

# Disaster Risk Finance for Agriculture

## Module 1

### Introduction to Disaster Risk Finance for Agriculture



Disaster Risk Financing  
& Insurance Program



 Foreign, Commonwealth  
& Development Office



# 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



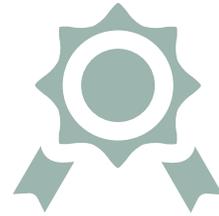
Breakout sessions at the end of each Webinar: Please register



Certificate of participation from the World Bank\*



# 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.

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## **Program Completion Certificate:**

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

# Word Cloud: Where are you currently based?



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QR:



Use the code: 6861033

# Poll 1: Key Topics

The following are the key topics we will cover in the DRFA Factsheets & Webinars.



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**Which of the following interest you the most? (Select all that apply)**



Importance of DRF in Agriculture



Use of disaster-responsive financing mechanisms and instruments for the agriculture sector



DRFA Programs as part of an overarching risk financing strategy



Deep dive into agriculture insurance – indemnity & index



Role and importance of data in DRFA



Importance of government support and challenges for policymakers



Stakeholder mapping and communicating your strategy



Case studies and peer-to-peer exchange

# Webinar Road Map



SESSION

1



Introduction to DRFA

2

Managing Risks to Agriculture

3

Choosing the Right Financial Instrument

4

Deep Dive into Agricultural Insurance

5

Index Insurance

6

Introduction and Use of Data

7

Structuring a Financial Protection Scheme

8

Role of Government in DRF for Agriculture

# Overview of fact sheets



**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 agri sector
- How farmers, businesses, govts can manage risks they face
- How DRFA can complement traditional DRM tools in agriculture
- The conditions under which DRFA can be a useful tool

**3**

- Introduction to agriculture finance and DRFA instruments, approaches and their value in increasing household welfare, productivity and resilience of individuals, businesses, and economy.
- When different financial instruments can be appropriate to meet different policy objectives

**4**

- Introduction to types of Agriculture Insurance – indemnity & index
- Distinction between indemnity & index insurance

**5**

- Key features of area yield index, weather index and livestock insurance
- When to consider area yield index, weather index and livestock insurance

**6**

- Importance of good data, analytics, innovation & new tech to support DRFA
- Types of data, methods of data collection required by insurers and other stakeholders

**7**

- DRFA – Key considerations to achieve policy objectives
- Effective sharing of risks between beneficiaries and stakeholders
- Designing financial protection scheme and organizing insurance and microinsurance market

**8**

- Importance and ways in which Governments can support DRFA
- Key challenges and learnings for policymakers
- Examples of international experience – public-private sector collaboration

# A comment on Jargon



- Key Concepts are often assumed to be understood by all
- Disaster-responsive financing instruments and mechanisms can be cluttered with jargons and legal terms
- When in doubt, check the explanation
- A glossary of key items will be provided at the end of each sheet

## GLOSSARY

### Agriculture Insurance

Insurance applied to agricultural enterprises. Types of business include crop insurance, livestock insurance, aqua-cultural insurance and forestry, but insurance normally excludes buildings and equipment although they may be insured by the same insurer under a different policy. (See aqua-cultural insurance, crop insurance, livestock insurance).

### Catastrophe Bonds

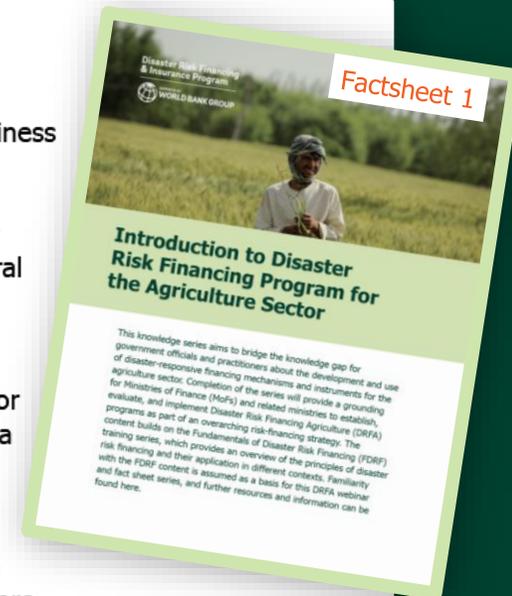
An insurance-linked security in which payment of interest or principal or both is suspended or canceled in the event of a specified catastrophe such as an earthquake.

### Contingent Credit

A financial tool that provides governments with immediate access to funds following disaster events and enables a more rapid and efficient response. This type of financing is typically used to finance losses caused by recurrent natural disasters. A line of contingent credit is an ex ante instrument that allows borrowers to prepare for a natural disaster by securing access to financing before a disaster strikes.

### Disaster Risk

The potential loss of life, injury, or destroyed or damaged assets that could occur to a system, a society, or a community in a specific period of time. The loss is determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.



# Module 1: Introduction to DRFA - Objectives

Understand the **purpose and role** of disaster risk financing

Get to know **four core principles** of disaster risk financing

Recognize the **benefits** and role of disaster risk financing for agriculture



# What is Disaster Risk Finance?

## PROTECTING LIVELIHOODS AND DEVELOPMENT

**Increasing the Financial Resilience** of the national and subnational governments, businesses, households, farmers, and the most vulnerable against **natural disasters** by implementing sustainable and cost-effective **financial protection policies and operations.**

# What is Disaster Risk Finance?



Ensuring money reaches people **who need it the most, when they need it the most**



Planning on how to meet the cost of disasters **before they happen**



Increasing the speed, predictability and transparency of disaster response



Raising funds from International partners **after a disaster**

# 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

# Four Primary Groups impacted by natural disasters and climate risk

**GOVERNMENT**



**BUSINESS/  
HOME OWNERS**



**FARMERS/  
HERDERS**



**THE POOREST**



# Effective risk financing & insurance programs

## COORDINATED PLAN

For post-disaster action agreed in advance

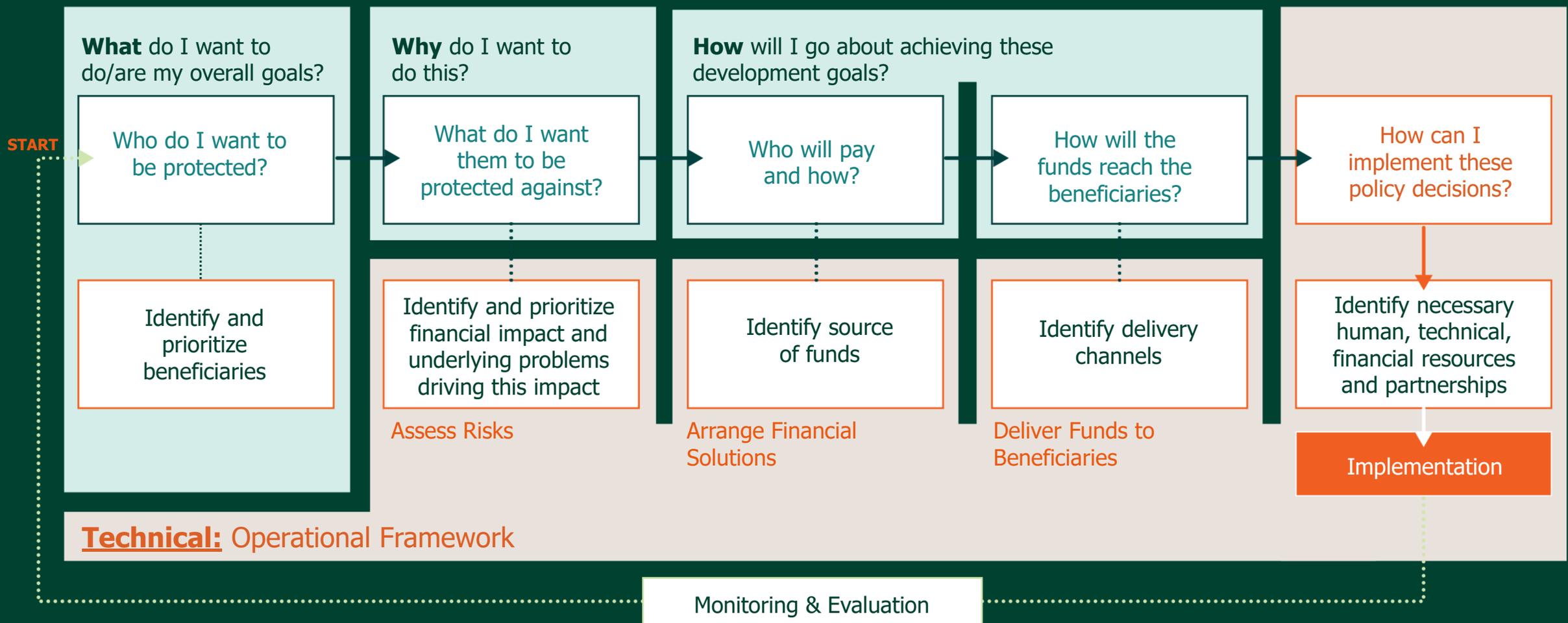
Fast, evidence-based  
**DECISION-MAKING PROCESS**

**PRE-PLANNED FINANCING** to ensure plan can be implemented

- Ensures funds are available quickly when—and only when—they are required
- Binds partners to pre-agreed objectives, decision processes, and implementation and modalities
- Promotes greater discipline, transparency, and predictability in post-disaster spending
- Ensures rapid mobilization of funds, reducing humanitarian costs and potentially saving money

# Decide on Policy Priorities

## Policy: Financial Protection Strategy & Action Plan



# The Four Core Principles of Disaster Risk Finance

**1**

**Timeliness of funding:** speed matters but not all resources are needed at once.

**2**

**No single financial instrument** can address all risks.

**3**

**How money reaches beneficiaries** is as important as where it comes from.

**4**

To make sound financial decisions you need to **have the right information.**

# Disaster Risk Layering

No single financial instrument can address all risks



## HAZARD TYPE



## FINANCING INSTRUMENT

## THREE-TIERED RISK LAYERING STRATEGY FOR GOVERNMENT

<p><b>Market-Based Instruments</b></p>	<p><b>Risk Transfer</b></p> <p>Risk transfer for assets such as property insurance or agricultural insurance and risk transfer <i>for budget</i> management like paramedic insurance, cat bonds/swaps</p>
<p><b>Contingent Financing</b></p>	<p><b>Contingent Credit</b></p> <p>Financial instruments that provide liquidity immediately after a shock</p>
<p><b>Budgetary Instruments</b></p>	<p><b>Budget Reserves/ Reallocations</b></p> <p>Reserve funds specifically designated for financing disaster related expenditures, general contingency budgets, or diverted spending from other programs</p>

International Assistance (uncertain)

# Disaster Risk Finance & Policy

Disaster Risk Finance supplements and connects many policy areas



# Disaster Risk Finance for Agriculture

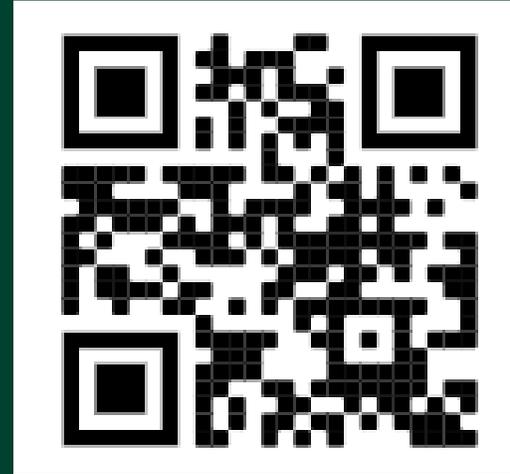
# Word Cloud: What do you think are the top two risks faced by the Agriculture sector?



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# Risks to agriculture and rural livelihoods

Why should we be interested in DRF for the Rural and Agricultural Sector?

**Small rural households and farmers are disproportionately vulnerable to/and affected by risk (natural, climatic, pests & diseases, price) and to climate change:**

## 3.4 BILLION PEOPLE

(44% of global population) live in rural areas as of 2019

Majority of the rural population lives in:



Rural population mainly derive their livelihoods (employment, consumption, and incomes) from small-scale agricultural crop production, rearing of livestock, and fisheries

There are **570 MILLION farms**

of which 500 million (88%) own or cultivate farms of **<2 Ha** (accounting for 12% of land area)

Many are subsistence farmers producing solely for consumption

## POVERTY RATES

and food insecurity are much higher for rural than urban people

# Risks to agriculture and rural livelihoods

Overview of the breadth and severity of risk faced by the agricultural sector

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

Source: IFAD 2020



## Naturally occurring risks:

Fire, lightning, earthquakes, volcanoes, landslides, etc.



## Climatic shocks:

Hurricanes, heavy storms and excessive rainfall/hail, storm surges and salinization, flooding, droughts, and severe freeze or extreme heat events



## Climate change risks:

- Rise in global temperatures increasing the variability in seasonal rainfall causing flooding/drought events
- Rise in sea level threatening millions of people in coastal areas
- Accentuates problems associated with pests and diseases of crops and animals (More than 1.1 billion people live in areas of high climatic vulnerability in SSA, Asia and parts of LAC)

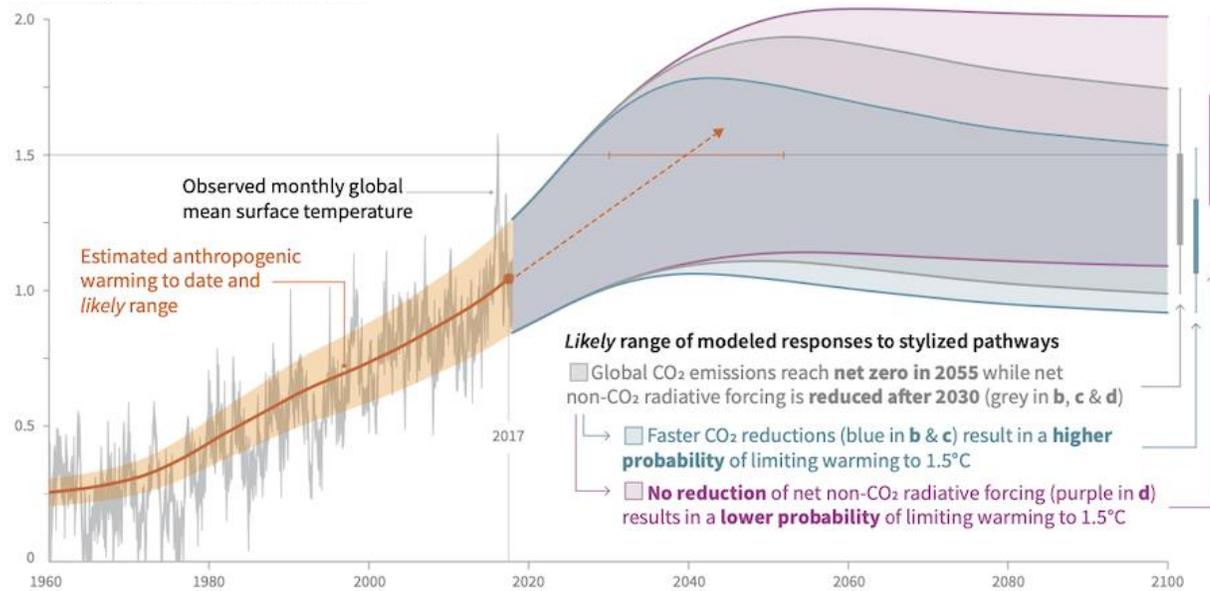


## Other risks (especially for small farmers):

- Exposed to market price risk (price volatility for agricultural inputs & outputs/products)
- Poor health/nutrition, conflict, economic shocks, political & institutional risks, epidemic diseases (e.g. Covid-19)

# Impacts of Climate Change and Global Warming on the frequency and severity of natural disasters

Global warming relative to 1850–1900 (°C)

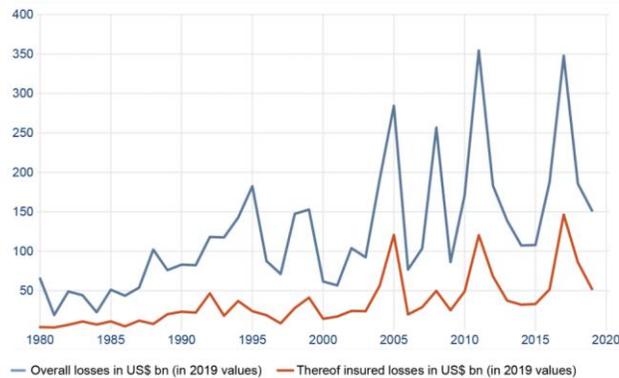


Source: IPC 2018

Average global temperatures are **1.1 °C above pre-industrial period, contributing to increased frequency and severity of extreme weather events** including heatwaves, droughts, floods, winter windstorms, hurricanes and wildfires.

Climate change is leading to shrinking glaciers and accelerated ice-melt in Greenland, Arctic and Antarctic and rising sea levels.

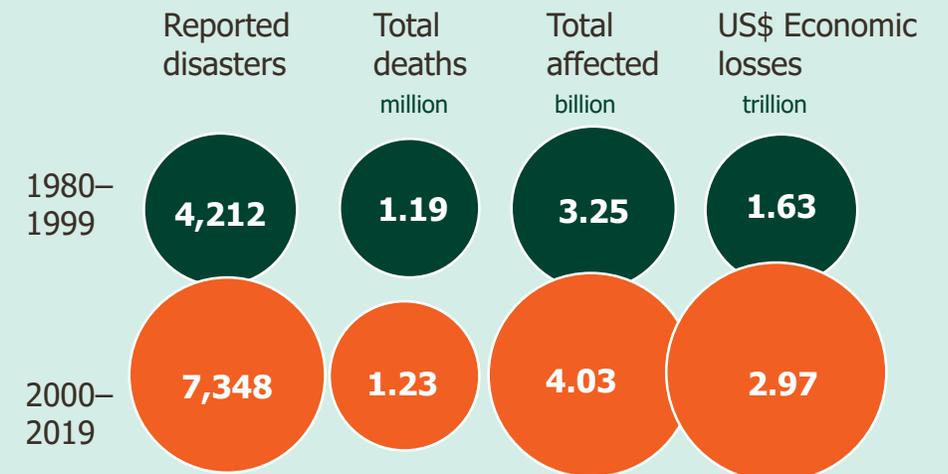
# Impacts of Climate Change and Global Warming on the frequency and severity of natural disasters



**Overall losses** and insured losses from natural disasters have increased significantly over the past 40 years: **averaging US\$187 billion per year in the last 10 years**

Source: MunichRe

## Disaster impacts: 1980-99 vs 2000-19



Over the past 20 years there has been a **sharp increase in the number of reported natural disasters** and their impacts on human lives and economic costs.

Source: CRED/UNDRR 2020

# Risks to agriculture and rural livelihoods

How disasters/other risks transpire to impact on households, businesses, govts.



## HOUSEHOLD LEVEL

(Farmers, Pastoralists, Etc.)

- loss of crop production leading to reduced consumption and income from sales
- death of livestock leading to complete loss of livelihoods for pastoralists
- inability to repay loans leading to default and impact on future borrowing
- distress sales of assets and descent into poverty traps



# Risks to agriculture and rural livelihoods

How disasters/other risks transpire to impact on households, businesses, govts.



## BUSINESSES

(Financial institutions, value chain actors - input and output dealers)

- Financial institutions: Inability to recover loans. closure of revolving funds, need for recapitalization, etc.
- Input dealers and grain purchasers/packer processors face business interruption and closure in extreme drought or flood situations



# Risks to agriculture and rural livelihoods

How disasters/other risks transpire to impact on households, businesses, govts.



## GOVERNMENTS

- Widespread food insecurity, rising food prices, social unrest
- Budgetary pressure and reallocation to finance ex-post disaster relief and compensation for affected populations
- Increased costs of food imports
- Dependence on humanitarian assistance
- Borrowing and increased national debt



# Risks to agriculture and rural livelihoods

## Impact of Covid-19 Pandemic

- **COVID-19 is impacting on rural households and farmers livelihoods** in developing countries through lockdown and disrupted access to input markets (credit, seeds, fertilizers, etc.) and output markets to sell their agricultural crops and livestock and animal products (milk etc.).
- Quarantine and social distancing has reduced demand and **disrupted supply chain** actors forcing many businesses to close and loss of jobs particularly of low skilled labor.
- Global growth is projected at  $-4.9$  percent in 2020 (IMF) which significantly impacts fiscal space for governments, reducing ability to respond to shocks and support vulnerable populations.

# Managing Risk in Agriculture:

there are a wide range of informal and formal risk management, coping, and financing mechanisms

## DEGREE OF RISKS

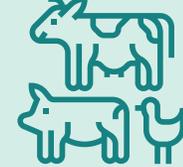
- Non-specific
- Low
- Moderate
- High/Catastrophic

## POTENTIAL RISK MANAGEMENT MECHANISM

Informal Mechanisms		Formal Mechanisms	
Household/Community	Markets	Government	
<ul style="list-style-type: none"> <li>Avoiding exposure to risk</li> <li>Sharecropping</li> <li>Farmer self-help groups</li> <li>Water resource management</li> </ul>	<ul style="list-style-type: none"> <li>New technology</li> <li>Improved seeds</li> </ul>	<ul style="list-style-type: none"> <li>Irrigation infrastructure</li> <li>Agriculture research and extension</li> <li>Early warning systems</li> <li>Weather data systems</li> </ul>	
<ul style="list-style-type: none"> <li>Crop diversification</li> <li>Savings in livestock</li> <li>Food buffer stocks</li> </ul>	<ul style="list-style-type: none"> <li>Formal savings</li> </ul>		
<ul style="list-style-type: none"> <li>Labor diversification</li> <li>Risk pooling (peers, family members)</li> <li>Informal Lending</li> </ul>	<ul style="list-style-type: none"> <li>Formal lending (credit)</li> <li>Risk sharing (input suppliers, wholesalers)</li> </ul>	<ul style="list-style-type: none"> <li>State-sponsored lending</li> <li>Contingent credit</li> <li>Credit guarantee schemes</li> <li>Risk sharing facilities</li> <li>Shock-responsive social protection</li> </ul>	
<ul style="list-style-type: none"> <li>Reduce consumption</li> <li>Remove children from school</li> <li>Sale of productive assets</li> <li>Default on loans</li> <li>Migration</li> <li>Do nothing</li> </ul>	<ul style="list-style-type: none"> <li>Insurance (indemnity &amp; index)</li> </ul>	<ul style="list-style-type: none"> <li>Disaster relief</li> <li>Social funds</li> <li>Catastrophe bonds</li> <li>State-sponsored parametric insurance</li> <li>Shock-responsive social protection</li> <li>Credit-guarantee schemes</li> <li>Risk-sharing facilities</li> </ul>	



## Role of DRF for Agriculture



DRFA advocates for **financial mechanisms which can be put in place before the disaster event occurs (ex-ante) to:**

- increase certainty of financing and planning, and
- to provide timely financial assistance to affected farming populations to put them back into business in the
- quickest possible time.



DRF for Agriculture focuses on achieving a **balance of financial mechanisms** which maximize:

- welfare for rural/agricultural households, protection of their economic farming activity and resilience building;
- financial protection for agricultural |value chain actors and businesses;
- fiscal/budget efficiency and certainty for Governments.

# Why implement DRFA?

## Policy objectives

Governments can achieve a range of policy objectives through a planned DRFA approach and ex-ante instruments:

### More cost-effective and timely protection:

- Stabilize food production and food security against climatic shocks and other disasters at individual farmer (Micro), regional (Meso) and national (Macro) levels
- Maintain rural livelihoods and incomes and reducing urban migration in times of major disasters
- Greater budgetary efficiency, stability, and certainty compared to ad-hoc disaster relief
- Increased effectiveness of response, and reduced impact & cost of disasters to economy (USAID 2018; World Bank 2019)
- Transfer part of DRFA responsibility from government to private sector for agricultural savings and credit and insurance

### Enhanced Agricultural Productivity:

- Increase agriculture finance access for smallholders to invest in modern inputs, increasing their productivity and incomes
- Increased national output, income, and economic growth through stabilizing and increasing investment in agriculture



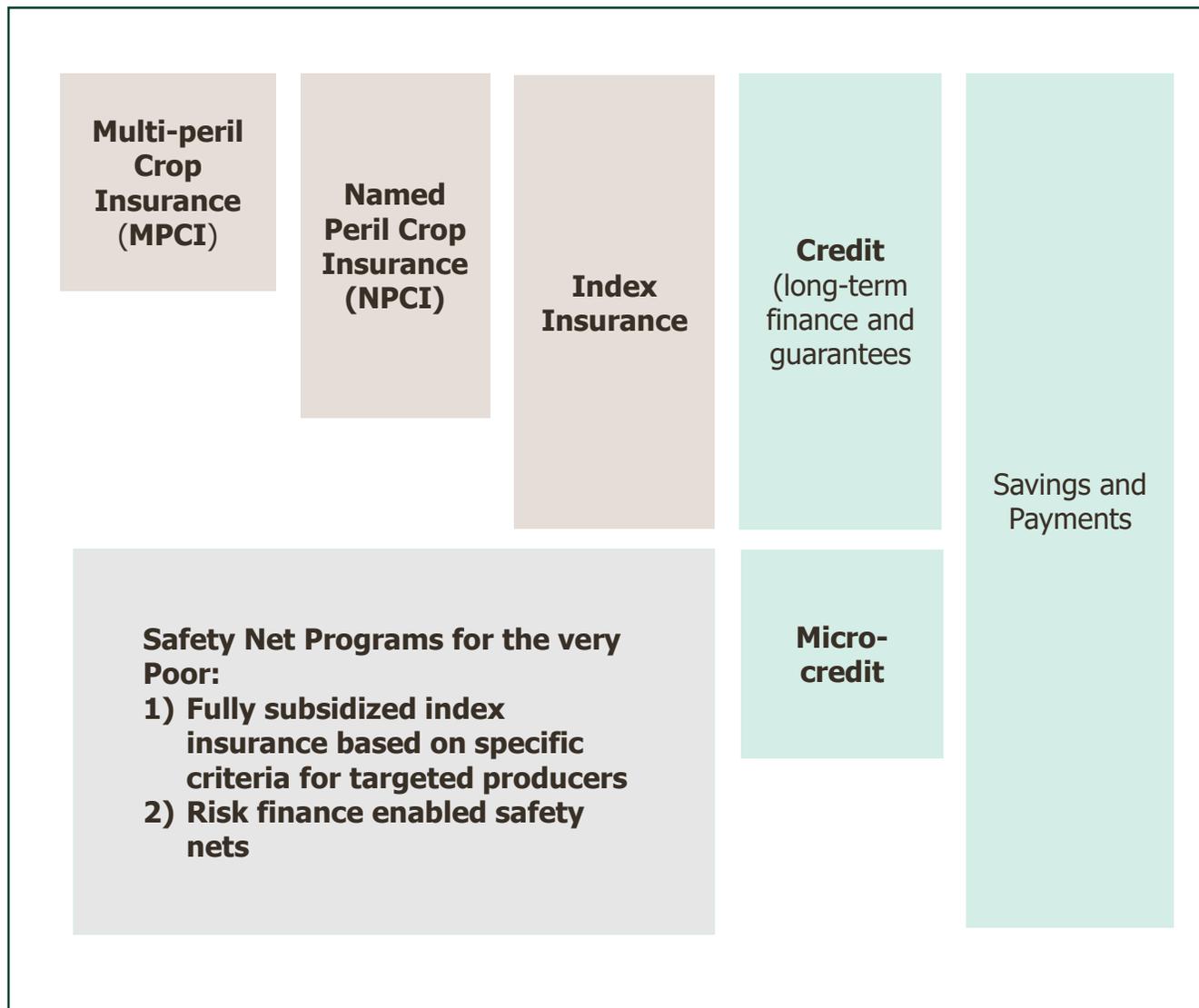
### Lending Institutions and other Value Chain Actors can benefit from DFRA:

- Loans protected from climatic shocks/reduced risk of default by loanee farmers or contract growers
- Increased lending to agriculture through new forms of collateral

# One size does not fit all:

products and services should properly target specific segments of users (farmers)

## PRODUCT RANGE



## CUSTOMER SEGMENTS

### Commercial Farmers

- Medium & Large Farm units > 5 Ha
- Access to credit
- High levels input use
- Produce for sale

### Semi-Commercial Smallholder Farmers

- Small farm units Typically 1<5 Ha
- Some assets
- Some access to credit
- Part consumption/part sale

### Small Subsistence farmers and sharecroppers

- Very few assets < 1 Ha land
- Subsistence farming
- very vulnerable to climatic shocks

### Landless Labouring Households

- Very few assets – No land
- Paid labour
- very vulnerable to climatic shocks

# One size does not fit all: (CASE STUDY KENYA)



Each risk financing solution should fit the needs of the target sector (Kenya)



Risk Financing Instrument	Income Level	Livestock Safety Net and Insurance Program	Target Audience	Cost Share
Commercial Micro-Retail Livestock Insurance (IBLI)	Above	ILRI-IBLI Subsidized commercial livestock insurance	Medium-large Pastoralists	Partial premium cost sharing by SDL-GOK
Macro-level Drought Risk Insurance (Disaster Protection)	Low Income	SDL Macro-level NDVI insurance program for 70,000 vulnerable pastoralists above HSNP poverty levels	Vulnerable Pastoralists 5 – 20 TLU's	Premium 100 % subsidized by SDL-GOK
Scalability Mechanism – Drought Risk Fund	Vulnerable	Hunger Safety Net Program (HSNP), providing SCALABLE cash transfers to an additional 180,000 vulnerable households	None or very few livestock	Costs 100 % subsidized by NDMA
Cash Transfers Social Protection Fund	Chronically vulnerable	Hunger Safety Net Program (HSNP), providing non-conditional cash transfers to 100,000 very poor households.	None or very few livestock	Costs 100 % subsidized by NDMA

# Key takeaways

- DRFA plays a critical role as part of a broader agricultural risk management approach.
- 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).
- “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.
- 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.
- Ex-ante planned approaches can be substantially more timely and cost-effective than an ad-hoc disaster relief.



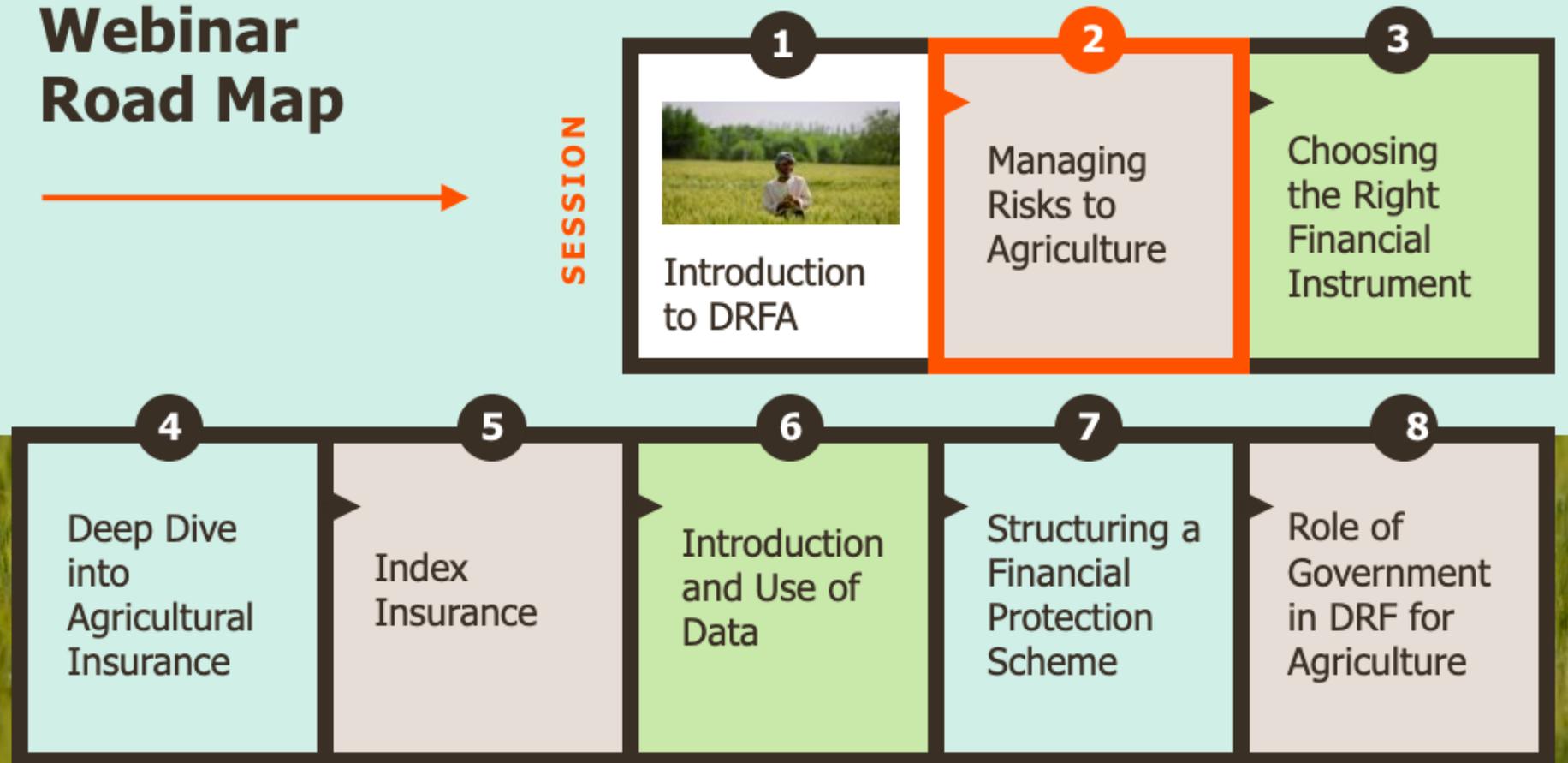
# Next session

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

## Webinar Road Map



SESSION



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# **EXTRA SLIDES**

# Webinar Road Map



SESSION

1



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**HAZARD  
TYPE**

Low frequency/  
High Severity

High frequency/  
Low Severity

**FINANCING  
INSTRUMENT**

**THREE-TIERED RISK LAYERING  
STRATEGY FOR GOVERNMENT**

**Market-Based  
Instruments**

**Risk Transfer**

Risk transfer for assets such as property insurance or agricultural insurance and risk transfer *for budget* management like paramedic insurance, cat bonds/swaps

**Contingent  
Financing**

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**Budgetary  
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Reserve funds specifically designated for financing disaster related expenditures, general contingency budgets, or diverted spending from other programs

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