Food and Agriculture Organization of the United Nations

Cost-effective solutions to reduce the negative impacts of disasters on agriculture and food security

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FAO'S RESILIENCE WORK IS DEFINED AROUND 3 MAIN GROUPS OF SHOCKS

Natural hazards and disasters

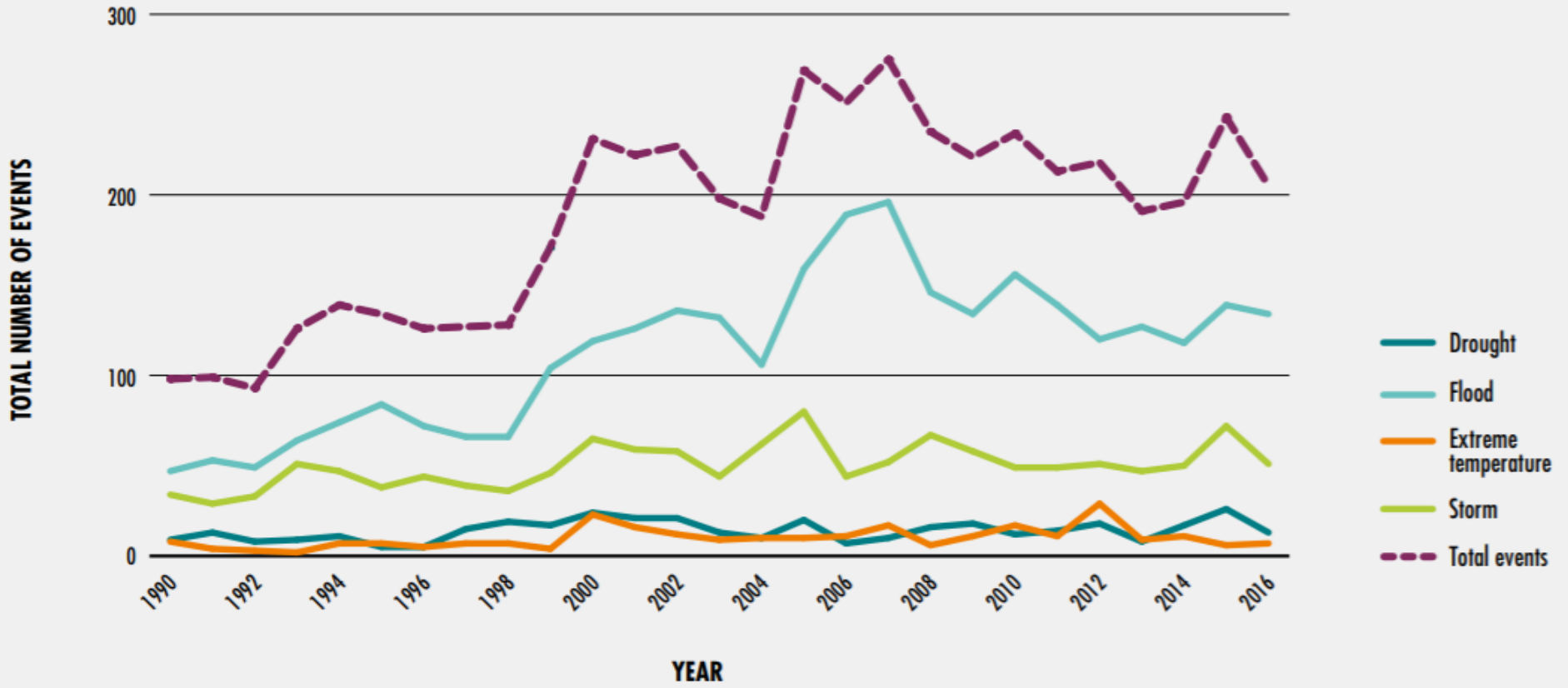
Food chain crises

Protracted crises

AGRICULTURE AND DISASTER RISK REDUCTION (DRR)

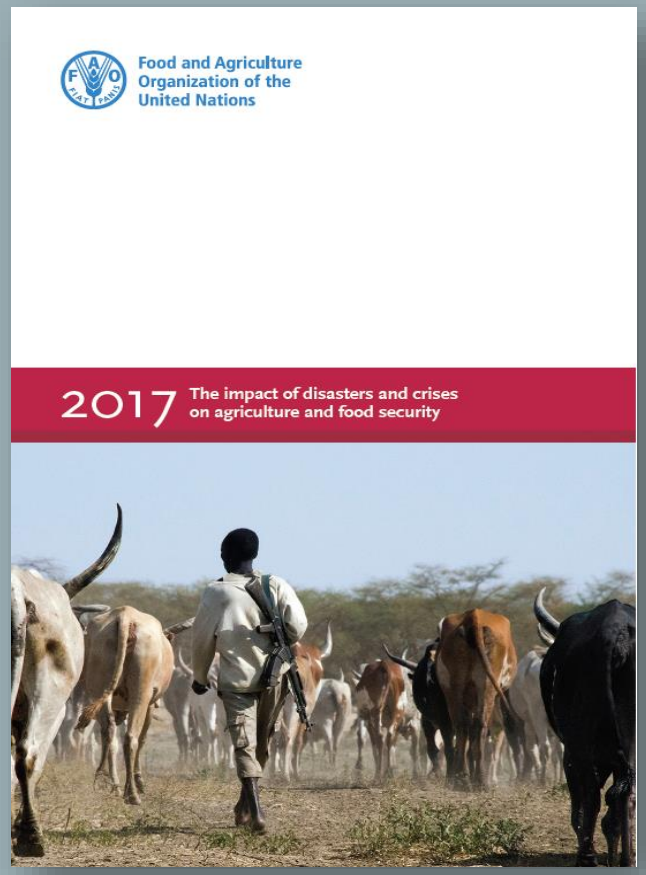
- Currently **2.5 billion people** worldwide depend on agriculture for their livelihoods.
- Disasters destroy livelihoods, reduce food production and increase hunger.
- People dependent on agriculture are not only victims of disasters but also **integral to addressing risks.**
- Agriculture plays a critical role in ensuring that affected people **maintain access to food and livelihoods** during and after disasters.

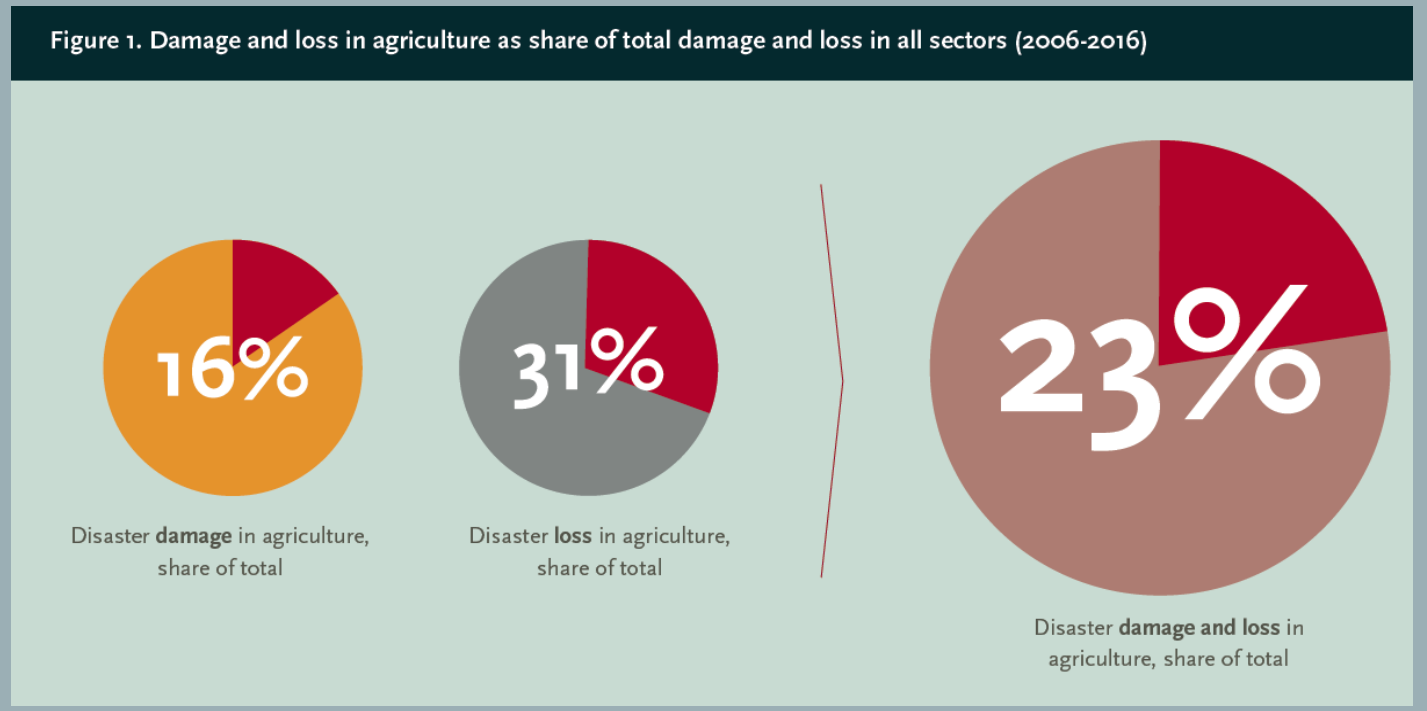
INCREASING NUMBER OF EXTREME CLIMATE-RELATED DISASTERS, 1990-2016

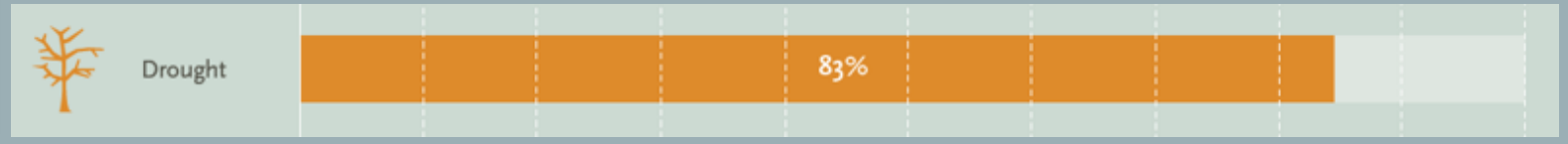


NOTE: Total number of natural disasters that occurred in low- and middle-income countries by region and during the period 1990–2016. Disasters are defined as medium- and large-scale disasters that exceed the thresholds set for registration on the EM-DAT international disaster database. See Annex 2 for the full definition of EM-DAT disasters.
SOURCE: FAO elaboration based on data from Emergency Events Database (*EM-DAT*). 2009. *EM-DAT* [online] Brussels. www.emdat.be

THE IMPACT OF NATURAL HAZARD-INDUCED DISASTERS ON AGRICULTURE

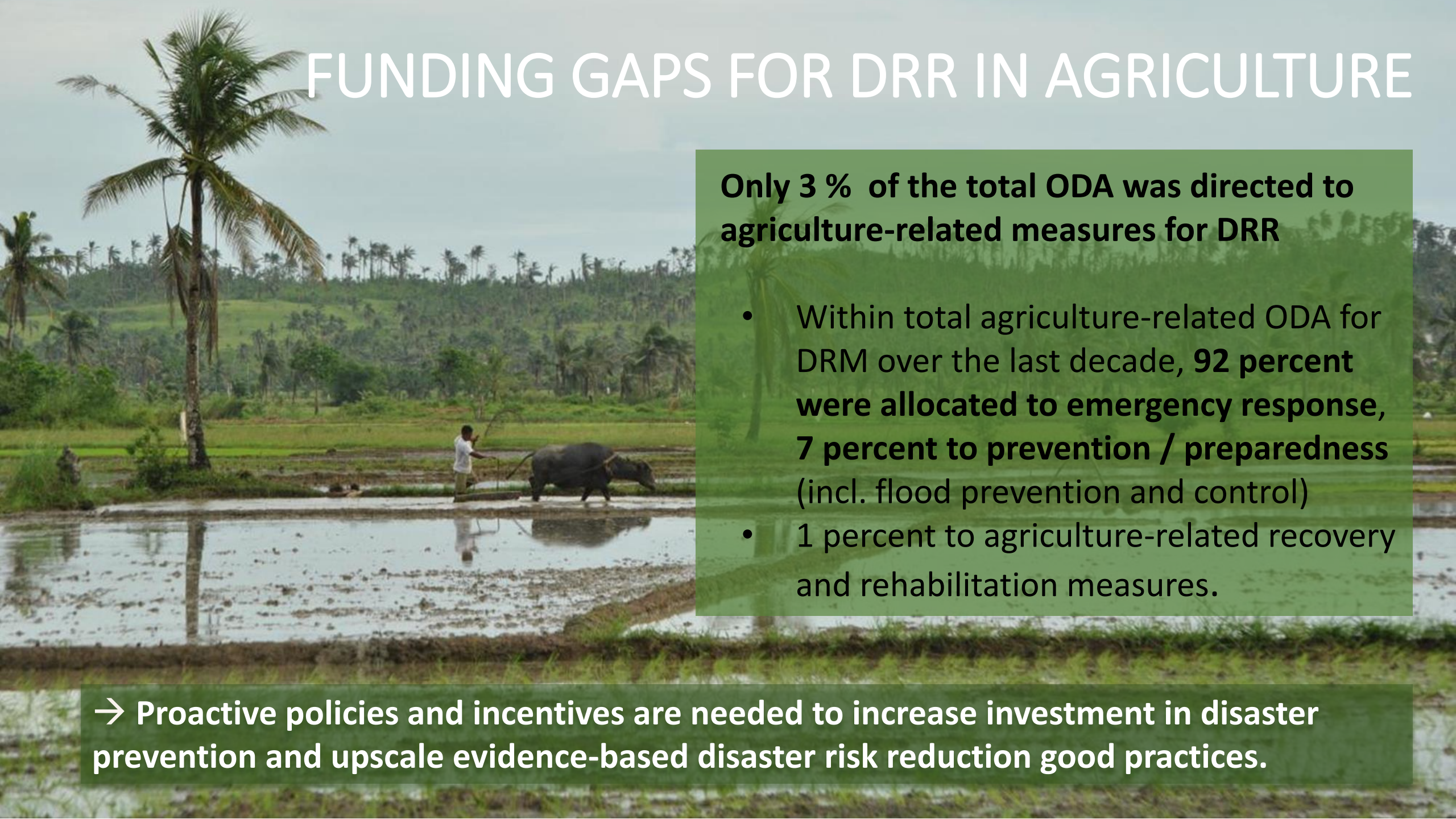






FAO's new D&L methodology informs Sendai Framework Indicator C2 & SDG Indicator 1.5.2

FUNDING GAPS FOR DRR IN AGRICULTURE



Only 3 % of the total ODA was directed to agriculture-related measures for DRR

- Within total agriculture-related ODA for DRM over the last decade, **92 percent were allocated to emergency response**, **7 percent to prevention / preparedness** (incl. flood prevention and control)
- 1 percent to agriculture-related recovery and rehabilitation measures.

→ Proactive policies and incentives are needed to increase investment in disaster prevention and upscale evidence-based disaster risk reduction good practices.

Pro-active Investments in Disaster Risk Reduction Pay Off

MULTIPLE BENEFITS, NO REGRETS

In agriculture cost-effective, sustainable solutions exist that reduce disaster risks and enhance resilience.

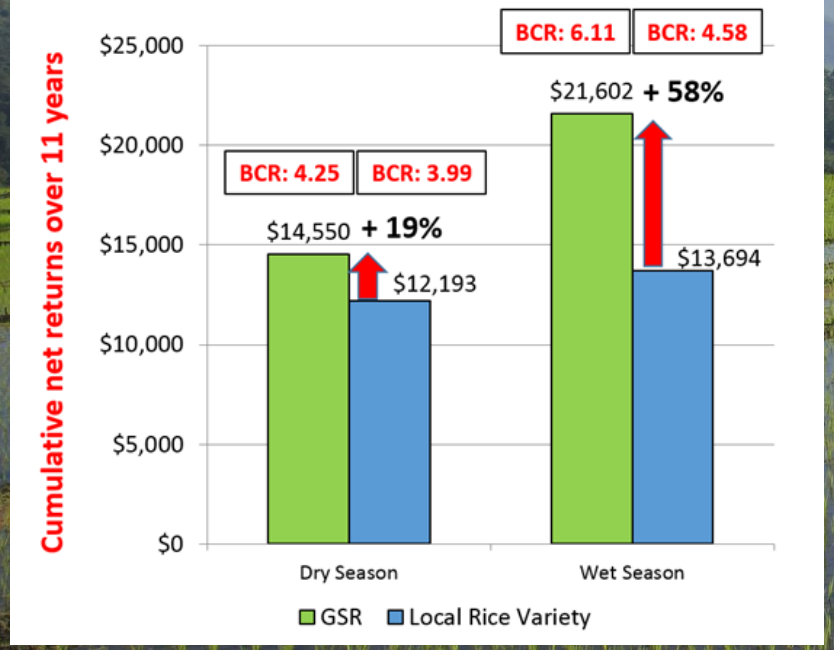
When farmers apply DRR practices, their returns are 2.2 x higher.

PHILIPPINES

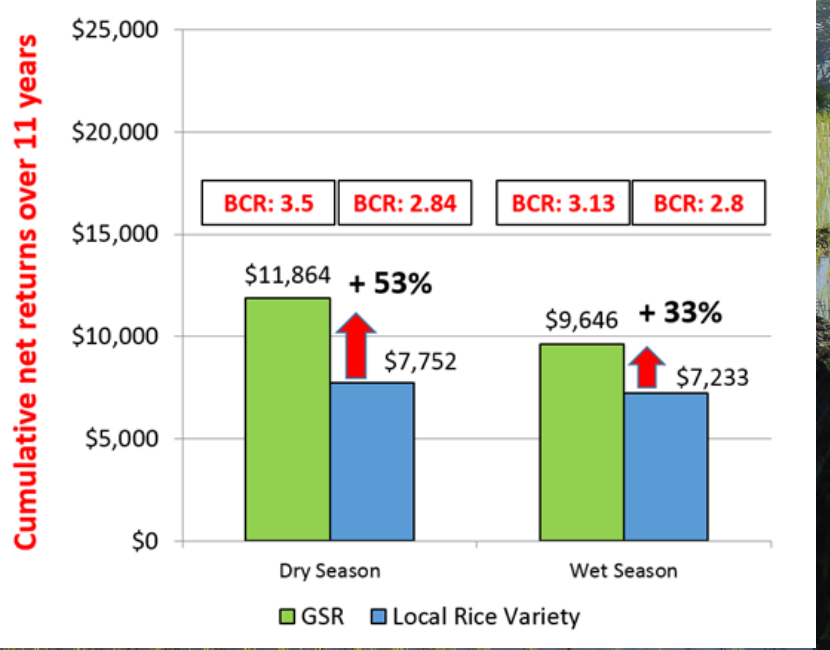
Multi-stress tolerant Green Super Rice varieties in Bicol region

Cumulative Net Benefits and Benefit Cost Ratios of Green Super Rice and Local Rice Varieties ($ per hectare)

Non-Hazard conditions



Hazard conditions



PHILIPPINES

Upscaling of multi-stress tolerant Green Super Rice varieties in Bicol region

Difference in returns from rice production,
GSR upscaling vs previous practice scenario

	Low hazard frequency	Medium hazard frequency	High hazard frequency
Dry season	+ 25.1%	+ 26.7%	+ 71.2%
Rainy season	+ 29.5%	+ 28.6%	+ 41.6%

- Potential **avoided disaster losses** between an estimated **USD 33 and USD 129 million** per season
- GSR dissemination now incorporated **by government** into **national rice commodity flagship programme,** for upscaling.

UPSCALING & MAINSTREAMING DRR GOOD PRACTICE

- Disaster risk reduction good practices in agriculture are highly **context- and location-specific**. To truly qualify as a good practice, they must offer added value in **both hazard and non-hazard situations**.

- Prevention and DRR measures in agriculture are especially useful in the face of **high- to medium-frequency events – which occur with low or medium intensity**. These hazards are often **neglected** but have strong impact on the most vulnerable.

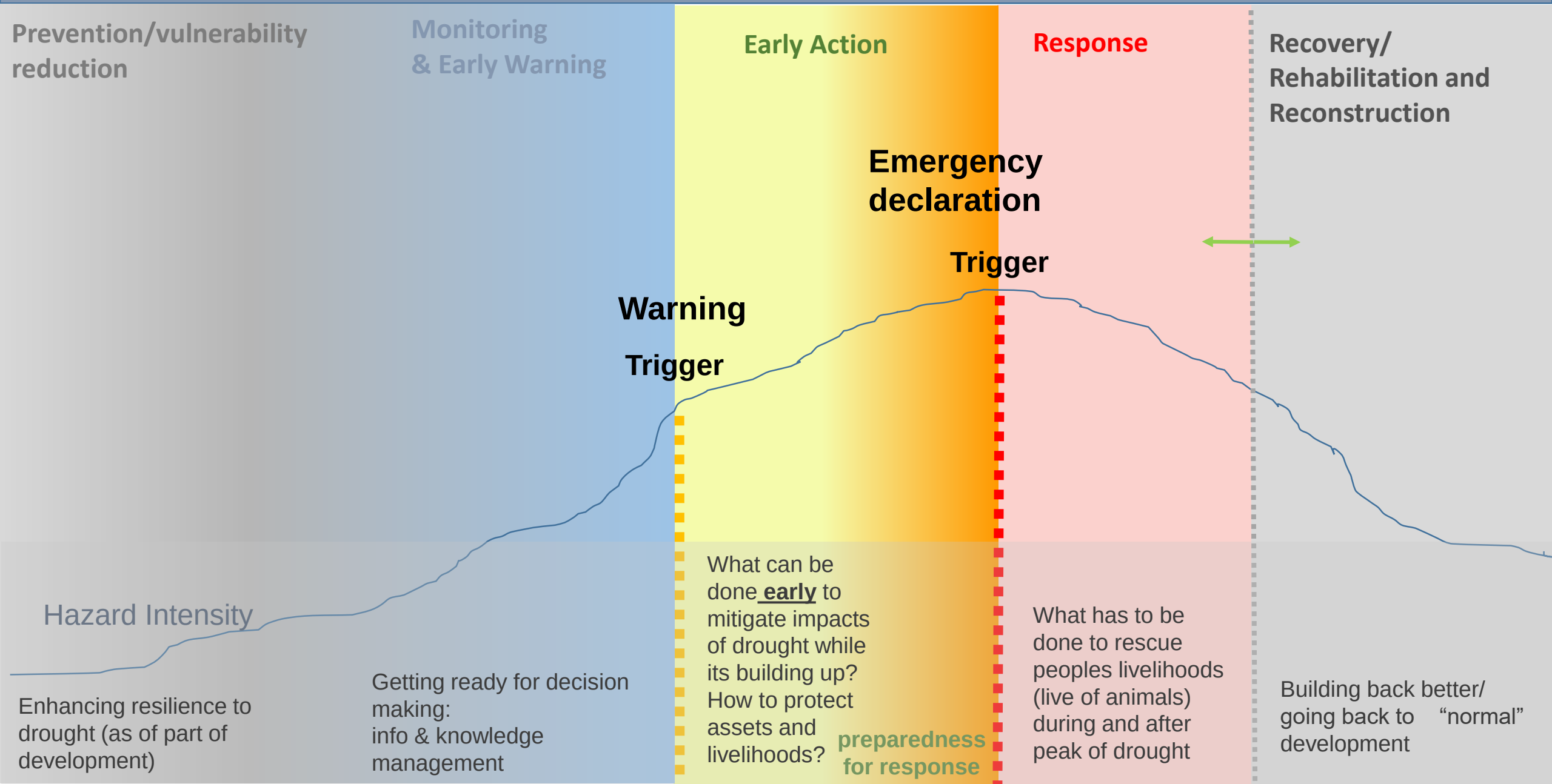
FAO EARLY WARNING EARLY ACTION

The system consolidates existing vulnerability, forecast and agriculture-specific information to allow effective early warnings

Phased thresholds are established to trigger anticipatory actions

Early actions are disaster risk management interventions that protect and build on development efforts

Drought Risk Management: Time-frame for action in Agriculture



EVIDENCE ON THE EFFECTIVENESS OF ACTING EARLY

For every USD 1 spent on interventions, households had a return of:

KENYA

3.5

RISK
Drought 2016/17

TRIGGERS
Below average rainfall forecast; unusual livestock movements.

EARLY ACTIONS
Livestock feed; drugs and vaccines.

MONGOLIA

7.1

RISK
'Dzud' 2017/18

TRIGGERS
Below average cereal production; heavy snowfall & extreme cold temperature forecast.

EARLY ACTIONS
Destocking; livestock feed; meat distribution in poor urban households

MADAGASCAR

2.5

RISK
Drought 2017/18

TRIGGERS
Consecutive poor harvests, below-average rainfall forecast, IPC projections.

EARLY ACTIONS
Short-cycle seeds, water equipment, micro-irrigation systems, crop diversification.

SUDAN

6.7

RISK
Drought 2017/18

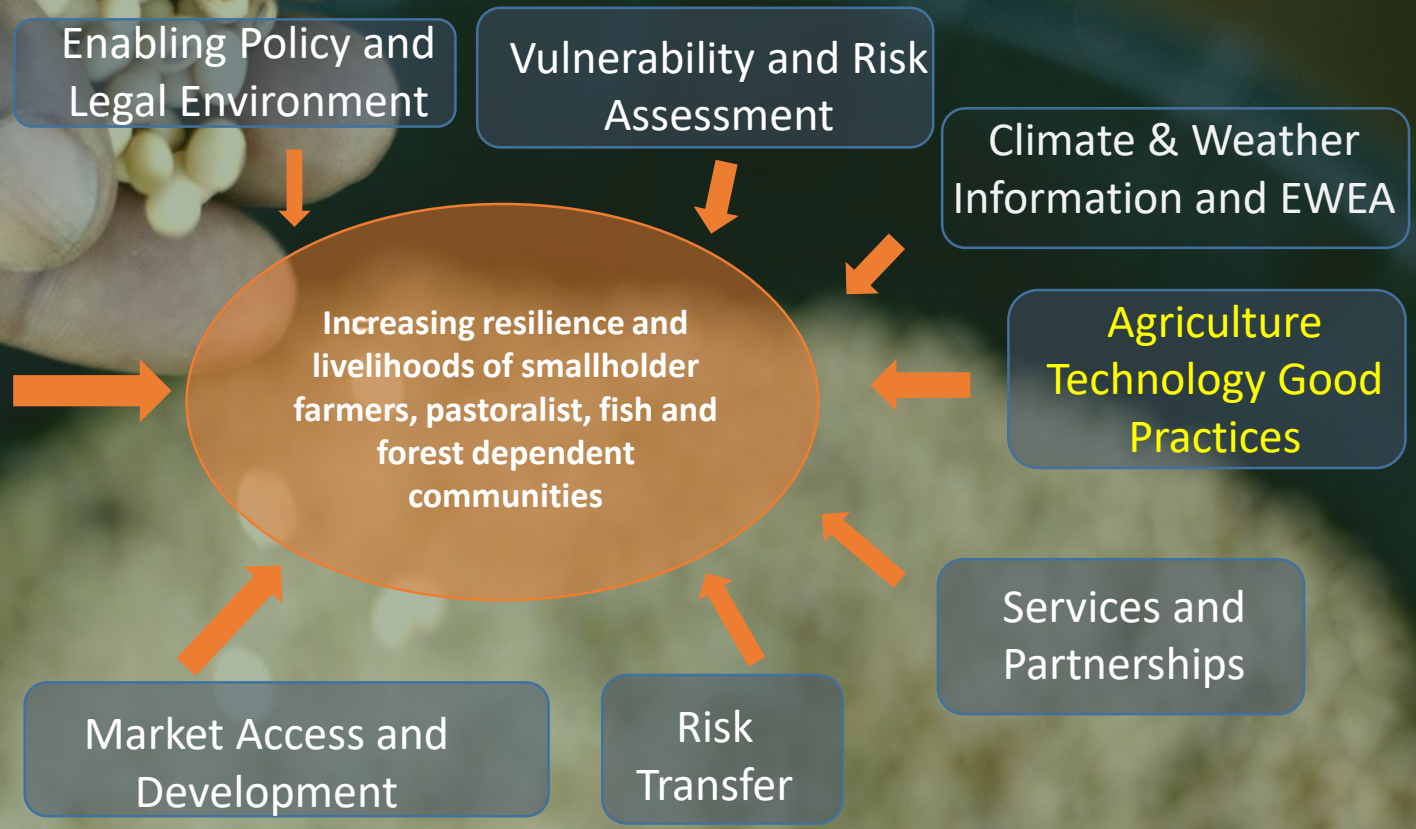
TRIGGERS
Below-average rainfall forecast, unusual livestock movements, decrease in livestock prices.

EARLY ACTIONS
Livestock feed; drugs and vaccines.

INCREASING THE RESILIENCE OF LIVELIHOODS TO THREATS AND CRISES

AG/FNS Future challenges:

- Increasing demand for food;
- Dietary changes;
- Diminishing growth rates of yields;
- Pressure on natural resources;
- Increasing climate variability;
- Changing growing conditions patterns.



Take aways: Lessons from DRR work in agriculture from developing/middle-income countries

- Enhancing resilience is key **to making sustainable development a reality**, and ensuring that agriculture and food systems are both productive and risk sensitive, in order to feed present and future generations.
- The agriculture sectors provide **ample, yet largely untapped opportunities** to promote the resilience of rural livelihoods and communities. Wider application of DRR good practices and greater evidence on the returns of investment in those practices must be further promoted to better inform decision making and investment.
- Investments in enhanced data, information systems and forecast-based finance for early warning early action, is key to better **risk-inform decision-making and trigger preventive actions.**
- **Integrating DRR into the sectoral development planning and budgeting**
- Agriculture sector perspective suggests that **DRR and climate change planning and action** should be addressed in a coherent, well-coordinated way.