# Disaster Risk Financing for Agriculture

Module 2

## Reducing and Preparing for Risks in Agriculture

Disaster Risk Financing & Insurance Program

SUPPORTED BY WORLD BANK GROUP

Foreign, Commonwealth & Development Office

USAID

# Structure of Webinars

- Total of 8 Factsheets & 90-minute webinar for each Factsheet
- Different guest speakers
- Live audience polls & interactivities: Please participate
- Q&A: Please share your questions via chat
- Breakout sessions at the end of each Webinar: Please register
- Certificate of participation from the World Bank*



* Based on attendance & participation.

# Certificate from World Bank

**Participants will have an opportunity to obtain "Certificate of Informed Policymaker" from the World Bank on successful completion of following criteria:**

## Participation Certificate:

Participants need to attend 4 out of the 8 webinar sessions and complete a short survey/quiz

## Program Completion Certificate:

Participants need to attend 7 out of the 8 webinars and complete a short survey/quiz

# Word Cloud 1:

## Where are you currently based?

Go to www.menti.com

(or prepare the QR scanner on your phone)

QR:

Use the code: 9300 6830

# Webinar Road Map

SESSION

1. Introduction to DRFA
2. Reducing & Preparing for Risks in Agriculture
3. The Role of Financial Inclusion for Building Resilience to Shocks in Agriculture
4. Structuring an Agriculture Financial Protection Scheme
5. Implementing an Agriculture Financial Protection Scheme
6. Risk Finance Instruments 1 – Risk Retention Mechanisms for Agriculture
7. Risk Finance Instruments 2 – Agricultural Insurance
8. Risk Finance Instruments 3 – Macro and meso-level Risk Transfer for Agriculture

# Overview of fact sheets

FACT SHEET #

**1**

- Four core principles of DRF, risk layering, and types of DRF instruments
- How agriculture fits in the broader DRF picture

**2**

- Introduction to risks facing rural households and agriculture sector
- How farmers, businesses, govts can reduce risks
- How farmers, businesses, govts can prepare for risks
- Outline a comprehensive approach to reduce and prepare for risks

**3**

- Benefits of greater access to finance including: enhanced resiliency of the agricultural sector, rural livelihoods, and economies
- Financial tools available including: credit, savings, insurance, transfers, climate-smart agriculture financing, and value-chain finance and when to use these tools

**4**

- Different aims of DRF and who to protect
- Potential objectives and priorities for covering certain risks
- Disaster risk financing instruments in agriculture sector – what exists
- importance of pre-planning the financed disaster response and delivery channels

**5**

- Different stakeholders in implementing a DRFA scheme
- Typical roles and responsibilities of the public and private sector in supporting and developing DRFA
- Importance of monitoring and evaluation

**6**

- Sovereign risk retention mechanisms for agriculture
- Structuring risk retention instruments – key features and things to consider

**7**

- Policy objectives of agriculture insurance
- Agricultural insurance products – key features, benefits, constrains of index insurance
- Public-private partnership in agriculture insurance – Overview and delivery models

**8**

- Overview and objectives of macro-level risk transfer for agriculture
- Structuring a macro or meso-level risk transfer solution – alignment with other financing instruments and other things to consider

# Content

1. Recap Module No. 1 – Key takeaways
2. Why do agricultural risks matter?
3. Managing agricultural risks
   - ✓ Integrated agriculture risk management framework
   - ✓ Agricultural Sector Risk Assessment (ASRA) methodology – Zambia Case Study
4. Key takeaways – Module No. 2

## Module 2 objective:

Learn how to establish agricultural risk management strategies based on the ASRA methodology

# Poll 1:

## Recap: What was the last Webinar about?

Go to www.menti.com
(or prepare the QR scanner on your phone)

QR:

## Use the code: 9300 6830

## What was the last Webinar on Module 1 about?

- Understand the purpose and role of disaster risk financing for agriculture
- Recognize the benefits and role of disaster risk financing for agriculture
- I did not attend the previous webinar – this is my first time
- I don't remember

# 1. Recap Module No. 1

# 1. Recap of Key Points in Module 1

- DRFA plays a critical role as part of a broader agricultural risk management approach
- Ex-ante planned approaches can be substantially more timely and cost-effective than an ad-hoc disaster relief
- Agricultural insurance is one DRFA tool, but it is not a panacea for all development challenges and constraints faced by farmers in low- and middle-income countries
- "One size does not fit all": each segment of the rural farming population from landless laborers to large commercial farmers have their own DRF needs
- Sound national DRFA programs should consider the risks to households, economies, and governments; institutions, infrastructure and regulations; as well as technology, data, and experience of DRFA
- The most effective DRFA programs in low- and middle-income countries have been built around public private partnerships (PPPs)

# Financial Protection and DRM

PILLARS

**1. RISK IDENTIFICATION**

Improved Identification and understanding of disaster risks through building capacity for assessments and analysis

**2. RISK REDUCTION**

Avoided creation of new risks and reduced risks in society through greater disaster risk consideration in policy and investment

**3. PREPAREDNESS**

Improved capacity to manage crisis through developing forecasting and disaster management capacities

**4. FINANCIAL PROTECTION**

Increased Financial resilience of governments, private sector and households through financial protection strategies

**5. RESILIENT RECOVERY**

Quicker, more resilient recovery through support for reconstruction planning

PILLARS

Disaster Risk Finance is one component of a comprehensive approach to risk management

Financial protection complements, but does not replace, risk reduction and resilience measures

# 2. Why do agricultural risks matter?

# Key concepts to keep in mind

**Risks:** Uncertain events that lead to losses
- Symptoms: yield volatility, price volatility, etc
- Hazards: droughts, pest and disease outbreak, price spike, etc

**Different from:**
**Constraints:** Certain contextual conditions that lead to sub-optimal performance
- Symptoms: low yields
- Causes: lack of access to inputs, poor technology, depleted soil, etc

**Trends:** Longer term patterns (reversible or irreversible) that provide context
- Symptoms: declining yields, declining production, reduction in area, etc
- Causes: structural changes in agriculture, changes in climate patterns etc

**Exposure** is the likelihood of a risk occurring in the context that the actor operates in
**Vulnerability** is an actor's ability to manage a risk, given its exposure to that risk
- **Resilience:** is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner

**Note: There are linkages between these three concepts!**

Disaster Risk Financing & Insurance Program
WORLD BANK GROUP

# Poll 2:

## Risk to the Agriculture Sector

Go to www.menti.com
(or prepare the QR scanner on your phone)

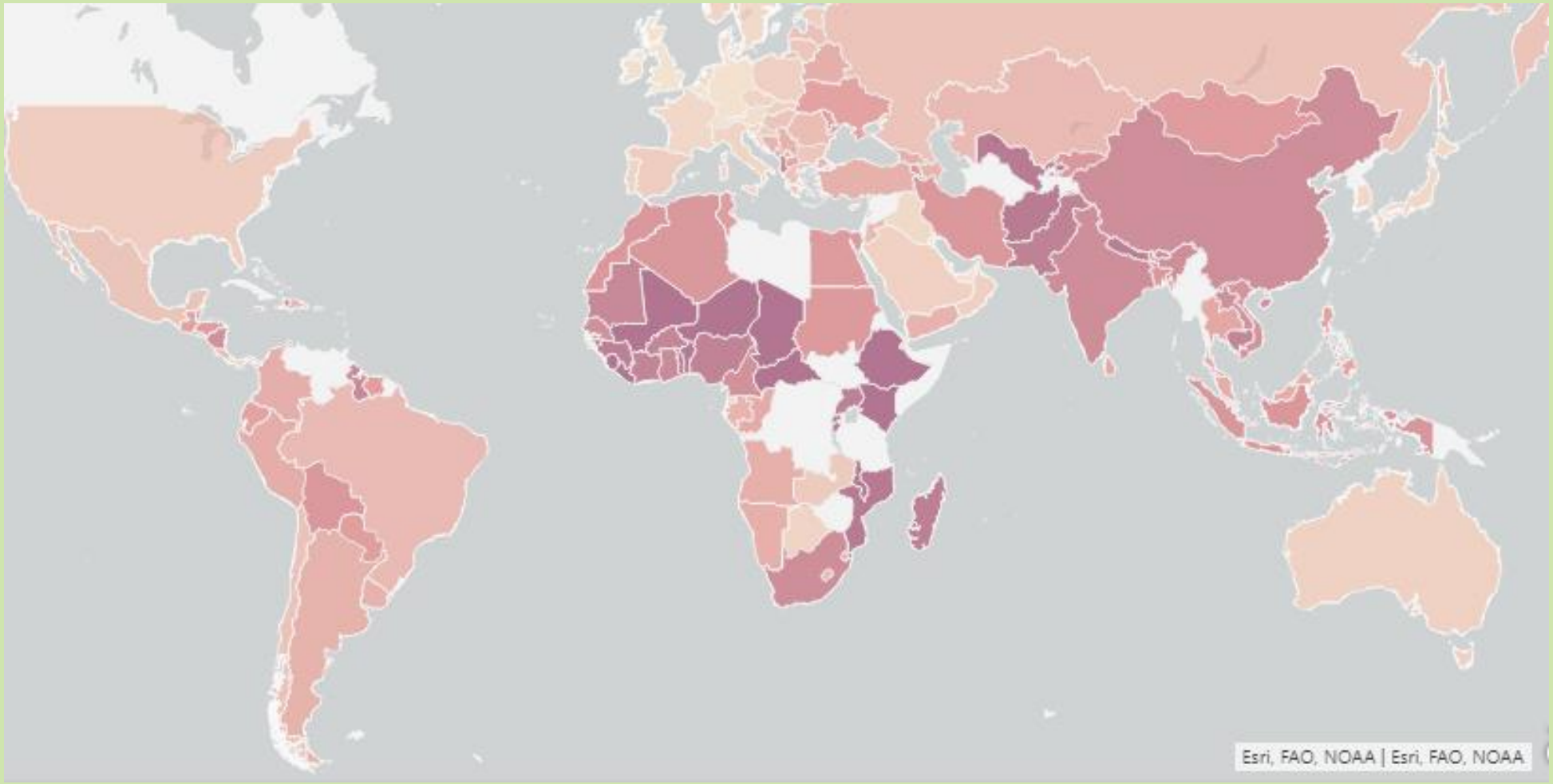
QR:

## Use the code: 9300 6830

Which of the following is considered a risk to the agriculture sector?

- Average temperature increase due to climate change
- Cyclone
- Poor rural road conditions

# Agriculture, forestry, and fishing, value added (% of GDP) in 2019



# Word Cloud 2:

## What are the different types of risks to the agriculture sector?

Go to www.menti.com

(or prepare the QR scanner on your phone)

QR:

Use the code: 9300 6830

# Types of risks to agriculture

## Production Risks

- Droughts, floods, hurricanes, heavy storms and excessive rainfall/hail, and severe freeze
- Fire, lightning, earthquakes, volcanoes, landsides, etc. or extreme heat events
- Agricultural pests and diseases

**Between 2005 and 2015 natural disasters cost US$96 billion in damages or losses to the agricultural and livestock sectors in developing countries**

## Market Risks

- Market price risk (price volatility for agricultural inputs & outputs/products)

## Institutional Risks (enabling environment)

- Conflict, macro economic shocks, political & institutional risks,

# Risks to Agriculture:
# Example of shocks and their Impacts

## Production Risks

- **2014/15 ENSO event** diminished SADC crop stocks due to abnormally high rainfall and flooding, affecting more than 135,000 people in Malawi, Mozambique, Madagascar, and Zimbabwe
- **Avian Flu (2003 – 2004):** Caused the death or culling of 140 million birds and more than US$10 billion losses to the poultry industry in South East Asia

## Market Risks

- **International coffee crisis (2000 – 2003):** Resulted in uprooting and abandonment of coffee plantations in West and Eastern Africa
- **Food price crisis (2008):** Led to realignment of global rice trade. The Thai export business lost its market position and Vietnam took over

## Institutional Risks (enabling environment)

- **Kenyan Elections (2007):** Violence surrounding the election reduced flower exports across the country by 25 – 40%

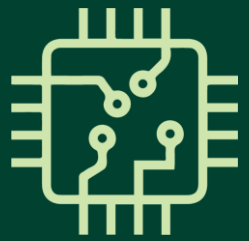
# Why do agricultural risks matter? - Key takeaways

The adoption of integrated risk management strategies is critical for minimizing negative impacts on poverty, particularly for those who live in rural areas and work mainly in farming

Investments are needed to improve value chain businesses and strengthen household resilience

The definition of strategies cannot be implemented without first identifying risks and assessing the impact caused on different stakeholders given their own levels of vulnerability and exposure

# 3. Managing Agricultural Risks



Integrated agriculture risk management framework

Agricultural Sector Risk Assessment (ASRA) methodology – Zambia Case Study

# Word Cloud 3:

## Name the different stakeholders to consider in the Agriculture Risk Management Framework

Go to www.menti.com

(or prepare the QR scanner on your phone)

QR:

Use the code: 9300 6830

# **Integrated Agriculture Risk Management Framework –** the strategies of risk management are not necessarily limited to disaster risk management.

## Stakeholders

### Private Sector & Public Institutions

- Producers (subsistence farmers, family farmers and commercial farmers)
- Processors
- Financial Institutions
- Other value chain stakeholders

## Risk Classification

### Groups of Risks (risk nature)

- Production Risks
- Market Risks
- Institutional risks (enabling environment)
- Correlated Risks vs Idiosyncratic risks

## Risk Management Processes

- Knowledge and Preparation
- Risk Mitigation
- Risk Transfer
- Risk Coping

# Agricultural Sector Risk Assessment (ASRA)

## 1. Assessing systemic agricultural risks quantitatively and qualitatively

- Measure frequency and impacts of the 3 types of agricultural risks
- Determine the root causes of these risks – exogenous or endogenous?
- Identify the stakeholders most vulnerable to these risks
- Prioritize the risks according to impacts (costs, no of people affected food security, etc)

## 2. Assessing Solutions and Developing a Risk Management Strategy/Plan

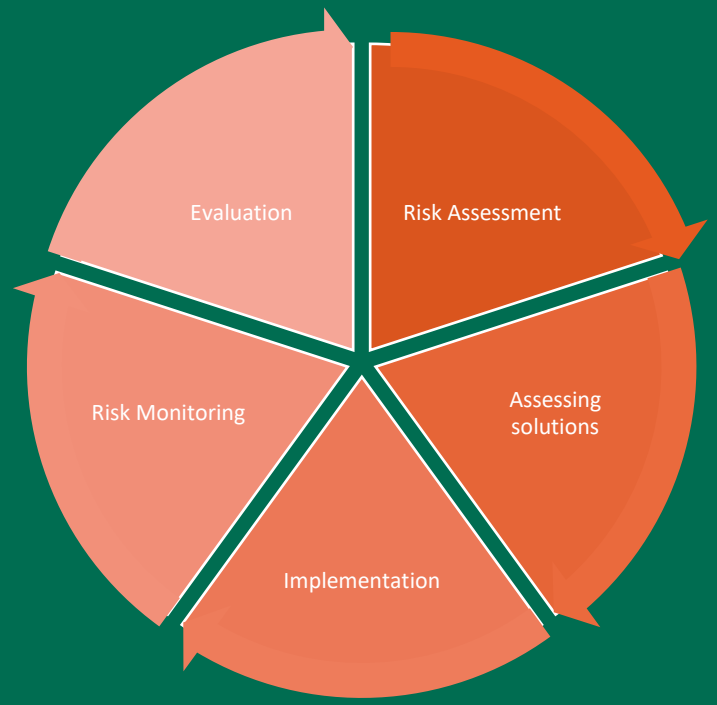
- Map current interventions
- Identifying risk management solutions according to the prioritized risks and their respective layer
- Identifying barriers to scale and Gap Analysis
- Defining an Action Plan

## 3. Implementation and Risk Monitoring

- Implementing the proposed Action Plan
- Monitoring impacts
- Reassess risks and revise solutions continuously

Disaster Risk Financing & Insurance Program
WORLD BANK GROUP

## The Risk Assessment and Risk Management Cycle



# Poll 3:

Which aspect do you think you will find the most challenging in relation to Agriculture Sector Risk Assessment (ASRA)?

Go to www.menti.com
(or prepare the QR scanner on your phone)

QR:

Disaster Risk Financing & Insurance Program
WORLD BANK GROUP

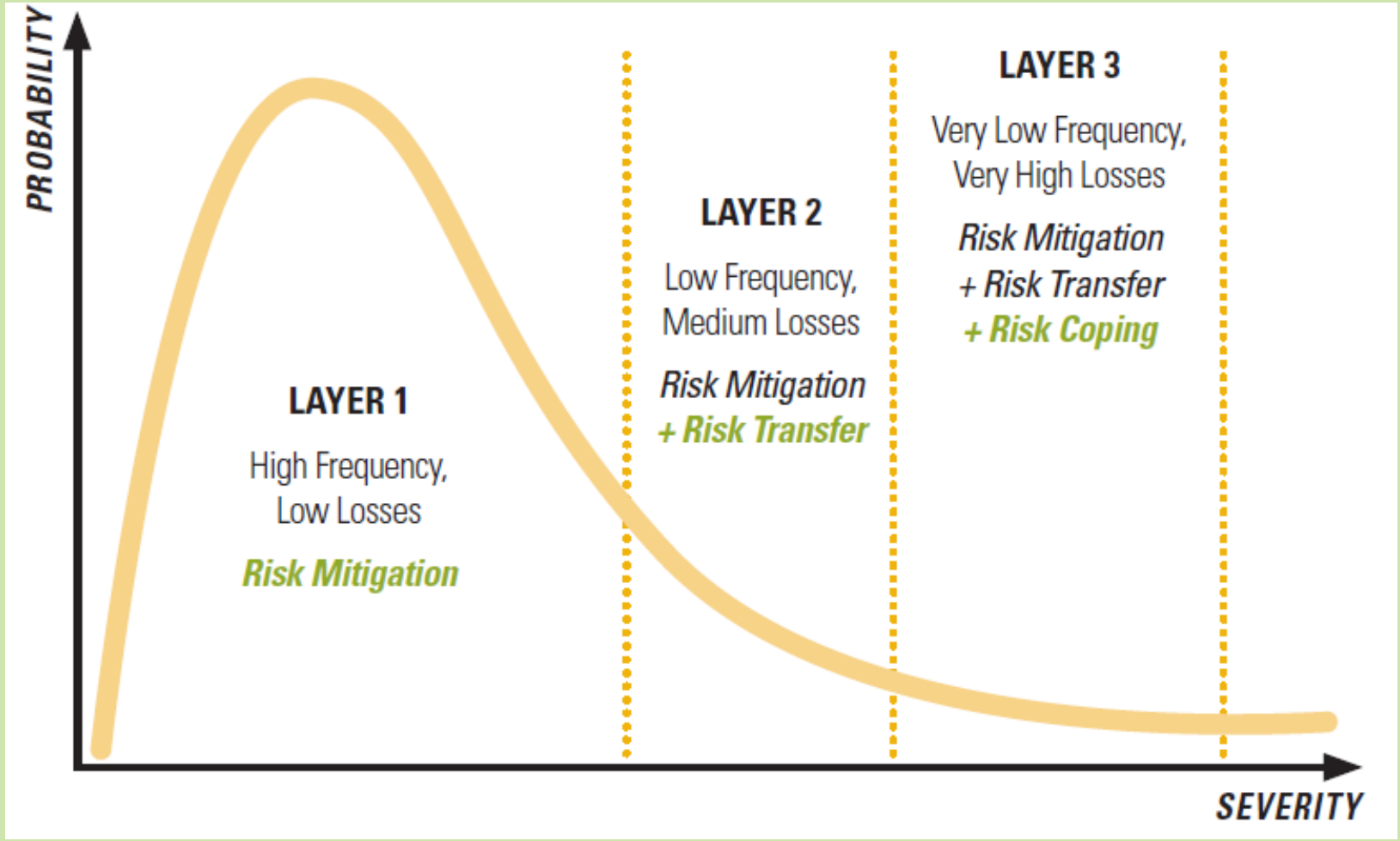
## Use the code: 9300 6830

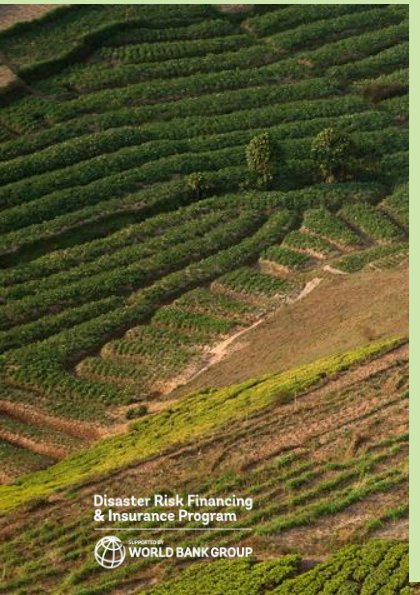
**Which aspect do you think you will find the most challenging in relation to Agriculture Sector Risk Assessment (ASRA)?**

- Assessing systemic agricultural risks quantitatively and qualitatively
- Assessing Solutions and Developing a Risk Management strategy/Plan
- Implementation and Risk Monitoring
- Others

# Managing risks through a layered approach

*There are different risk management options depending on the frequency and impacts of a specific risk.*




# Poll 4:

Which of the following options is not appropriate as a risk management measure for Layer 3 (very high losses and very low frequency)?

Go to www.menti.com
(or prepare the QR scanner on your phone)

QR:

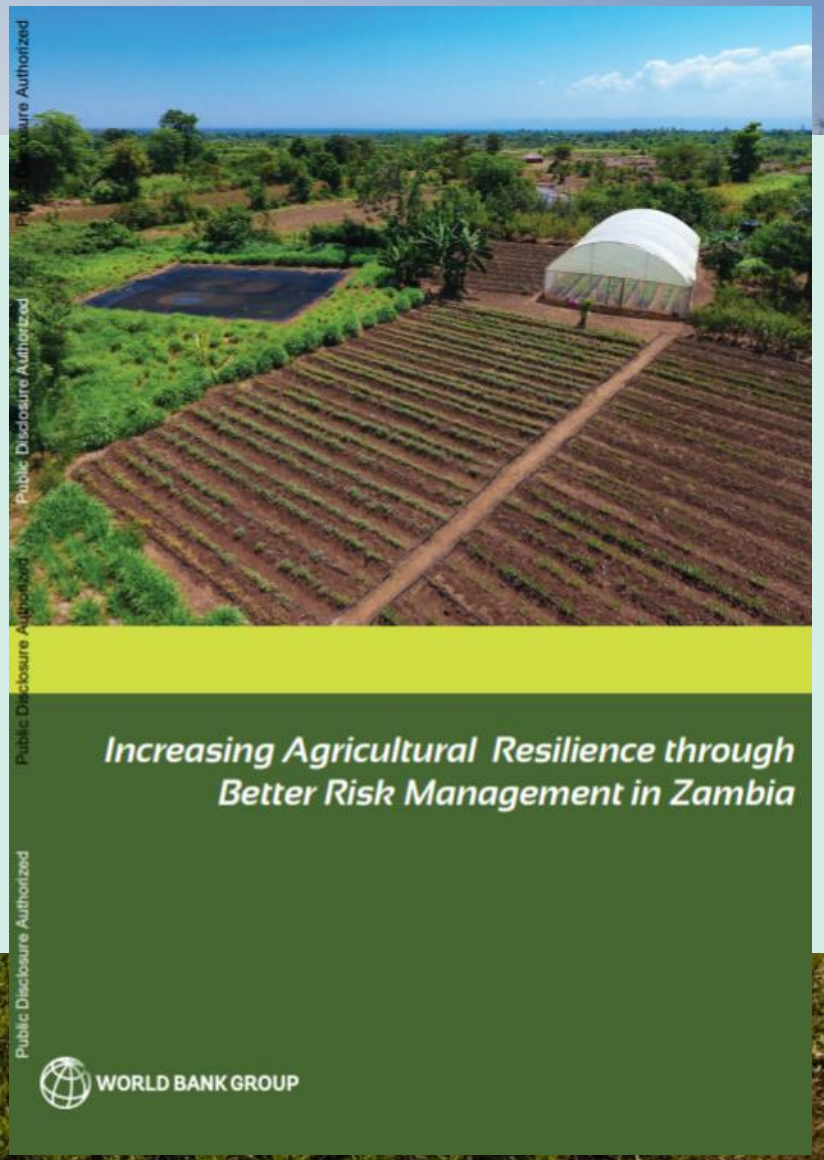
Disaster Risk Financing & Insurance Program
WORLD BANK GROUP

## Use the code: 9300 6830

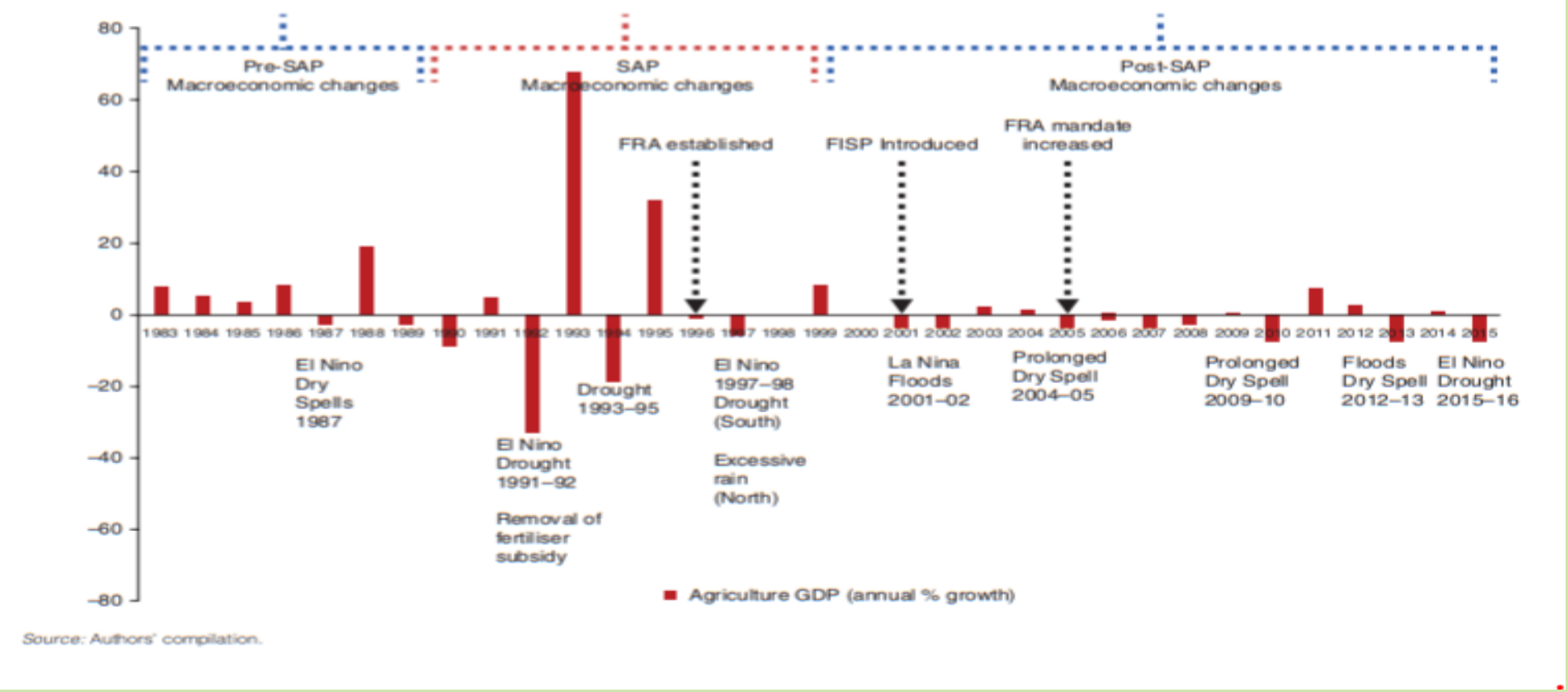
**Which of the following options is not appropriate as a risk management measure for Layer 3 (very high losses and very low frequency)?**

- Insurance
- Emergency assistance funding
- Investments in irrigation for drought prevention

# 4. Zambia Agricultural Sector Risk Assessment



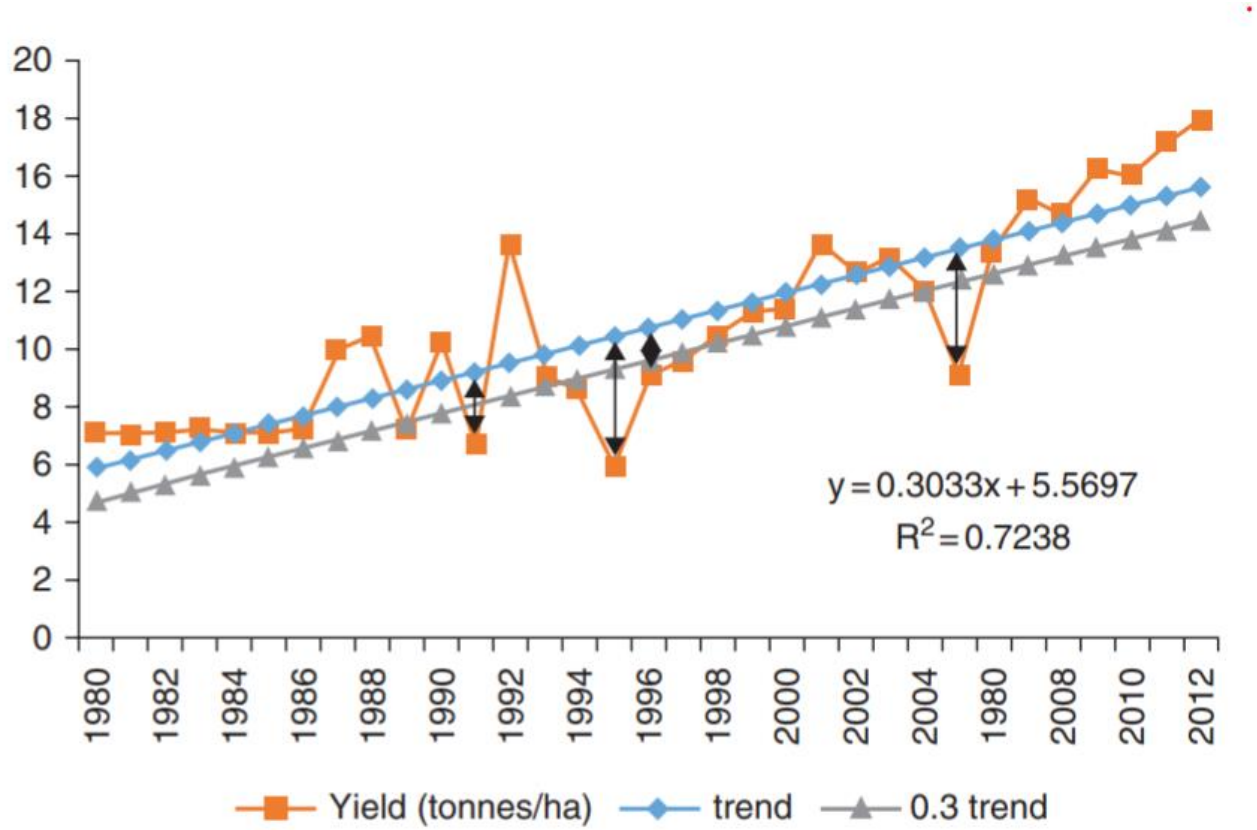
# Background: Major Shocks to Agricultural Production in Zambia (1983-2015)




Source: Authors' compilation.

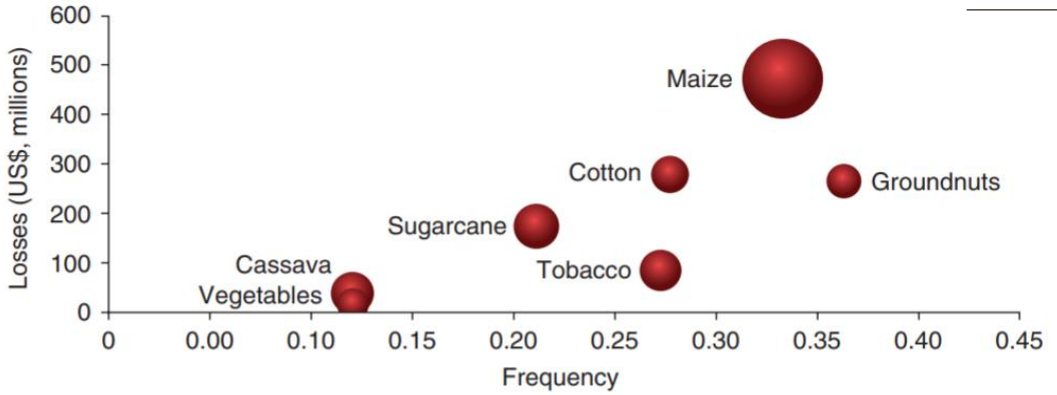
# Estimating value and frequency of production losses


- Assess for individual commodities and aggregate;
- Look at the frequency and value of losses over a longer period, e.g. 30 years;
- Estimate yield loss and then calculate value of the loss



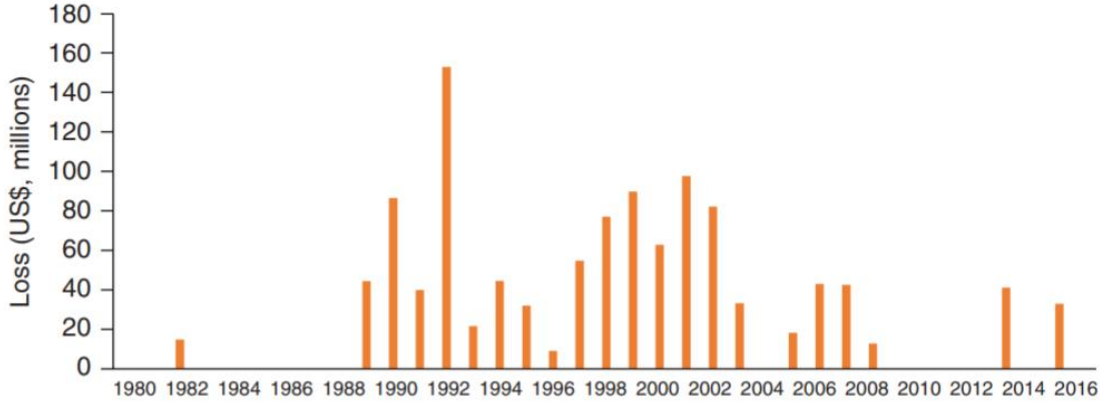

*Source:* Giertz et al. 2015.

# Zambia: Cumulative Value and Frequency per crop and annual value of of losses (1982-2016)


*Source:* Authors' compilation from FAOSTAT and CFS (CSO) databases.

*Note:* FAOSTAT data were not available for 2015 and 2016, whereas 20-plus-year CFS data were not available for all commodities. Therefore, FAOSTAT data were used for 1982–2014, whereas CFS data were used for 2015–16 to capture the impact of the recent El Niño event. The sizes of the balloons indicate the relative value of the losses across crops.



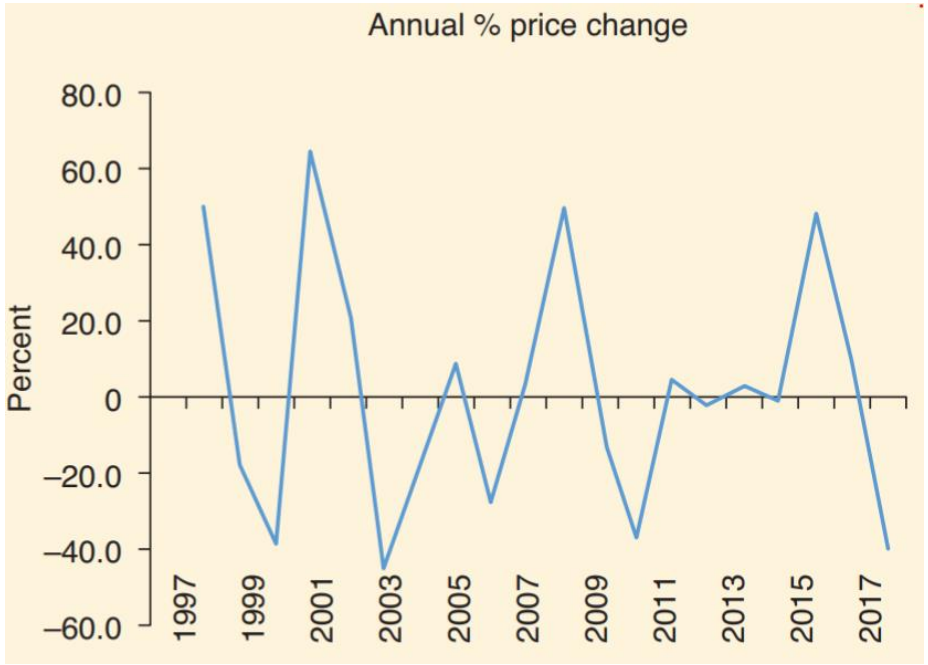

*Source:* Authors' compilation from FAOSTAT and CFS (CSO) databases.

The annual losses for Zambia's 6 largest crops in terms of value amount to some US$ 38.5 m or 2.43% of Gross Production Value (GPV)

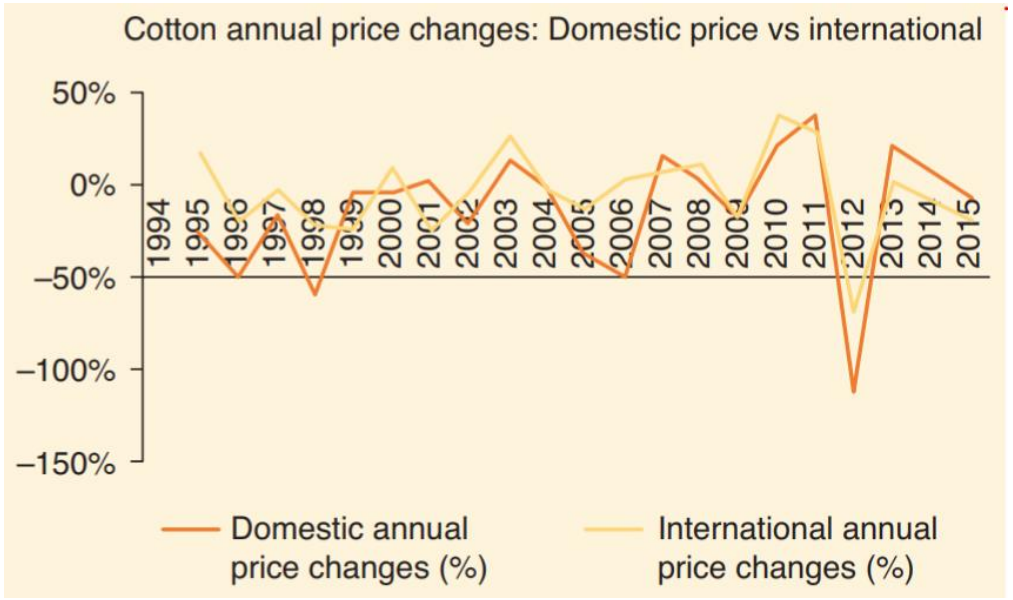
-> Allows policy makers to prioritize among affected sectors

*Note:* the Zambia ASRA also included the livestock sector, but it has been excluded from the example here

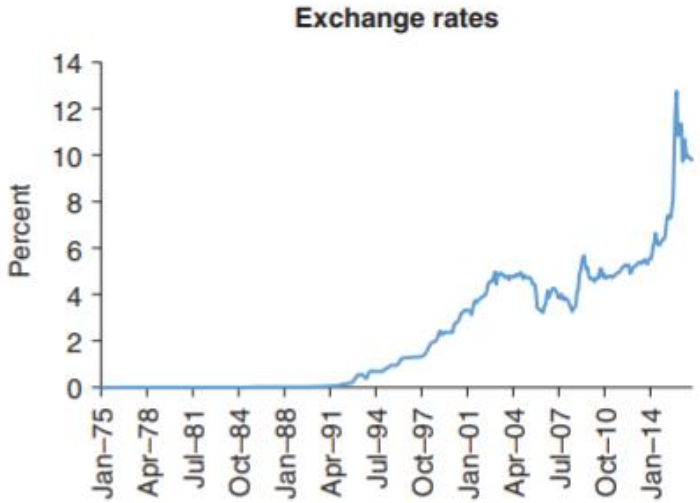
# Zambia:
## Assessing price risks and enabling environment risks

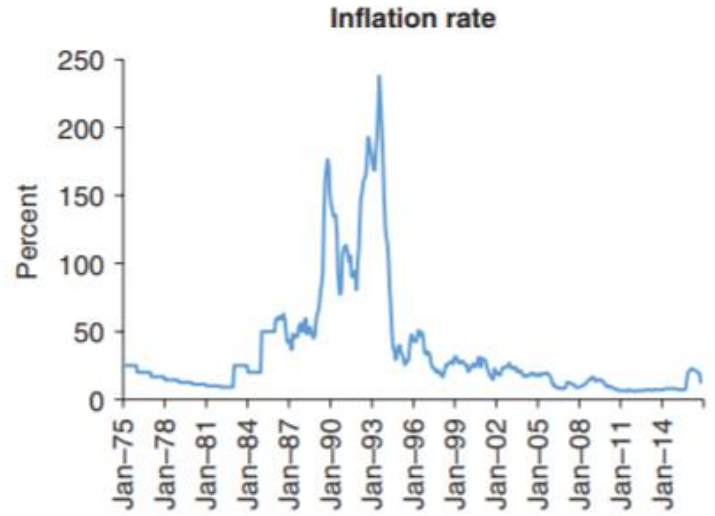



Maize & cotton prices are fluctuating, constituting a market risks for producers

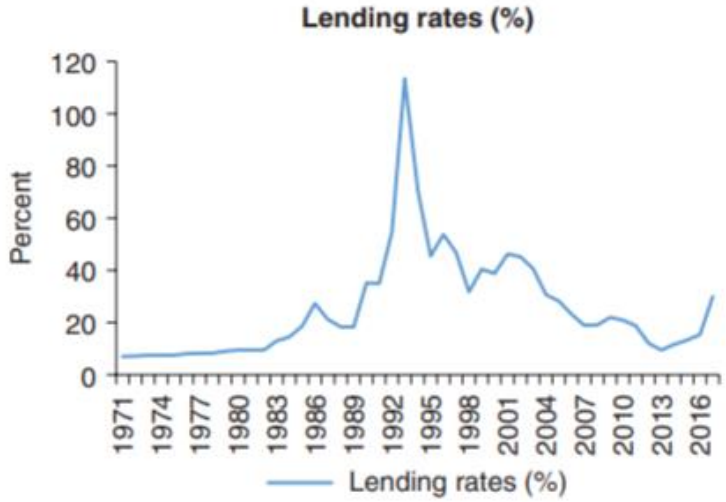



# Zambia:
## Assessing price risks and enabling environment risks

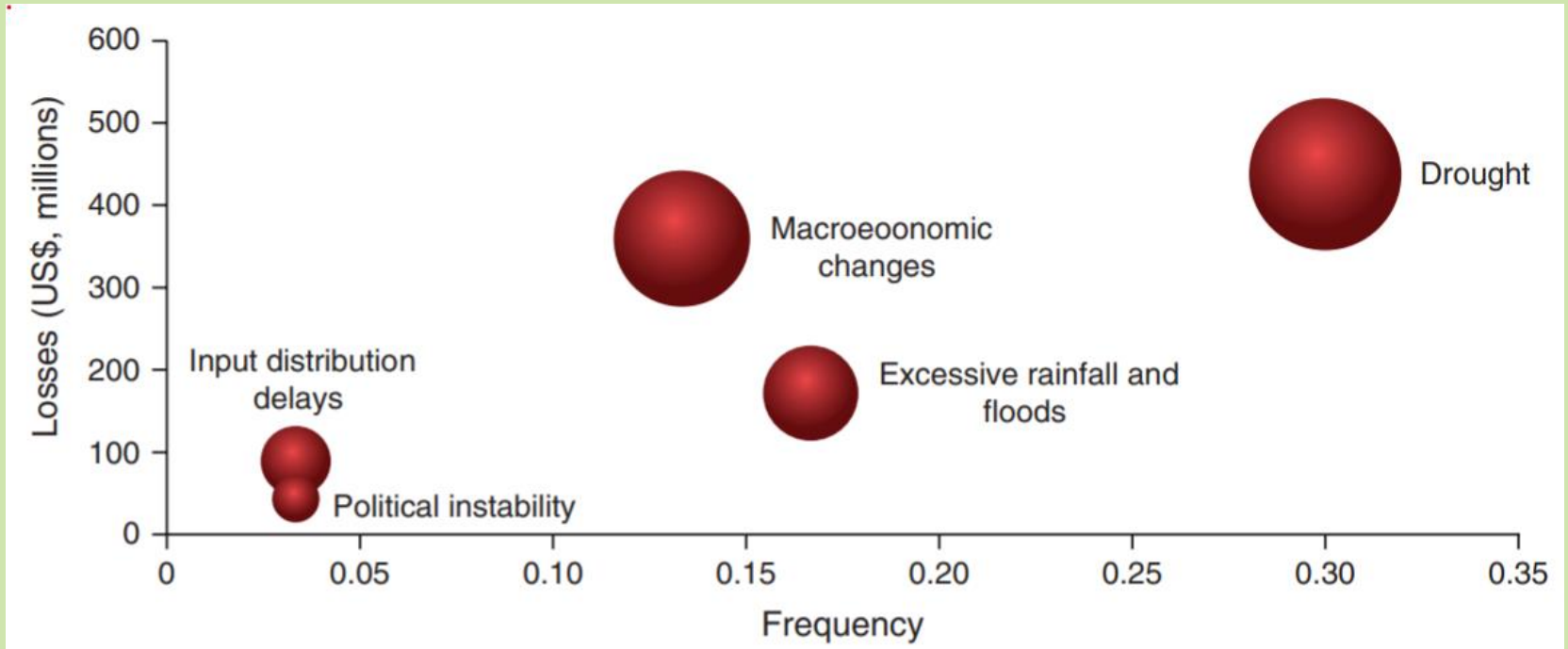

**Macro-economic indicators creating a risky enabling environment**




*Source:* CSO/Bank of Zambia.

# **Zambia:** Cumulative Value and Frequency per risk (1982-2016)

Allows policy makers to prioritize among risks and optimize investments in management instruments (i.e. the layered approach)



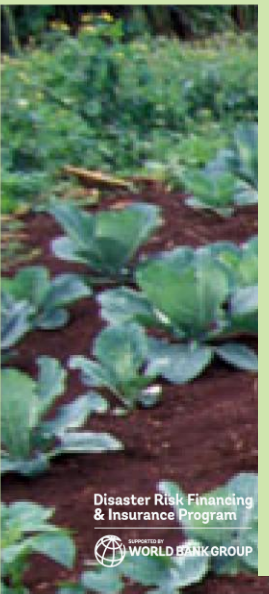

*Source:* Authors' compilation from FAOSTAT, CFS (CSO), and FEWSNET databases.

*Note:* The sizes of the balloons reflect the relative size of the losses by source of risk.

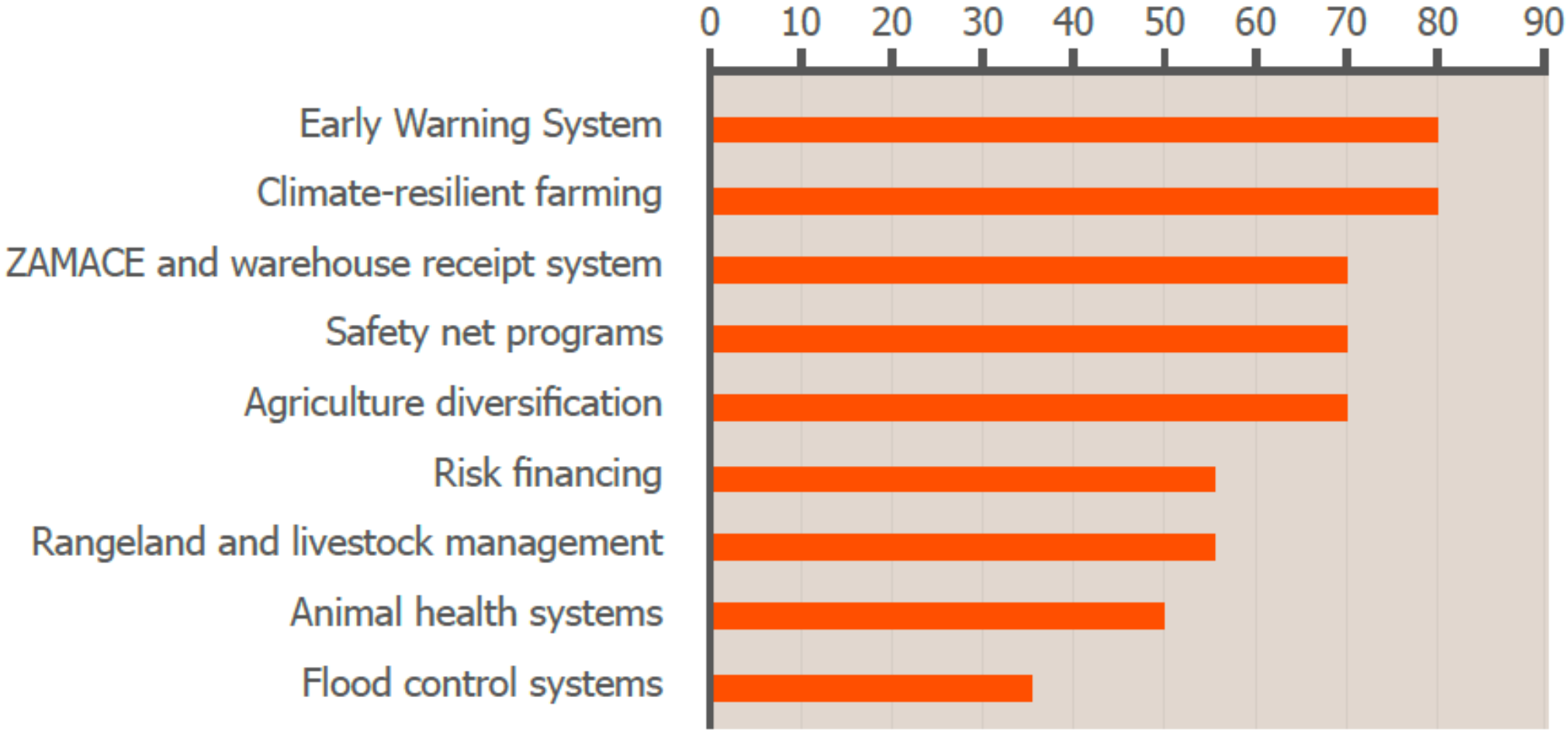

# **Zambia:** Risk prioritization for the crop sector

| Probability of Event | Impact (Losses) | | | | |
|---|---|---|---|---|---|
| | Crops | Low (<10%) | Moderately High (10%-30%) | High (30%-50%) | Critical (>50%) |
| | **Highly Probable (1 year in 3)** | • Crop levies ad hoc | -- | • Price volatility | -- |
| | **Probable (1 year in 5)** | -- | -- | • Localized drought and dry spells | -- |
| | **Occasional (1 year in 10)** | -- | • Inflation<br>• Exchange rate fluctuation<br>• Macroeconomic change<br>• Trade restrictions | • Floods | -- |
| | **Remote (1 year in 20)** | • Input distribution delays | • Political instability<br>• Pests<br>• Disease | • Postharvest losses | • Severe draught |

NOTE: -- STANDS FOR NOT AVAILABLE




# **Zambia:** Proposed Risk Management Strategies for Drought, Pest, and Diseases



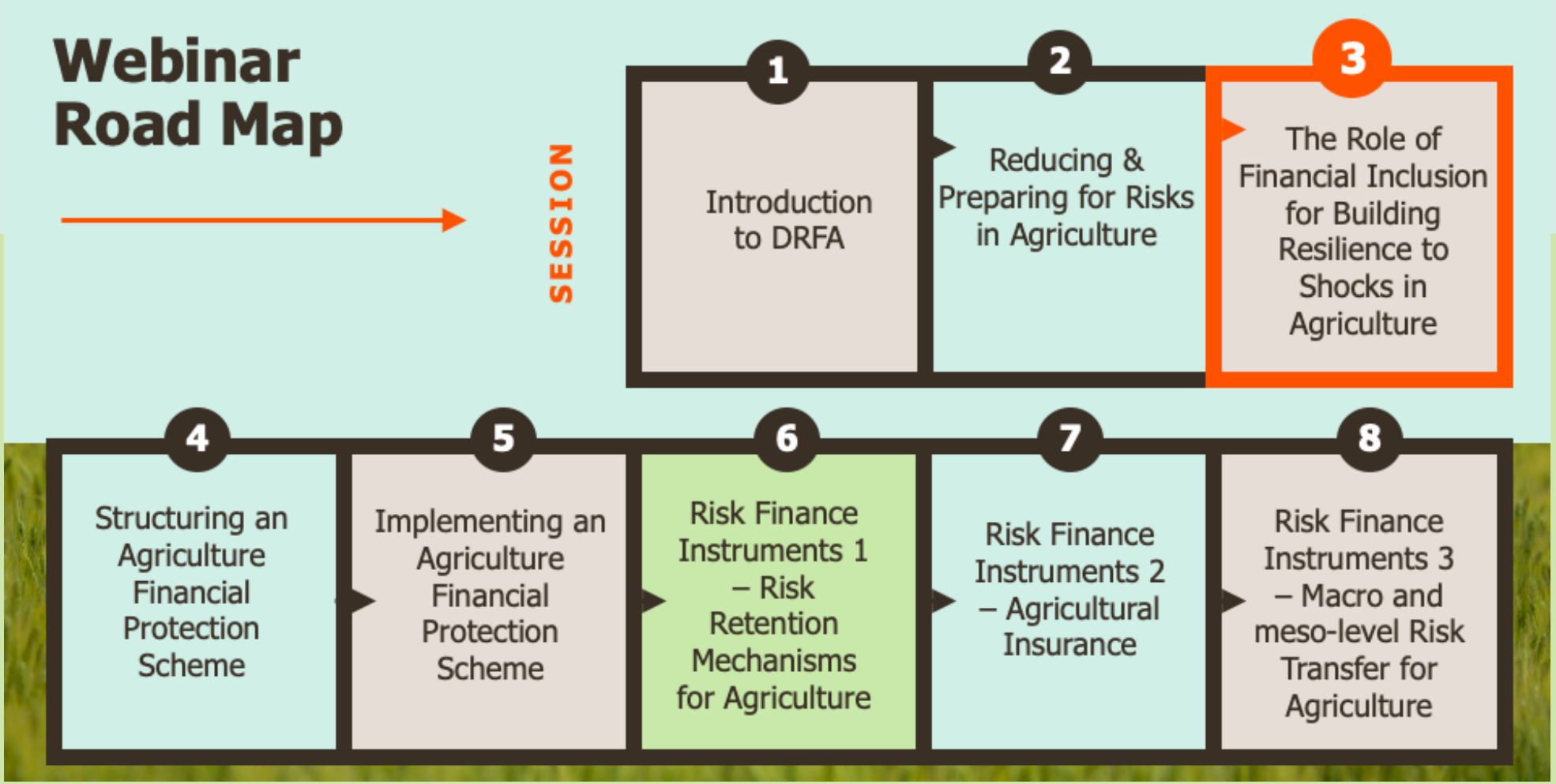
# 4. Key takeaways

- Adequate risk assessment is essential for effective risk management
- **The development of an integrated risk management strategy must begin by** recognizing the underlying risks, existing capacities and potential areas improvement
- Weigh up the costs and benefits and **decide whether to implement the strategy**
- **An efficient agriculture risk management plan is grounded in the knowledge of the stakeholders and achieving consensus** and participation
- **Agricultural Risk Management should NOT** focus solely on productive risks. Risk management isn't static but a process
- The application of risk management tools is an integral part of a comprehensive risk management strategy
- Sustained investments **are required to reduce vulnerability and improve resilience**

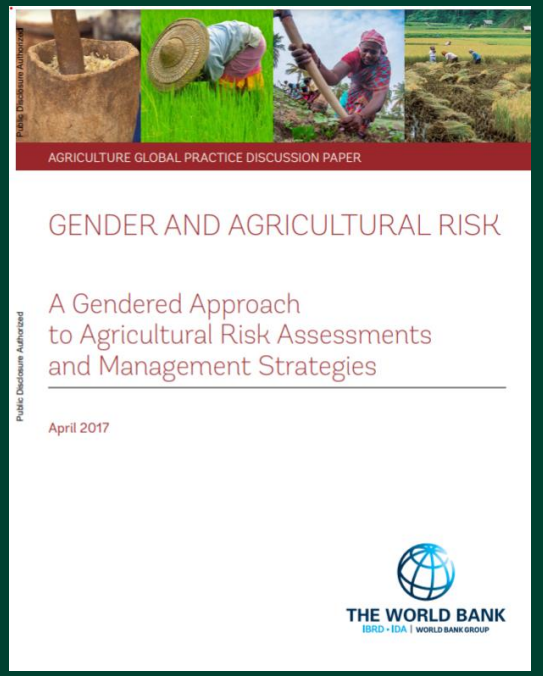
# Time for Questions

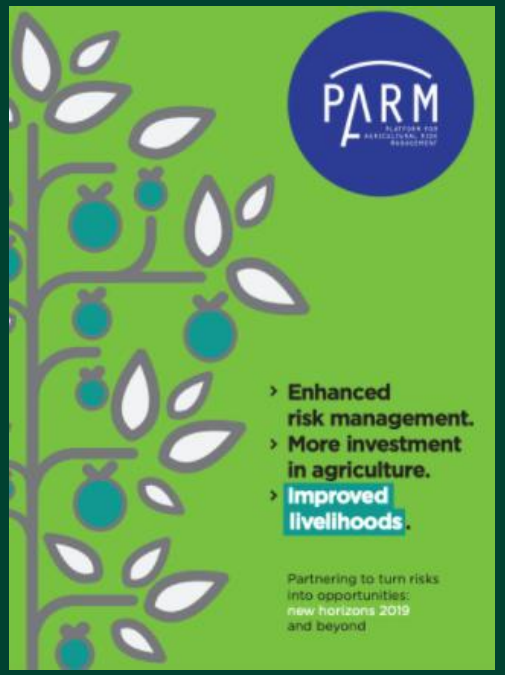
# Next session

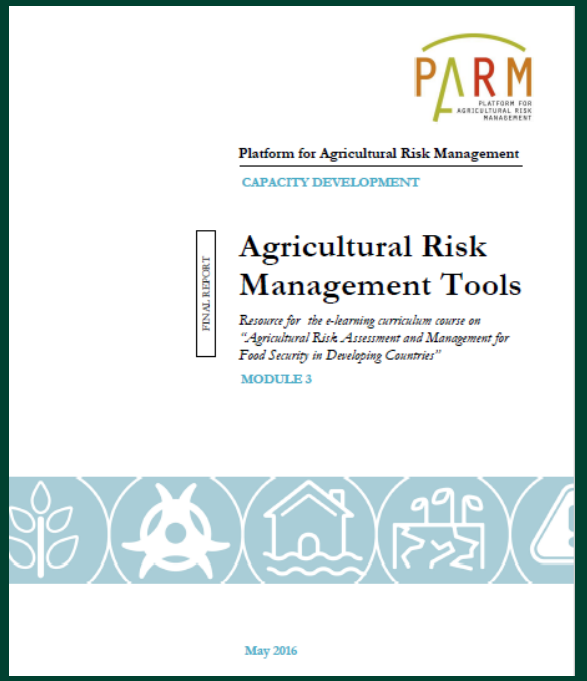
What will the next session cover, when, and why join?



# Additional Resources


**https://www.p4arm.org/**

# Additional Questions?

Pablo Valdivia
pvaldivia@worldbank.org

Åsa Giertz
agiertz@worldbank.org

Diego Arias
darias@worldbank.org