I_{ijk}, M_{ijk}: { Climate&Meteo, Satellite, Prices&Markets, Production&Yields, Plant-Animal-Human Health, Policies, Integrated System Information, Socio-economic inf} = INFORMATION BLOCKS (j)









	SubBlock 1.1	Weather forecast (20%)	Temperature (30%)	Precipitation (30%)	Solar radiation (2%)	RH average (2%)	Wind speed (2%)	Extreme events (14%)
2. Assessment criterions	Frequency (30%)	daily=40 3 days=50 Weekly=60 Monthly=80 Quarterly=100	Annual=30 Quarterly=40 Monthly=50 Weekly=80 Daily=100	Annual=30 Quarterly=40 Monthly=50 Weekly=80 Daily=100	Annual=30 Quarterly=40 Monthly=50 Weekly=80 Daily=100	Annual=30 Quarterly=40 Monthly=50 Weekly=80 Daily=100	Annual=30 Quarterly=40 Monthly=50 Weekly=80 Daily=100	Not applicable
	Representativeness (geographical) (10%)	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100	One location = 30 One location in main cropping areas=50 All agricultural areas covered=75 All agricultural areas covered (several locations)=100
	Aggregation level (20%)	Country=40 Agroecological zone=50 Province=80 Locality=100	Country=40 Agroecological zone=50 Province=80 Locality=100	Country=40 Agroecological zone=50 Province=80 Locality=100	Country=40 Agroecological zone=50 Province=80 Locality=100	Country=40 Agroecological zone=50 Province=80 Locality=100	Country=40 Agroecological zone=50 Province=80 Locality=100%	Country=40 Agroecological zone=50 Province=80 Locality=100
	Data series length (20%)	Not applicable	< 5 years=20 5 years=50 10 years=80 15 years=100	< 10 years=20 10 years=50 15 years=80 30 years=100	< 5 years=20 5 years=50 10 years=80 15 years=100	< 5 years=20 5 years=50 10 years=80 15 years=100	< 5 years=20 5 years=50 10 years=80 15 years=100	< 5 years=20 5 years=50 10 years=80 15 years=100
	Accessibility (10%)	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100	Bulletin=20 Paid for (format paper)=50 Paid for (format digital)=80 By request=90 Open data=100
	Continuity/update (10%)	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 most recent periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 last periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 last periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 most recent periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 most recent periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 most recent periods missing = 50 More than 5 most recent periods missing= 10	Recent (less than the 2 last periods missing) = 100 2 most recent years missing = 75 2 to 5 most recent periods missing = 50 More than 5 most recent periods missing= 10



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Number of IS identified by thematic block in Ethiopia

hematic Block	National	Regional	International	Total
1 - Meteorological/ Soils information	4	1	5	10
2 – Remote Sensing	2	5	8	13
3 – Prices/markets	11	5	6	22
4 – Plants	5	2	6	13
5 – Animal	9	0	14	25
6 – Policies	7	0	9	16
7 - Socio-econonomic	1	2	1	4
Total	39	15	49	103

Scoring each Block for each country Qualitative assessments

- 1. Complementarity across IS
- 2. Preponderance of national systems
- 3. Assessment of each IS
- 4. Overall value for ARM
- 5. Consultations with national experts and officers
- 6. Matrix of weaknesses and strengths for subblock





Global Scores for each country

Thematic Block	Weight
1.1 Meteorological & climate information.	13%
1.2 Soils	3%
2. 1. Satellite image information	5%
2.2. Communications	5%
3. 1 Prices	15%
3.2. Commodity stocks and inputs availability	5%
3.3 Trade	5%
4.1 Production levels and yields	12%
4.2 Plant health	5%
5.1. Costs of animal diseases	10%
5.2. Risks of endemic and emerging diseases	10%
6. Policies	5%
7. Socio-economic & sectorial information	2%
8. Integrated systems of information	5%
Total Score by country	100%



4. Results | Comprehensive results



PARM

4. Results | Comprehensive results



	Quantitative assessment							
Thematic Block	Cabo Verde	Cameroon	Ethiopia	Mozambique	Niger	Senegal	Uganda	
1.1 Meteorological & climate information.	62	58	81	55	50	60	70	
1.2 Soils	10	85	85	80	85	70	36	
2. 1. Satellite image information	50	80	95	75	75	78	85	
2.2. Communications	60	60	30	70	22	70	61	
3. 1 Prices	75	65	95	90	80	75	90	
3.2. Commodity stocks and inputs availability	70	20	70	10	10	10	40	
3.3 Trade	65	70	75	75	70	70	70	
4.1 Production levels and yields	60	70	84	65	60	60	50	
4.2 Plant health	20	30	50	20	10	20	30	
5.1. Costs of animal diseases	50	60	60	55	45	45	50	
5.2. Risks of endemic and emerging diseases	55	55	55	50	55	55	60	
6. Policies	30	40	88	70	35	55	74	
7. Socio-economic & sectorial information	30	25	65	60	50	50	62	
8. Integrated systems of information	50	20	75	60	20	50	40	



1. Specialisations in core professional expertise and legal mandate of information systems:

Most often, it is better to have fewer information systems focusing on narrower topics or areas with trustworthy and relevant data





2. Increase focus on the length of time series and the continuity in reporting the different values, which are essential for risk assessment and analysis.

Where possible, information should be accompanied by technical notes describing the most important methodological, quality check procedures and sampling aspects.





3. Stimulate private-based initiatives on information systems and provide adequate regulative protection.

Where possible, there should be public-private partnerships to improve access to valuable on-demand information to private individuals who are seeking to invest in agricultural risk management information delivery.





4. Enhance the level of information aggregation.

Data should be disaggregated at the most basic level of analysis, for instance at household level and agroecological zones. This would allow for better analysis of risks situation to improve smallholder farmers' livelihoods.





5. Accesibility.

Data should be presented in functional webpages, not in pdf formats, checked and consistent with other international organisations. Information should be enabled through local radio and TVs, newspapers and sms.







