Towards an Agricultural Risk Management Framework

Risk Management in African Agriculture: Taking Stock of What Has and Hasn’t Worked

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African Agriculture: High Risk Exposure

- Risk + uncertainty widespread in food/agri system:
  - Agro-climatic factors
  - Complex biological/environmental processes
  - Geographical span of supply chains
  - Political economy of food/agriculture

- Major structural and demographic changes

- Risky business = ‘old risks’ + ‘new risks’
  - ‘Old Risks’: weather, price variability, pests, logistical bottlenecks, food safety hazards, policy shifts
  - ‘New Risks’: climate change, new disease transmission, biosafety, bioterrorism, environmental imprint + social concerns
Agriculture Production is Sensitive to Risks

Mozambique: Trend and Variability of Cotton Yields

Source: FAOSTAT, own interpretation

But, not just Weather Risks

Incidence of natural disaster: hurricane, floods – Lags moving from 37 years to 16 year to 4 years to 2 years between 1951 and 1988, 2004, 2007 & 2008

F = Crop Financing issues
D = Drought Issues
A = Major Agronomy Issues

Note: X axis = years; Y axis = boxes of production; JBM = Jamaican Blue Mountain; and NBM = Non Blue Mountain (Low lands)
“Over the past 18 years for which yield data are available, the average value of lost production at the 100% coverage level has been GHC 328 million per year (US$ 228 million), representing 5.5% of the total value of national crop production for the 8 most important crops.”

(Stutley 2010)

In 10 years it represent US$2.2 billion losses

Uganda shows losses in livestock of around US$86m a year for risks that could be better managed

Annual losses from cattle diseases : US$86.3 million

Morbidity – 58%
Mortality – 30%
Post slaughter condemnation – 10%
Poor quality dictation during milk processing – 2%

Cumulative losses in the past 10 years = US$866.3 million

(Source: DSIP·MAAF 2010)
Current Catastrophe Risk Management System in Agriculture

1. Catastrophe coverage for small vulnerable farmers is ex-post, and with slow response.

2. Commodity Boards and/or individual farmers have no instruments for transferring risks.

→ High vulnerability to natural disasters !!

Components of a Risk Management Framework for Agriculture

1. Identify Objectives/ target
   Social vs commercial objective
   Target groups:
   - Traditional crops sub-sector
   - Emerging crops sub-sector
   - Commercial farming segment
   - Subsistence farming segment

2. Agricultural Risk Assessment
   Risk identification
   Risk quantification
   Vulnerability Assessments
   Risk Prioritization

3. Risk Management Strategy
   Mitigation
   Transfer
   Coping

4. Resources
   Data management
   Regulatory/supervisory framework
   Information and education
   Technical expertise
   Program administration and monitoring

Strategies are client/supply chain/country specific
Supply Chain Vs Farmers Risk Assessments

**MOTIVATIONS**
- Multiplicity of risks impacting farmers + agro-enterprises
- Patterns of risk transmission; also distribution of risks
- Interventions at one level may have impacts elsewhere
- Scope for complementary measures + partnerships
- Consider scope/costs/benefits of alternative RM approaches
- “Supply Chain” as unit of analysis
  - to understand interdependencies

**APPLICATIONS**
- Inform value chain competitiveness
- Prioritize focal risks + entry points for interventions—project ID
- Input to sectoral reform processes
- Input to agri finance planning

Illustration of Risk Categorization in a Cotton Supply Chain in Africa
Prioritization of Risks According to Capacity to Manage

Mitigation – Transfer -Coping

<table>
<thead>
<tr>
<th>Identified Risks</th>
<th>Proposed Risk Transfer (ex ante)</th>
<th>Proposed Risk Tools (ex ante)</th>
<th>Proposed Risk Coping (ex post)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop substitution (Loosing farmers in dynamic areas, side selling, trans-border selling, crop substitution, farmers credit default, collapse of ginaces, etc.)</td>
<td>- Revise concessionary system and incentives for different participants along the value chain.</td>
<td>- Consider feasibility of risk transfer assistance</td>
<td>- Efficient and transparent distribution mechanism for public sector assistance to farmers.</td>
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<td>International cotton price volatility</td>
<td>- Train ginnors on price risk management tools</td>
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<tr>
<td>Weather Risks</td>
<td>- Weather risk mapping for cotton sector &amp; agro meteorological zone</td>
<td>- Consider feasibility of risk transfer assistance</td>
<td>- Post-infestation measures</td>
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<td>Pests</td>
<td>- Scale up IPM initiatives</td>
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Identifying the Role of Public Sector

- Assuming **catastrophic layers** in an ex-ante approach
- Services and investments for **risk mitigation**.
  - Agriculture Research & Extension
  - Sanitary & Phytosanitary Services
  - Pest Controls,
  - Drainage, etc
- Investments for **supporting private sector initiatives**
  - Weather data reliability and access
  - Access to reliable agronomic information
  - Access to financial agro information
  - Training
- Improving delivery channels to **support small farmers** after adverse catastrophic events.
  - Transparency
  - Efficiency
  - Accountability
- Adaptation to **climate change**

Need to Adopt a Layered Risk Transfer Structure

<table>
<thead>
<tr>
<th>Return Period</th>
<th>Catastrophe government reinsurance</th>
<th>Commercial reinsurance</th>
<th>Insurance</th>
<th>Retention/reserves</th>
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<tr>
<td>20-30 years</td>
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<td>5-7 years</td>
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<td>3-5 years</td>
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Catastrophe government reinsurance
Commercial reinsurance
Insurance
Retention/reserves

Independent risks
Intermediate risks
Catastrophic risks
Role of Insurance in a wider Risk Management Approach

PRODUCERS SETS
Agricultural Producers
Producers above the poverty trap
Producers connected to insurance markets

RISK SETS
Agricultural production risks
Weather risks
Not excessively frequent weather risks (insurance makes sense)
Not exc. freq. and measurable weather risk (data availability)

SITUATIONS IN WHICH INSURANCE IS POTENTIALLY FEASIBLE

Key Messages

- Need to design a comprehensive Country Risk Management Strategy for Agriculture.
- This RMS may include Mitigation- Transfer – Coping mechanisms and tools.
- Risk Layering and Risk Financing are important
- Ex Ante is better than Ex-Post
- Define clear role of public sector
- Supply Chains Versus Farmer level risks
- Agricultural Insurance will play an important role, but it is only part of the Strategy
Thanks!
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