Overview of progress, challenges and opportunities related to identifying needs and accessing means of implementation for climate action in agriculture and food security

Liva Kaugure.
Natural Resources Officer,
Office of Climate Change Biodiversity and Environment, FAO

Second in-session workshop on
Progress, challenges and opportunities related to identifying needs and accessing means of implementation for climate action in agriculture and food security, including sharing of best practices

Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security (SJWA)

Means of Implementation

UNFCCC

- **Article 4:** Commitments

  4.1 (c): *"Promote and cooperate in the **development, application and diffusion**, including **transfer, of technologies,** practices and processes"*

  4.5: *"developed country Parties (…) to promote, facilitate and finance, as appropriate, the **transfer of, or access to, environmentally sound technologies and know-how** to other Parties (…) support the development and enhancement of **endogenous capacities and technologies** of developing country Parties. "*

- **Article 11:** Financial Mechanism
  - *"Provision of financial resources on a grant or concessional basis, including for the transfer of technology (…)"*

Paris Agreement

- **Article 2:** Objectives

  2.1 (c): *"Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development"*
- **Article 9:** Finance: *"Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention."*
- **Article 10:** Technology development and transfer:

  10.1: *"(…) importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce GHG"*
- **Article 11:** Capacity-building
- **Article 13:** Transparency: developing country Parties to *"provide information on financial, technology transfer and capacity-building support"*

Under the UNFCCC, **means of implementation (MoI)** refer to the access to **climate finance**, **technology development and transfer**, and **capacity-building**

Means of Implementation

KJWA → SJWA

- The KJWA highlighted "*the need to identify modalities for addressing challenges in and exploring opportunities for accessing existing means of implementation*" (Decision 3/CP.27, para. 6)
- Emphasized *"the urgent need to scale up action and support"*
- Recognized that "*scaling up implementation requires enhanced knowledge-sharing on best practices, access to finance, technology development and transfer, and capacity-building*"

- Invites current and future COP Presidencies, high-level champions and other actors to take into account the KJWA recommendations, and *"to promote the sharing of information and knowledge on best practices and means of implementation"* (Decision 3/CP.27, para. 13)
- Second annual synthesis report to address "***challenges in and barriers to accessing support*** *for finance, technology development and transfer, and capacity-building relevant to climate action on agriculture and food security*" (FCCC/SB/2025/L.2, para. 5)

Solutions are context-specific and take into account national circumstances

Importance of considering the vulnerability of farmers and other groups vulnerable to climate change impacts, and consider the role of farmers as key agents of change

Means of Implementation

Climate Finance

DEFINITION

"Local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change" (UNFCCC, n.d.)

*"**Climate finance** aims at reducing emissions and enhancing sinks of greenhouse gases, aims at reducing vulnerability, increasing adaptive capacity, and mainstreaming and increasing resilience of human and ecological systems to negative climate impacts, and includes financing for actions identified in a country's NDC, adaptation communication, NAP, LT-LEDS, or other national plan for implementing and achieving the goals of the Paris Agreement and the objective of the Convention" **(SCF, 2024)***

- **"Common but differentiated responsibility and respective capabilities"**

United Nations Framework Convention on Climate Change

UNFCCC Financial Mechanism:

Operating Entities

- Global Environment Facility (GEF) - 1994
- Green Climate Fund (GCF) COP16, 2010
- Fund for Responding to Loss & Damage (FRLD) COP29, 2024
- Special Climate Change Fund (SCCF) and
- Least Developed Countries Fund (LDCF) managed by the GEF
- Adaptation Fund (AF) established under the Kyoto Protocol in 2001.

Standing Committee on Finance (SCF) established at COP16 in 2010

- **2025 SCF Forum on** "*accelerating climate action and resilience through financing for sustainable food systems and agriculture*"

Means of Implementation

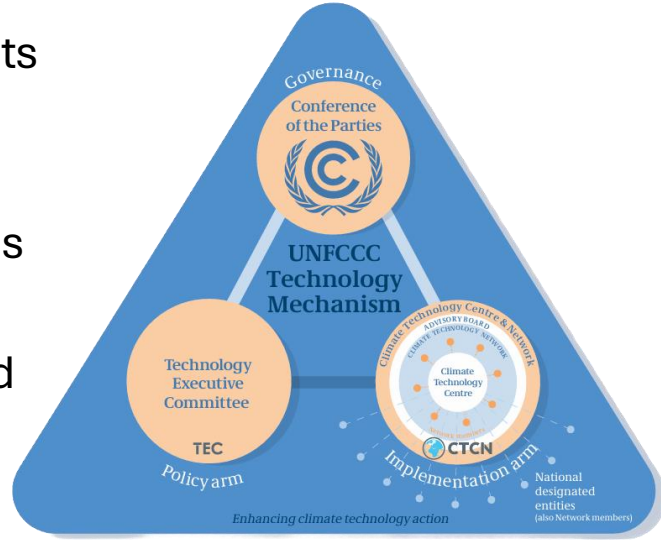
Technology development and transfer

DEFINITION

- **Climate technology:** a piece of equipment, technique, practical knowledge or skills for performing a particular activity (IPCC, 2000).
- **Climate adaptation technology**: includes all technologies that support adaptation to climate variability and climate change. It also refers to the use of technology to reduce vulnerability or strengthen the resilience of natural or human systems to climate impacts (Traerup & Bakkegaard, 2015)
- **Climate mitigation technology:** covers technologies and practices that reduce greenhouse gas (GHG) emissions or increase the ability of carbon sinks to absorb GHGs from the atmosphere (Dhar, Desgain & Narkeviciute, 2015)
- **Technology for sustainable agrifood systems**: refers to the application of science and knowledge to develop techniques that deliver products and services that improve the sustainability of agrifood systems (FAO, 2022)

United Nations Framework Convention on Climate Change

ipcc INTERGOVERNMENTAL PANEL ON climate change



Technology Executive Committee (TEC) & the **Climate Technology Centre and Network (CTCN):** support development, deployment, and scaling of technologies and innovations

Means of Implementation

Capacity Building

DEFINITION

Framework for capacity-building (Decision 2 and 3/CP.7): *Build, develop, strengthen, enhance and improve capabilities to implement the Convention*

- **Country-driven:** specific needs, conditions, priorities and circumstances
- **Continuous, progressive and iterative process**
- **Effective, efficient, integrated and programmatic**
- **Builds on existing** processes and endogenous capacities
- "**Learning by doing**": demonstration projects as a key modality
- **Coordinated at all levels** (national, regional and international), mobilizing existing institutions and private sector
- Individual, Institutional and Systemic supportf
- **Maximize synergies** between across global environmental agreements

United Nations
Framework Convention on Climate Change

Communicated through

- National communications (NC)
- Biennial Update Reports (BURs)
- National Adaptation Plans (NAPs)

UNFCCC

- Nationally Determined Contribution (NDC)
- Biennial Transparency Report (BTR)

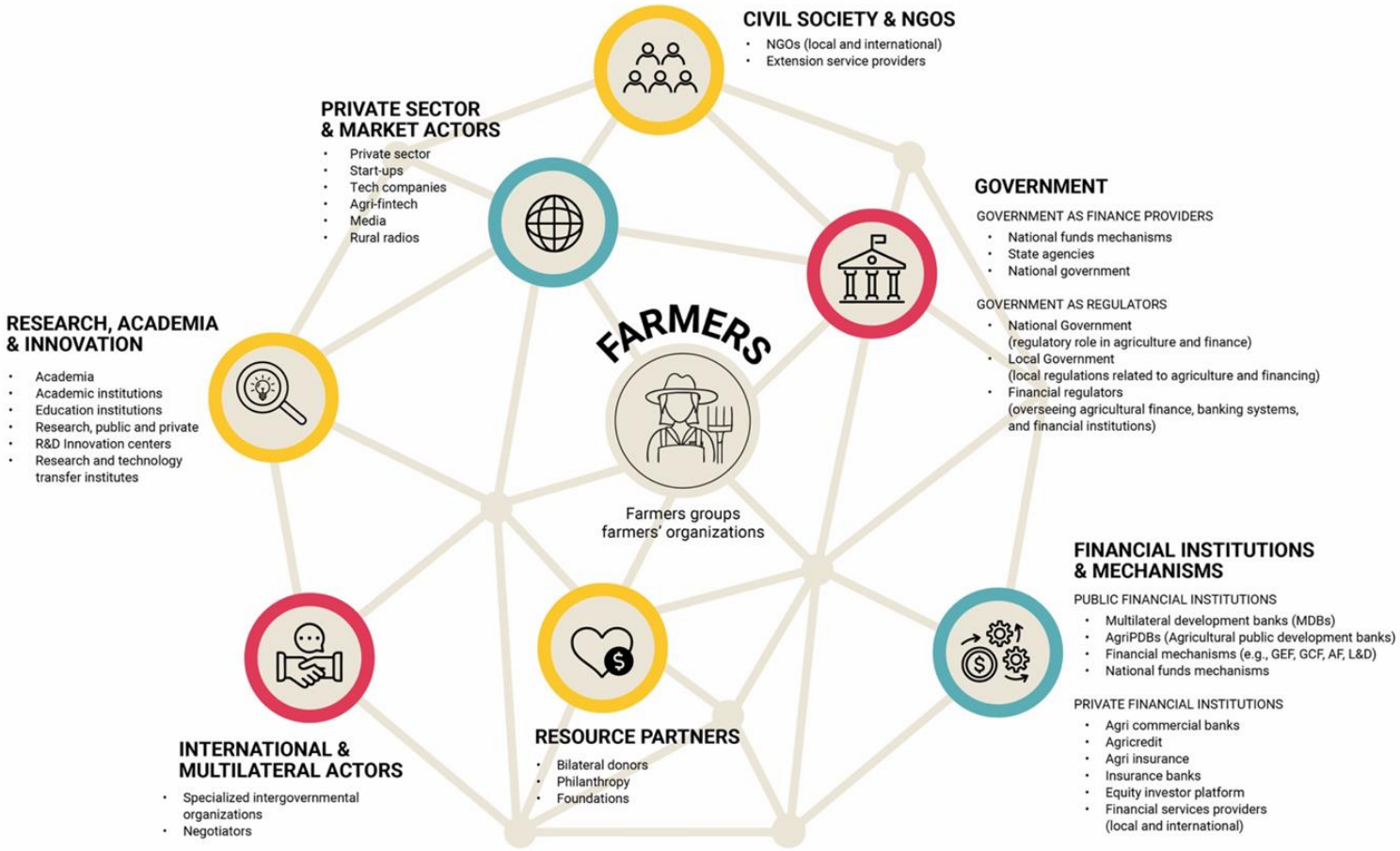
Paris Agreement

- Submissions

Paris Committee on Capacity-Building (PCCB): identify capacity gaps and needs and potential solutions, including enhancing the coherence and coordination

Durban Forum on Capacity-building

Means of Implementation



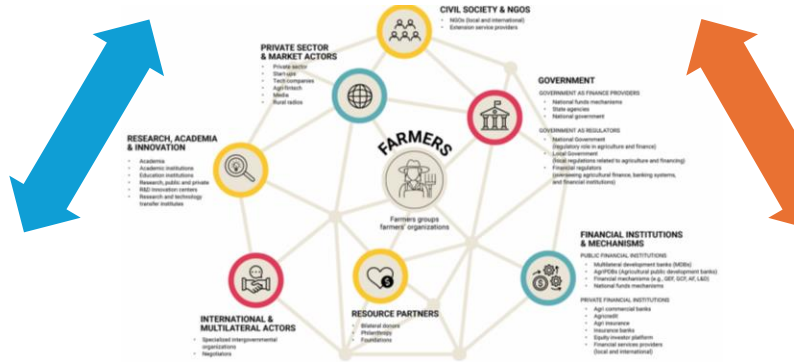
Multistakeholder engagement is crucial for the implementation of Climate Action

Recognizing farmers as key agents of change

Science & Data

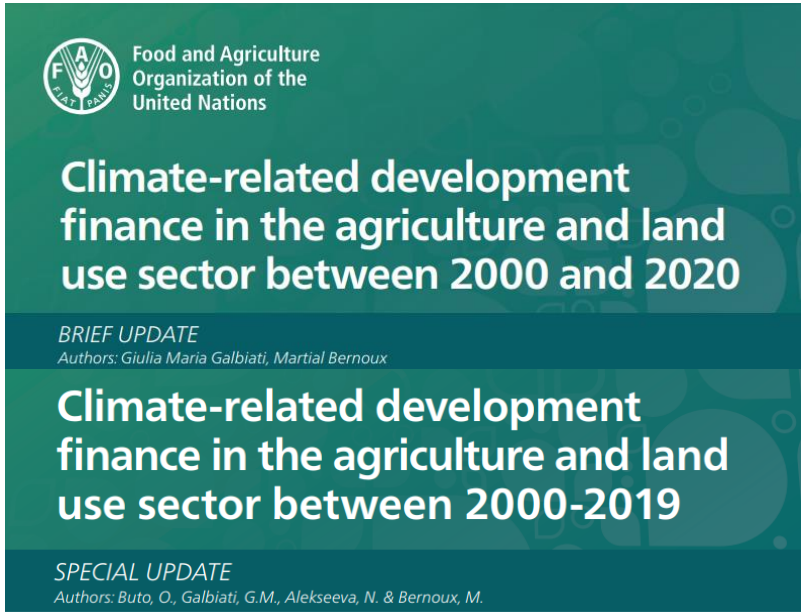
Policy & Governance

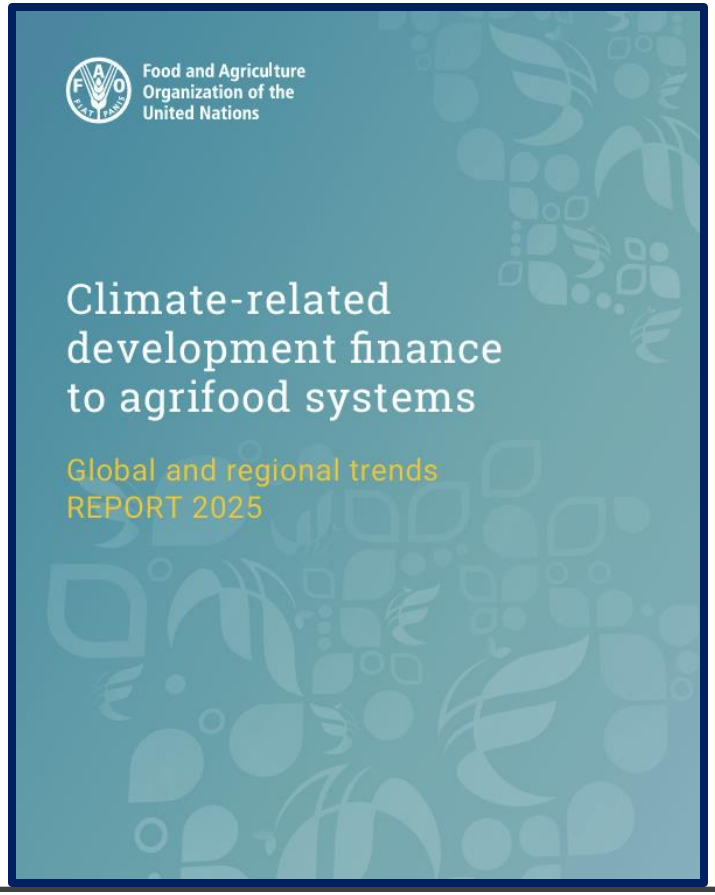
Climate Finance and investment

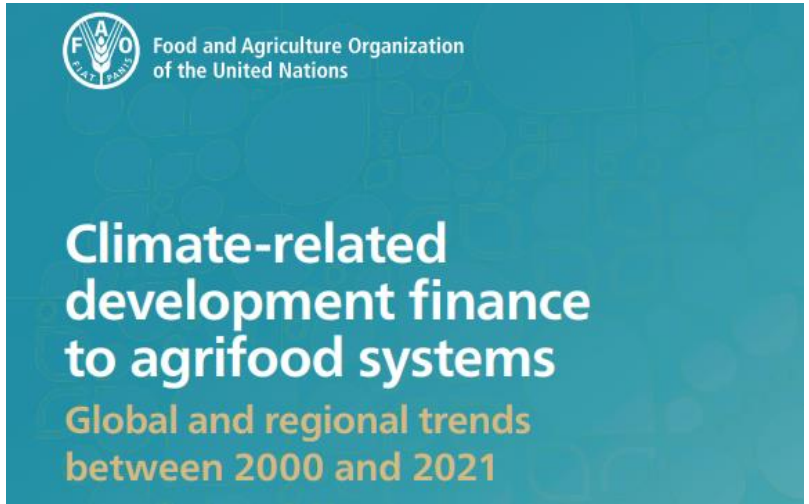


Technology Development and Transfer

Capacity Building





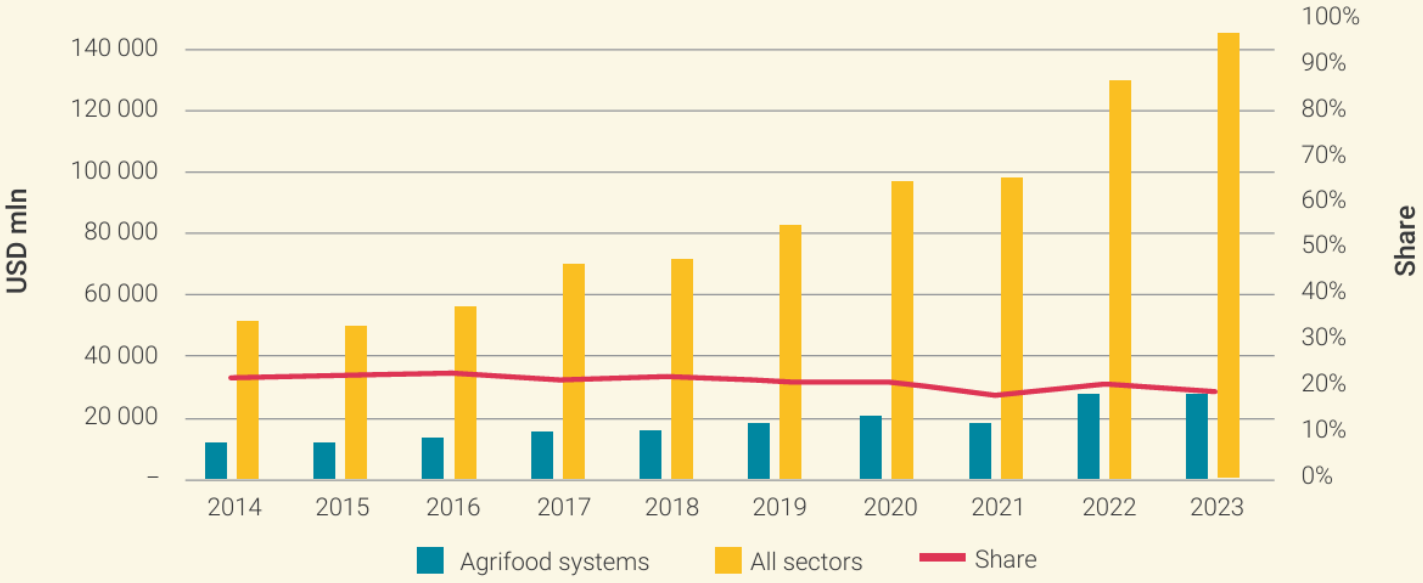


Latest Evidence

Climate Finance

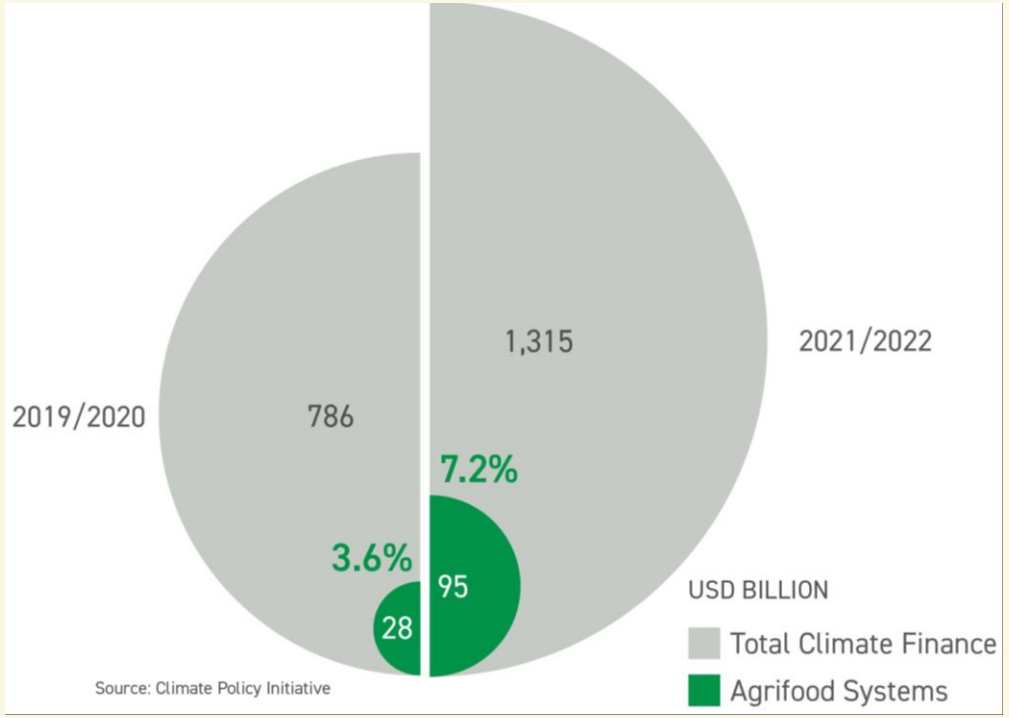
Climate finance to agrifood systems is insufficient

Despite the surge in total climate-related development finance, the **share directed to agrifood systems has declined** significantly. falling from 47% in 2000 to 19% in 2023.



Galbiati, G.M., Caputo, I., Brierley, I., Ducastel, A. & Bernoux, M. 2025. Climate-related development finance to agrifood systems – Global and regional trends. Report 2025. Rome, FAO. https://doi.org/10.4060/cd7500en

Agrifood systems receive a tiny fraction of total global climate finance tracked at the project level.

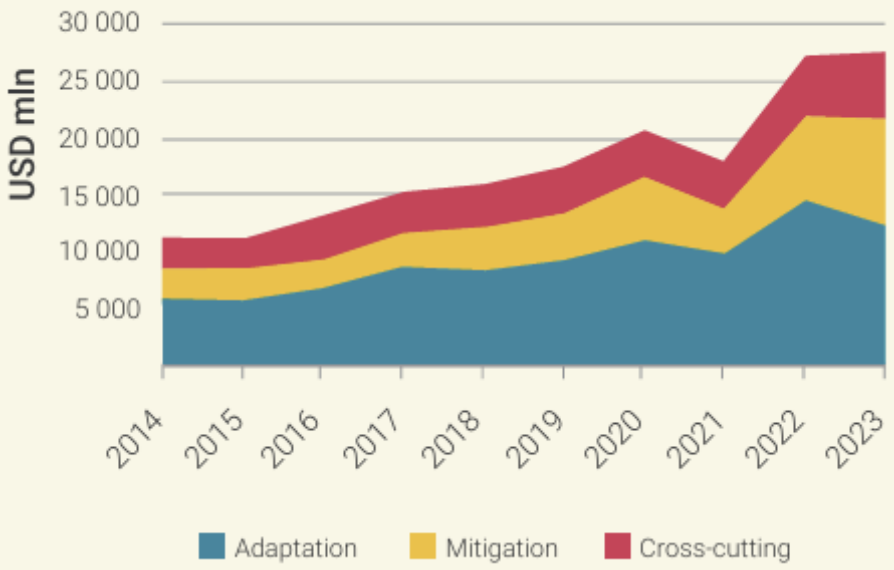


CLIC, 2025. Landscape of Climate Finance for Agrifood Systems 2025. Available at: https://climateshotinvestor.org/publications/landscape-of-climate-finance-for-agrifood-systems-2025

Climate Finance

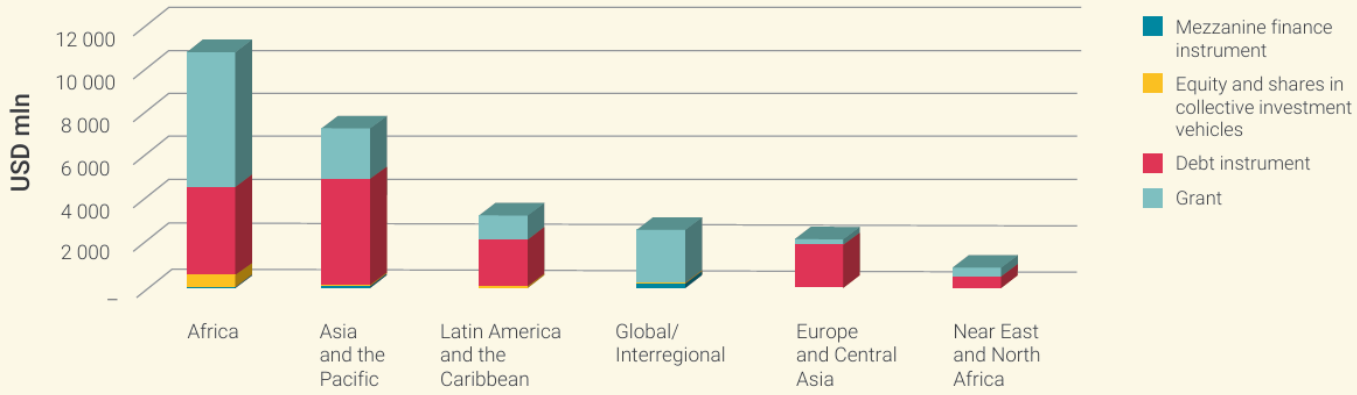
The Quantity and Quality: A Dual Imperative for Climate Finance

Agrifood systems' allocations are primarily directed to adaptation (45%), followed by mitigation (34%) and cross-cutting objectives (21%)



Galbiati, G.M. and Bernoux, M. 2024. Climate-related development finance to agrifood systems, 2024 update. Rome, FAO. https://openknowledge.fao.org/handle/20.500.14283/cd1961en

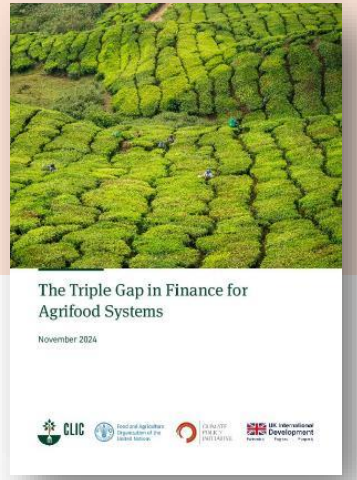
While debt instruments are growing across regions, grants remain critical for the most vulnerable, underscoring the need for a tailored mix of finance instruments



Galbiati, G.M. and Bernoux, M. 2024. Climate-related development finance to agrifood systems, 2024 update. Rome, FAO. https://openknowledge.fao.org/handle/20.500.14283/cd1961en

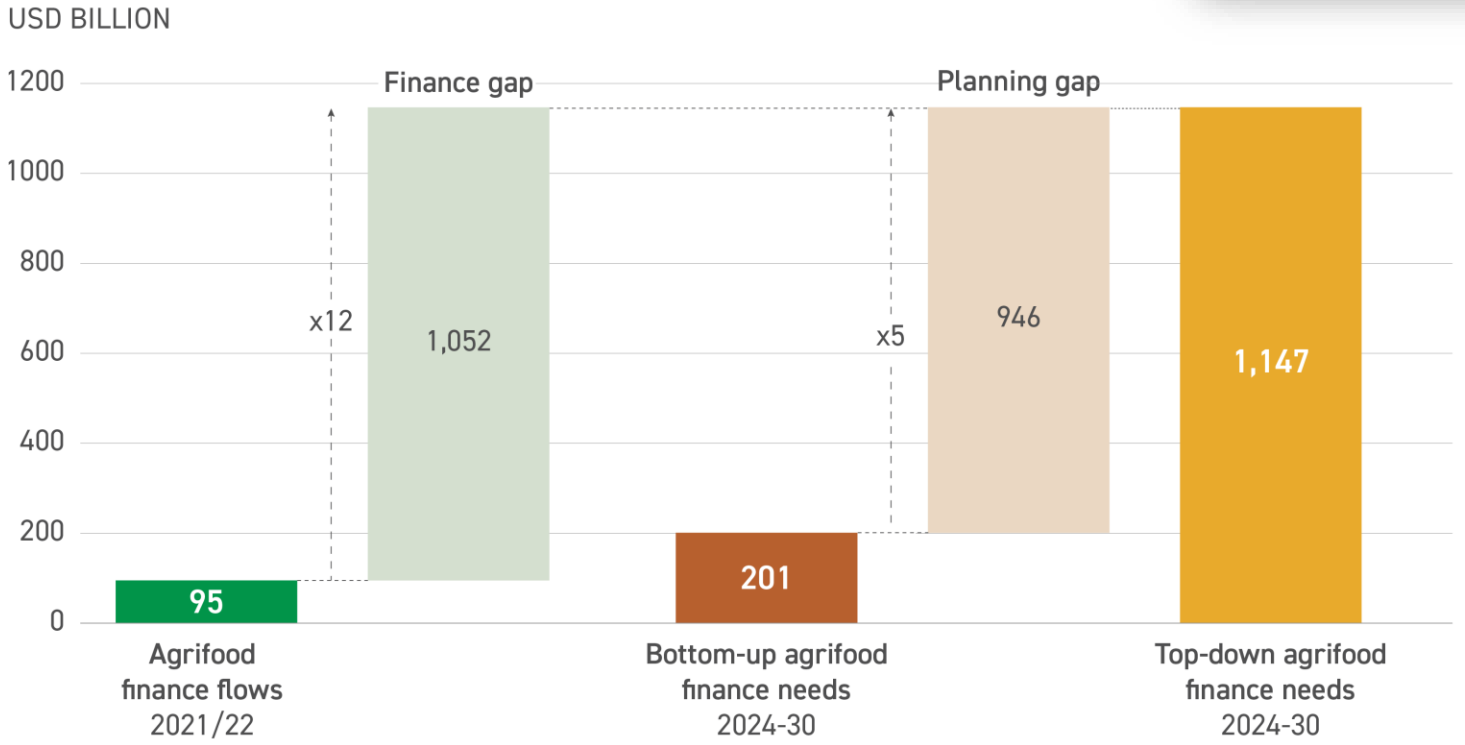
Climate Finance

Three Critical Gaps



Three Critical Gaps Identified:

- **Finance Gap:** Global climate finance for agrifood systems falls far short of what is needed.
- **Planning Gap:** National planning underestimates the potential of agrifood actions for delivering adaptation and mitigation ambition.
- **Data Gap:** Inadequate data impedes effective tracking, decision-making, and accountability.

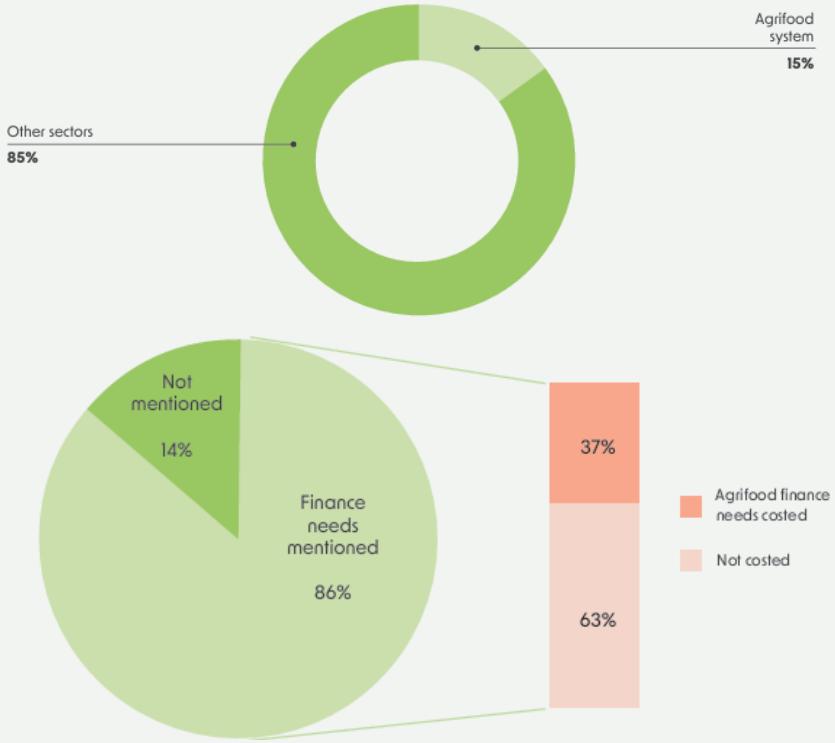


Updated in May 2025 from CPI & FAO, 2024

Climate Finance

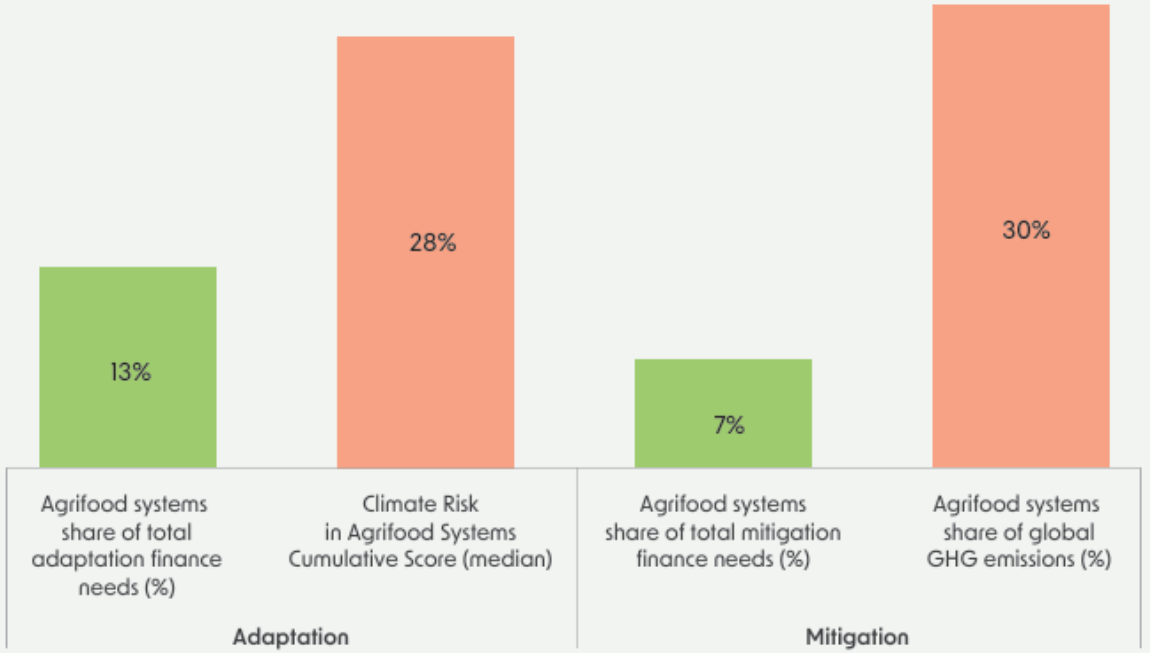
Planning gap: Agrifood systems' potential remains underestimated in country's finance needs

Only 37% of NDC 2.0 include quantified agrifood finance needs, yet representing just 15% of total reported finance needs



CLIC, 2025. Landscape of Climate Finance for Agrifood Systems 2025. Available at: https://climateshotinvestor.org/publications/landscape-of-climate-finance-for-agrifood-systems-2025

Agrifood systems account for 30% of global GHG emissions and face high climate risk, yet represent only 13% and 7% of total NDC finance needs for adaptation and mitigation



Galbiati, G.M. and Bernoux, M. 2024. Climate-related development finance to agrifood systems, 2024 update. Rome, FAO. https://openknowledge.fao.org/handle/20.500.14283/cd1961en

Climate Finance

2025 SCF Forum on *accelerating climate action and resilience through financing for sustainable food systems and agriculture*

COP30 underscored that "*accelerating climate action and resilience through* ***financing for sustainable food systems and agriculture is essential****, including for protecting biodiversity and supporting vulnerable communities";*

Key barriers and challenges

- High-risk and low-return perception, despite significant climate action potential
- Limited collateral, insecure land tenure and high transaction costs restrict investments
- Information gaps, limited aggregation capacity and a lack of direct access
- Accreditation and fiduciary requirements, fragmented funding landscapes, and difficulties in aligning available financial instruments with local needs
- Overlapping ministerial mandates, limited capacity to prepare bankable projects and weak coordination between climate and agricultural strategies

Need to scaling up grant-based, concessional and blended finance approaches, alongside capacity-building, technical assistance and enabling environments, particularly for small-scale farmers, Indigenous Peoples, local communities and women.

Closing the triple gap is essential to improve access to means of implementation for climate action in agriculture and food security

Climate Finance Partnership is key to identify and address main bottlenecks

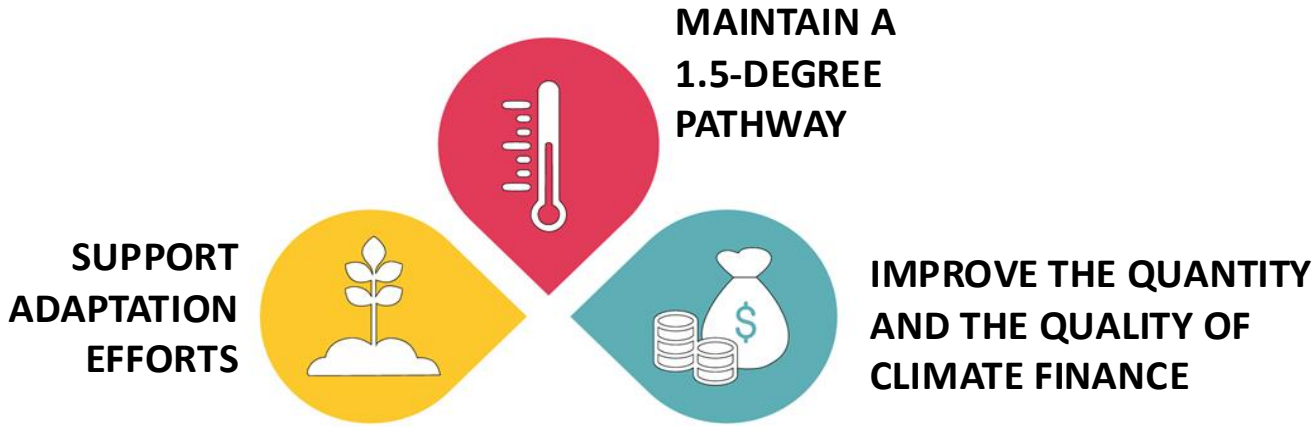
Improve Estimation of Needs

- Governments must re-evaluate targets and investment frameworks.

Equity & Inclusion

- Climate finance needs to address inequalities, particularly for smallholder farmers and women and ensure a Just Transition
- Multi-year, inclusive finance options aligned with national priorities and local knowledge, co-created with vulnerable groups to empower them as active decision makers

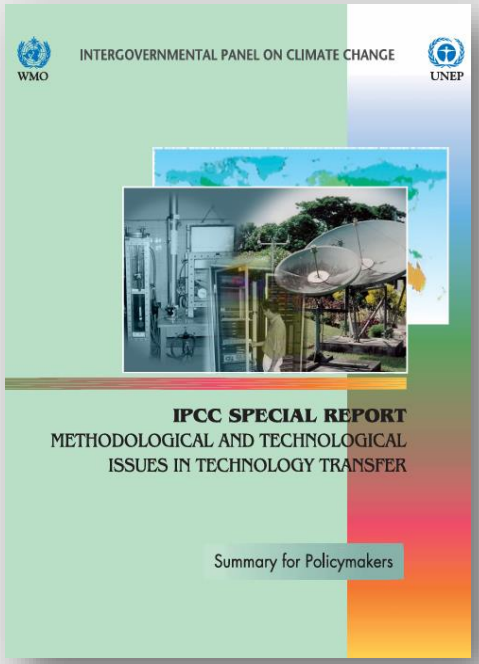
FOOD AND AGRICULTURE FOR SUSTAINABLE TRANSFORMATION
FAST Partnership



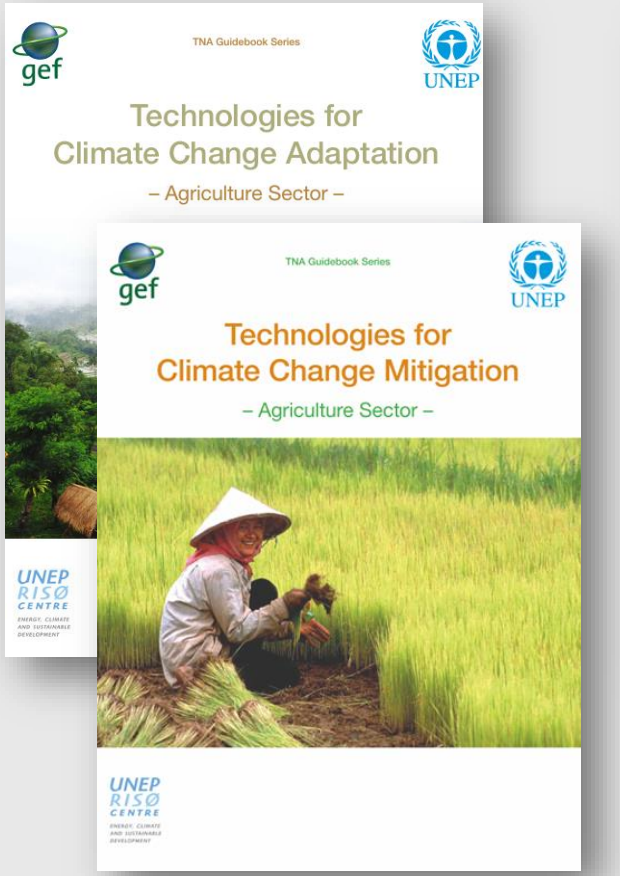
Closing the triple gap is essential to improve access to means of implementation for climate action in agriculture and food security

Technology Development & Transfer

Climate Technologies in Agrifood Systems



IPCC, 2000



Clements *et al.*, 2011
Uprety *et al.*, 2012

TEC, 2014a, 2014b, 2017

FAO & UNFCCC, 2024
Vorkapic *et al.*, 2025

Technology Development & Transfer

Climate Technologies in Agrifood Systems

The agriculture sector is consistently prioritized by developing country Parties.

PROGRESS

- **87% of Parties** identify AFOLU as a priority for adaptation in their TNAs and **35% for mitigation,** making it one of the most prioritized sectors (UNFCCC, 2020)
- Despite being a prioritized sector, **integrated uptake of climate technologies in agrifood systems remains limited,** as underscored by the first Global Stocktake

Growing but insufficient financial flows

- Climate-related development finance to agrifood systems-related technology totalled **USD 50 billion** between 2013–2022, representing **29% of** total climate finance to the sector
- Asia attracted the most flows (36%), followed by Africa (29%) and Latin America (15%)
- Of the **6 437 agrifood system-related climate technologies** identified in the NDC 2.0, **only 14 percent have an estimated cost**.
- Almost half (45 percent) are **fully dependent on the provision of external support,** and **80 percent** in lower-income countries are either partially or fully conditional

Technology Development & Transfer

Climate Technologies in Agrifood Systems

Main challenges for Climate Action:

Evidence based technology uptake

- **A fundamental barrier to technology adoption** remains the week link between agriculture context, poorly recognized **value chain needs and gaps** beyond the farm gate (post-harvest, processing, distribution) and the identification of a "**set**" of technology requirements to enable value chain performance and uptake

Financial & Economic Barriers (reported in 100% of Parties' TNAs) (UNFCCC, 2020).

- Persistent **gap between technological potential and implementation** due to insufficient funding, particularly in developing countries
- **High upfront costs** and **long payback periods** deter private investors

Policy, Legal & Regulatory Barriers (cited by 98% of Parties) and capacity & institutional

- Insufficient or weakly enforced **legal and regulatory frameworks**
- **Technological lock-ins** creates resistance to adopting alternatives
- Weak linkages between financial institutions and agrifood actors (demand and supply)

Technology Development & Transfer

Climate Technologies in Agrifood Systems

Strengthening agrifood sector technology needs

- **The GST has highlighted the gap in uptake. FAO is working closely on addressing this gap for agrifood systems to increase integrated uptake across agrifood value chains.**
- New round of **NDCs** (2025) can identify and embed agrifood technology needs but the link should be strengthened
- Focusing on **barriers to adoption** in the TNA/ TAP process brings more attention to the issue of access to technologies
- Targeting **financial flows from all sources** should be increased and improved to appropriately address technology needs.
- **Enhancing coordination** between climate change and agrifood policies, programming and investments

Context-specific assessments tailored to local conditions, farming systems, and the socioeconomic situations of producers, taking into account gender, inequality and the need for social inclusion

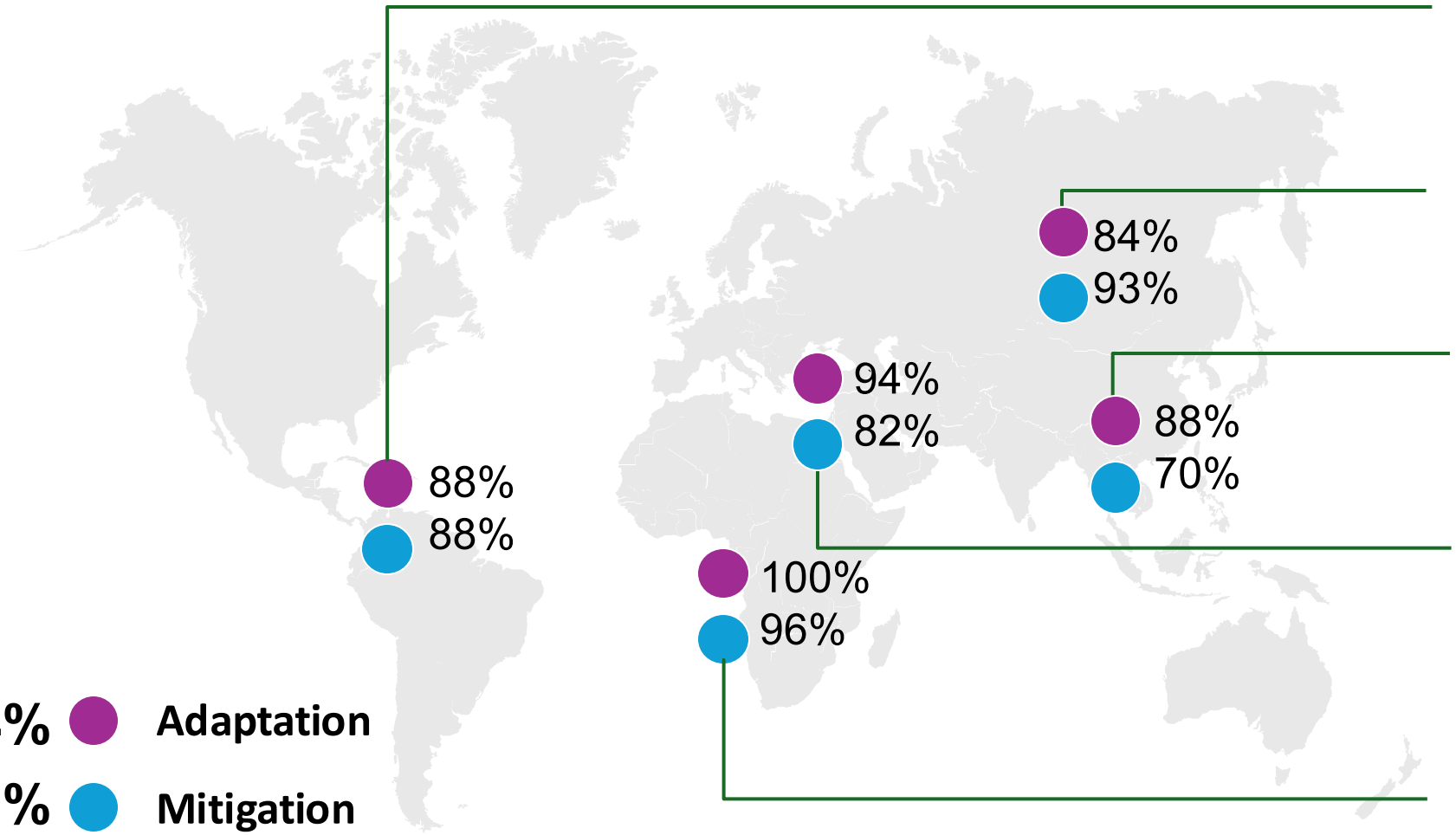
Farmer Field Schools (FFS) have reached over 20 million farmers across 119 countries — a proven model for scalable, participatory technology transfer, including digital literacy for rural women

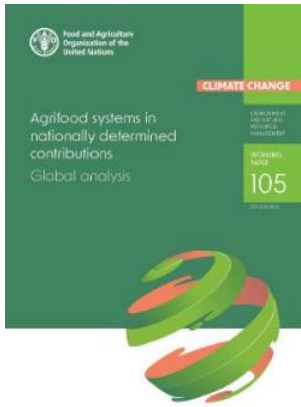
Public finance plays a catalytic role in de-risking investments, supporting early-stage and locally adapted technologies and crowding in private capital

Multilateral development banks and **climate finance mechanisms** are essential for piloting and scaling up climate technologies and strengthening national innovation systems (TEC and FAO, 2024).

Policy and Governance

Agrifood systems feature also prominently in the **NDCs** as the custodians of critical adaptation and mitigation solutions

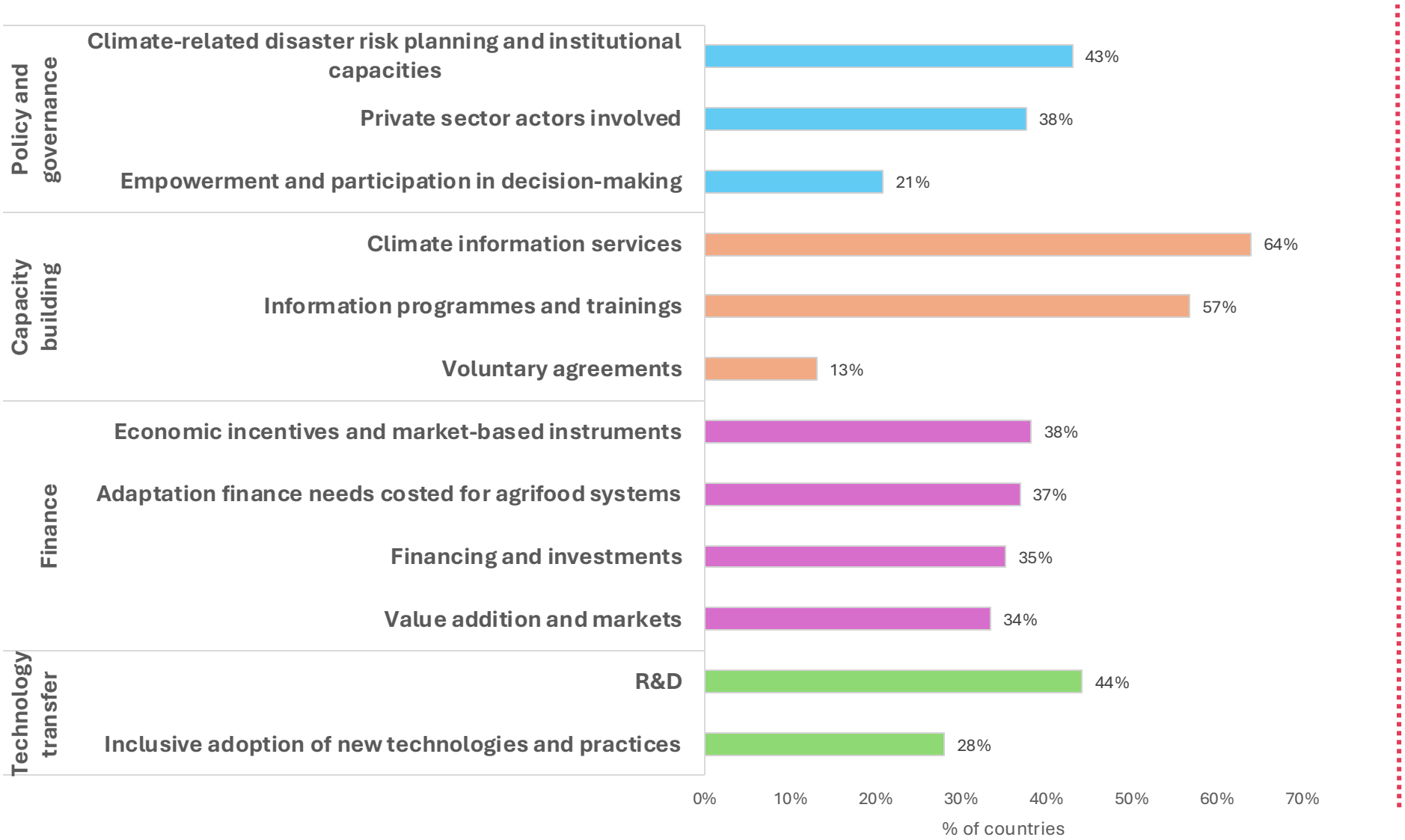




FAO, 2025

Policy and Governance

Country priorities, needs and targets on **means of implementation** for agrifood systems are also reflected in NDCs



Not working in isolation: Opportunities for implementation of climate action under the SJWA

SB62 requested the Secretariat to synthesize, in the second annual SJWA report, information from Parties, constituted bodies, financial entities, COP Presidencies and High-Level Champions on **financial allocations and needs, and challenges and barriers to accessing** finance, technology transfer and capacity-building for climate action in agriculture and food security

Sharm el-Sheikh Online Portal

Sharm el-Sheikh online portal.

The Conference of the Parties established the Sharm el-Sheikh online portal under the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security for sharing information on projects, initiatives and policies for increasing opportunities for implementation of climate action to address issues related to agriculture and food security (decision 3/CP.27).

Credit: CC0

How to submit

Parties and observers can submit information on projects, initiatives and policies for increasing opportunities for implementation of climate action to address issues related to agriculture and food security to be made available through this portal.

To do so, national focal points (for Parties) and designated contact points (for admitted observers) are invited to submit relevant information by filling the following template and sending it along the actual submission document(s) to the following email: sjwa@unfccc.int .

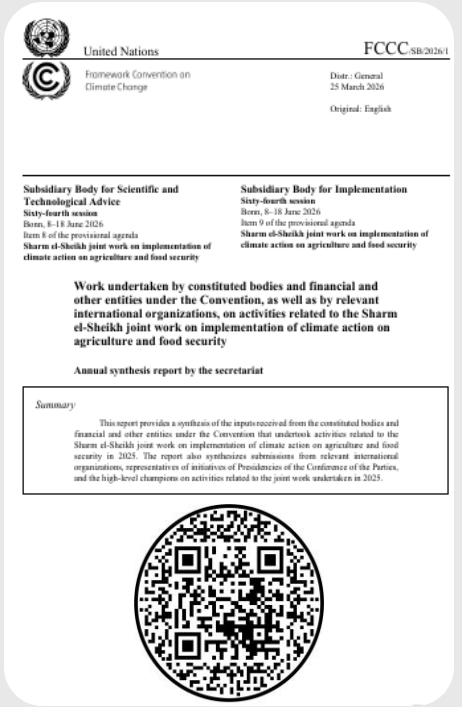
How can Parties and observers submit information to this online portal?

Presentation

Submissions from Initiatives of COP Presidencies

SCAN ME

Annual Synthesis Reports



United Nations

Framework Convention on Climate Change

FCCC/SB/2026/1

Distr.: General
25 March 2026

Original: English

Subsidiary Body for Scientific and Technological Advice
Sixty-fourth session
Bonn, 8–18 June 2026
Item 8 of the provisional agenda
Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

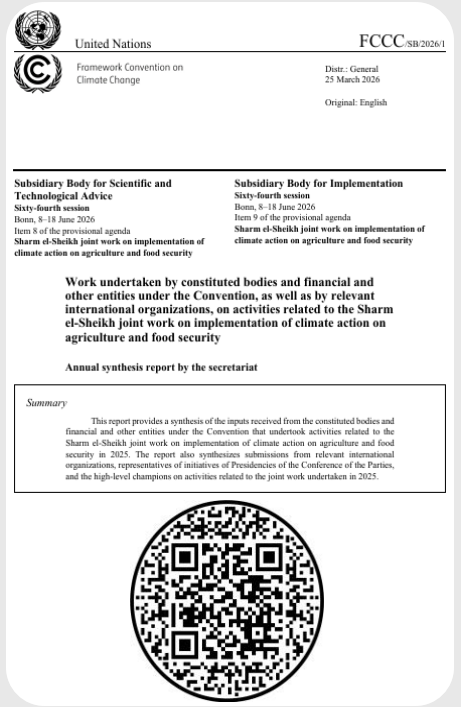
Subsidiary Body for Implementation
Sixty-fourth session
Bonn, 8–18 June 2026
Item 9 of the provisional agenda
Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

Work undertaken by constituted bodies and financial and other entities under the Convention, as well as by relevant international organizations, on activities related to the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

Annual synthesis report by the secretariat

Summary

This report provides a synthesis of the inputs received from the constituted bodies and financial and other entities under the Convention that undertook activities related to the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security in 2025. The report also synthesizes submissions from relevant international organizations, representatives of initiatives of Presidencies of the Conference of the Parties, and the high-level champions on activities related to the joint work undertaken in 2025.



United Nations

Framework Convention on Climate Change

FCCC/SB/2026/1

Distr.: General
25 March 2026

Original: English

Subsidiary Body for Scientific and Technological Advice
Sixty-fourth session
Bonn, 8–18 June 2026
Item 8 of the provisional agenda
Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

Subsidiary Body for Implementation
Sixty-fourth session
Bonn, 8–18 June 2026
Item 9 of the provisional agenda
Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

Work undertaken by constituted bodies and financial and other entities under the Convention, as well as by relevant international organizations, on activities related to the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security

Annual synthesis report by the secretariat

Summary

This report provides a synthesis of the inputs received from the constituted bodies and financial and other entities under the Convention that undertook activities related to the Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security in 2025. The report also synthesizes submissions from relevant international organizations, representatives of initiatives of Presidencies of the Conference of the Parties, and the high-level champions on activities related to the joint work undertaken in 2025.

Science & Data

Means of implementation in IPCC

Opportunities for Climate Action:

- Transforming food systems offers major **mitigation and adaptation** potential with co-benefits for health, livelihoods, and biodiversity.

- Effective interventions include:
  - Sustainable land management (e.g., agroforestry, soil health)
  - Climate-resilient practices and technologies
  - Demand side: Dietary shifts and reducing food loss/waste

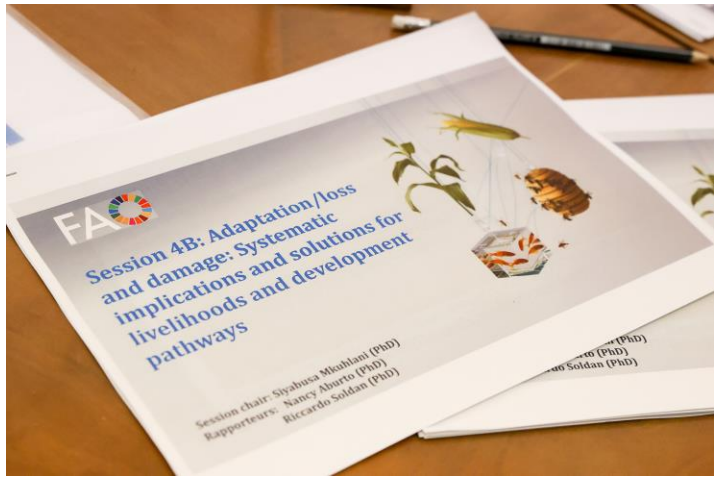
Climate change significantly impacts food production and security, and transformative changes are needed to reduce emissions, increase resilience, and ensure food security for all.

BUT effective implementation demands alignment among science, policies, markets, institutions, and governance.

Science-Policy Interface:
Placing Agrifood Systems at the Heart of climate action

FAO-IPCC Co-Sponsored Expert Meeting on Agriculture and Food | 2-5 June 2026

Synthesizing the latest science on agriculture and food systems under climate change to provide targeted inputs to the IPCC Seventh Assessment Report (AR7), while informing the implementation of climate action.

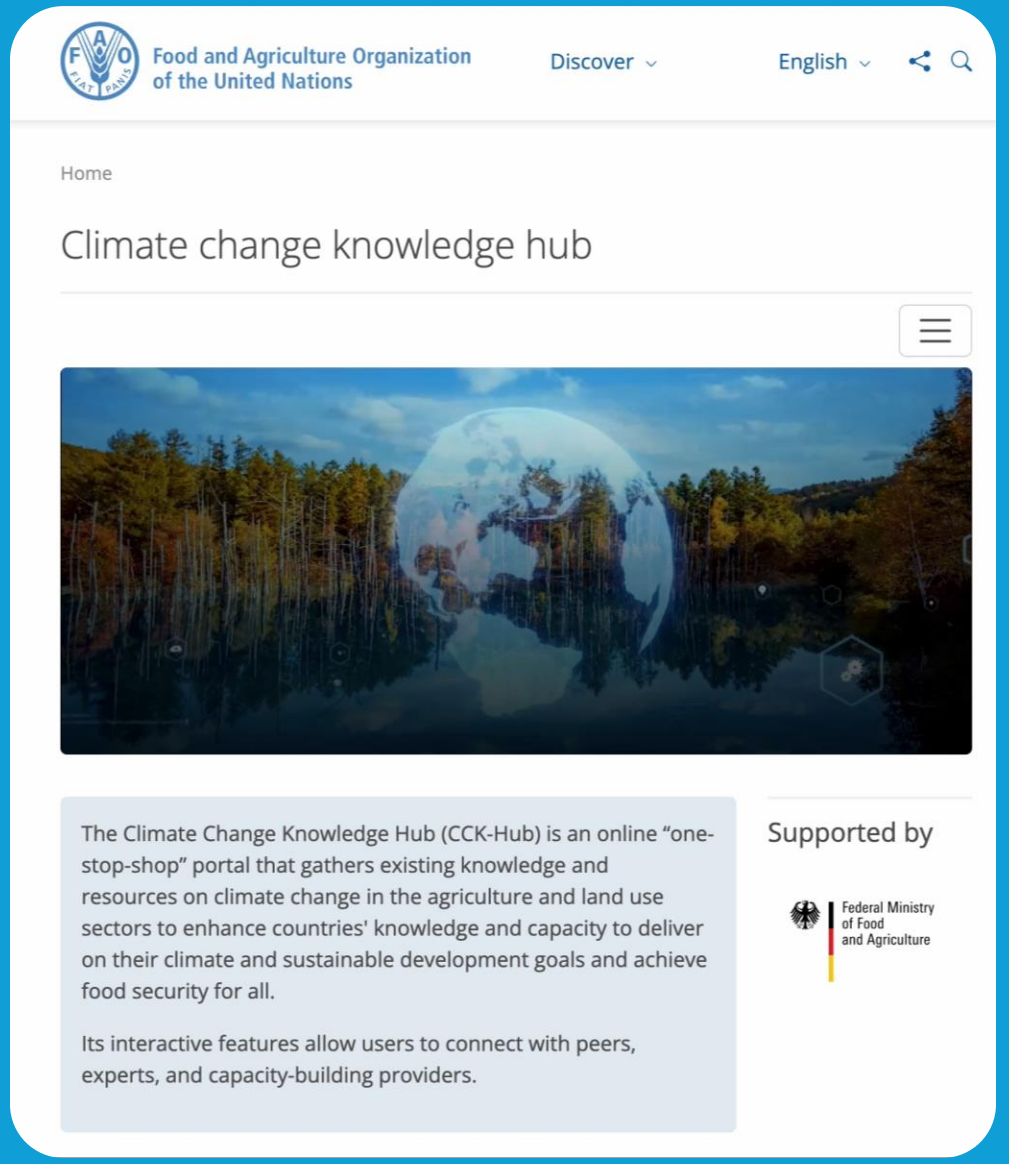


Science & Data

Climate Change Knowledge Hub (CCK-Hub)

NEW FEATURES!

SCAN ME



FAO Resources

Climate Finance:

- Agrifood systems in nationally determined contributions: Global analysis
- The Triple Gap in Finance for Agrifood Systems
- Climate-related development finance to agrifood systems – Global and regional trends. Report 2025
- Dos and don'ts of blended finance in agrifood systems
- Agrifood systems in the voluntary carbon market
- Food and Agriculture for Sustainable Transformation (FAST) Partnership
- FAO and the Green Climate Fund (GCF)
- FAO and the GEF

Climate Technologies

- Climate technologies for agrifood systems transformation
- Climate technologies for agrifood value chains

Capacity-building and information

- Climate change knowledge hub
- FAO e-learning Academy
- Climate change impacts and adaptation options in the agrifood system
- Climate change mitigation options in agrifood systems
- Loss and damage and agrifood systems
- Global Nitrous Oxide Assessment
- Scaling up Climate Ambition on Land Use and Agriculture through NDCs and NAPs (SCALA)
- Food security and agriculture: accelerating adaptation (SAGA2)
- Enhanced Transparency Framework (ETF) on Climate Change
- Global capacity building towards enhanced transparency (CBIT-AFOLU+)
- FARM – FAO Actions for Reduction of Methane
- Agroecology Knowledge Hub
- Globally Important Agricultural Heritage Systems (GIAHS)
- Climate Smart Agriculture
- FAO contribution to the Intergovernmental Panel on Climate Change
- A Toolkit for National Action on Climate, Biodiversity, and Water in Agriculture and Food Systems
- FAO NDC Toolbox
- Agrifood systems in the voluntary carbon market: Status and prospects
- Methane emissions in livestock and rice systems

THANK YOU!

Second in-session workshop on

Progress, challenges and opportunities related to identifying needs and accessing means of implementation for climate action in agriculture and food security, including sharing of best practices

Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security (SJWA)