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The U.S. Government's Global Hunger & Food Security Initiative

GLOBAL LEARNING AND EVIDENCE EXCHANGE

MARKET SYSTEMS

MARCH 21–24, 2017 // BANGKOK, THAILAND

MANAGING AGRICULTURAL RISK

CONTENT

1. Why Agricultural Risk Management is important
2. Agricultural Risk, Food Security, and Resilience
3. How to Identify, Quantify, and Prioritize Risks
4. How to develop a Risk Management Strategy

Agricultural risks: Defining the limits

Risk: Uncertain, events, leads to losses

- Caused by: droughts, flood, pest and disease outbreak, etc.
- E.g. Symptom : **yield volatility**.

Distinguishing it from :

Constraint: Conditions, certain, leads to sub-optimal performance

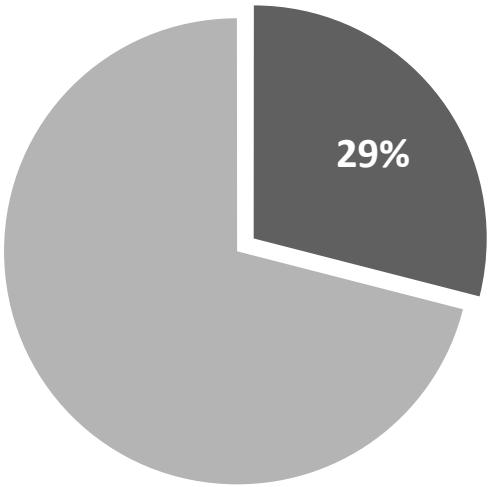
- Caused by : lack of access to inputs, poor technology etc.
- E.g. Symptom : **Low yields**

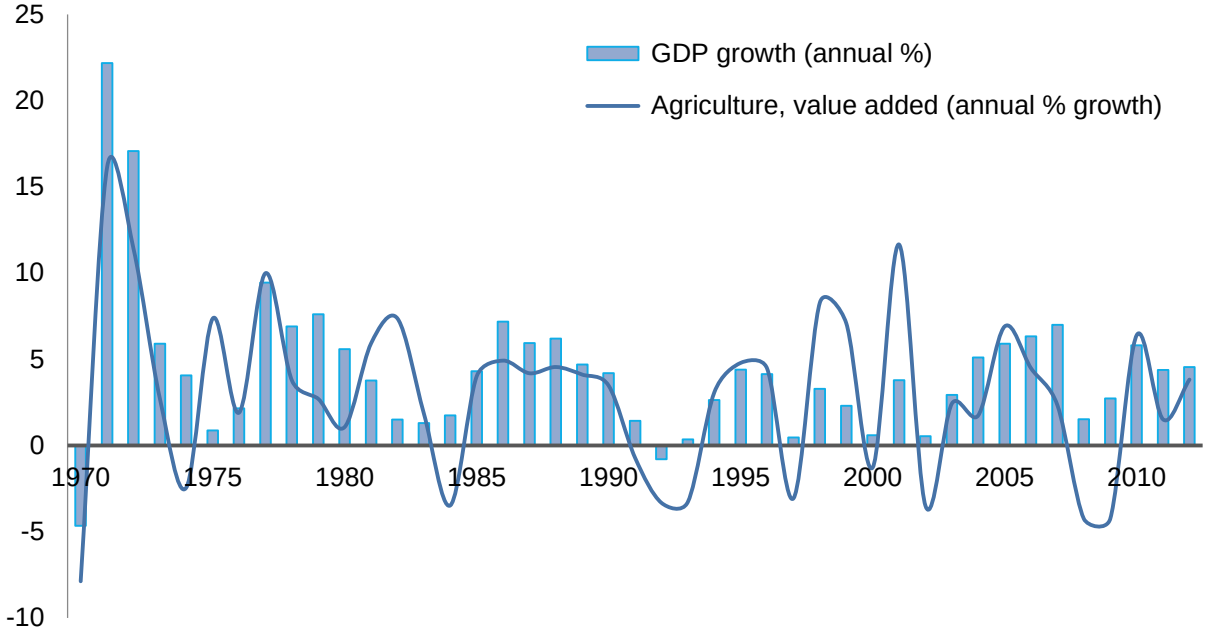
Trend: Longer term patterns (reversible or irreversible)

- Caused by – structural changes in agriculture, changes in climatic patterns etc.
- E.g. Symptom - **declining yield**

1. Why Agricultural Risk Management is important?

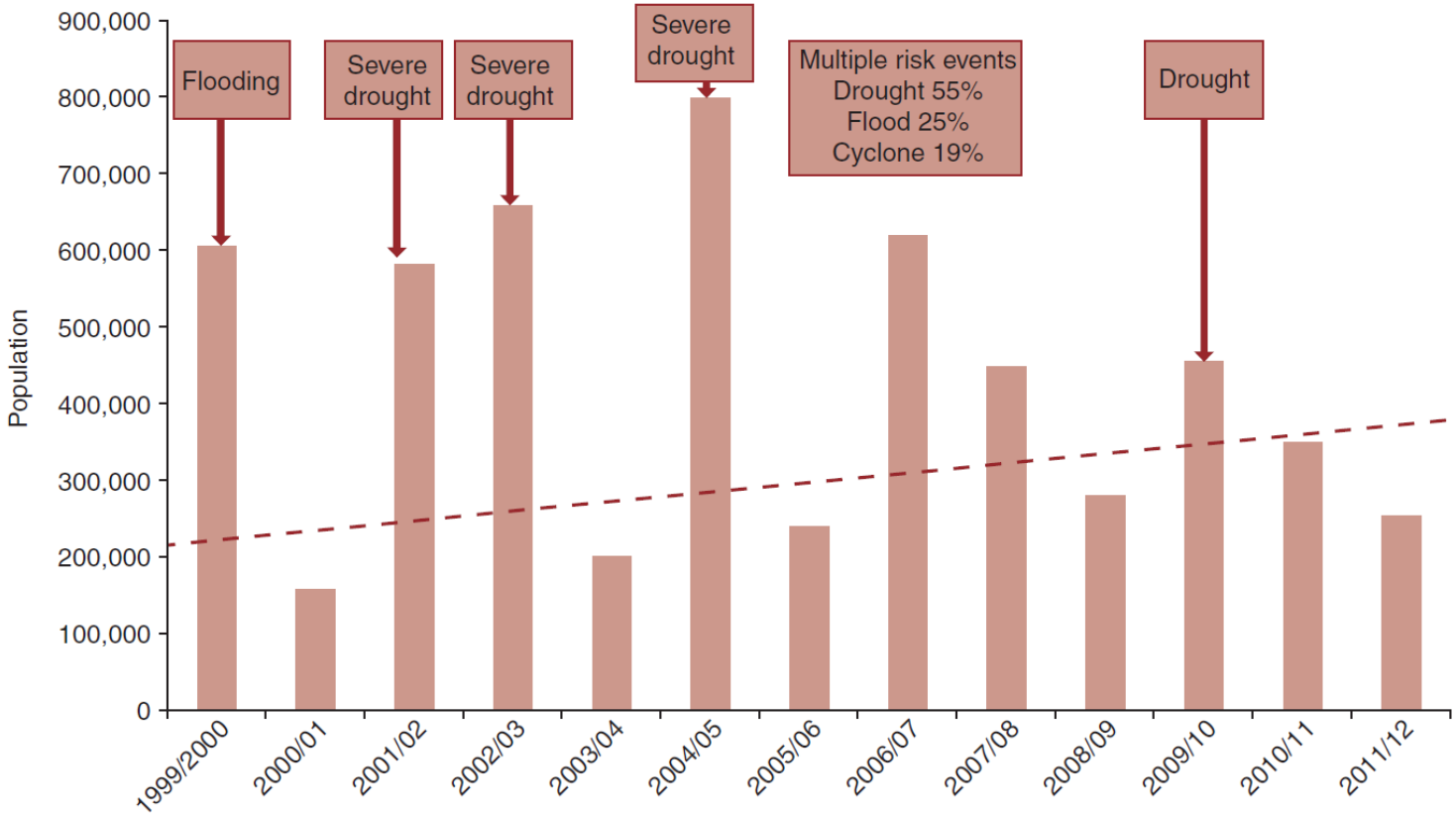
Growth: Strong correlation between GDP growth and Ag. sector growth



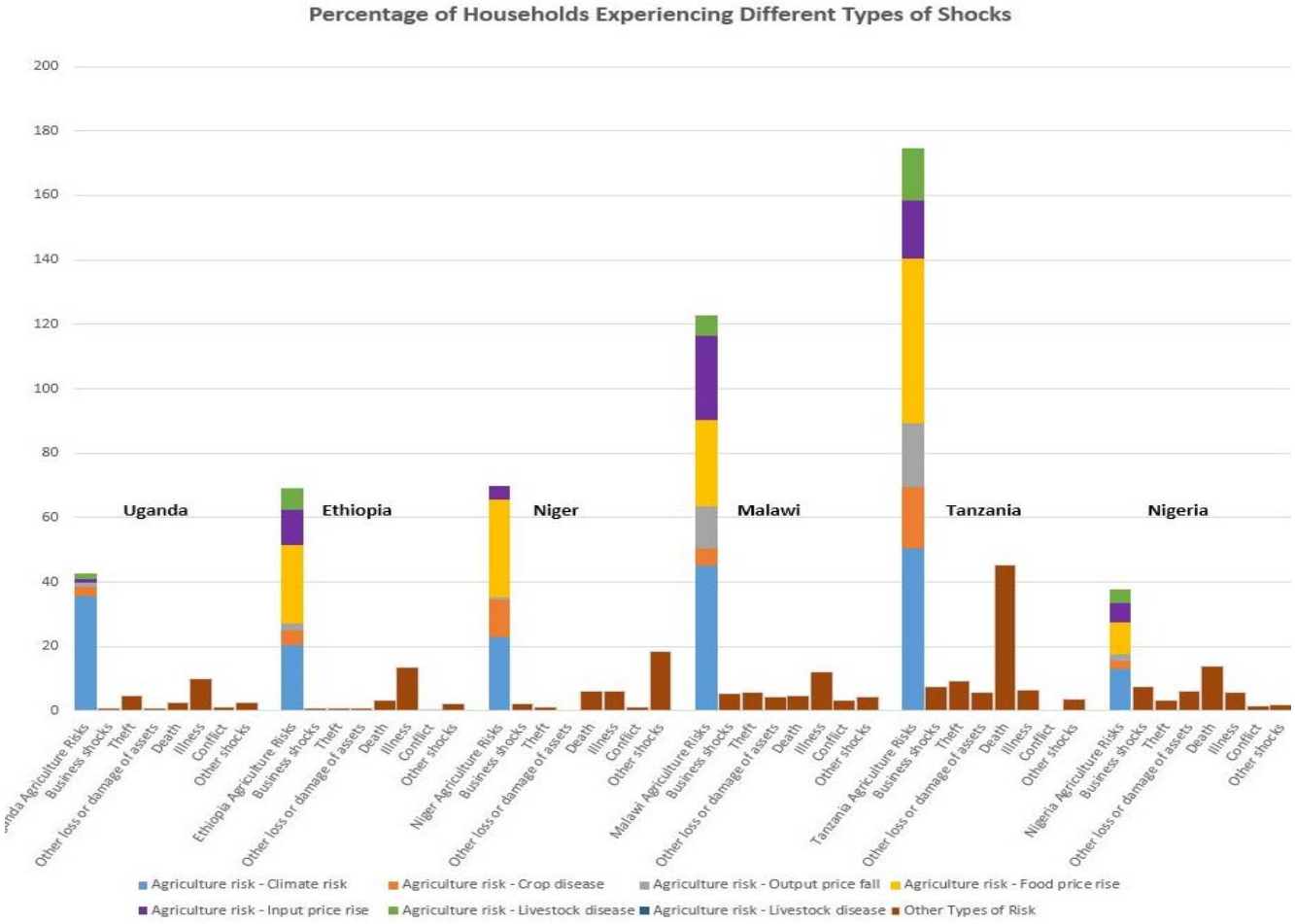


Food security: Ag. Risk principal cause of transient food insecurity

FIGURE ES.2. ACUTE FOOD INSECURE POPULATION IN MOZAMBIQUE



Poverty: Agricultural risk biggest rural poverty trap



High need to address risk in a comprehensive manner

2. Resilience of Agricultural Systems and Food Security

How to go manage volatility?

Risks affecting resilience of agricultural systems are numerous … . . .

Erratic rainfall
Newcastle
Fraud/counterfeiting
Regulatory shifts
bushfires
Crop theft
Climate change
Erratic policy
Input price volatility
Animal diseases
Commodity price shocks
Erratic rainfall
Crop pests
LOCUSTS
windstorms
Counterparty risk
Birds
Cattle rustling
DROUGHT
grasshoppers
Crop diseases
FLOODS
Price volatility
INSTABILITY/CONFLICT

… so are the risk management options.

Characteristics of current risk management approaches

- Ex-post (panic mode)
- “Christmas tree” approach
- Vested interests dominate the agenda
- Interrelationship between different instruments is missing
- Big picture and long term goal (i.e. resilience) is often missing

Advantages of Resilient Supply Chains

Better Managed Risks = Improved Incomes & growth

SHORT TERM

- More stable input and output markets
- More empowered & responsive farmers
- More dependable production and food security
- Increased quality & traceability

MEDIUM / LONG TERM

- Better management of resources
- Reduced emissions and improved environmental impact
- Development of local markets
- Positive brand (including country) impact from leadership

POVERTY **PROSPERITY**

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3. Ag Sector Risk Assessment:

How to identify, quantify, and prioritize risks

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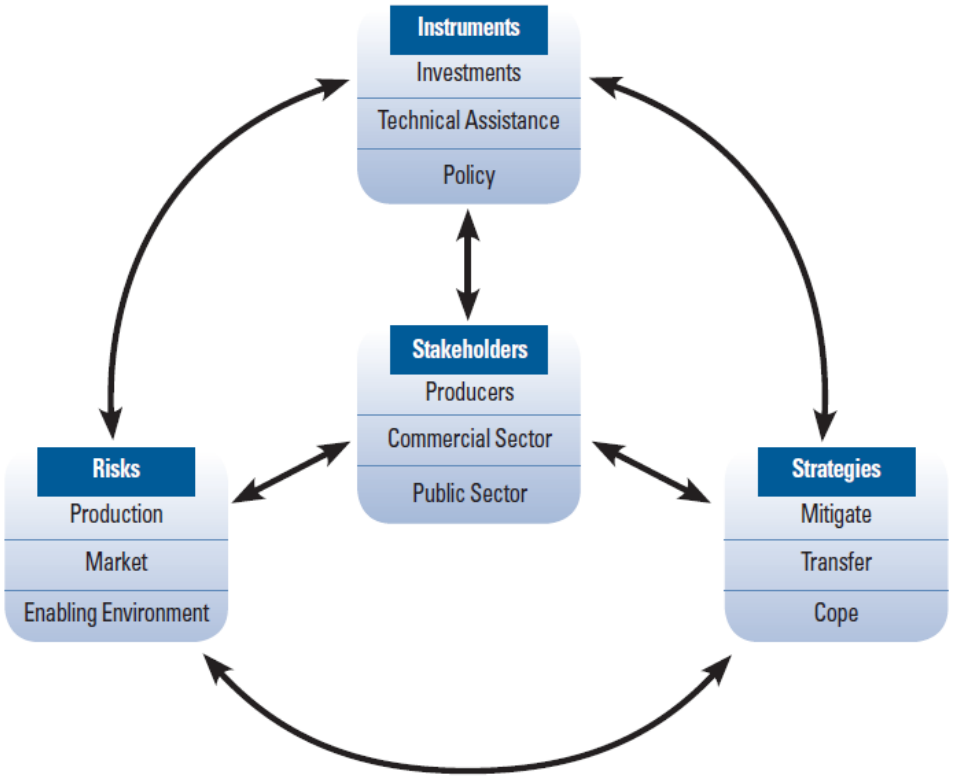
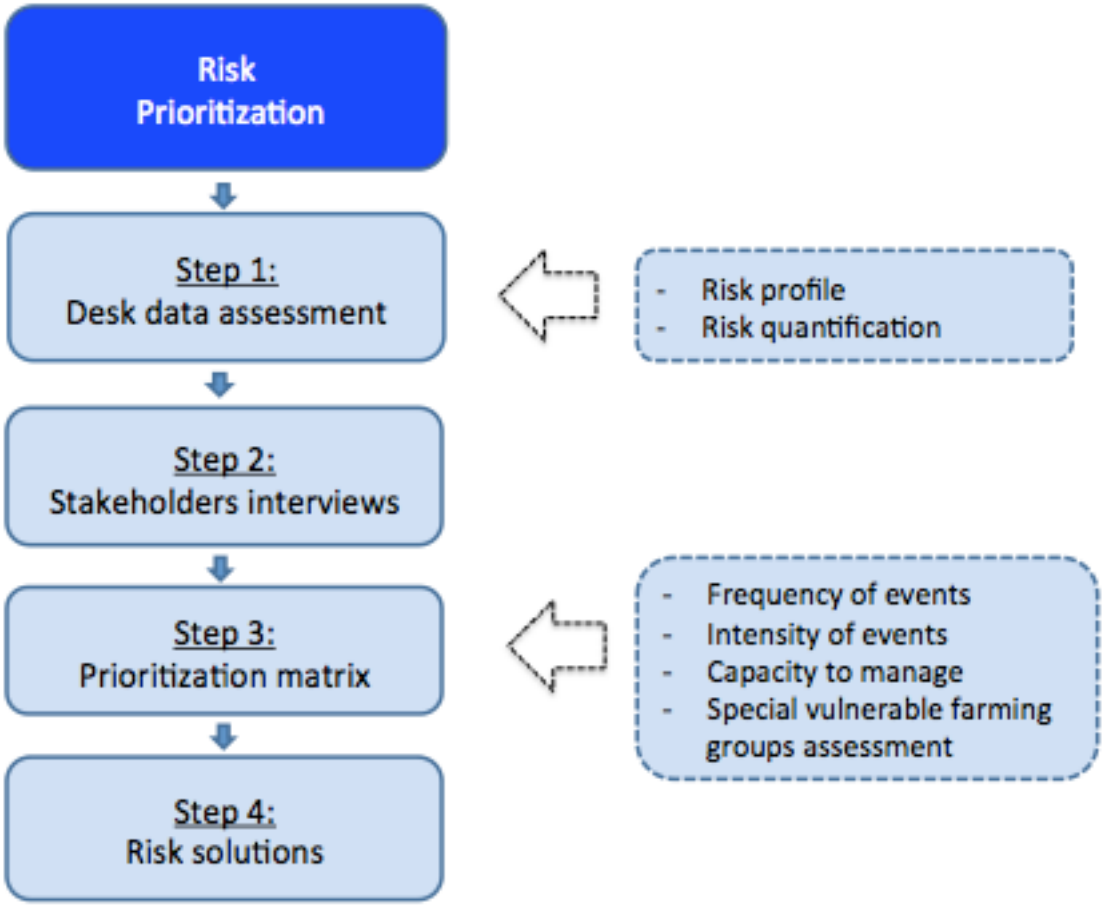
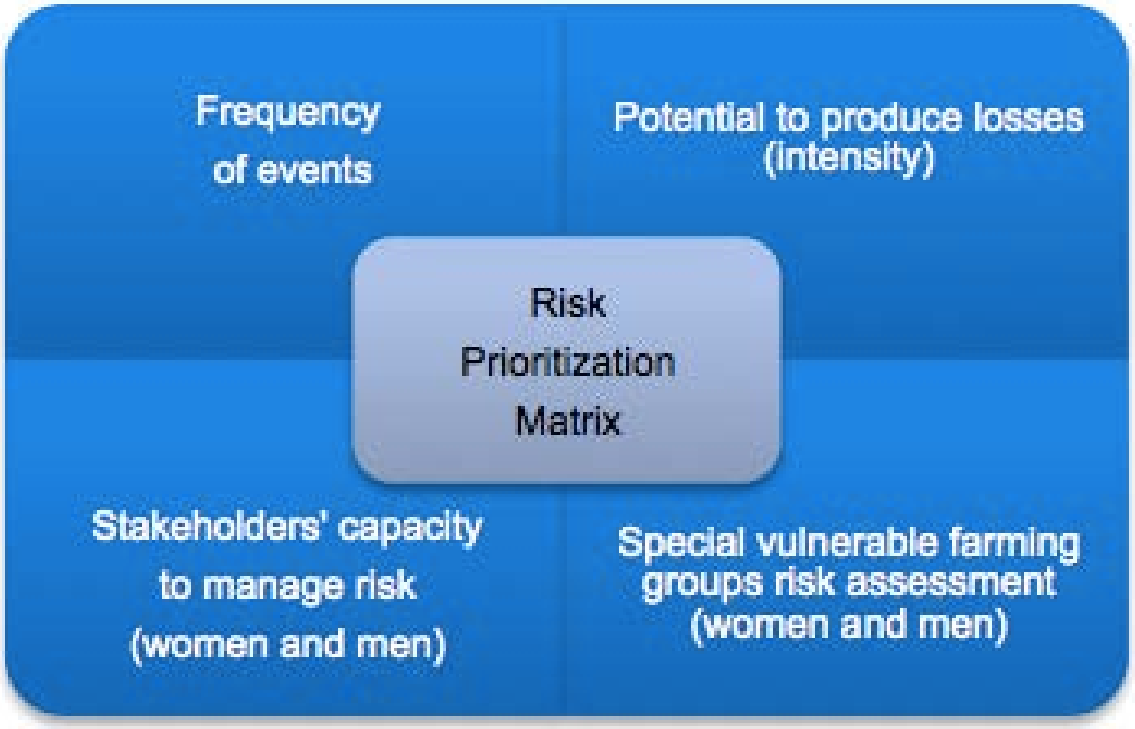
The World Bank's Agricultural Risk Management Framework



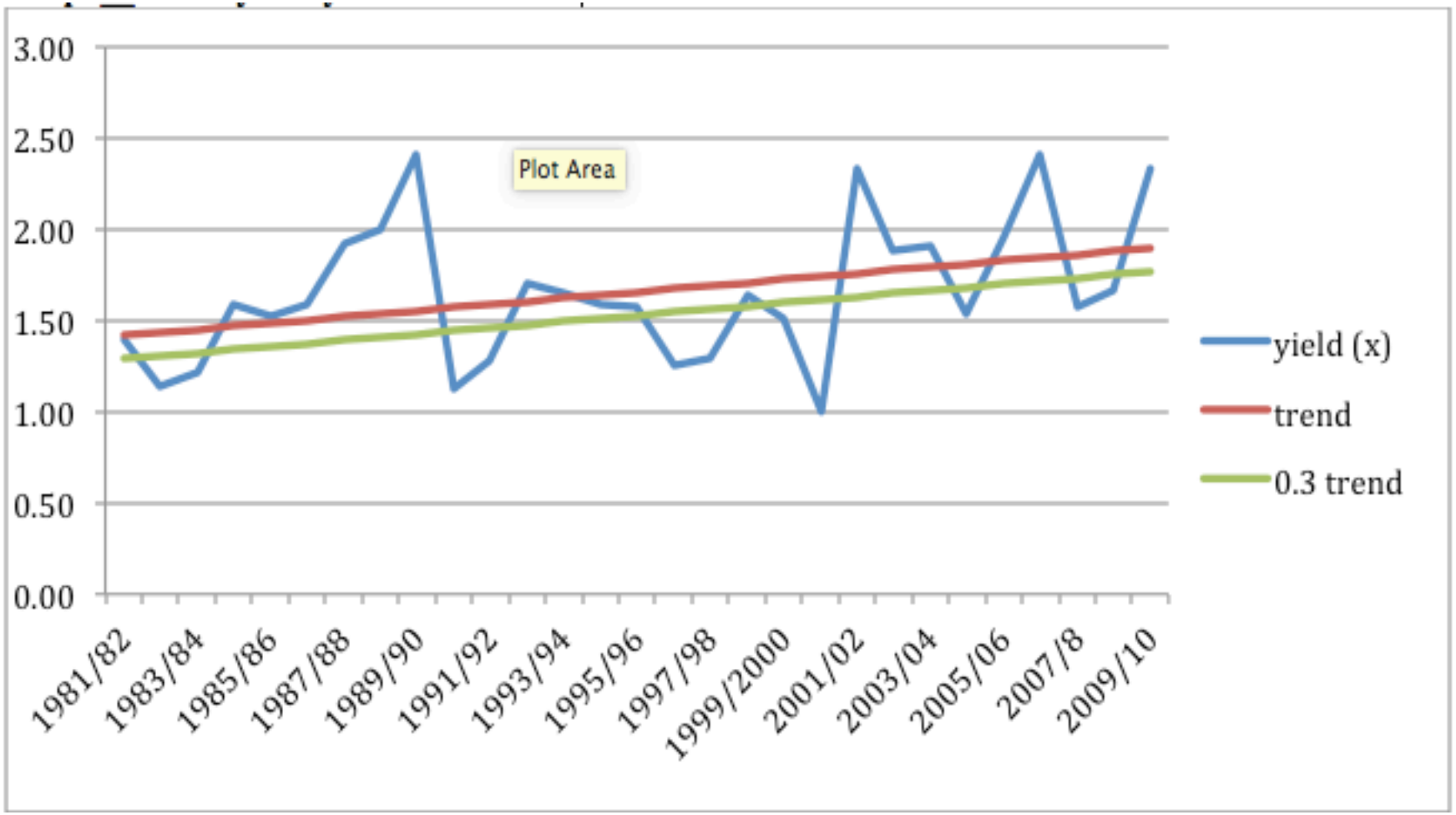
Risk Assessment Process Flow (per supply chain)



COMPONENTS OF RISK PRIORITIZATION



Risk: Example of loss estimations by crop



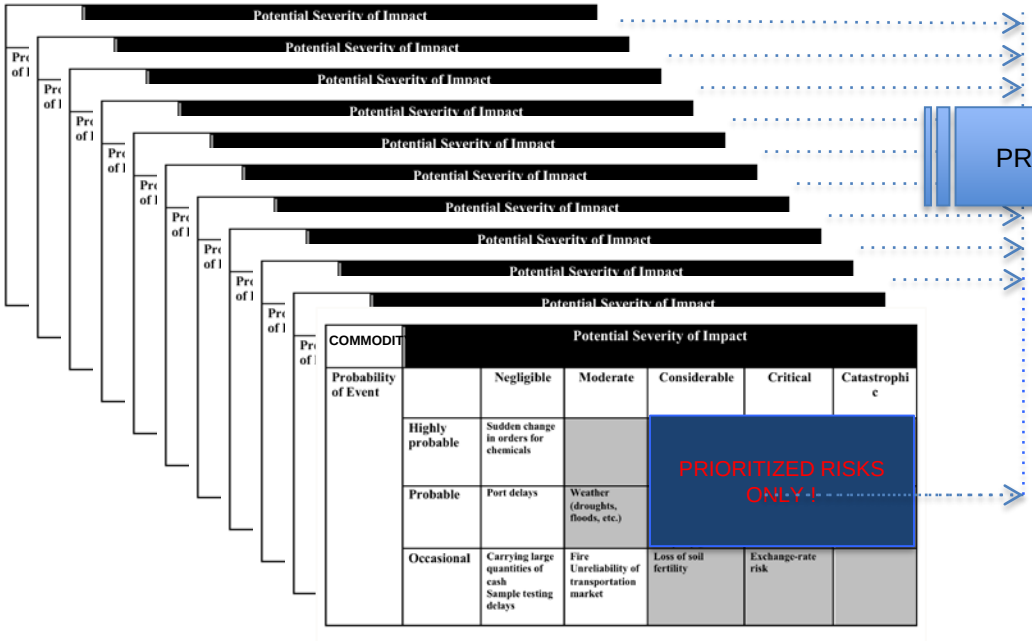
Risk prioritization matrix for cotton

Probability of Event		Potential Severity of Impact: Negligible	Moderate	Considerable	Critical	Catastrophic
	Highly probable	Sudden change in orders for chemicals.		Farmers' credit default (chemicals).	International cotton price volatility.	Crop substitution.
	Probable	Port delays.	Weather (droughts, floods, and so on).	Ginners' credit default. Transaction tax default and payment delays by ginners.	Pests (aphids, worms, and so on).	
	Occasional	Carrying large quantities of cash. Sample testing delays.	Fire. Unreliability of transportation market.	Loss of soil fertility.	Exchange rate risk.	

Source: Cotton supply chain risk assessment for Mozambique. "Mozambique Cotton Supply Chain Rapid Risk Assessment": http://siteresources.worldbank.org/INTCOMRISMAN/Resources/MZ_CottonRiskReport_FINAL(Nov2010).pdf.

FROM SUPPLY CHAIN RISKS TO SECTOR RISKS

AGRICULTURAL COMMODITIES



PRIORITIZATION

AGRICULTURE SECTOR

Impact / Likelihood	Moderate	Considerable	Critical	Catastrophic
Highly probable	Sesame flea beetle infestation (insects) (S) Fungal diseases (e.g. powdery mildew) (C) Counterparty risk (famers)/side selling (Cot and Tob)	Diseases (e.g. CBD, CWD, CLR,) (CO) Insect/ pests (cotton bull worm etc.) (Cot) Drought (Cot)	Cotton price volatility (Cot)	
	Pests (e.g. thrips) (Co) Price volatility (CO) Counter party (Ginners) / International buyers (Cot) Excess rainfall (Tob)	Erratic rainfall (CO) Price volatility (unstable world prices) (C)	Regulatory Risk	
Occasional	Occurrence of severe drought (S)			
Remote				

Cot=Cotton, Tob=Tobacco, Co=Coffee, C=Cashew, Nuts

Special vulnerable groups risk assessments

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4. How to Develop a Risk Management Strategy

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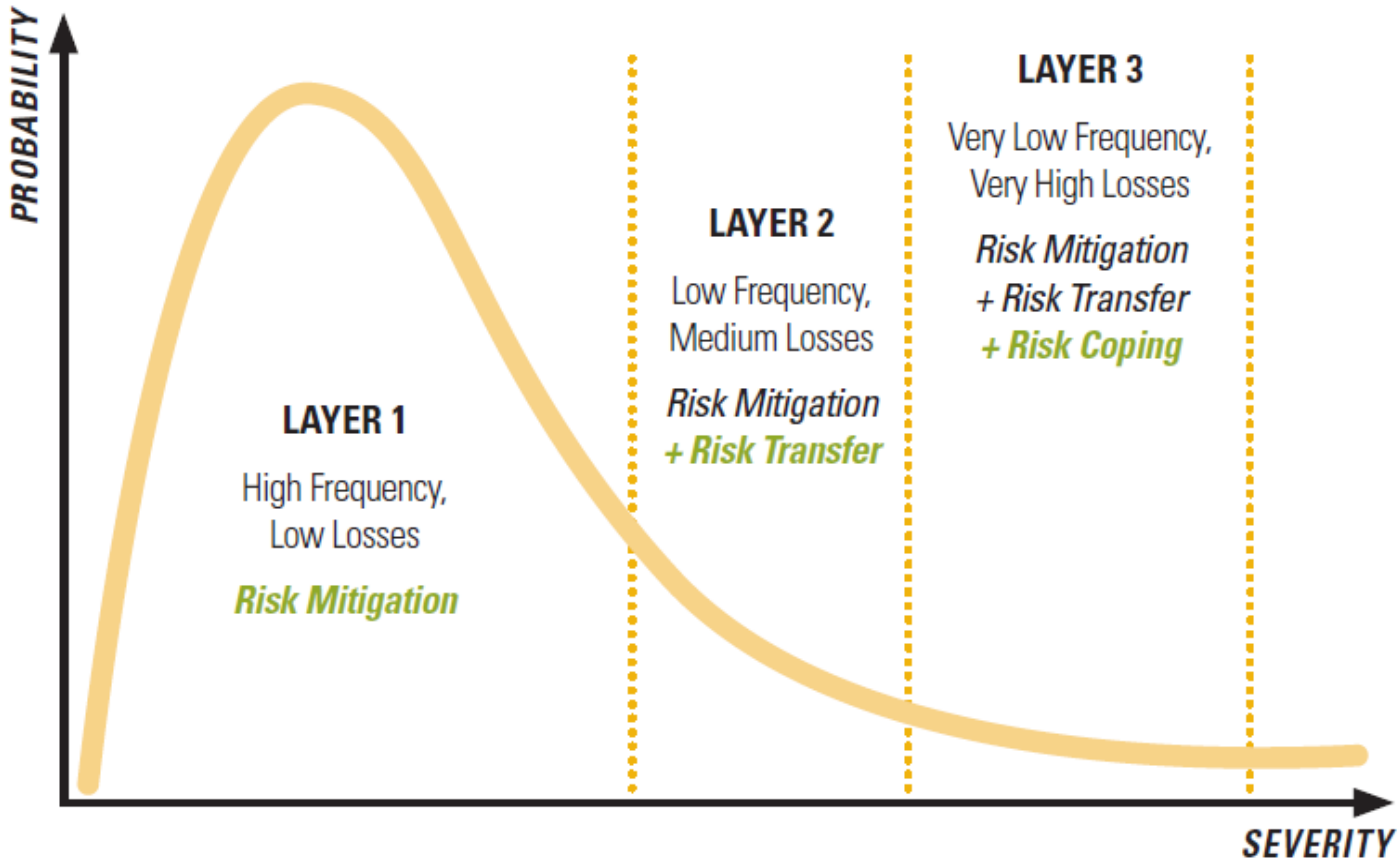
Risk solutions: layering approach



SUMMARY OF LESSONS LEARNED

- RM is a process, not a product
- Resource limitations (both capacity and finance) forces prioritization of activities
- RM requires an integrated approach involving multiple complementary activities from a number of stakeholders
- Risk mitigation provides “multiple” benefits
- Ample room for market based solutions to agricultural risk.

Outputs and outcomes: so far

Outputs:

- *Agricultural sector risk assessment in 13 countries*
- *11 supply chain risk assessments*
- *Created Forum for Agricultural Risk Management in Development (FARMD) (163,815 unique visitors)*
- *Delivered 7 knowledge products*
- *Developed 8 training modules and trained over 1121 individuals*
- *TA support for market based risk transfer products in 7 countries*

Outcomes:

- *Niger: $111 million CSA operation, PAGRA (10 year Action plan, and informed CPS)*
- *Kenya : $200 million CSA operation and informed the Govt. of Kenya CSA program (2015-2030)*
- *Vietnam: Informed $230 million sustainable agriculture transformation project to include coffee replanting*
- *Paraguay: Informed CPS and currently an operation under discussion*
- *Nicaragua: IDA project on Resilient Ag in the Dry Corridor (USD 50M) to operationalize policy recommendations.*
- *Mainstreaming ag risk management agenda*
- *Replication : IFAD's Platform on Ag risk Mgmt. (PARM) to undertake risk assessment in 9 countries,*

Holistic risk assmt. and mgmt. approach to **help prioritize ag. resilience agenda**

ADDITIONAL RESOURCES

- http://www.worldbank.org/en/topic/agriculture
- http://www.worldbank.org/en/topic/agriculture/brief/foster-climate-smart-agriculture
- http://www.agriskmanagementforum.org/

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Risk Mitigation (*ex-ante*): Risk mitigation strategies are actions taken prior to a risk event to reduce the likelihood of risk or the severity of losses.

Risk transfer (*ex-ante*): Risk transfer tools and mechanisms transfer the potential financial consequences of particular risks from one party to a willing third party, usually for a fee or premium.

Risk coping (*ex-post*): Some risks cannot be mitigated or transferred, so risk coping strategies are needed to help stakeholders better absorb and recover from their impacts. These instruments improve the affected population's resilience to withstand and cope.

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