

# DRF for Agriculture and Climate Resilient Livelihoods

March 5th, 2024  
Muldersdrift, South Africa

Session 2 – March 5th, 2024

**The Rationale for DRF in agriculture and choosing the right financing instrument**

Disaster Risk Financing  
& Insurance Program



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# Agenda



- 1 The Rationale for DRF in Agriculture
- 2 Risk layering and choosing the right financial instrument
  - a. Risk Retention Instruments
  - b. Risk Transfer Instruments
- 3 The basics of agriculture insurance
- 4 Key Takeaways

# Why DRF for the rural and agricultural sector?

Rural households and small-scale 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



There are **570 million farms**, of which  
500 million (88%) own or cultivate farms  
of <2 Ha (accounting for 12% of land area)

**Poverty rates**  
higher in rural than urban  
areas



Rural population mainly derive their  
livelihoods in agriculture  
(employment, consumption, and incomes)



**food insecurity**  
Challenges development  
of human capacity

# Risks to agriculture and rural livelihoods

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

## Market price risk

- ◆ Volatility of prices of agricultural inputs and outputs/products)

## Production risks

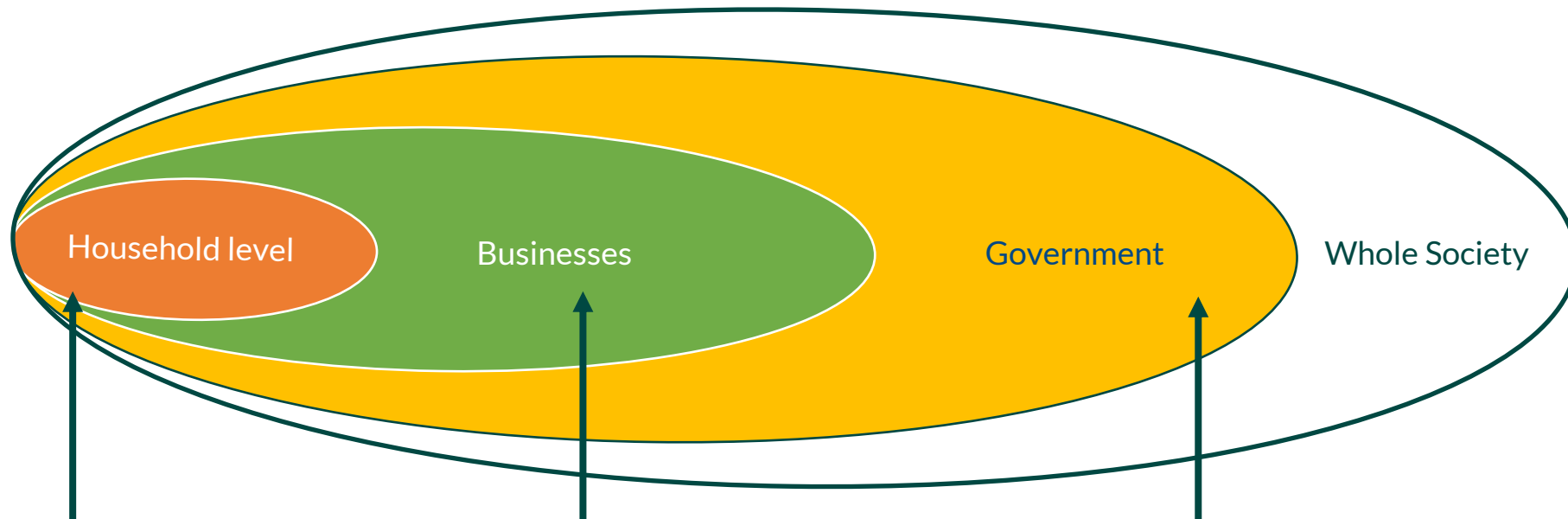
- ◆ Droughts, floods, hurricanes, storms, severe rain/hail or frost, extreme heat
- ◆ Forest fires, lightning, earthquakes, volcanoes, landslides, etc.
- ◆ Locust diseases and invasions

## Environmental risks

- ◆ Conflicts
- ◆ Macroeconomic
- ◆ Policy risk e.g. price caps



# Risks to agriculture and rural livelihoods affect all of society



## FARMERS, PASTORALISTS, ETC.

Loss of crop production | reduced consumption and income | death of livestock | loss of livelihoods | distress sales of assets and descent into poverty traps | inability to repay loans | default and impact on future borrowing

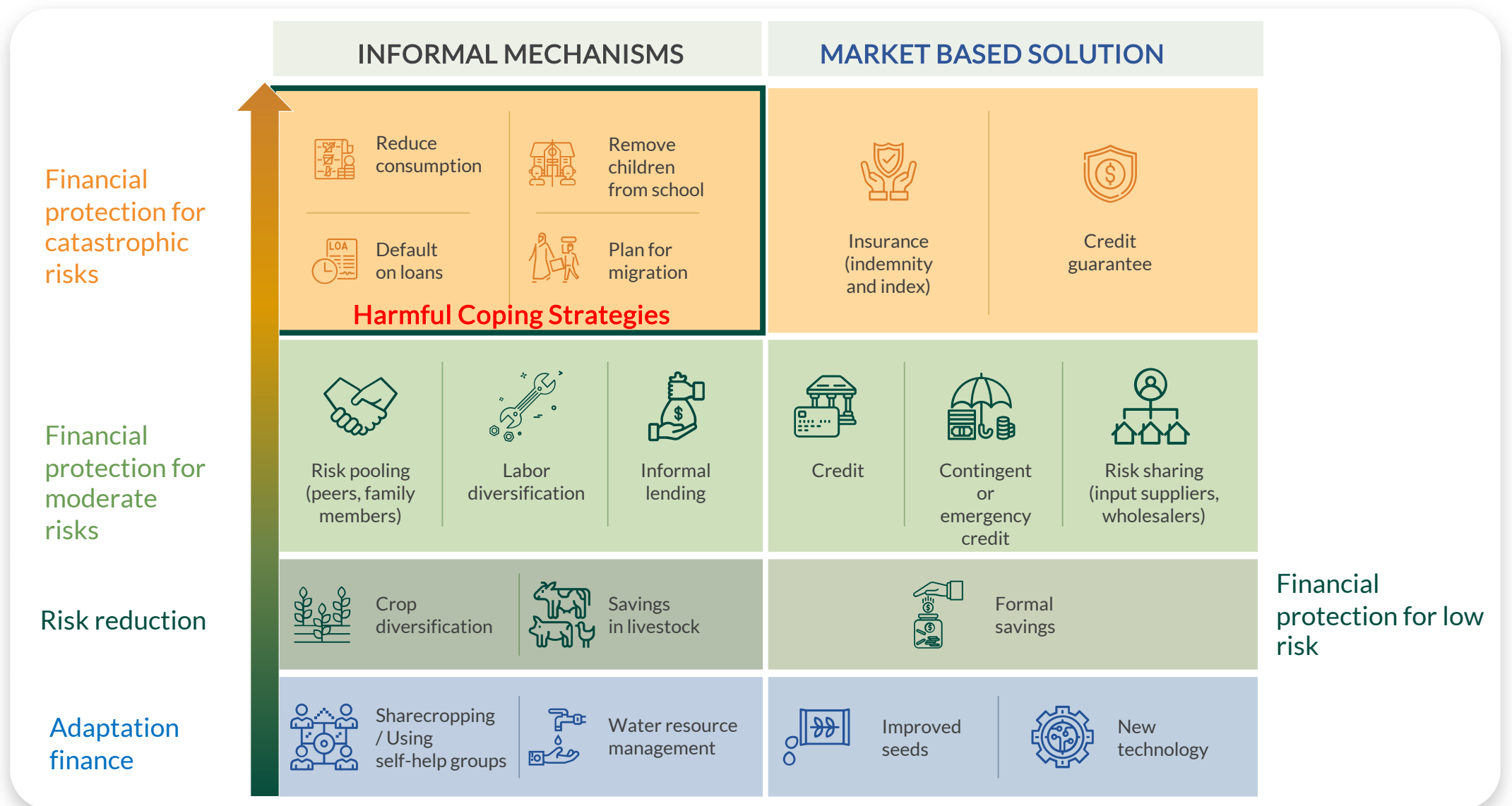
## FINANCIAL INSTITUTIONS, VALUE CHAIN ACTORS - INPUT & OUTPUT DEALERS

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

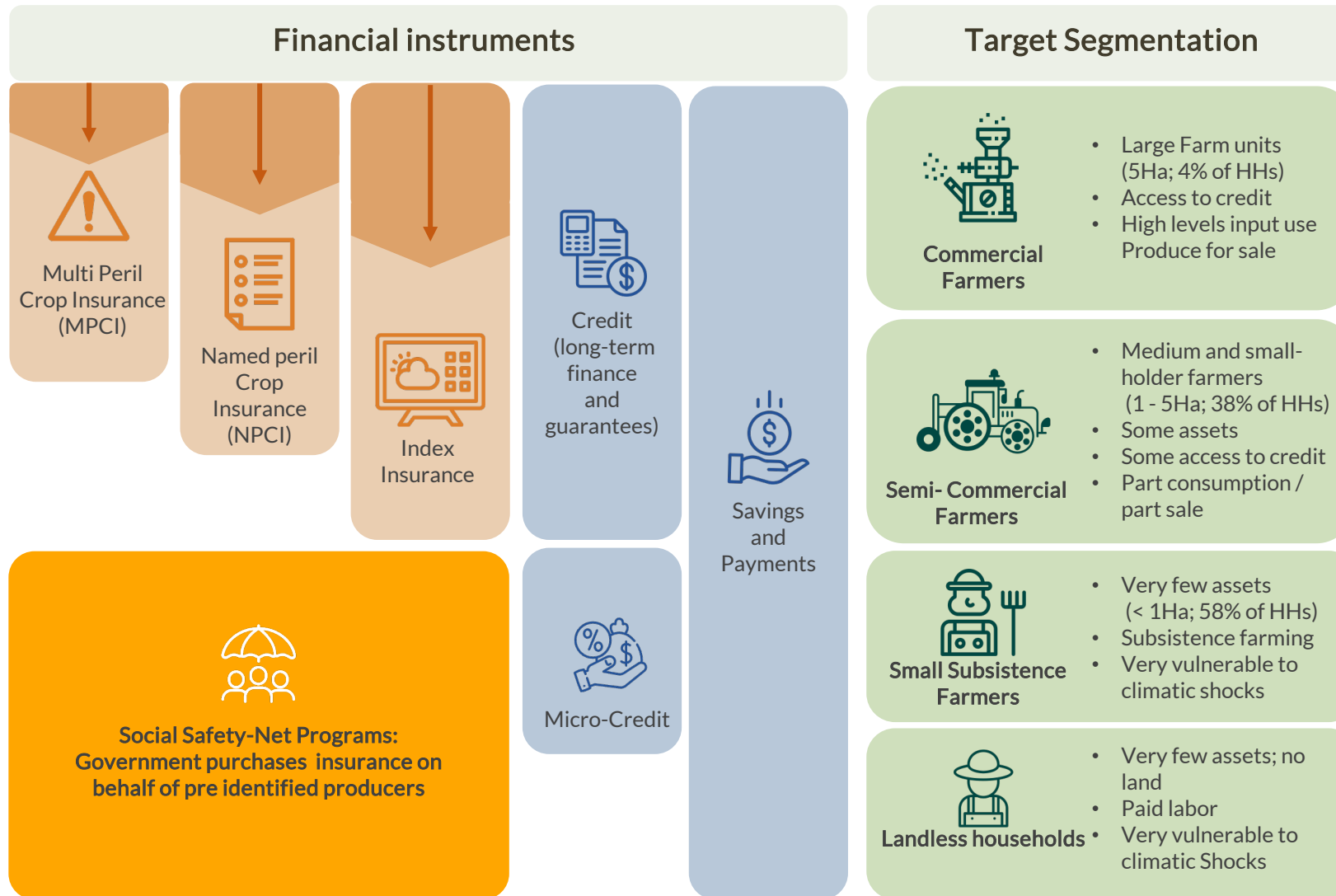
## GOVERNMENTS

Widespread food insecurity, rising food prices, social unrest | Dependence on humanitarian assistance | increased national debt | budget volatility due to reallocation to finance disaster relief | Increased costs of food imports

# DRF in Agric enables a comprehensive system to manage risk



# One size does not fit all: households require integrated financial services based on their risk profiles



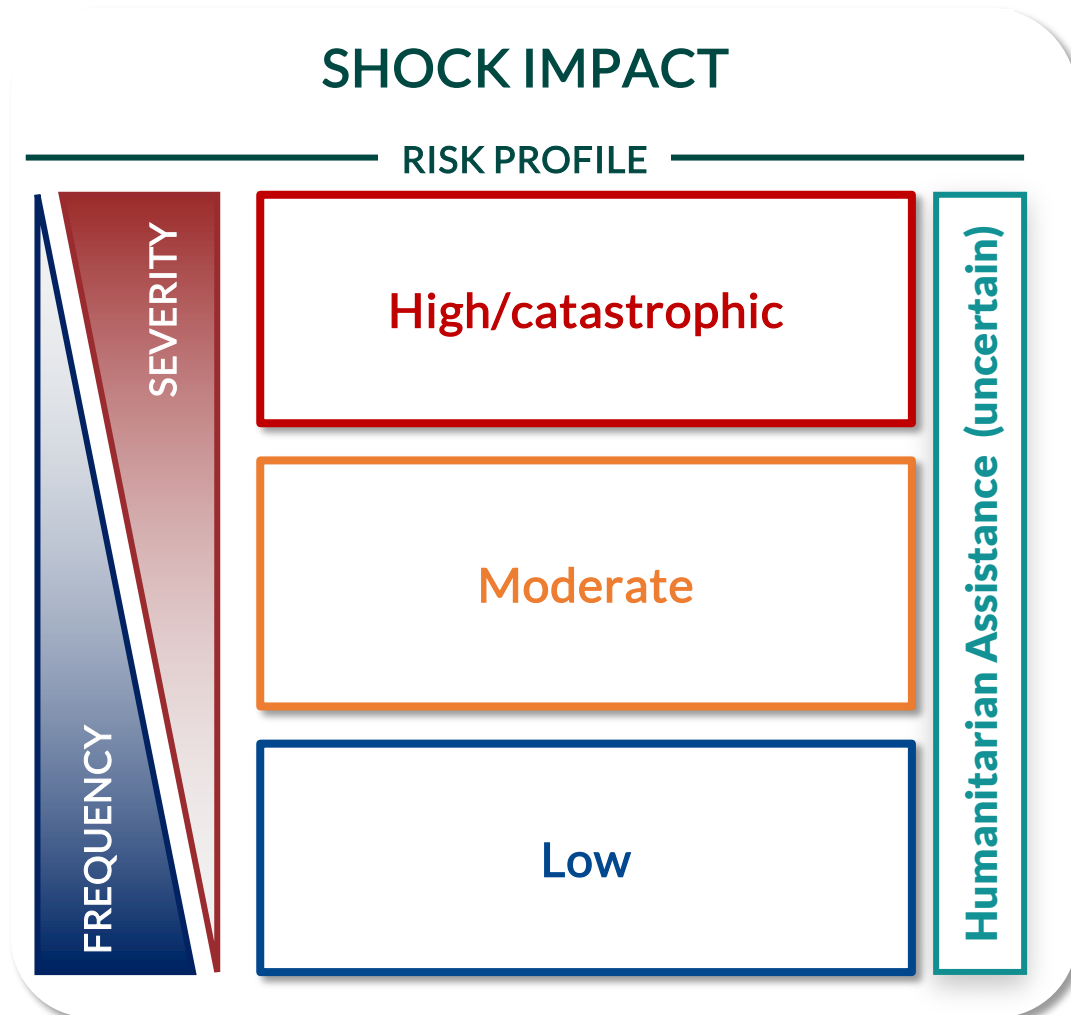
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# Cost efficiency requires combining different instruments based on risk profile & policy priorities



# An effective DRF strategy aims to match financial instruments to specific needs

Robust DRF instruments match needs based on the identified *risk profile* and *policy priorities*, considering the differences in characteristics of financial instruments

## CRITERIA



**Amount available:** How much funding is available from this instrument?



**Cost of capital:** What costs (real and opportunity) are associated with this instrument?



**Mobilization speed:** How quickly are funds available after a shock?

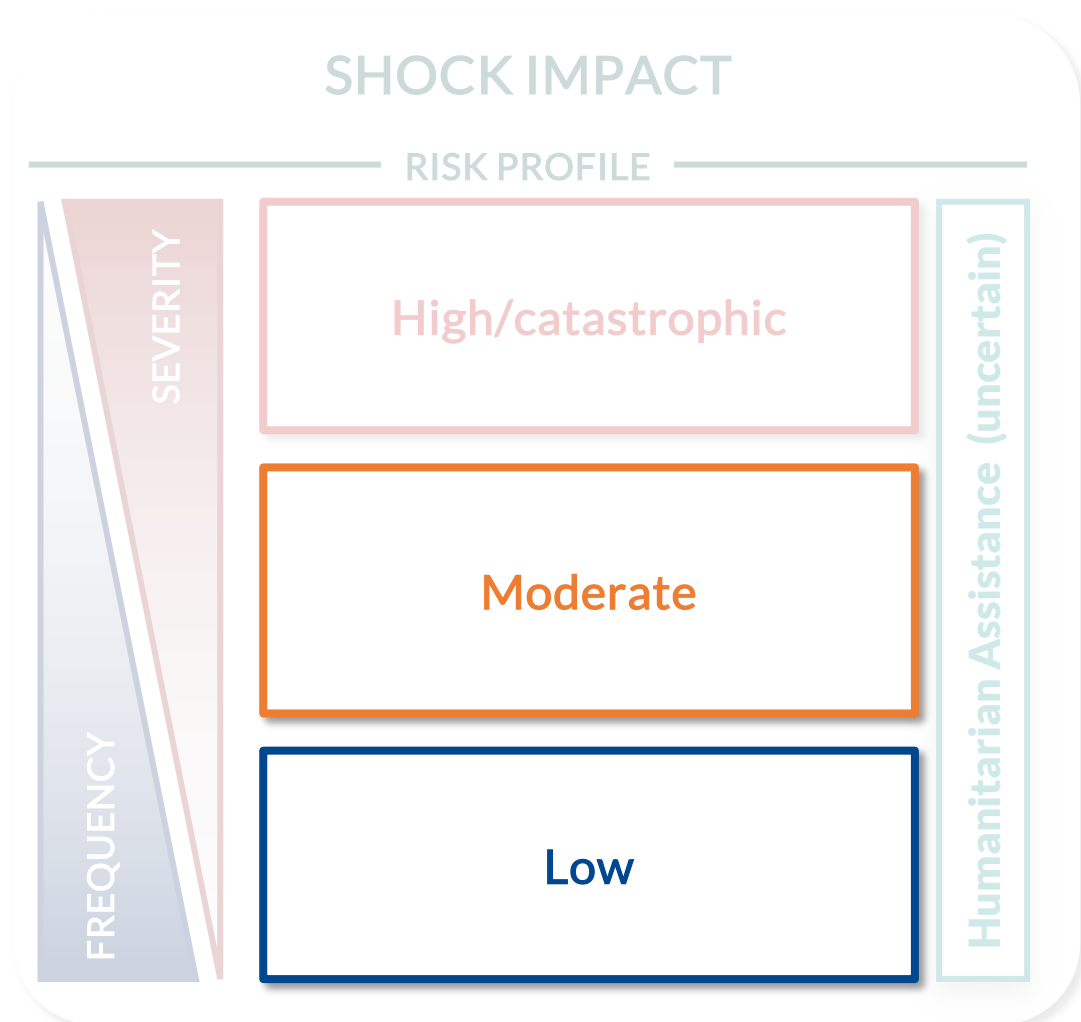


**Reliability:** How predictable is the amount and timing of this instrument?



**Requirements:** What data and arrangements are required for operationalization?

# Risk Retention Instruments



# Budget reallocations

Government agencies and line ministries may request budget reallocations to use some of their existing budget lines for disaster response or modify the issued allocations.



## Advantages

- Can often be the first source of funding available to government for emergency relief
- Can be available for all kinds of disasters or emergency events



## Disadvantages

- Reduces the spending planned for development priorities
- Potentially very high opportunity cost
- There is a limit to how much of the budget can be reallocated
- **Unreliable** subject to the timing of the disaster relative to the annual budget cycle
- May be hard to monitor and account for

# The key questions when reallocating budget

Power to reallocate without approval of Legislative Assembly?



Is there alternative funding?



Control and transparency mechanism

Expenditure tracking

Flexibility without compromising transparency

What is the threshold?



Are there any clauses that override the tax rules in the event of a disaster?



# Contingency or Reserve Fund

A Fund held either off-budget with a pre-allocated amount or on-budget as a contingency budget allocation with specific operational rules, or a dedicated management institution or government agency with a fiduciary responsibility



## Advantages

- Improves timeliness, funds immediately available
- Rapid response enables faster recovery and minimizes longer-term impact of disasters
- Improve transparency and accountability regarding public expenditures
- Reduce dependency on emergency borrowing
- Can enable inter-agency coordination for readiness, recovery, and risk transfer



## Disadvantages

- Opportunity cost if reserves retained
- Require processes, systems, and resource capability to ensure funds are distributed efficiently and transparently  
Can be mismanaged
- Requires careful fiscal management and modeling to ensure size of fund corresponds to exposure/liability

# The key questions when establishing a contingency or reserve Fund

Legal basis and institutional arrangement



The type and scope of the Fund



Financing sources



Key requirements to ensure that resources are available at the right time with predictability



The activation mechanism

Develop guidelines for fund expenditures (eligible expenditures)



Procedures for awarding contracts



# International experience of Disaster Funds

	Year of Creation	Support emergencies	Support re-construction	With subsidy from the national government	Regional governments support the fund	Risk transfer schemes	Insurance as a distribution channel	Support Agriculture / rural households
Colombia	2012	✓	✓	✓	✓			✓*
Costa Rica	1969	✓	✓	✓	✓			✓
Spain	1941		✓			✓	✓	✓
US FEMA	1973	✓		✓	✓	✓	✓	✓
France	1946		✓			✓	✓	✓**
Japan	1966		✓			✓	✓	-
Kenya	2017	✓		✓				✓**
Philippines	2017	✓	✓	✓	✓			✓
Mexico	1996	✓	✓	✓	✓	✓	✓	✓
Mozambique	2018	✓		✓				✓
Norway	1961		✓	✓		✓	✓	✓
New Zealand	1945		✓	✓		✓	✓	-
Panama	2012							✓
Peru	2016	✓	✓	✓	✓			✓
Türkiye	2011	✓	✓	✓		✓	✓	-



# Grain reserves can provide a first line of defense against food insecurity

## Problem statement



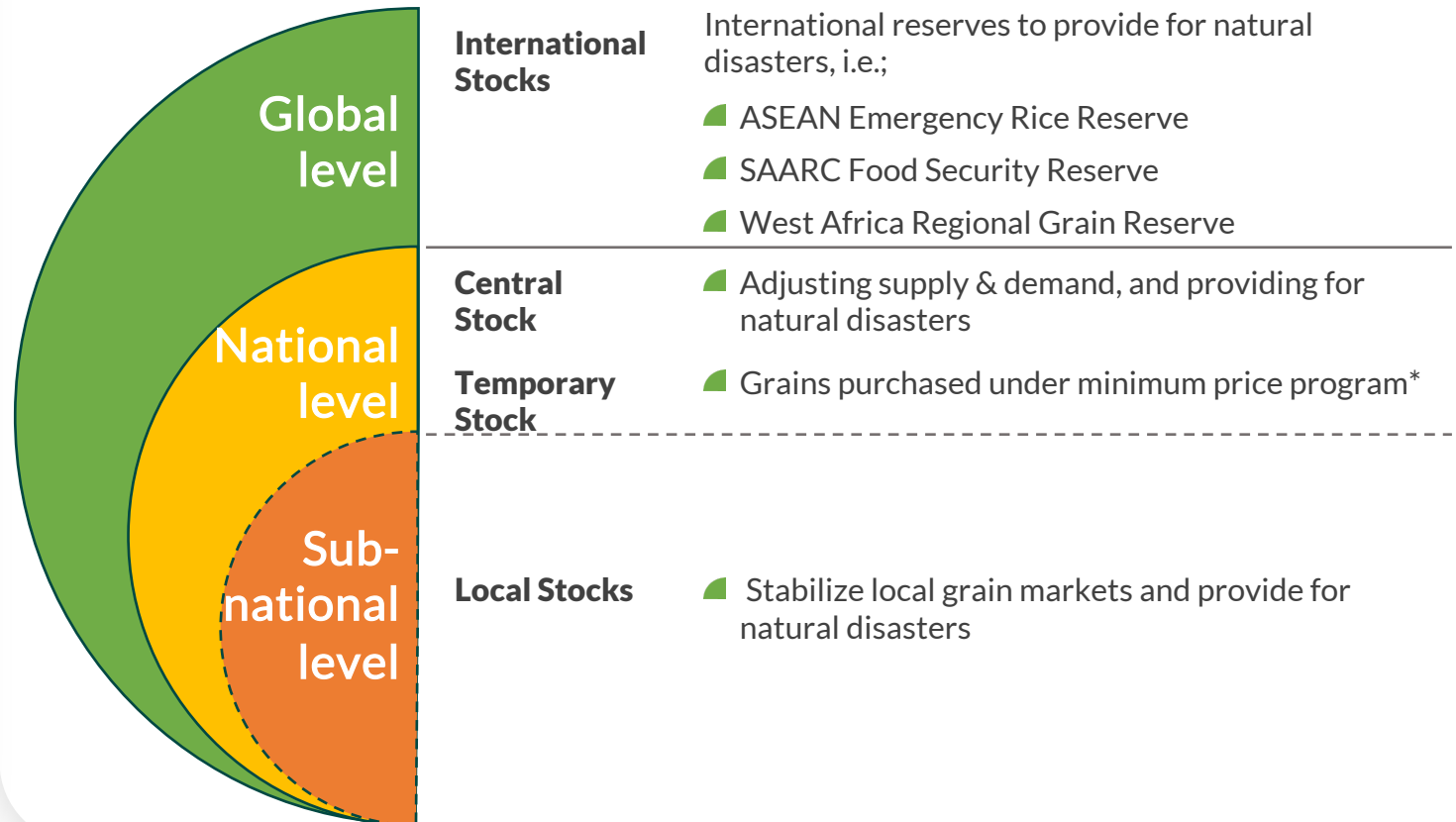
- In a **food emergency**, governments are often **pressured** to take **actions**
- Total reliance** on private storage can result in food insecurity due to **lack of access** and **lack of affordability** for the most vulnerable

## Solution



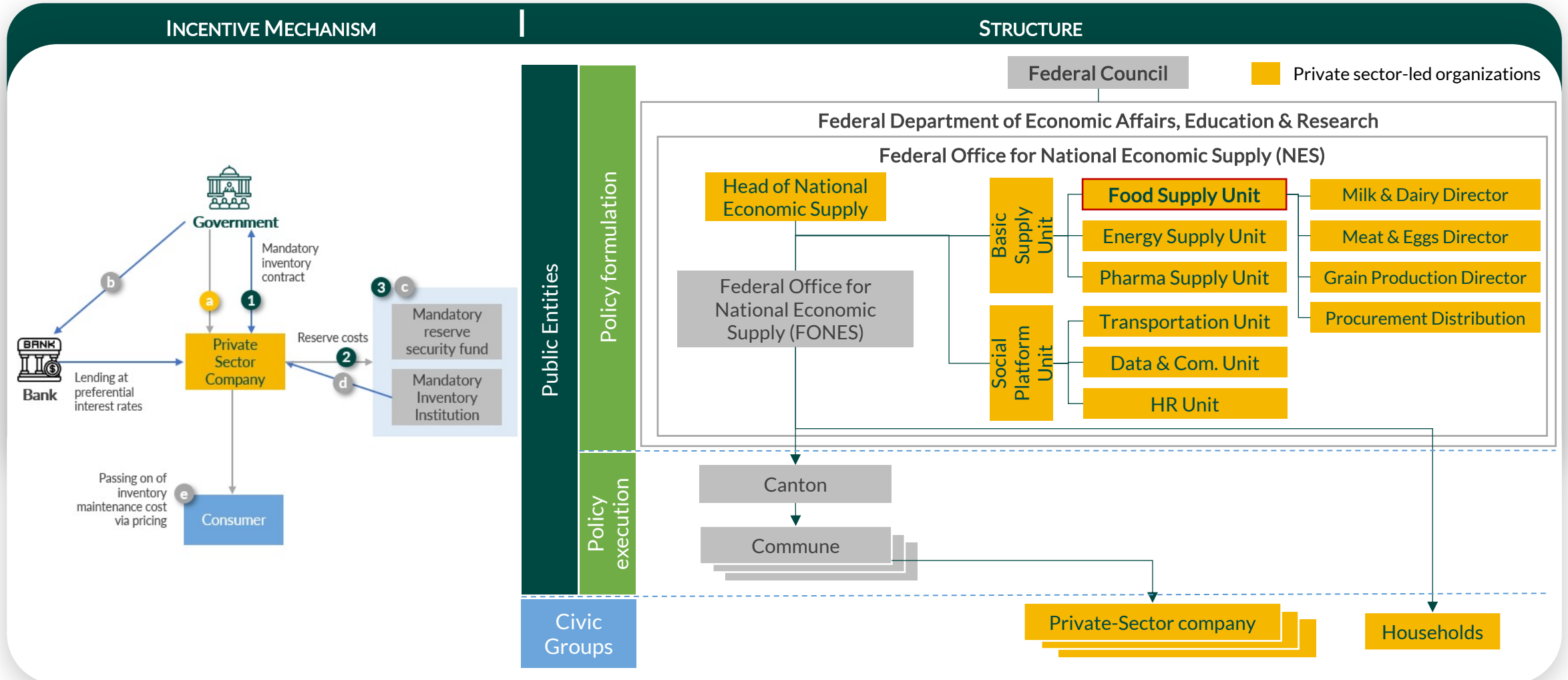
A strategic grain reserve for meeting future domestic or international needs

## Different levels of grain reserves



# Grain reserves under a food security strategy can be managed commercially

SWITZERLAND: EXAMPLE OF PRIVATE SECTOR ENGAGEMENT IN FOOD SECURITY GRAIN RESERVE PROGRAM



# Contingency Financing

Pre-arranged loan or credit facility approved prior to the disaster, and funds released immediately after the triggering event - typically the declaration of a state of national disaster



## Advantages

- Funds can be released very quickly after a disaster - usually within 48 hours
- The grant or loan is on the same concessional terms as other financing offered by the relevant funder
- Usually have a 'soft trigger', allowing the country to draw down from the facility for any kind of disaster or emergency



## Disadvantages

- Uses part of the allocation of funds from the funder that offers the facility (e.g. IDA allocation).
- Usually includes a fee to establish the facility
- Often prior conditions must be met e.g. macro economic stability

# Contingency credit: Catastrophe Draw Down Option (Cat DDO)

Conditional lines of credit allow governments to access funding at competitive borrowing rates immediately after the disaster to meet emergency needs.



## Key features of WB contingency credit: CAT DDO



- Cover a wide range of shocks: disasters, public health crises, etc.
- Act as a fiscal buffer pending the mobilization of additional resources (reconstruction loans, etc.)
- Can be used as a complement to insurance
- Encourage proactive disaster risk management; DRM plan is a precondition for eligibility

# Crisis Response Window Early Response Financing (CRW ERF)

The CRW ERF supports early responses to slower-onset crises identified as having the potential to escalate into major crises.

The ERF comprises US\$1 bn of the CRW's US\$2.5 for **Disease outbreak and Food insecurity crisis**



## ERF Technical assessment

evidence of an emerging /potential food security crisis



## Eligibility Note and Approvals

Verification of crisis and assess amount of funding needed



## Approval and Prep Plan

Conditional on Food Security Crisis Preparedness Plan within 3 to 6 months

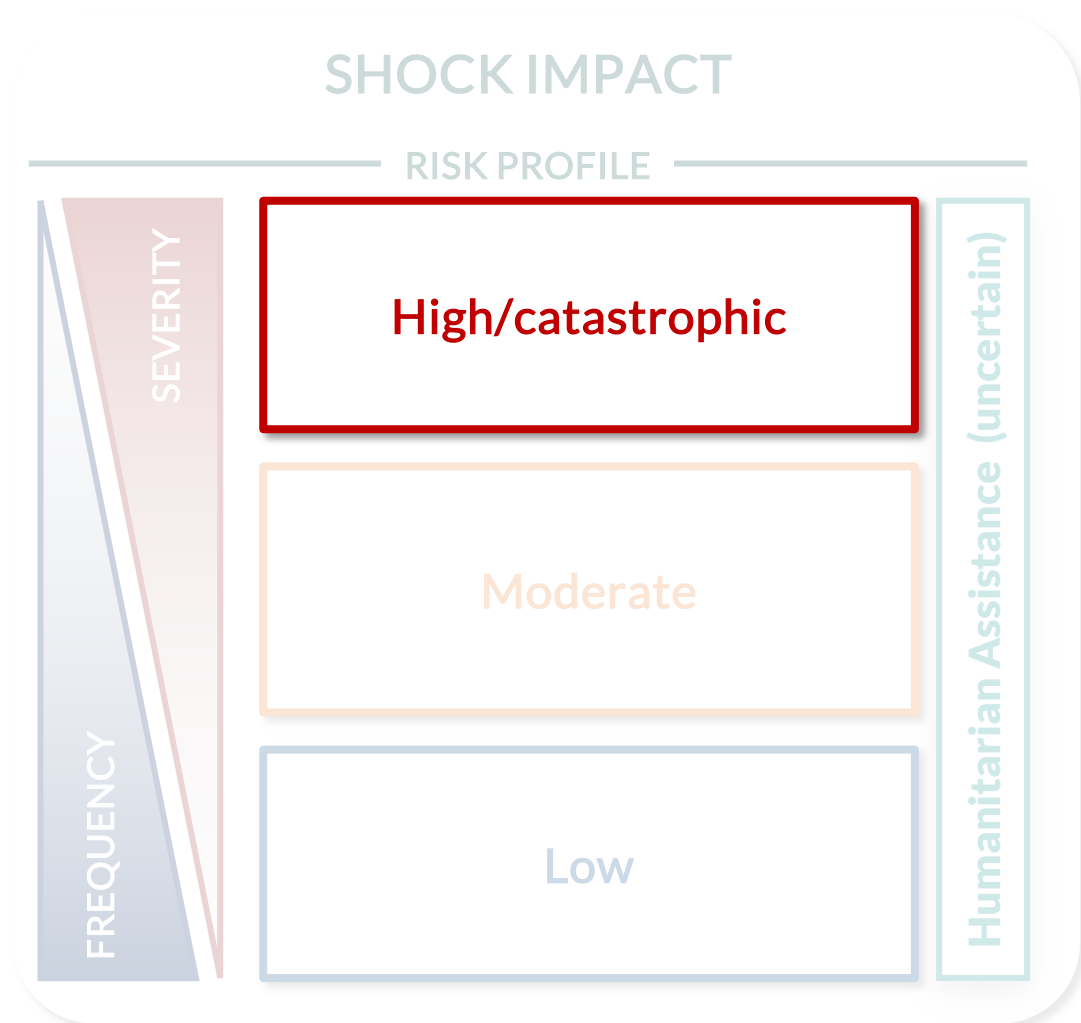
## Key features of CRW ERF



- Finances early response to slow-onset crisis before progression catastrophe
- Incentivize resilience-building, funds linked to crisis-preparedness efforts

- Reduce overall response costs, by mobilizing early response and mitigating crisis impacts

# Risk Transfer Instruments



# Market-based risk transfer solutions

Includes insurance, catastrophe bonds, weather derivatives and swaps. Provided by insurance companies, reinsurance companies and risk pools and the catastrophe market.



## Advantages

- Ensures funding is available to replace assets or prevent loss of assets or restore losses in revenue
- Can cover the reinstatement of key service delivery
- Enhances financial planning as part of a comprehensive protection strategy covering both immediate relief and longer-term recovery
- Enables rapid payments for certain types of risk transfer (parametric insurance, hybrid)
- Transfer unmanageable risk to a more efficient risk manager



## Disadvantages

- Can be very costly for low severity, high frequency risks
- Requires good data regarding the characteristics of the asset to be insured/ indices to be used (to be representative and accessible)
- Often requires prioritization of which assets to be insured given budget constraints
- Can be slow to pay out with potential disputes with insurers over the value of a claim for some risk transfer products (indemnity insurance)

# Fill in the table

You have 5-10 minutes

DRF Criteria	Budget reallocations	Contingency or Reserve Fund	Contingent credit for budget support or CRW ERF for food insecurity crisis	Market-based risk transfer
Amount available				
Cost of capital				
Mobilization speed				
Reliability				
Requirements				



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# What risks can agricultural insurance cover?



## Market risks: Prices

Market risks are rarely covered by insurance markets



## Institutional, political and policy risks

Institutional, political and geopolitical risks are typically not covered.



## Production risks :Natural, Climatic Biological

Production risks are the main objective of agricultural insurance

Source : Institut Boulder pour la microfinance

# Agricultural insurance is one tool for managing risk, not eliminating it

2. Risk assessment should determine whether insurance is the most appropriate tool.

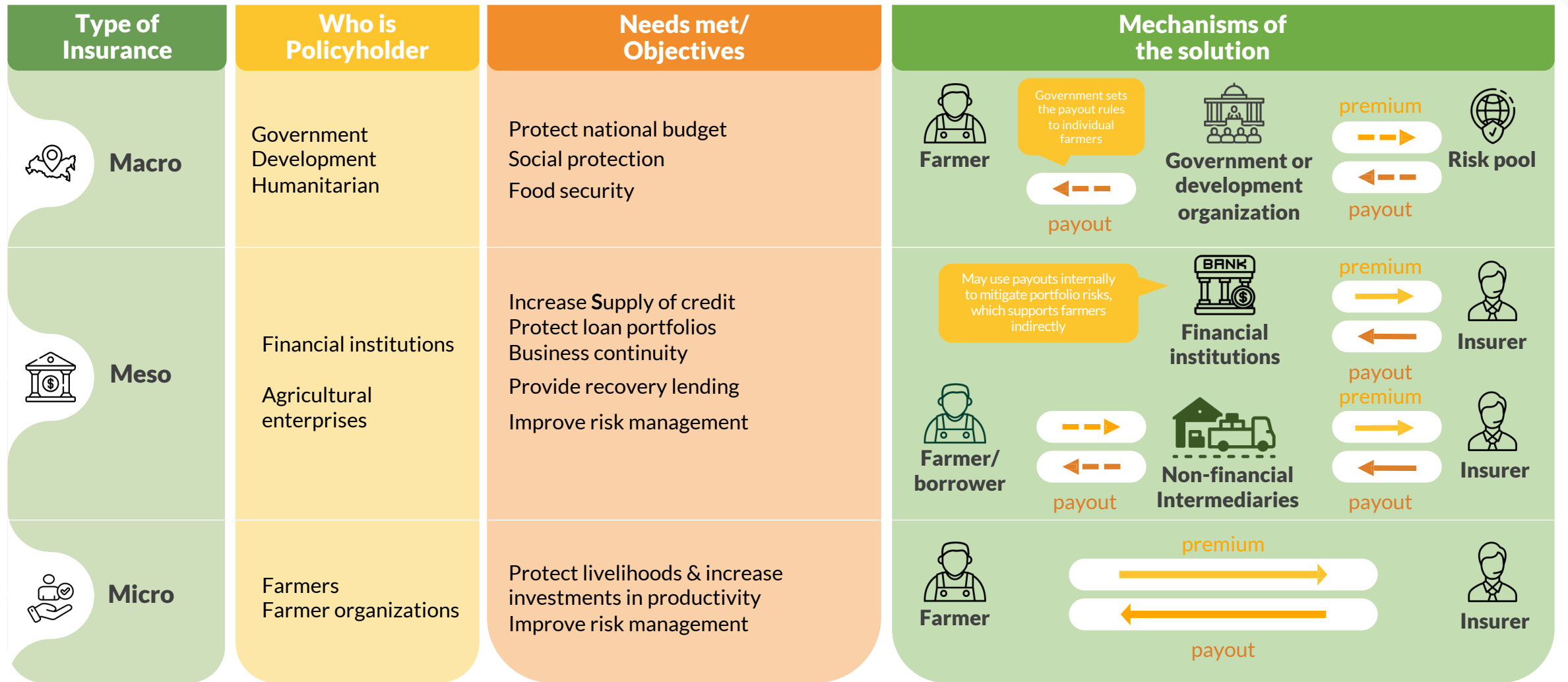
1. Insurance is just one of the many risk management tools available to low-income households.

3. Savings and credit are more flexible but typically offer less protection.

4. Agricultural insurance provides cover for low frequency and medium to high intensity losses.



# Level of insurance implementation depends on policy objectives



# A wide a range of agricultural insurance products meet different needs

Sector	Indemnity-based	Index-based	Other
Crop and forestry	<p>Named-peril Crop Ins. (NPCI) - hail + allied</p> <p>Multi-peril Crop Ins. (MPCI) All natural, climatic and biological</p> <p>Crop Revenue Insurance (CRI) - loss of yield &amp; price</p> <p>Specialist covers (e.g. Aggregate Production shortfall cover)</p>	<p>Weather-Index Insurance (WII), based on Ground Weather Stations</p> <p>Weather-Index Insurance (WII), based on Remote Sensing/Satellite Indexes</p> <p>Crop Area Yield Index Insurance (AYII)</p> <p>Other (e.g. specialist Flood Index insurance)</p>	<p>Greenhouse (crops + buildings)</p> <p>Forestry Insurance (Fire/wind, allied perils)</p> <p>Plantation/ Tree Fruit Insurance (Fire/wind, allied perils)</p>
Livestock and fisheries	<p>Named-peril Accident &amp; Mortality</p> <p>All Risks Mortality including diseases</p> <p>Epidemic disease/ Business Interruption</p> <p>Bloodstock</p>	<p>Mortality Index-based livestock Insurance (M-IBLI)</p> <p>Index-Based livestock Insurance (IBLI)</p> <p>Pasture or Forage Index or Satellite Index (NDVI for loss of pasture)</p>	<p>Aquaculture Insurance (fin fish) (Named-Peril and All Risks)</p> <p>Aquaculture (shellfish) (Named-peril and All Risks)</p> <p>Bee Insurance</p>

# Indemnity and index-based insurance



## Indemnity insurance:

Payment is based on the measured loss or damage.



## Index insurance:

Payments are based on an indicator/parameter as a proxy for the actual loss or damage.

### Indemnity insurance

### Parametric insurance

Payment speed

Can be very slow due to claims process

Rapid payments (less than two weeks) possible

Claims handling costs

Higher due to claims settlement process.

Lower - no claims settlement process.

Transparency of claims

Claim amounts can be disputed, loss adjustment process is also imperfect and may not be well understood.

Claim amounts are predefined and the calculation process is transparent

Policy customization

Products and policy wordings are typically standardized

Highly personalizable through parameters chosen by the insured

# Indemnity insurance (especially MPCl) is often unsuitable for small scale farmers

## Pre-conditions required for indemnity-based crop insurance

Yield or loss/damage data

Costs and practicality of in-field inspections and loss adjustment

Operational capacity of insurers

Costs of insuring farm yields

## Issues facing provision of indemnity-based crop insurance in developing countries

- Historical time-series crop yield data is usually not available at individual farmer level
- Small farm size, dispersed rural populations means high cost of loss assessment
- Insurers are often not involved in rural sectors and suffer from asymmetric information
- MPCl programs are exposed to adverse selection and moral hazard
- MPCl offers all risk loss of yield protection, but it is far more expensive to administer for smallholders than index-based insurance

# If indemnity insurance is not feasible, can index insurance fill the gap?

An index insurance contract is based on data and not on losses measured in the field

Example indexes: rainfall, temperature, area yield, pasture



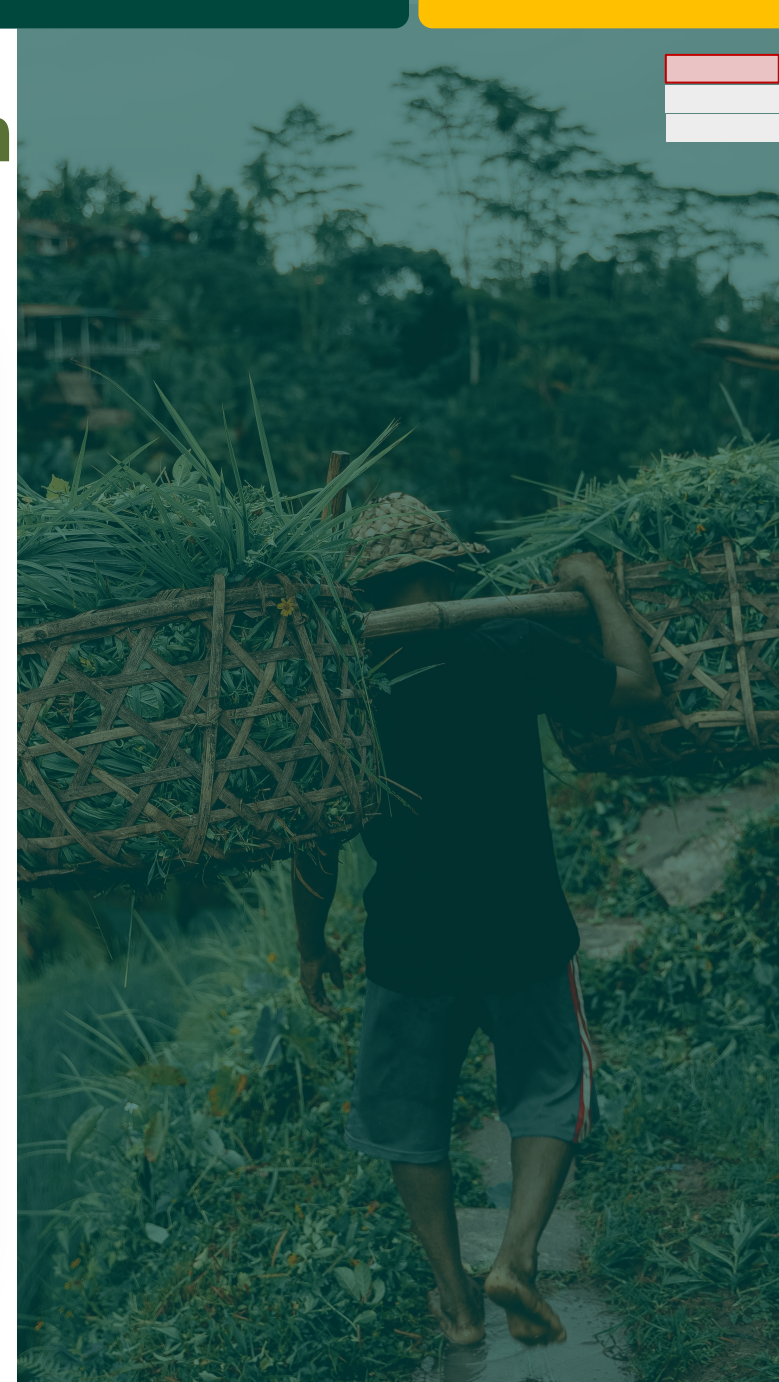
## Advantages

- Overcomes major problems of indemnity (moral hazard, adverse selection)
- Objective and transparent
- Simplified claims process
- Improved access to insurance to benefit smallholders



## Disadvantages

- Basis risk** – potential mismatch between actual losses and payout
- High development costs - products need to be specifically tailored to each location and crop
- Limited quantity and quality of on-the-ground weather and yield data
- May be complicated and hard for partners and farmers to understand





# AYII aims to provide more comprehensive cover at a lower cost than MPCl and with less basis risk than WII



Multi-peril  
crop insurance



Farm

- Payouts based on farm-level loss assessment
- Insures against all perils



Area-yield  
index  
insurance



Village

- Based on average losses at an area level
- Can cover multiple natural, climate, and biological risks
- Losses determined through crop-cutting experiments (CCEs)
- More suited to small farmer conditions than MPCl
- CCEs costly, time-consuming, and subject to moral hazard



Weather index  
insurance



Village

- Based on weather parameters (such as rainfall, temperature, or soil moisture) correlated with crop loss
- Typically covers single, weather-related peril

# IBLI can provide coverage for either asset protection or asset replacement



Indemnity



Farm

- Insures against livestock accident and mortality due to a variety named perils, usually not disease
- Payout based on the death of livestock determined through a farm-level loss assessment
- To replace lost livestock
- Only for closed livestock systems that meet husbandry requirements
- Requires animal identification, livestock registration and pre-inspection



IBLI



Village/  
Area

- Based on the weather or vegetation index
- Insures against loss of pasture due to weather conditions
- Mostly for asset protection (Kenya, Ethiopia, Somalia, Zambia).
- Asset replacement in Mongolia
- Suited for pastoralists or agro-pastoralists

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## 6 Key takeaways

- 1 Cost efficiency requires combining different instruments based on risk profile & appetite as well as need and characteristics of instruments
- 2 All financial instruments have costs (direct and indirect) and require trade-offs
- 3 One size does not fit all: households require integrated financial services based on their risk profiles
- 4 Agricultural insurance is one tool for managing risk, not eliminating it
- 5 The impact of agricultural insurance and index insurance highly depends on product quality and implementation
- 6 Overall, a range of studies show that index insurance helps enable resilience through: **Reducing negative coping, smoothing income, increasing productive investments, increasing access to credit**

# Thank You

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Eswatini



Ethiopia



Kenya



Lesotho



Namibia



Rwanda



Somalia



South Africa



Uganda



Zambia



Zimbabwe