NAP Ag

Food and Agriculture Organization of the United Nations

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Supported by:

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

based on a decision of the German Bundestag

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MODULE 2: CLIMATE CHANGE ADAPTATION AND AGRICULTURE

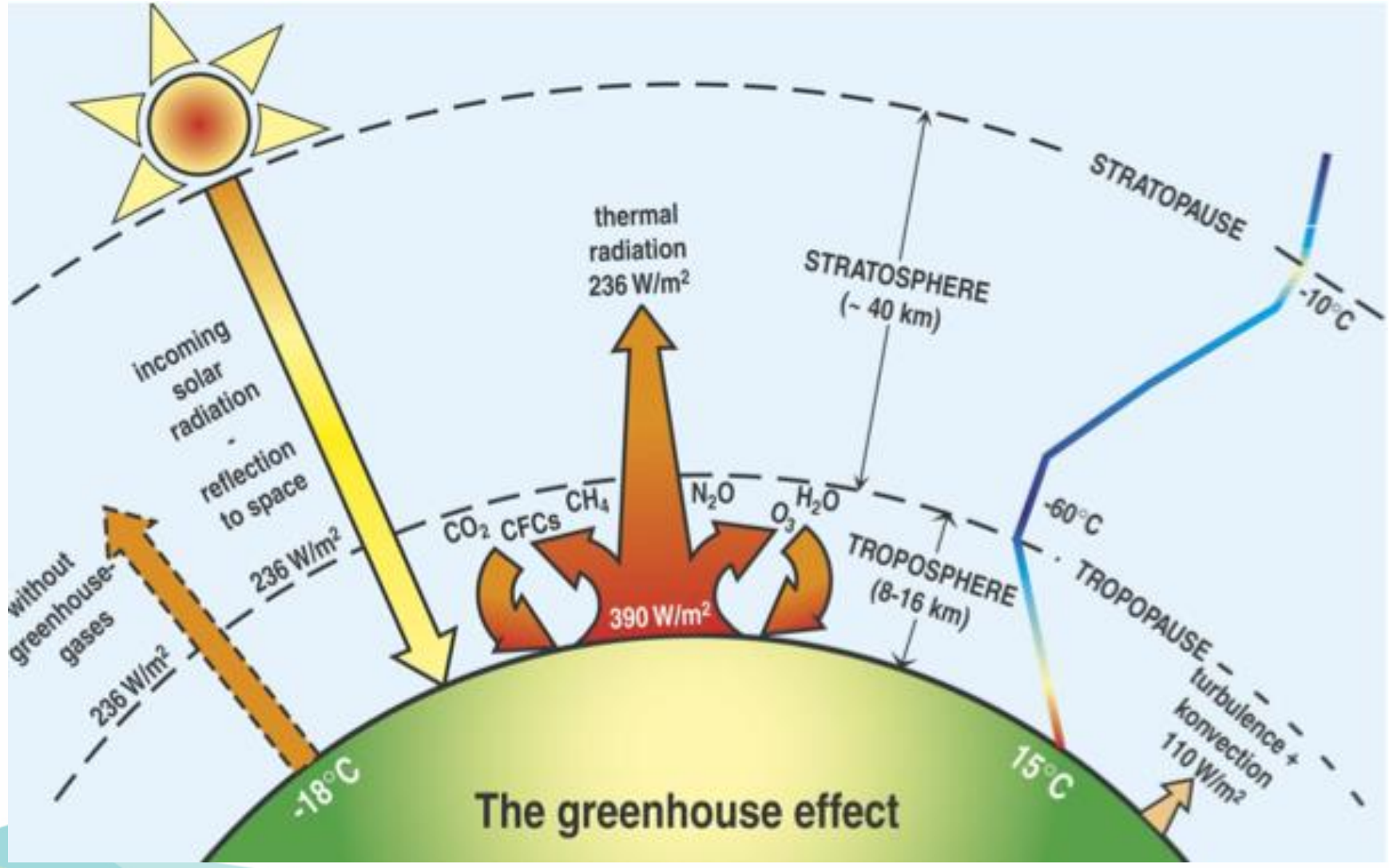
Objectives

Reach a shared understanding of:

- Climate change adaptation and why it is relevant to the agriculture sector
- NDC and NAP
- Overview of national policy frameworks for adaptation

WHAT IS CLIMATE CHANGE?

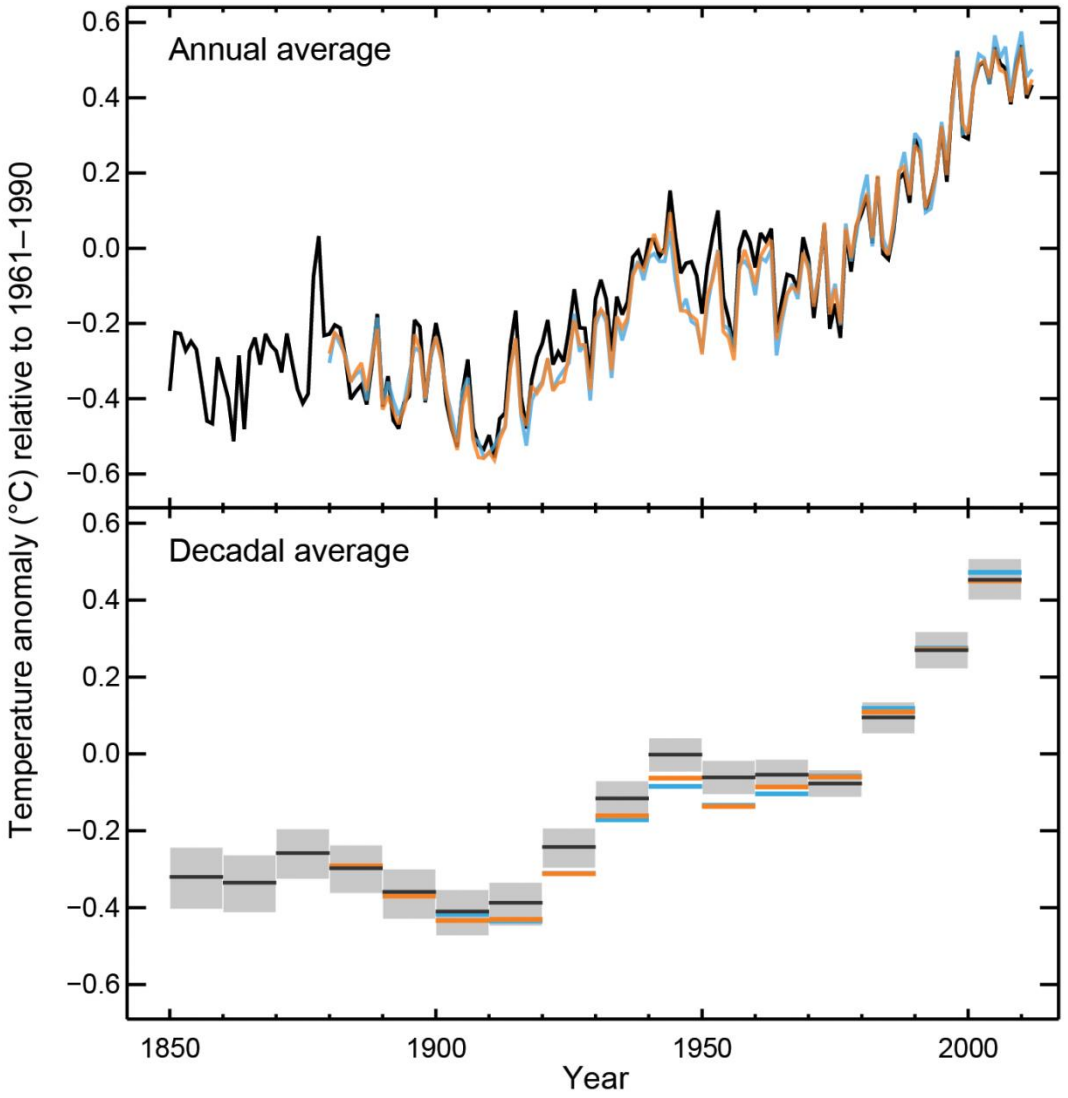
The Greenhouse Effect



Source | Latif, 2009

Figure SPM.1a

Observed globally averaged combined land and ocean surface temperature anomaly 1850-2012



Sources of emissions

Energy production remains the primary driver of GHG emissions

2010 GHG emissions

AR5 WGIII SPM

Potential Impacts of Climate Change

AR5 WGII SPM

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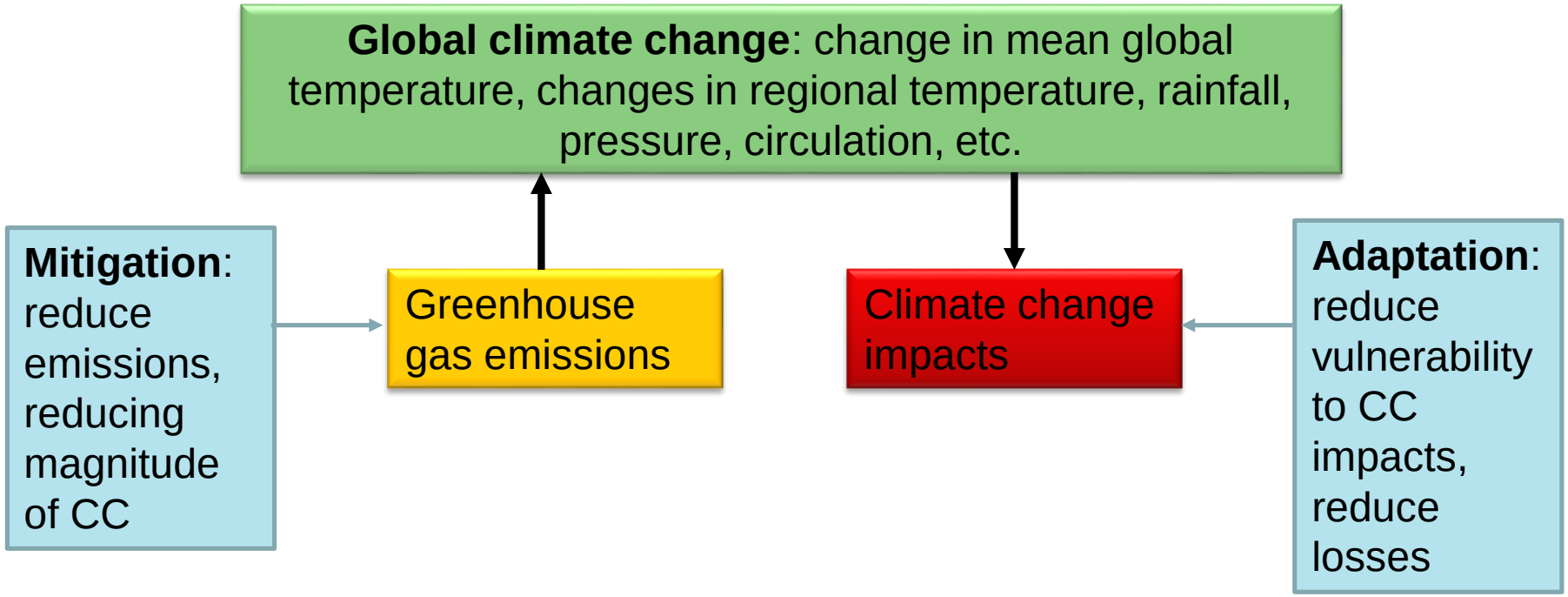
INTERGOVERNMENTAL PANEL ON climate change
WMO UNEP

WHAT IS ADAPTATION?

Defining climate change adaptation

Adjustments in human and natural systems, in response to actual or expected climate stimuli or their effects, that moderate harm or exploit beneficial opportunities (IPCC, 2001).



▶ Adaptation and mitigation are complementary strategies

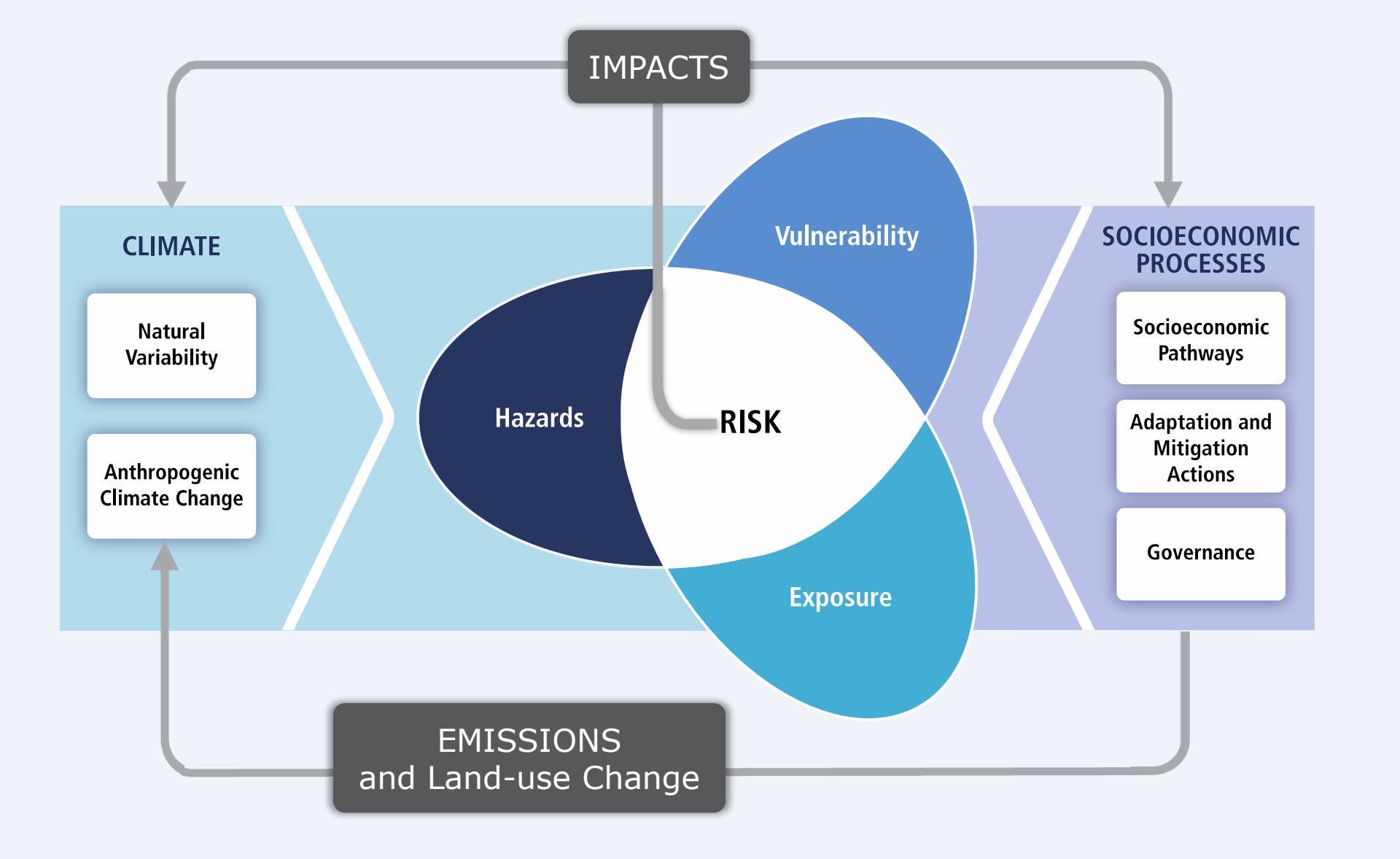
Source: UNDP PowerPoint

What is Adaptation?

Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change (IPCC, 2001).

Adaptation activities span five general components: 1. observation; 2. assessment of climate impacts and vulnerability; 3. planning; 4. implementation; and 5. monitoring and evaluation of adaptation actions.

Given the complexity and long-term nature of climate change, it is essential that adaptation be designed as a continuous and flexible process which includes feedback through monitoring and evaluation (M&E).


IMPACTS
CLIMATE
Natural Variability
Anthropogenic Climate Change
Hazards
Vulnerability
RISK
Exposure
SOCIOECONOMIC PROCESSES
Socioeconomic Pathways
Adaptation and Mitigation Actions
Governance
EMISSIONS and Land-use Change

Approaches to adaptation

Helping households and individuals cope better with existing climate variability and extremes

For example:
Soil and water conservation, improved irrigation, better disaster risk management

Addressing the adaptation deficit

"Adaptation that changes the fundamental attributes of a system in response to climate and its effects." (IPCC 2014)

For example: Phased relocation of settlements

Incremental adaptation

Transformational adaptation

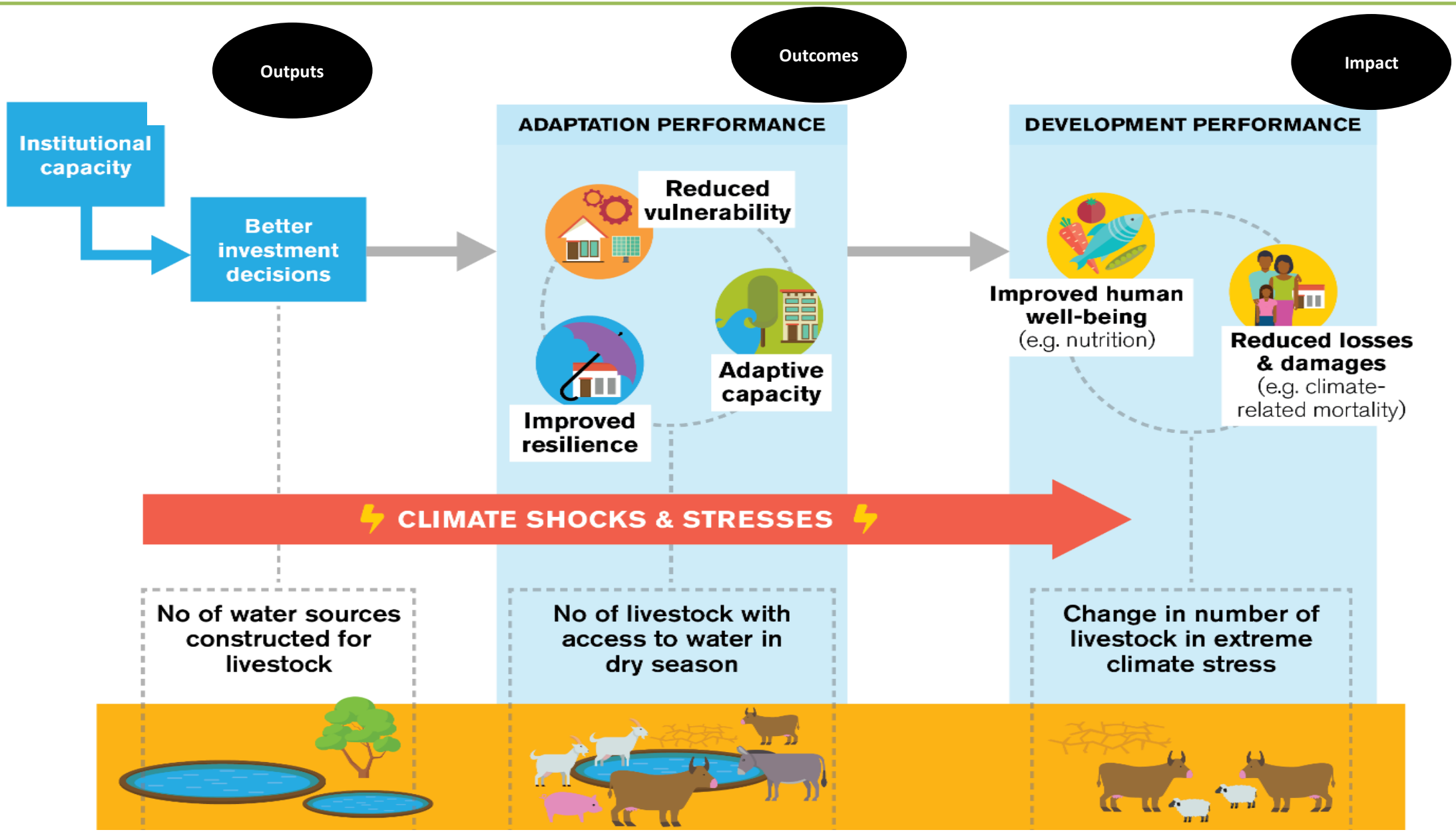
Adaptation actions where the central aim is to maintain the essence and integrity of a system or process at a given scale." (IPCC 2014)

For example: Adapting existing systems to greater water stress (e.g. more irrigation) or Adapting existing cropping systems to changes in seasonality (e.g. planting times).

Maladaptation

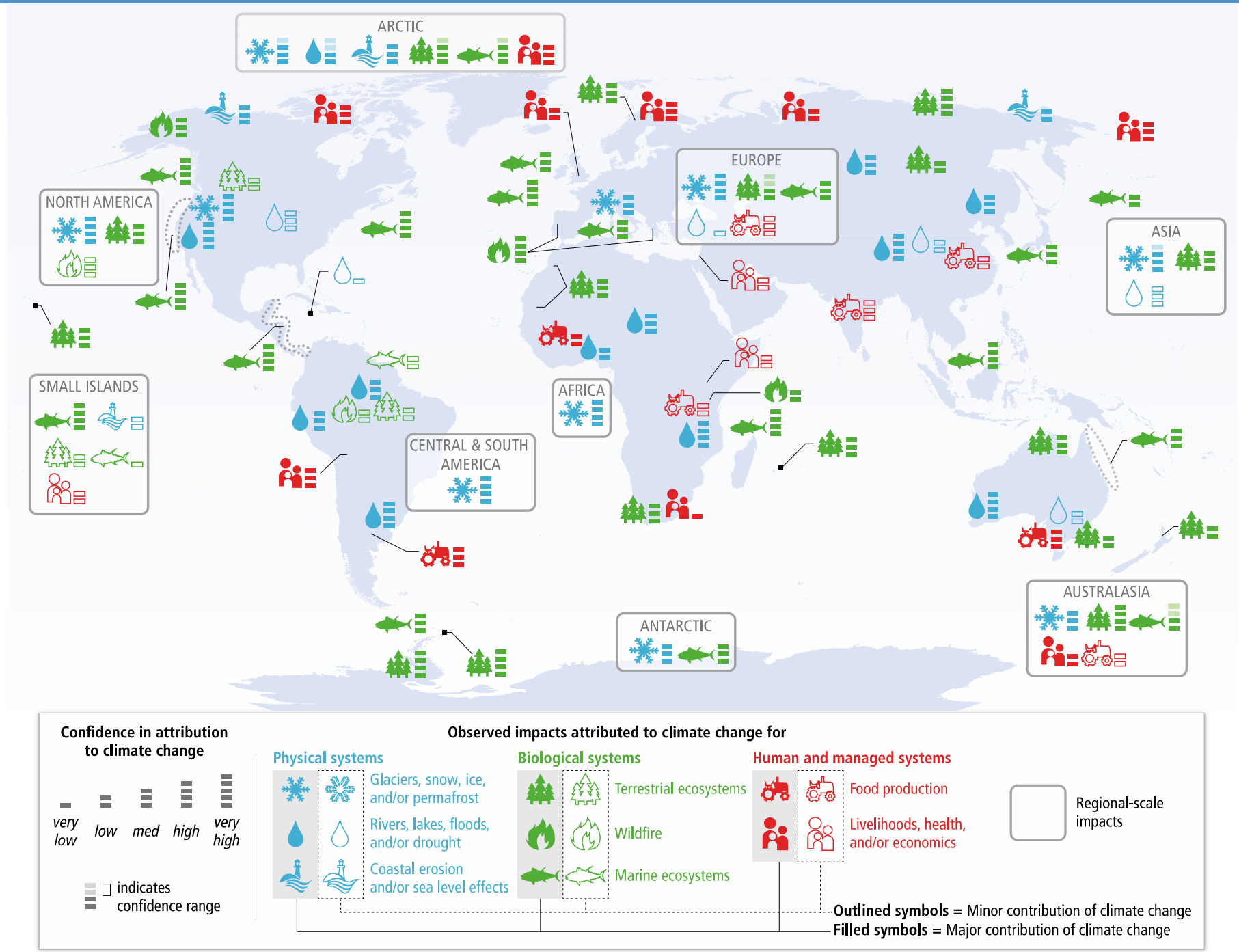
Maladaptation could include adaptive actions that don't succeed in reducing vulnerability but increase it instead

A theory of change for adaptation



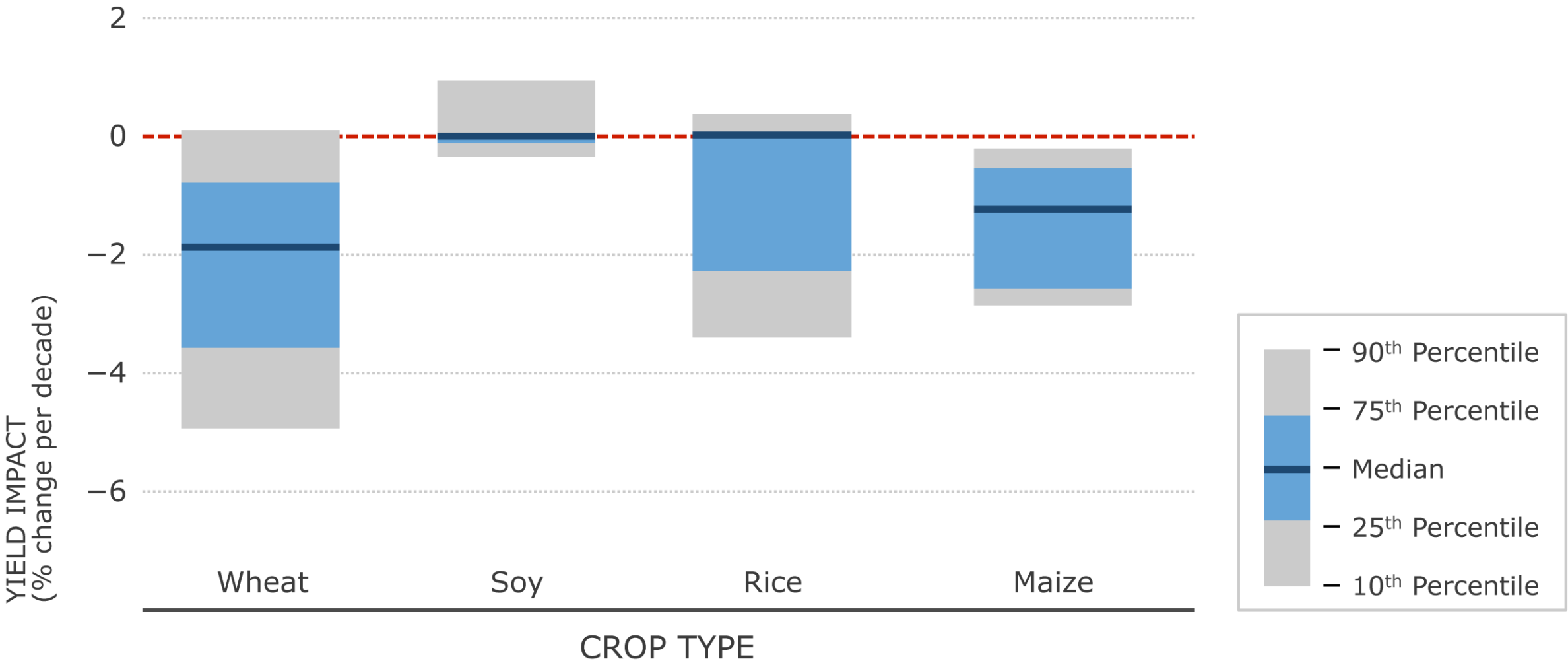
IIED, 2019 and Brooks et al. 2014, DFID Measuring Resilience report: https://www.gov.uk/building-resilience-and-adaptation-to-climate-extremes-and-disasters-programme-braced

CLIMATE CHANGE AND AGRICULTURE


ARCTIC
NORTH AMERICA
EUROPE
ASIA
SMALL ISLANDS
AFRICA
CENTRAL & SOUTH AMERICA
ANTARCTIC
AUSTRALASIA
Confidence in attribution to climate change
very low
low
med
high
very high
indicates confidence range
Observed impacts attributed to climate change for
Physical systems
Glaciers, snow, ice, and/or permafrost
Rivers, lakes, floods, and/or drought
Coastal erosion and/or sea level effects
Biological systems
Terrestrial ecosystems
Wildfire
Marine ecosystems
Human and managed systems
Food production
Livelihoods, health, and/or economics
Regional-scale impacts
Outlined symbols = Minor contribution of climate change
Filled symbols = Major contribution of climate change

How does climate change affect agriculture sectors?

- Decrease in crop yields (incl. wheat, rice and maize)
- Changes in abundance and distribution of aquatic species
- Thermal stress and diseases in livestock
- Changes in forest productivity
- Increase in weeds
- Increases in food prices
- Nutritional quality of food and fodder negatively affected
- Risks to nutrition and food security
- Impacts vary by region, crops and species, with some high-latitude regions seeing positive impacts on e.g. crop yields



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What are some of the adaptation options for agriculture?

- Altering cultivation and sowing times
- Drought resistant crop varieties
- Soil and water conservation
- Agroforestry
- Fisheries management and governance, incl. MPA
- Changes in livestock management practices: e.g. calendars for feed, zoning, water
- In-situ and ex-situ genetic conservation
- Crop yield forecasting and Early Warning Systems
- Agricultural climate risk insurance
- More research needed on impacts and adaptation options in value chains

	Animals	Forages and feed crops	Labor force & capital
Variability in rainfall	Shortages in drinking & servicing water Diseases - Increased pathogens, parasites & vectors. - Changed distribution & transmission. - New diseases	Decreased yields Decreased forage quality Changes in pasture composition (species, communities) Changes in production system (e.g. from mixed crop-livestock to rangelands)	Altered human health & resources allocation to livestock Decreased productivity Migration Conflict for resources
Temperature	Heat stress - Decreased feed intake & livestock yields - Decreased conception rates - Altered metabolism & increased mortality Diseases - Increased pathogens, parasites & vectors - Decreased resistance of livestock - New diseases Domestic biodiversity loss	Decreased yields Decreased forage quality Change in pasture composition	
CO_2 in the atmosphere		Partial stomata closure & reduced transpiration Change in pasture composition	

A range of climate change adaptation solutions exist for livestock production

Animals	Forages and feed crops	Labor force & capital
Water management (e.g. boreholes) Breed for resistance to drought, heat and harsh environments Shifts in species, breeds and/or production system (e.g. small ruminants, poultry) Disease control & animal health Cooling (indoor systems) or provide shade (e.g. trees)	Irrigation Purchase feed Breed feed crops & forage resistance to drought and heat Changes in cropping calendar Agroforestry Increase mobility for resources	On and off farm diversification Insurance Reconversion (in the context of national/regional production zoning) Institutional changes (e.g. trade, conflict resolution, income stabilisation programs)

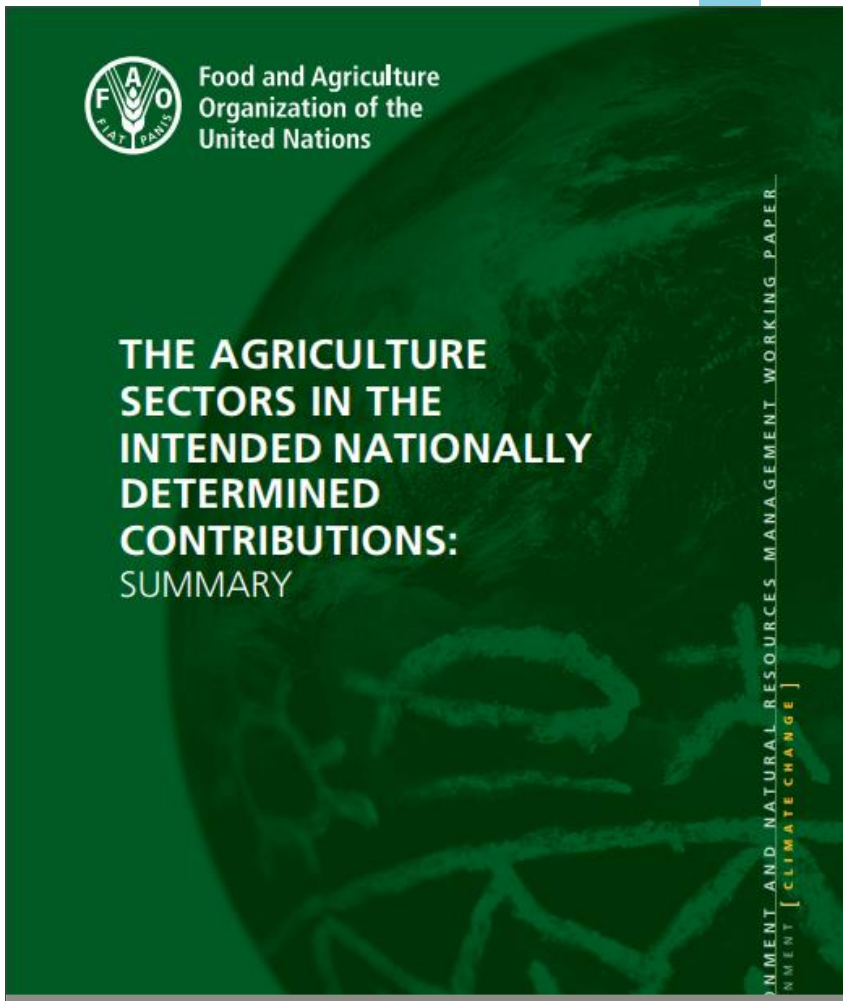
NDC AND NAP

NDCs, adaptation and M&E

- NDCs cornerstone of the Paris Agreement. 102 countries have included adaptation and sometimes NAP in their NDCs
- Of the developing countries that include adaptation in NDCs, 93% mention adaptation areas and/ or actions in the context of the agriculture sector:
  - *crops and livestock (97%);*
  - *forests (88%); and*
  - *fisheries and aquaculture (64%)*

Global NDC commitment for M&E

Most countries emphasize the importance of monitoring and evaluating the impact of their proposed strategies. Where countries **plan to introduce M&E for specific regions or sectors**, they often express the **intention to scale these measures up** to the national level in the long run. (*FAO 2016*).



FAO, 2016 http://www.fao.org/3/a-i5687e.pdf

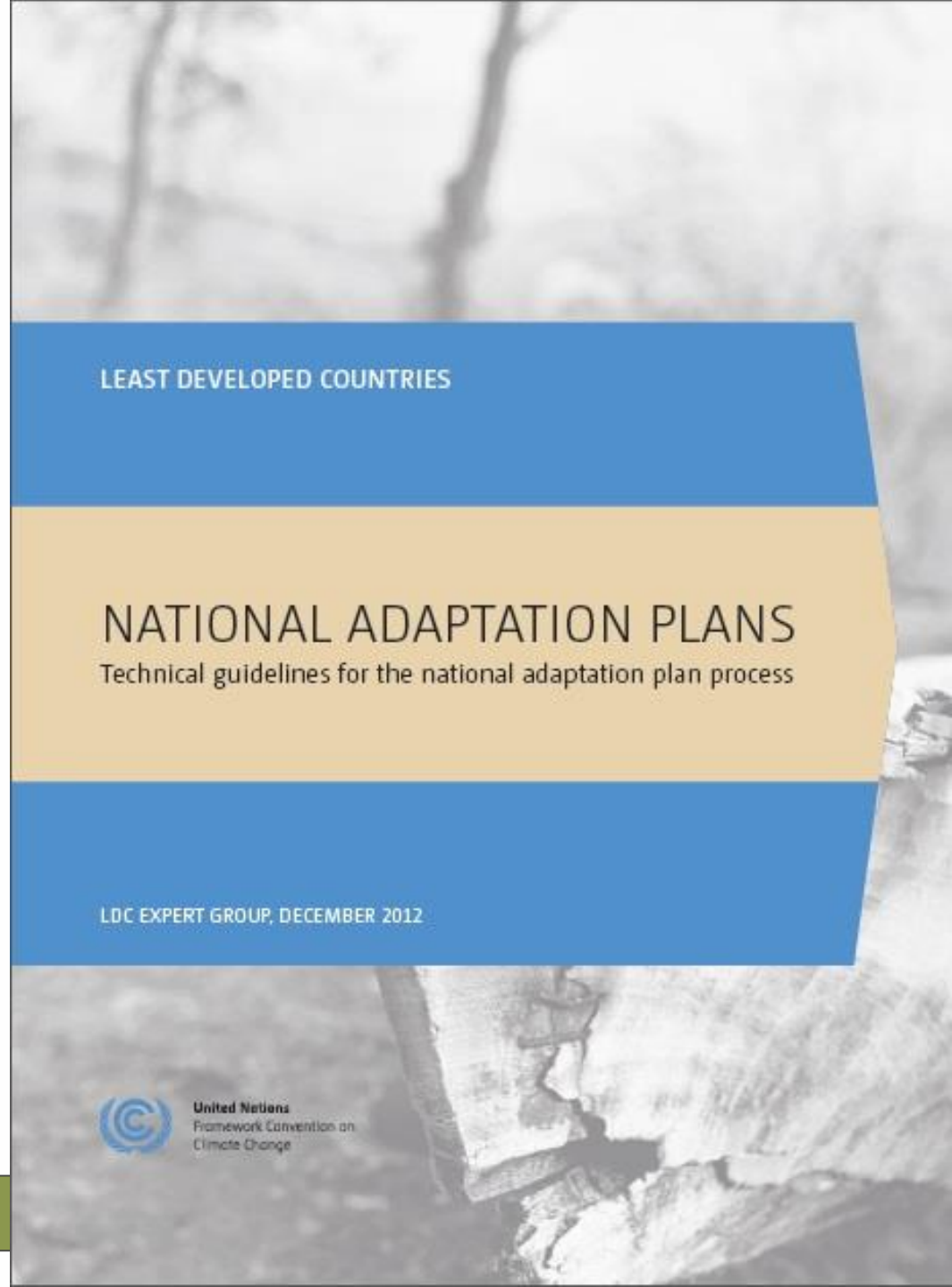
National Adaptation Plan

The **national adaptation plan (NAP)** process enables countries to **identify medium- and long-term adaptation needs** and develop and implemente strategies and programmes to address those needs.

According to the LEG Technical Guidelines, the adaptation planning process should:

a) be participatory and transparent, enhance coherence of adaptation and development planning
b) be guided by best available science, and take into consideration traditional and indigenous knowledge
c) be gender-sensitive

Under the Paris Agreement,. NAP process is well recognized

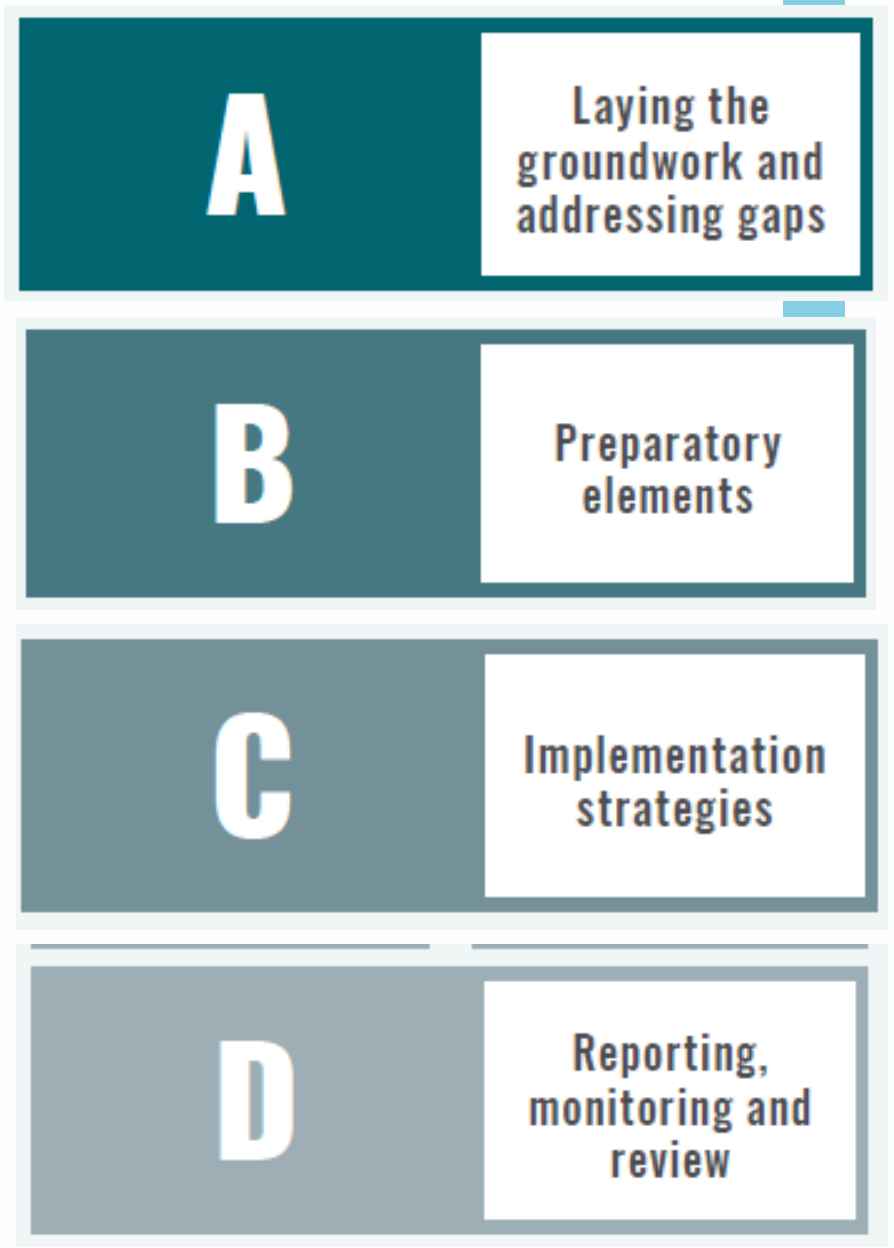


What is the NAP process?

- The **national adaptation plan (NAP)** process was established under the **Cancun Adaptation Framework (2010).**

- It is a **continuous,** progressive and iterative process which follows **country-driven**, gender-sensitive, participatory and fully transparent approach.

Under the Paris Agreement, Global Adaptation Goal, Adaptation Communications are important. NAP process is well recognized in Article 7



Addressing, Agriculture, Forestry and Fisheries in NAP {Supplementary Guidelines}

Highlight the agriculture sector-specific aspects in the process to formulate and implement NAPS

Integrate adaptation in the agriculture sectors' policies, plans and programmes

Support countries' efforts to reduce ılnerability of the agriculture sectors on the impacts of climate change

Food and Agriculture Organization of the United Nations

ADDRESSING AGRICULTURE, FORESTRY AND FISHERIES IN NATIONAL ADAPTATION PLANS

[Supplementary guidelines]

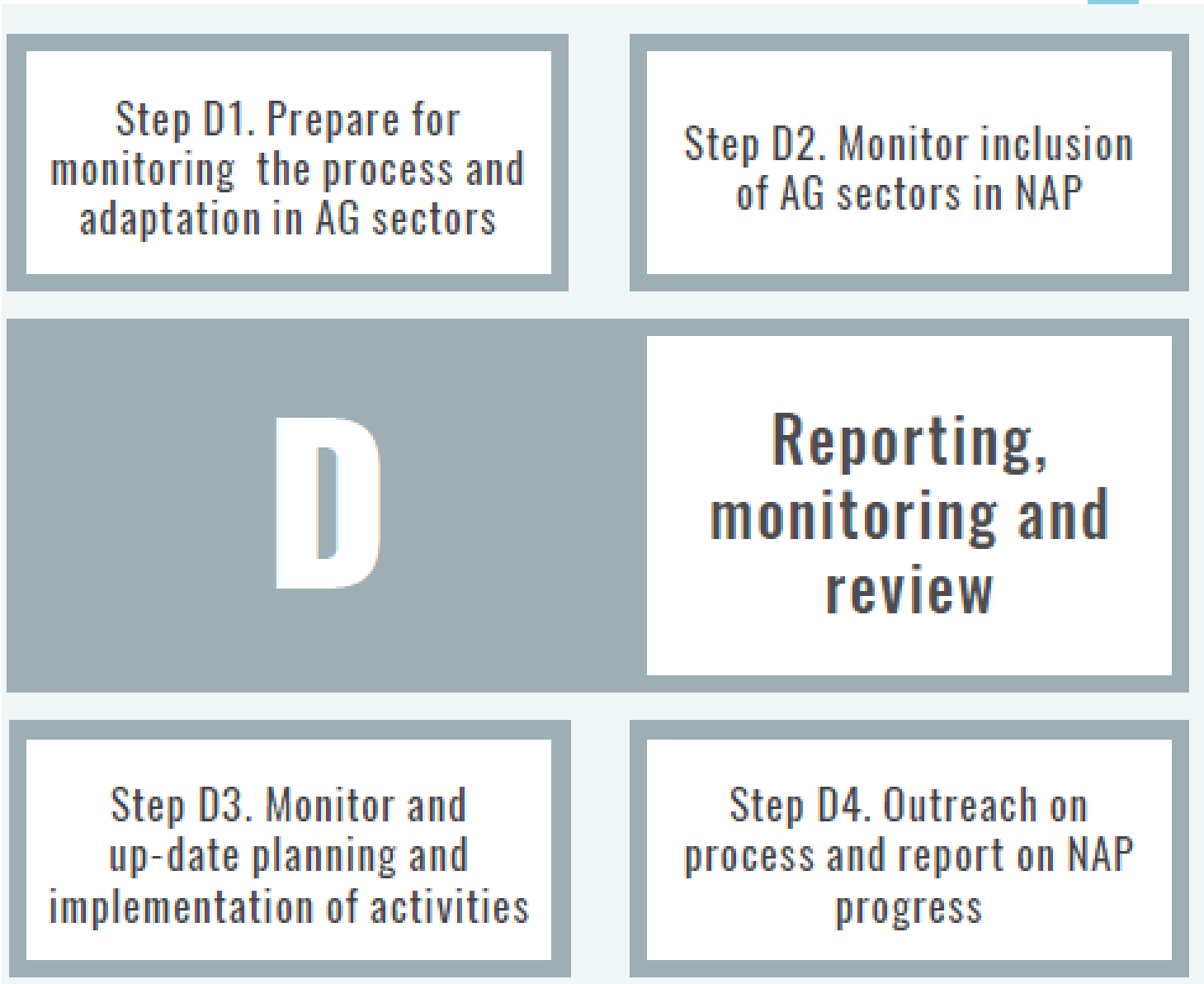
FAO NAP Supplementary Guidelines *(FAO, 2017)*

The focus of a NAP M&E is to:

1. Assess the **progress, effectiveness** and gaps in **identifying and prioritizing adaptation options** for the agriculture sectors

2. track national **progress towards adaptation targets and national development goals**, through aggregation of outcomes of adaptation programmes and policies;

3. monitor and iteratively **update the process of adaptation planning** and implementation in the agriculture sector.



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THANK YOU

FAO CBIT AFOLU TEAM

CAPACITY BUILDING INITIATIVE FOR TRANSPARENCY

FAO CBIT – AFOLU PROJECT

Contact: MICCA@fao.org

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