# Towards an Agricultural Risk Management Framework

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

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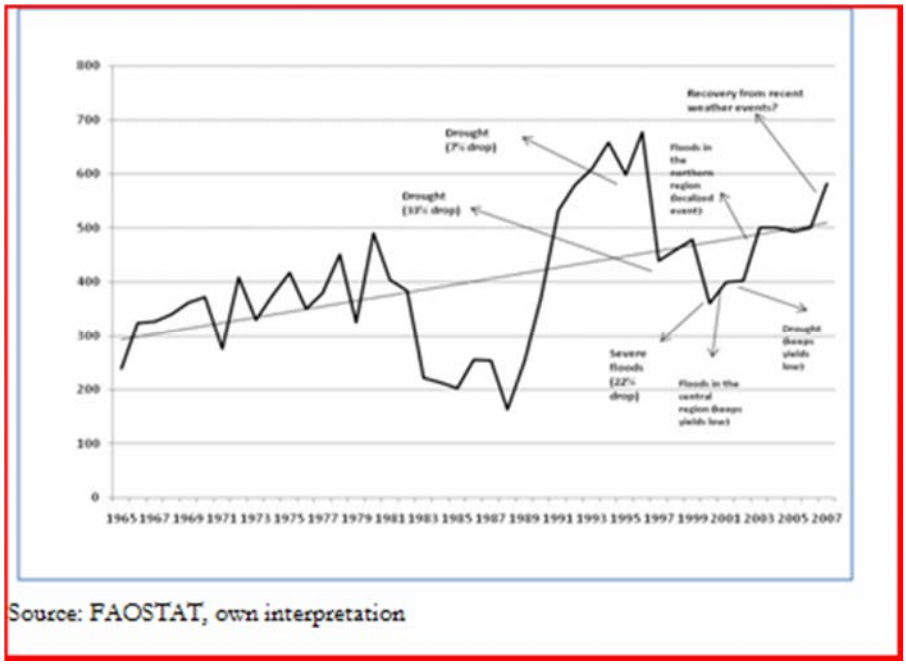
## African Agriculture: High Risk Exposure

- 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

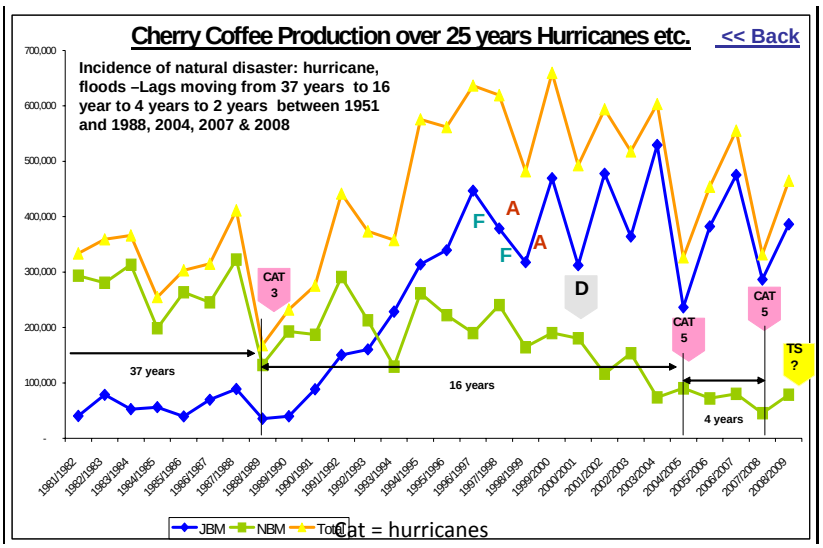
# Agriculture Production is Sensitive to Risks

**Mozambique: Trend and Variability of Cotton Yields**




Source: FAOSTAT, own interpretation

# But, not just Weather Risks




**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)

## Ghana looses in average around US$228 million a year due to various production risks

"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

### Cost of Shocks e.g. cattle diseases

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- MAAIF 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

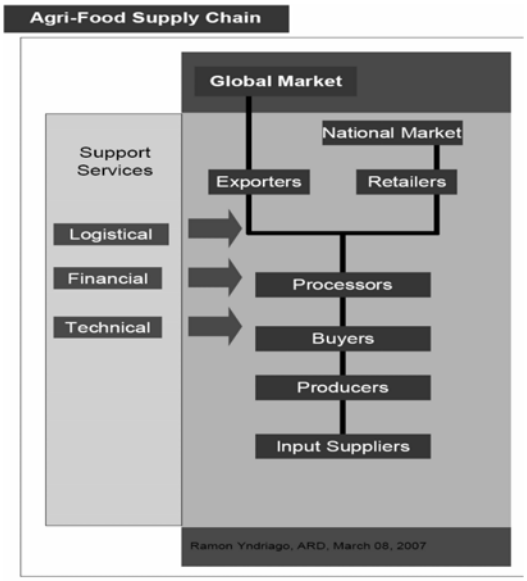
Technical expertise

Program administration and monitoring

**Strategies are client/supply chain/country specific**

# Supply Chain Vs Farmers Risk Assessments

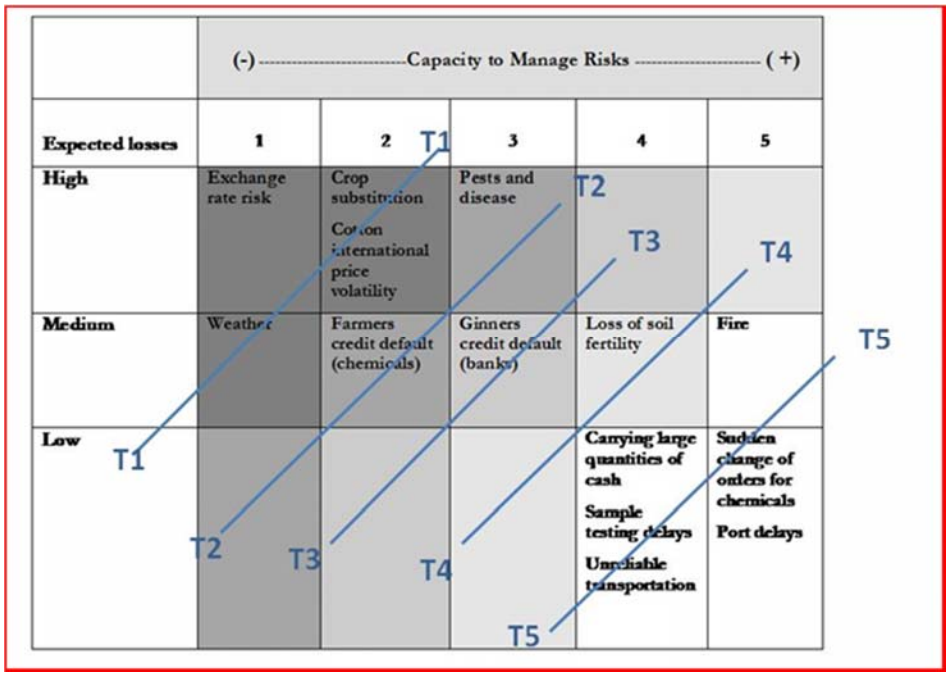
- **MOTIVATIONS**
  - Multiplicity of risks impacting farmers + agro-enterprises
  - Patterns of risk transmission; also distribution of risks
  - Interventions at one level may have impacts elsewhere
  - Scope for complementary measures + partnerships
  - Consider scope/costs/benefits of alternative 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

| | Potential Severity of Impact | | | | | |
|---|---|---|---|---|---|---|
| Probability of Event | | Negligible | Moderate | Considerable | Critical | Catastrophic |
| | Highly probable | Sudden change of orders for chemicals | | Farmers credit default (chemicals) | Cotton international price volatility | Crop substitution |
| | Probable | Port delays | Weather (droughts, floods, etc.) | Ginners credit default | Pests (aphids, worms, etc.) | |
| | Occasional | Carrying large quantity of cash<br>Sample testing delays | Fire<br>Unreliability of transportation market | Loss of soil fertility | Exchange rate risk | |

# Prioritization of Risks According to Capacity to Manage




# Mitigation – Transfer -Coping

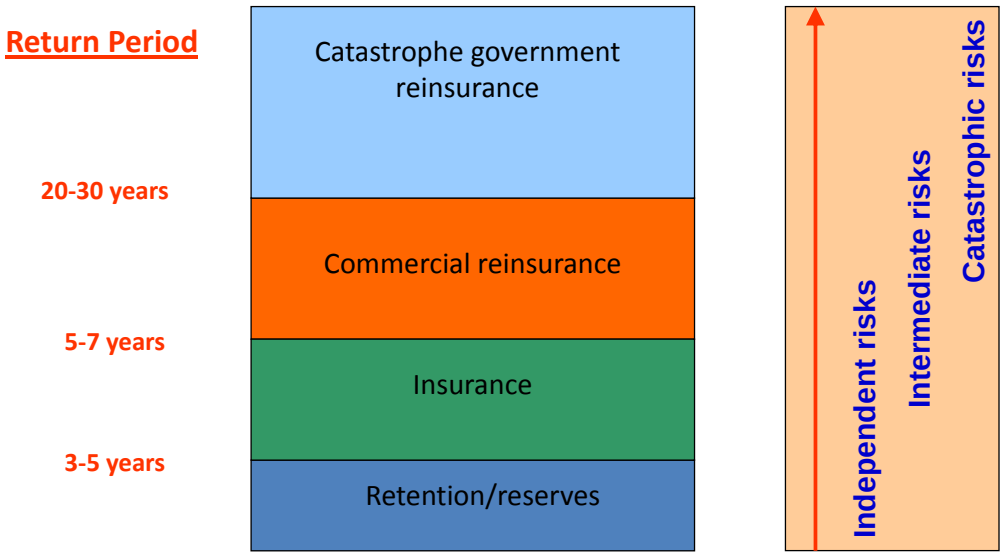
| Identified Risks | Proposed Risk Mitigation (ex ante) | Proposed Risk Transfer Tools (ex ante) | Proposed Risk Coping (ex post) |
|---|---|---|---|
| Crop substitution (Losing farmers in dynamic areas, side selling, trans-border selling, crop substitution, farmers credit default, collapse of ginneries, etc.). | - Revise concessionary system and incentives for different participants along the value chain. | | - Concessionaries diversify to other crops<br>- Increase trust / relationship between ginners and farmers (e.g. paying farmers and delivering inputs on time). |
| International cotton price volatility | | - Train ginners on price risk management tools | |
| Weather Risks | - Weather risk mapping for cotton sector by agro meteorological zone<br>- Designing a weather risk management strategy.<br>- Drainage plan for agriculture at watershed level.<br>- Efficient ex-ante mechanism in place for helping farmers after disasters.<br>- Specialized research and extension services to mitigate weather risks. | - Consider feasibility of Risk transfer insurance | - Efficient and transparent distribution mechanism for public sector assistance to farmers. |
| Pests | - Scale up IPM initiatives<br>- Increase access to | | - Post-infestation measures |

# Identifying the Role of Public Sector

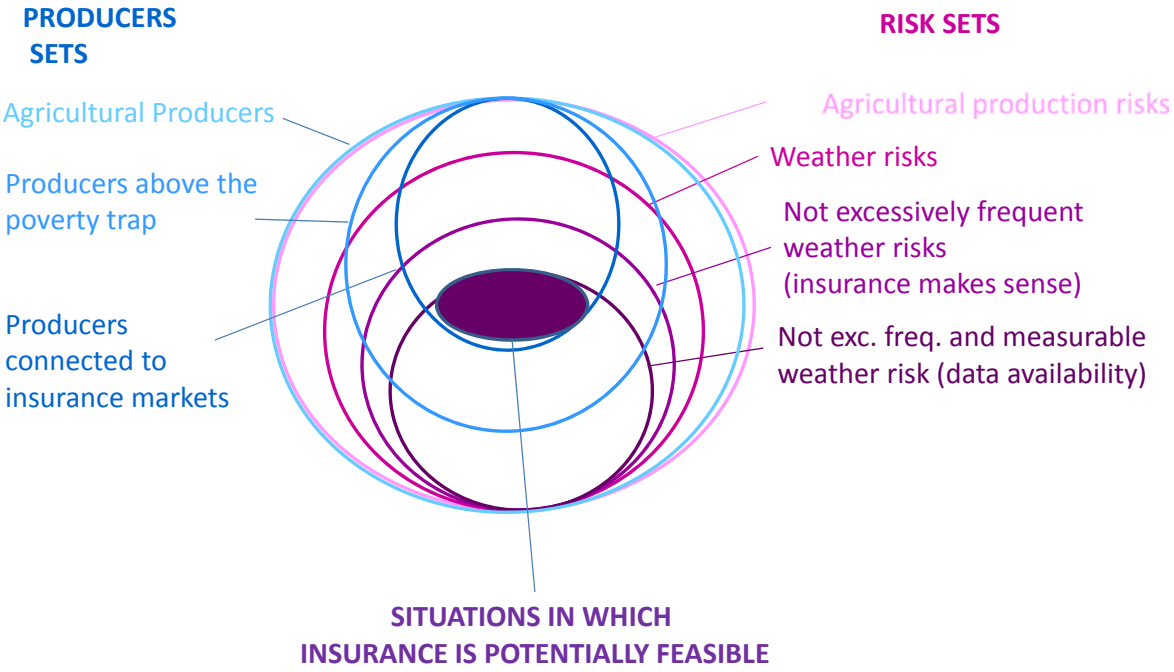
- Assuming Catastrophic layers in an ex-ante approach
- Services and investments for risk mitigation.
  - Agriculture Research & Extension
  - Sanitary & Phytosanitary Services
  - Pest Controls,
  - Drainage, etc
- Investments for supporting private sector initiatives
  - Weather data reliability and 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



# Role of Insurance in a wider Risk Management Approach




# 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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