Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Session III: Climate Change and Agrifood Systems Resilience

Theme 1

Strategies to foster adaptation and resilience of agrifood systems

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Office of Climate Change, Biodiversity and Environment

G20 BRASIL 2024
BUILDING A JUST WORLD AND A SUSTAINABLE PLANET

MEETING OF AGRICULTURAL CHIEF SCIENTISTS

G20 - MACS

BRASÍLIA, 15-17, MAY, 2024

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Strategies to foster adaptation and resilience of agrifood systems

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

Let's start with a clear statement

We know and we are ready to deploy most of the
Strategies to foster adaptation and resilience of agrifood systems,
But we are not implementing at scale

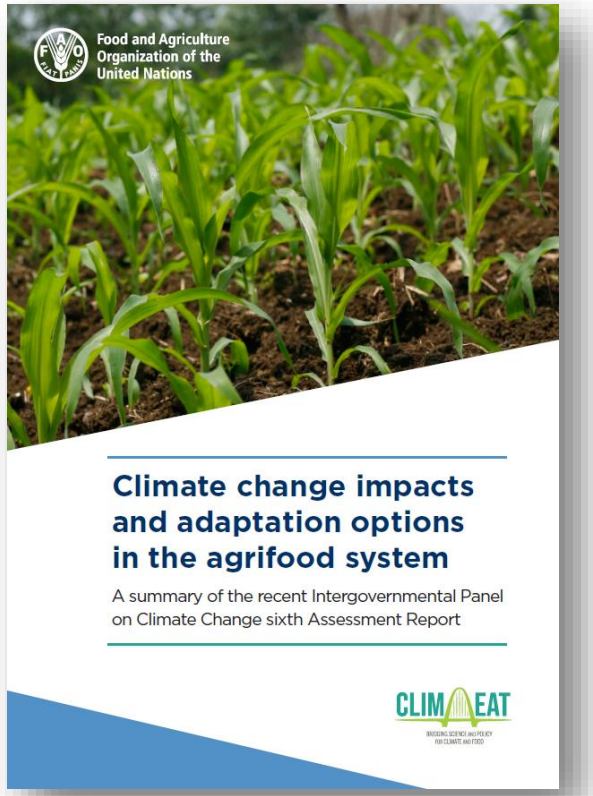
Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

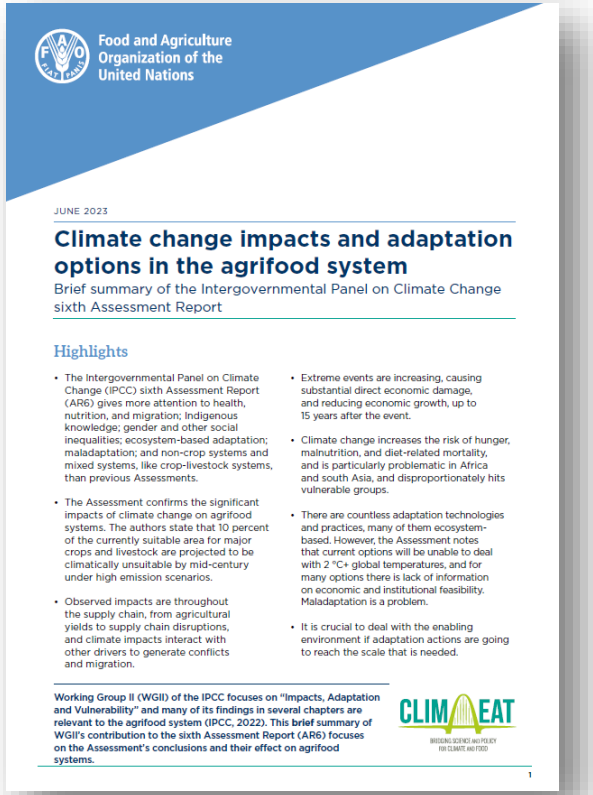
We know…

IPCC Sixth Assessment Report Impacts, Adaptation and Vulnerability

https://www.ipcc.ch/report/ar6/wg2/



https://doi.org/10.4060/cc0425en



http://www.fao.org/3/cc5921en/cc5921en.pdf

Cultivars and breed improvements (crops, livestock, aquaculture)	Genetic improvements are an effective option for adapting to climate change, drawing on modern biotechnology and conventional breeding. Genome sequencing significantly assists in identifying genes relevant to adaptation. However, a variety of socioeconomic and political variables limit uptake of climate-resilient crops and breeds, especially by the most vulnerable farmers.
Changing management practices for crops, livestock, and aquaculture	Many management adaptation options are available, including changing the timing of key farm operations and implementing different tillage practices. For livestock, options include matching of stocking rates with pasture/feed production and adjusting herd and watering point management. Land-based aquaculture systems may reduce exposure to climatic extremes, due to a better control of the environment, and buffer climate effects using optimal diets.
Switching crops, breeds, and farming systems	Farming system transitions are already occurring in a variety of settings. Given that there are many different crop species, there is great potential for crop switching to match changing climates, but cultural and economic barriers will make implementation difficult. Similar considerations apply to livestock and fish. In general, many of these switching options come with trade-offs.
Managing water	Irrigation is one of the most common adaptation responses in agriculture. Hence, expansion of irrigation in the coming decades is expected, leading to shifts from rain-fed to irrigated systems. Many techniques can be used to make irrigation more efficient. However, irrigation is also associated with adverse environmental and socioeconomic outcomes, including the concentration of benefits in richer households.
Diversifying agricultural systems	Various types of diversification can strengthen resilience to climate change, with socioeconomic and environmental co-benefits. However, tradeoffs and benefits vary by socioecological context. Multiple diversification options are feasible, including mixed planting, intercrops, crop rotation, diversified management of field margins, agroforestry, and integrated mixed systems.
Managing fisheries	For coastal and inland fisheries, there are relatively few well-documented examples of eaffective adaptation responses to climate change. Over-fishing is a critical non-climatic driver in the fisheries sector, and reducing over-fishing is an important adaptation measure.
Supply chain options	There are also a range of supply chain adaptation options, like selecting crops with longer shelf life; better-planned harvesting schedules to maximize shelf life; different processing techniques for longer preservation; enhanced hygiene through improved packaging; and improved cold storage mechanisms.

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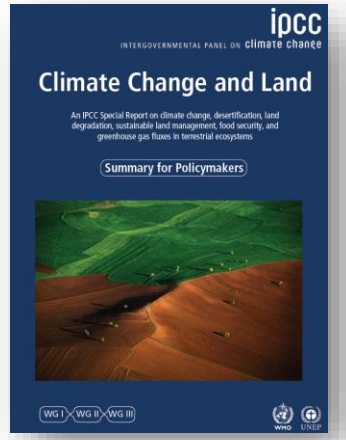
We know… IPCC Special Report on land

https://www.ipcc.ch/report/ar6/wg2/



Adaptation effects of response options based on land management …

…in agriculture

Integrated response option	Potential	Confidence
Increased food productivity	>163 million people	Medium confidence
Improved cropland management	>25 million people	Low confidence
Improved grazing land management	1–25 million people	Low confidence
Improved livestock management	1–25 million people	Low confidence
Agroforestry	2300 million people	Medium confidence
Agricultural diversification	>25 million people	Low confidence
Reduced grassland conversion to cropland	No global estimates	No evidence
Integrated water management	250 million people	Low confidence

Up to several billion people

…in forests

Integrated response option	Potential	Confidence
Forest management	>25 million people	Low confidence
Reduced deforestation and forest degradation	1–25 million people	Low confidence
Reforestation and forest restoration	See afforestation	
Afforestation	>25 million people	Medium confidence

Up to hundred million people

…of soils

Integrated response option	Potential
Increased soil organic carbon content	Up to 3200 million people
Reduced soil erosion	Up to 3200 million people
Reduced soil salinisation	1–25 million people
Reduced soil compaction	<1 million people
Biochar addition to soil	Up to 3200 million people; but potential negative (unquantified) impacts from land required from feedstocks

Up to several billion people

Back to the statement

We know and we are ready to deploy most of the
Strategies to foster adaptation and resilience of agrifood systems,
But we are not implementing at scale

Major bottlenecks

- Finance & Investment
- Metrics & Tools
- Enhanced Policies

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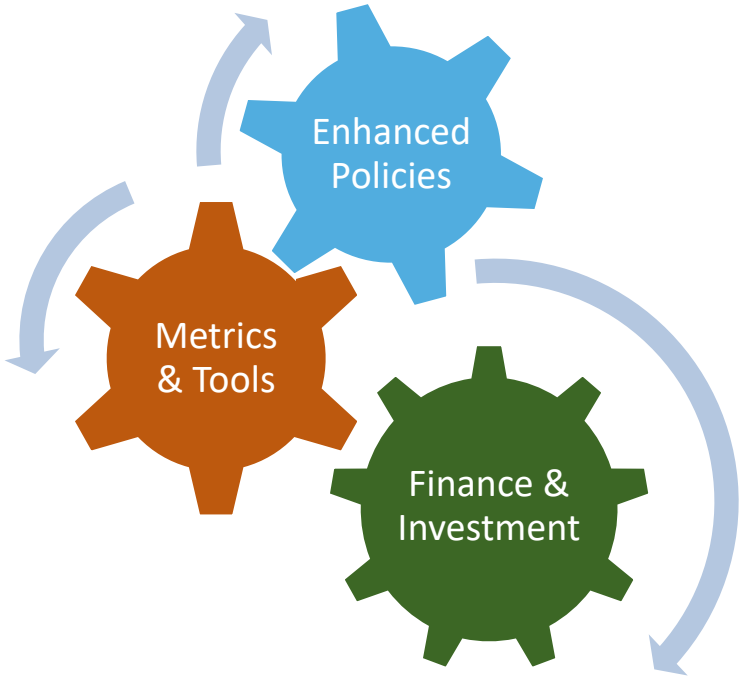

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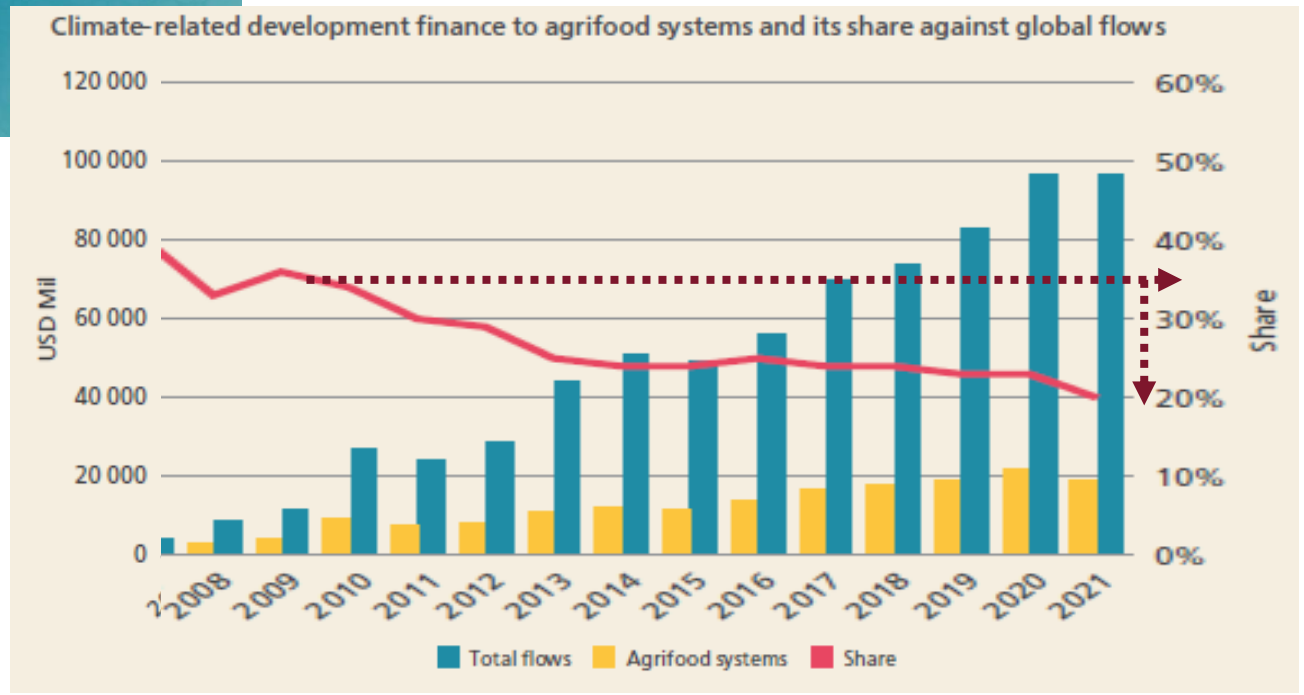
Finance & Investment



https://doi.org/10.4060/cc9010en

The share (%) is decreasing

Food and Agriculture Organization of the United Nations AIDMonitor Datasets

DISCOVER THE AIDMONITOR

Climate-related ODA Dataset > Analysis

Climate-Related Development ODA Allocated to Agrifood Systems

Analysis Region: (All)

Recipient: (All)

Sector: Agrifood systems

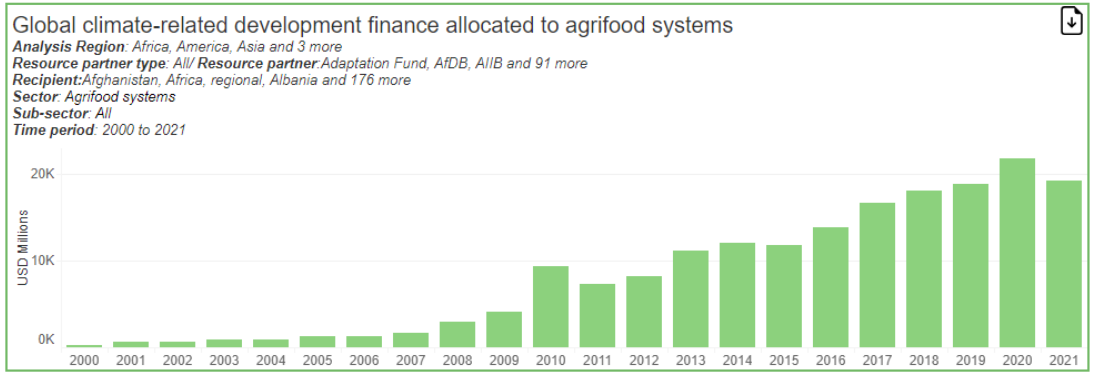
Explore all sectors

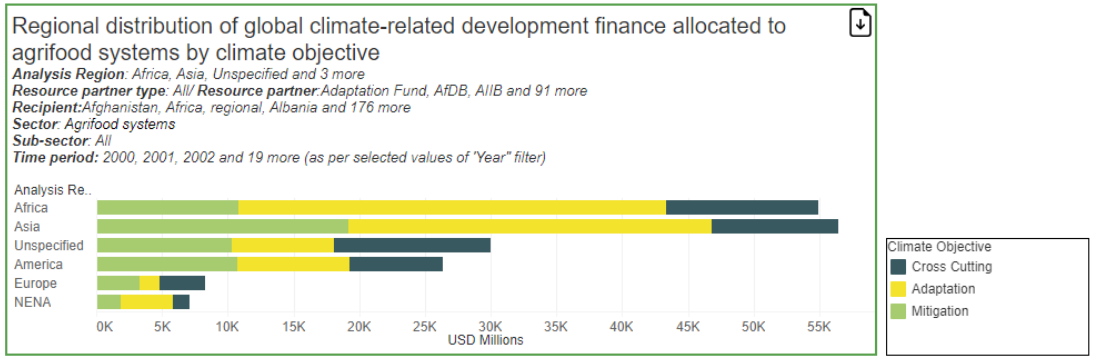
Sub Sector: (All)

Resource Partner Type: (All)

Resource Partner: (All)

Year: 2000 – 2021





https://www.fao.org/aid-monitor/en

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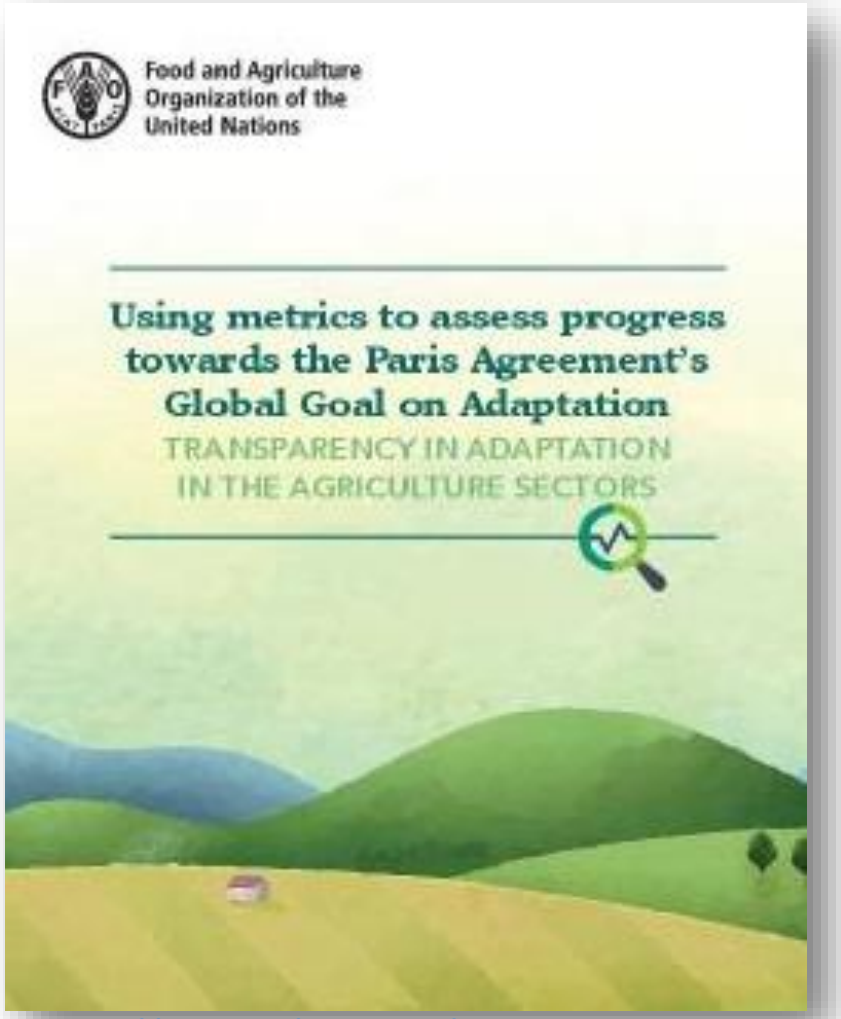
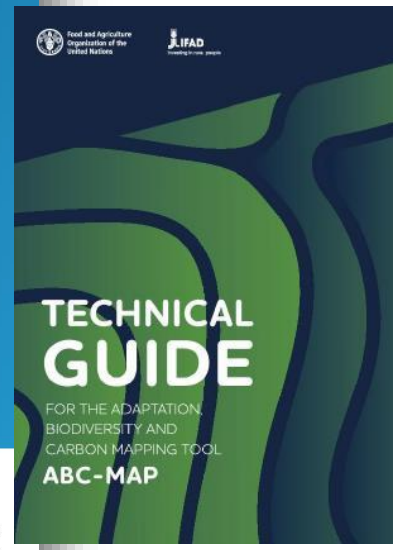
Metrics & Tools



https://doi.org/10.4060/cc2038en

https://abc-map.org/



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Metrics & Tools

+ knowledge and capacity Building

Four supplementary sectoral NAP technical guidelines

Tools can inform evidence-based and inclusive adaptation planning, like the Climate Risk Toolbox, SHARP+ and the newly developed CAR tool

FAO (co-)developed guidance (e.g., on gender and M&E) and training material on agrifood system integration into NAPs

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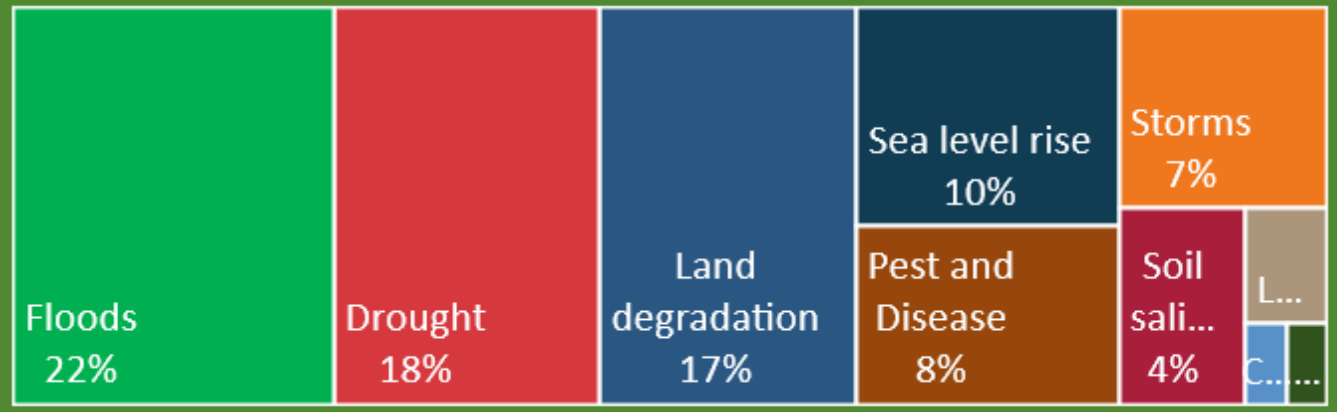
Enhanced Policies

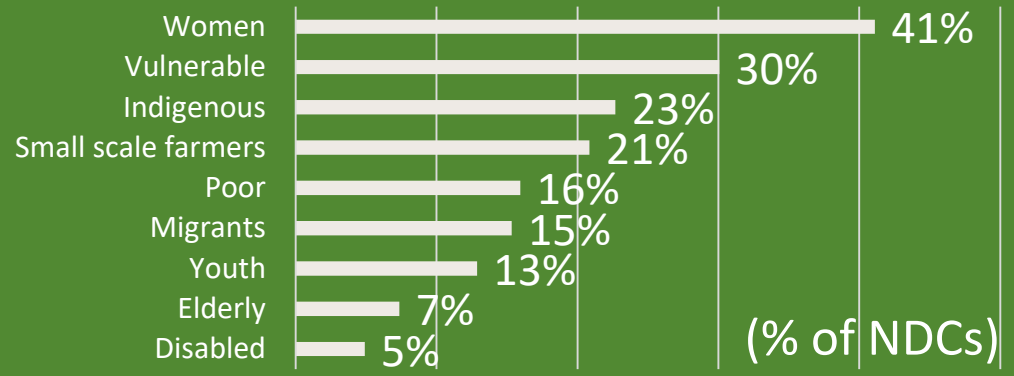
Forthcoming: FAO, 2024. *Agrifood systems in Nationally Determined Contributions: Global Analysis*. Rome, FAO.

Which hazards are driving adaptation responses in agrifood systems?

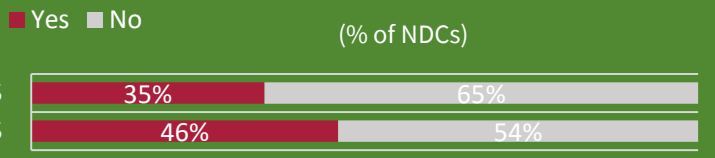


(% of hazards)

How inclusive is adaptation in agrifood systems?



Is adaptation in agrifood systems trackable?



How broad is adaptation in agrifood systems?

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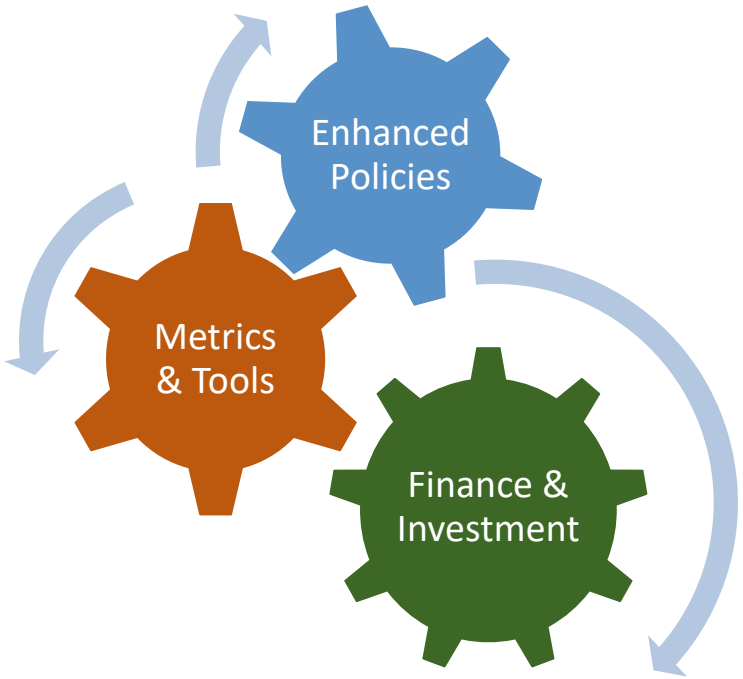
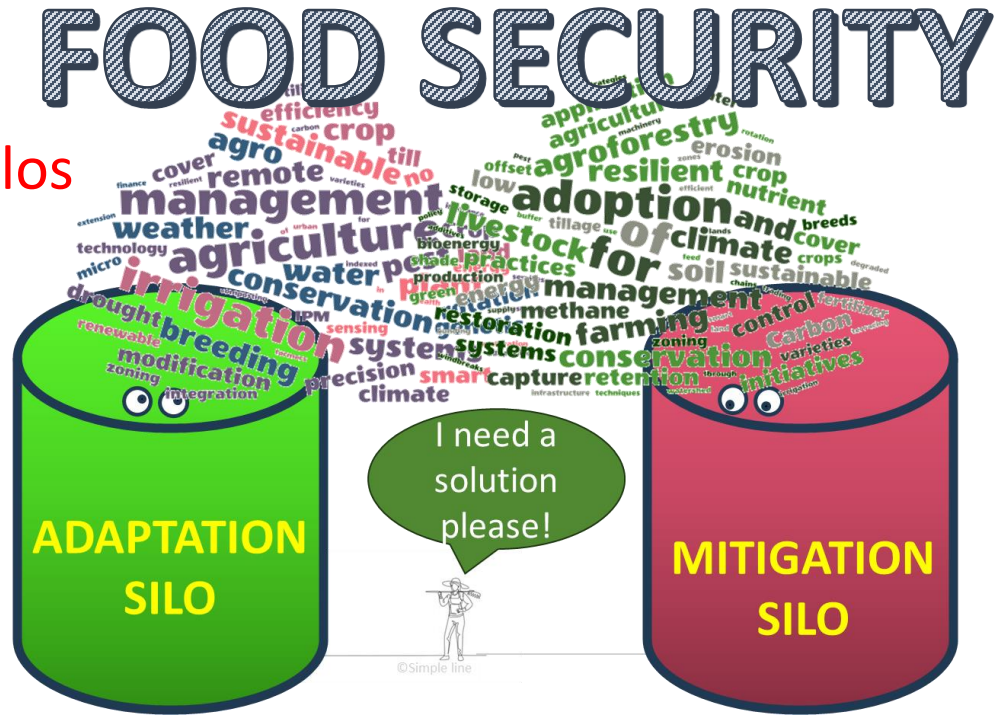


&

We need to break the silos



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Collective challenges require collective solutions

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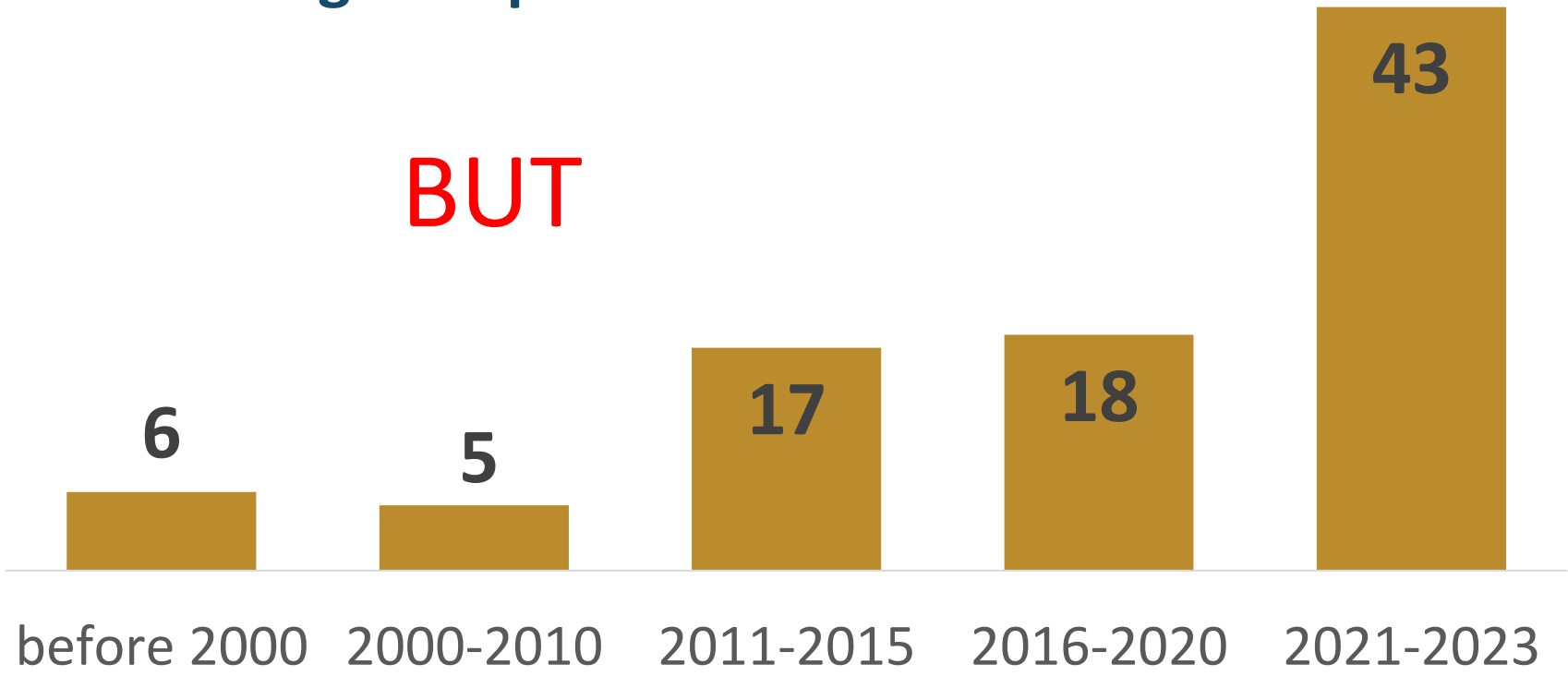

89 initiatives (comprising alliances, coalitions, declarations, fora, policy dialogues etc.)

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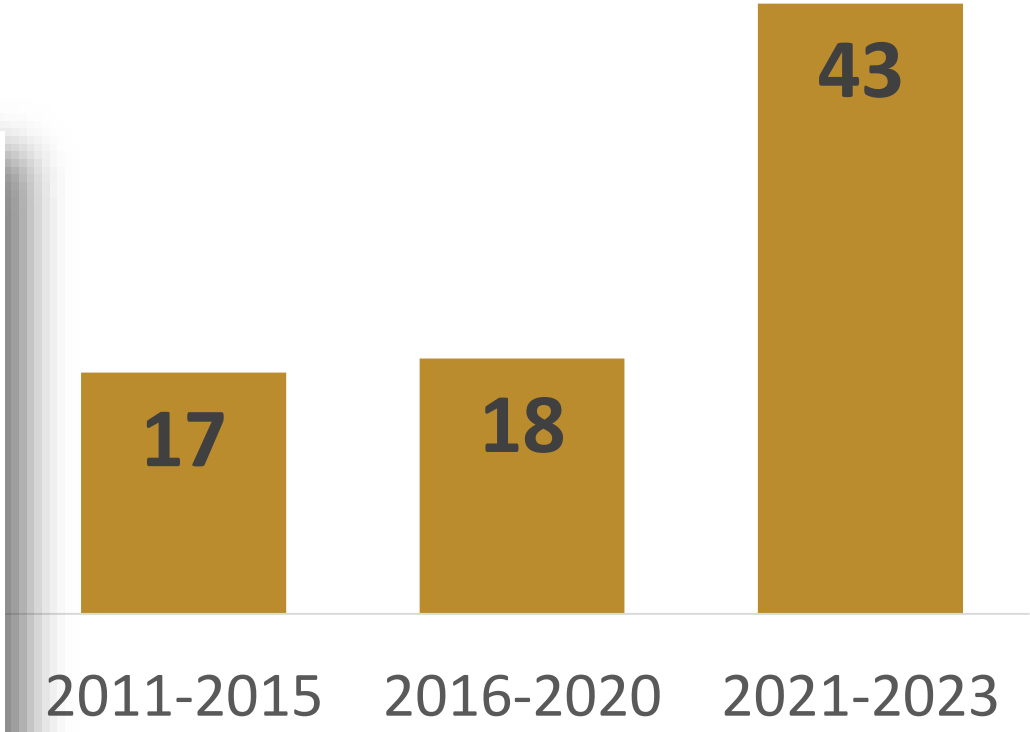
SUSTAINABLE DEVELOPMENT GOALS

Collective challenges require collective solutions



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SUSTAINABLE DEVELOPMENT GOALS

Collective challenges require collective solutions

FAST Partnership

FOOD AND AGRICULTURE FOR SUSTAINABLE TRANSFORMATION

For people, for climate, for nature

COP27 SHARM EL-SHEIKH EGYPT2022 | FAST Food and Agriculture for Sustainable Transformation Initiative | COP28 UAE | Food and Agriculture Organization of the United Nations

ACCESS TO FINANCE
Enhance country capacities to identify and access climate finance and investment.

KNOWLEDGE AND CAPACITY
Develop analyses and voluntary guidelines, and support capacity development across stakeholders.

POLICY SUPPORT AND DIALOGUE
Ensure agrifood systems are fully embedded and prioritized in climate change policies.

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SUSTAINABLE DEVELOPMENT GOALS

Collective challenges require collective solutions

COP29
Baku
Azerbaijan

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G20 - MACS

BRASÍLIA, 15-17, MAY, 2024

Thank you

FAO

Useful links:
FAO's work on climate change:
Finance / AID monitor:
NDC Analyses:
FAST partnership:
SCALA Programme:
Strengthening Agricultural Adaptation (SAGA) Programme: