

Agenda item 4.c.i Water-Energy-Food Systems

Draft Outline for a toolkit guide for scaling up climate technology solutions in resilient agrifood systems

TEC 32 & Joint session of the TEC - CTCN Advisory Board
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United Nations Climate Change
Technology Executive Committee

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TEC Member

Update from the activity group

- ❑ TEC agreed to develop, in collaboration with FAO, a practical toolkit by 2027 to enhance technology development and transfer in agrifood systems, address identified barriers, and strengthen the availability and application of evidence-based solutions relevant to agrifood systems and climate-resilient development.
- ❑ Toolkit aims to support countries and relevant stakeholders in translating identified climate technology needs in agrifood systems into structured, actionable and investment-oriented pathways.
- ❑ The toolkit seeks to address this gap by:
 - Applying a value-chain-based and context-specific approach to the identification and prioritization of climate technologies;
 - Linking technology options to investment planning and financing instruments;
 - Addressing enabling conditions, including institutional coordination, market readiness and innovation systems;
 - Integrating inclusive approaches, including gender-responsive and locally grounded solutions;
 - Supporting coherence between climate objectives and agrifood systems transformation strategies.





Food and Agriculture
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Contents

- Introduction, purpose, and framing
- The toolkit guide and its content



Introduction

Recap on key elements and on previous work

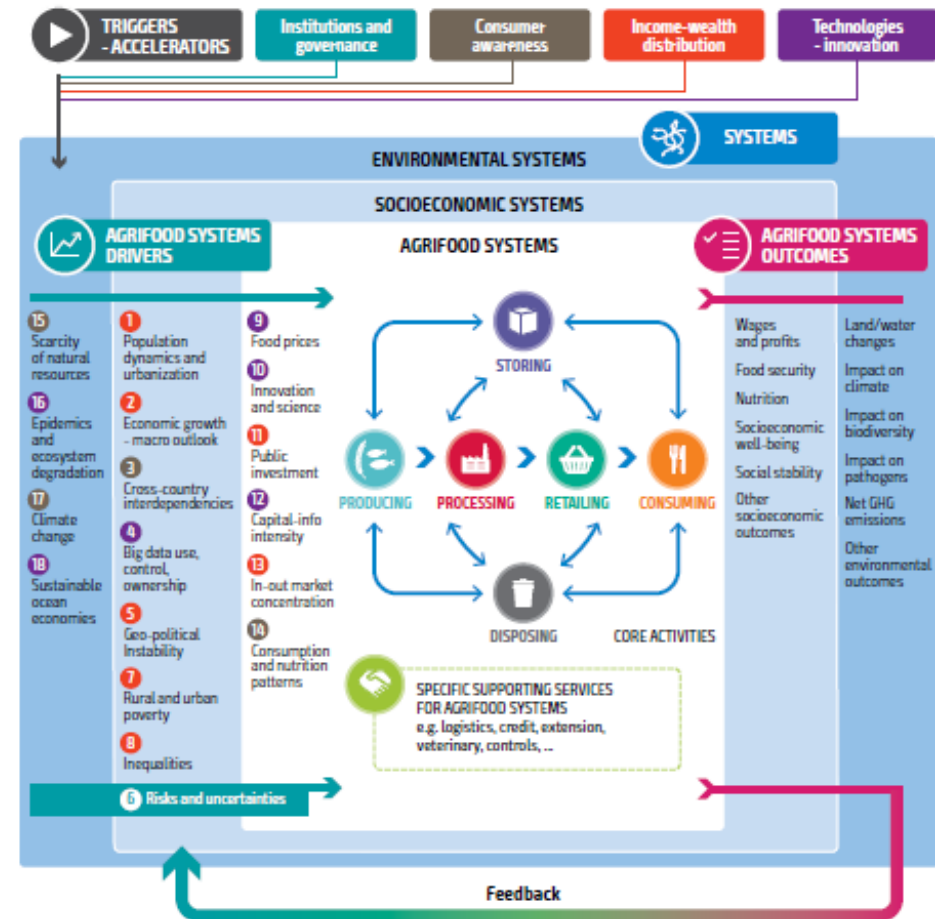
- Agrifood systems
- Climate technologies
- Identified gaps from the 2024-2025 knowledge work and dissemination efforts

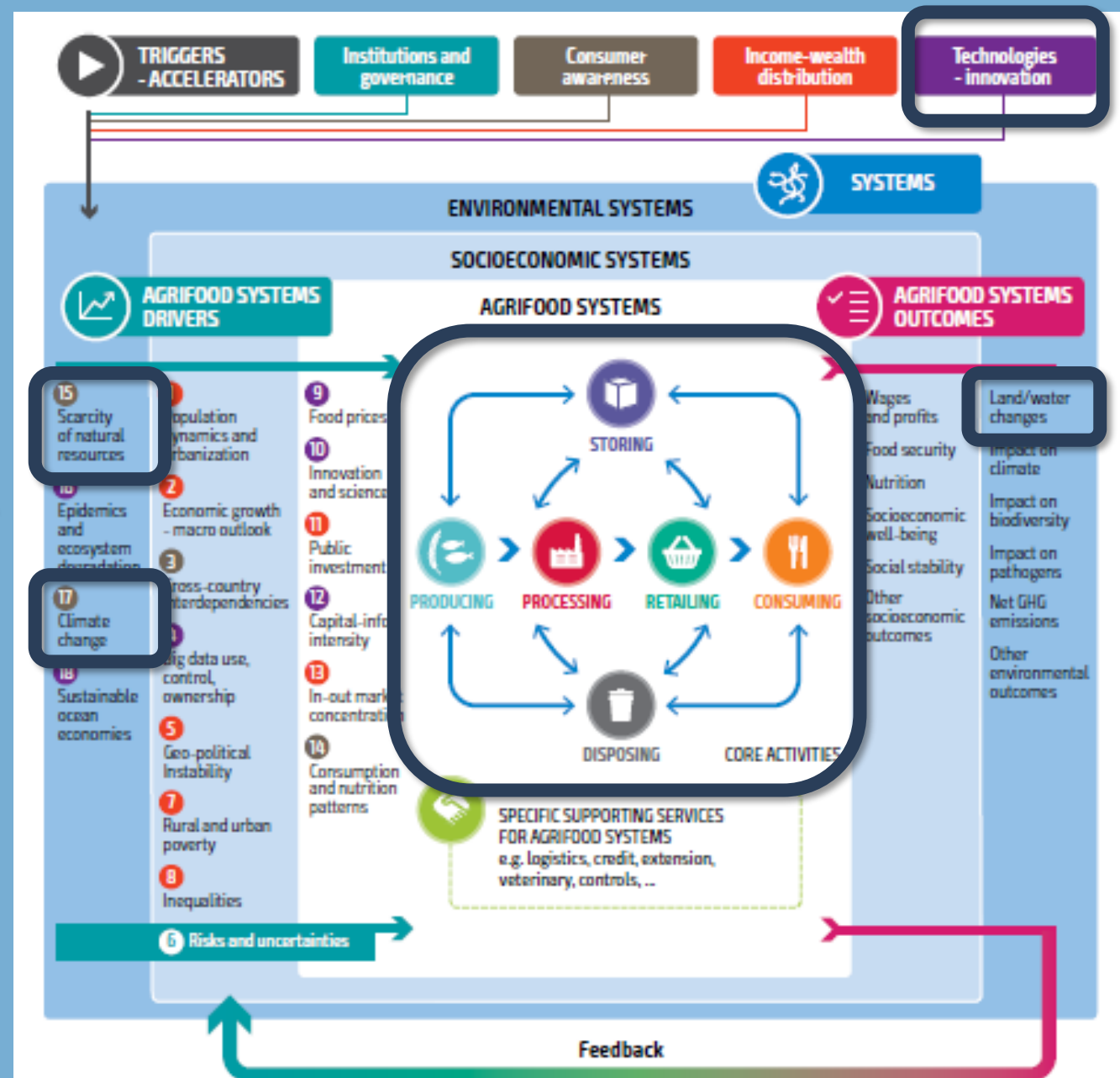
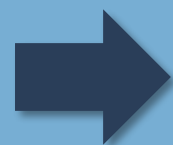


Agrifood systems and priority triggers for transformation

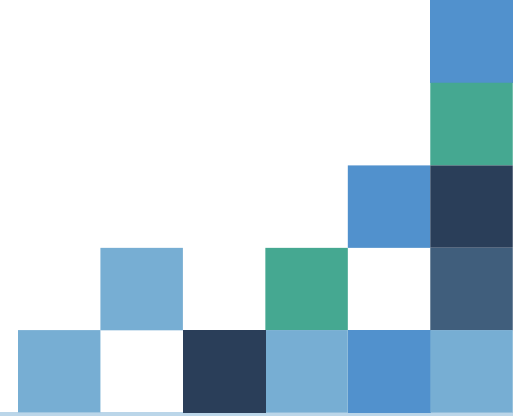
Agrifood systems encompass the entire **range of actors** and their **interlinked value-adding activities** in the primary **production** of food and non-food agricultural products, as well as in food storage, aggregation, **post-harvest** handling, transportation, **processing**, distribution, marketing, disposal and **consumption**.

The systems cover **crops**, **livestock**, **fisheries**, **aquaculture** and **forestry**.





What is a climate technology?



The Intergovernmental Panel on Climate Change (IPCC 2000) defines technology as **‘a piece of equipment, technique, practical knowledge or skills for performing a particular activity’**.

It is common to distinguish between three different components of technology:

1. the tangible component, such as equipment and products, i.e. hardware.
2. the processes associated with the production and use of the hardware. This comprises know-how (e.g. manuals and skills) and experience and practices (e.g. agricultural, management, cooking and behavioural practices), i.e. software.
3. the institutional framework, or organization, involved in the adoption and diffusion process of a technology, i.e. orgware.

These three components are all part of a specific technology, but the relative importance of each component may vary from one technology to another.

Overall conclusions on moving forward with climate technologies and agrifood systems



- **Climate technologies in agrifood systems are an essential means of accelerating needed progress** on adaptation, building in structural resilience for agrifood systems, and supporting emissions reduction;



- **Effective implementation of climate technologies must be embedded within the broader objectives of agrifood system transformation** including improving production, nutrition, natural resource management and livelihoods. There is often complementarity but trade-offs also exist and need explicit attention;



- **It is important to consider the entire agrifood value chain** including processing, distribution and consumption in climate technology needs assessments. Until now, much of the focus has been on production, yet there are many opportunities in other segments of the value chain.

Overall conclusions on moving forward with climate technologies and agrifood systems



- **Capacity building** is needed to realize the benefits of climate technologies already available for deployment.



- **Scaling up and effective implementation** of climate technologies requires not only a major increase in available financing, but also **financing tailored to support investments**;

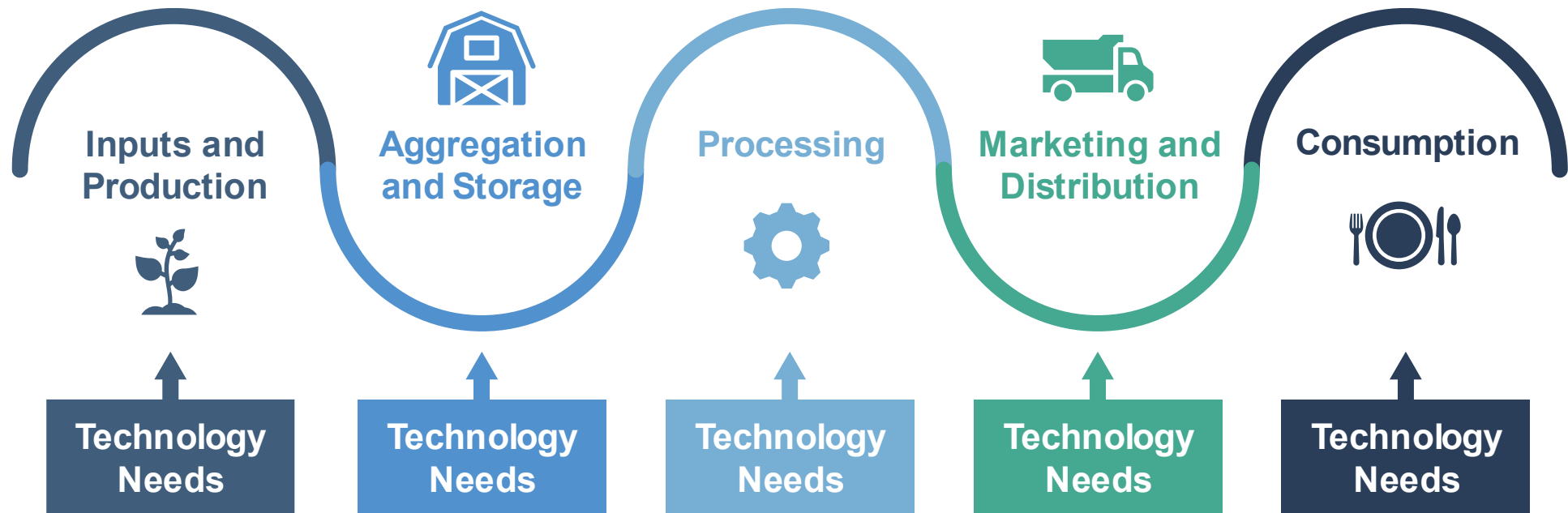


- **Better integration across sectors**, building on experiences and results from existing processes and work, **flowing into NDCs**. Focusing on **context specific** barriers and **aligning the results with financing** investment criteria.

Agrifood systems and climate technologies interlinkages

- Building blocks are **the Technology Needs Assessment** (TNA) to be **further integrated** with the **agrifood systems** and **value chain analysis**
- Need to identify country needs and climate technologies, considering the **country** and **sectoral context** eg **climate objectives, agrifood system context**, country objectives

Agrifood systems and climate technologies interlinkages



- Need to focus on the **relevant value chains**, identify **technology options**, assess **viable** and applicable technologies

To sum up

- **Persistent finance, capacity, and institutional barriers** limit climate technology uptake in agrifood systems
- **GST highlights insufficient progress and calls for urgent acceleration of climate action** through scaled-up technology deployment, transfer, and innovation, **recognizing agrifood systems as central** to adaptation, resilience, and food security, and emphasizing the need to turn global goals into actionable pathways.
- **TIP calls for country-driven technology priorities by shifting from planning to large-scale implementation through capacity-building, enabling environments,** finance, and partnerships.



Current Title

“A Toolkit Guide for Scaling Up Climate Technology Solutions in Agrifood”

(Overall length approx. 20 pages)

- Introduction, purpose, and strategic framing [3 pages]
- The context: agrifood systems, climate change and sector policies [5 pages]
- Identifying and selecting priority intervention areas [5 pages]
- Financing climate technology interventions [5 pages]
- Conclusions [1 page]
- Annexes: Reference documentation and tools

Objective of the Guideline Toolbox



Translate global climate and technology goals into actionable, investment-ready pathways for agrifood systems



Bridge from technology to concrete implementation & financing



Provide a structured, step-by-step methodology:

System → Value chain → Market → Technology → Investment



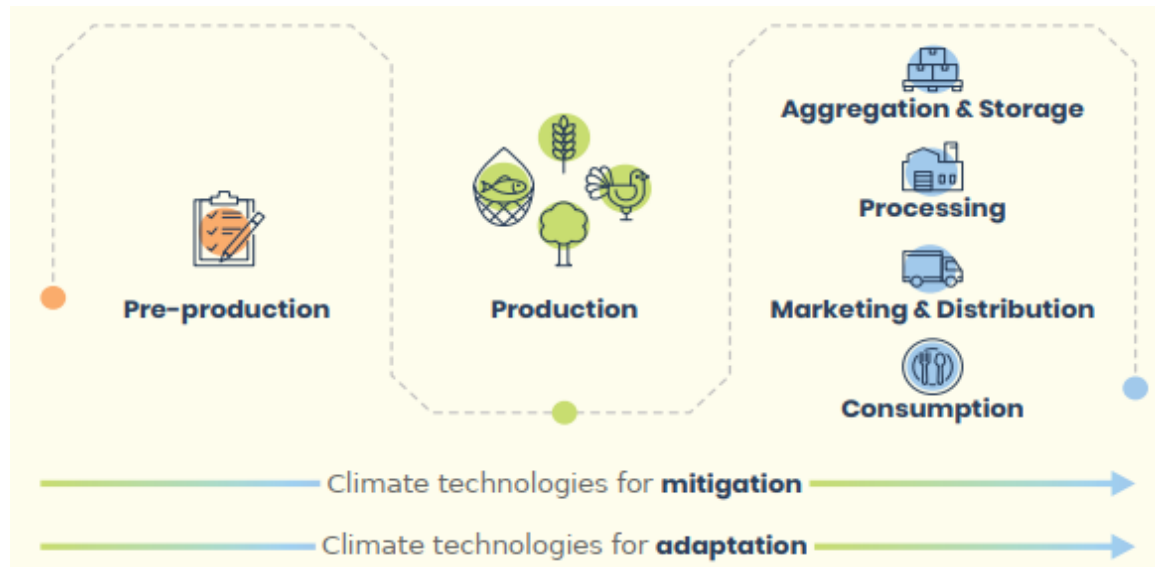
Ensure contextualization:
Tailored to national and subnational agrifood systems

Agrifood system, climate change and policy context



- **Agrifood system context:** Identify key sectors (e.g. crops, livestock, fisheries), priority products, and food security constraints.
- **Climate impacts:** Characterise primary climate hazards and define the vulnerability and adaptive capacity of the agrifood system.
- **Policy & institutional landscape:** Review agricultural and climate policy frameworks.

Identifying priority intervention areas



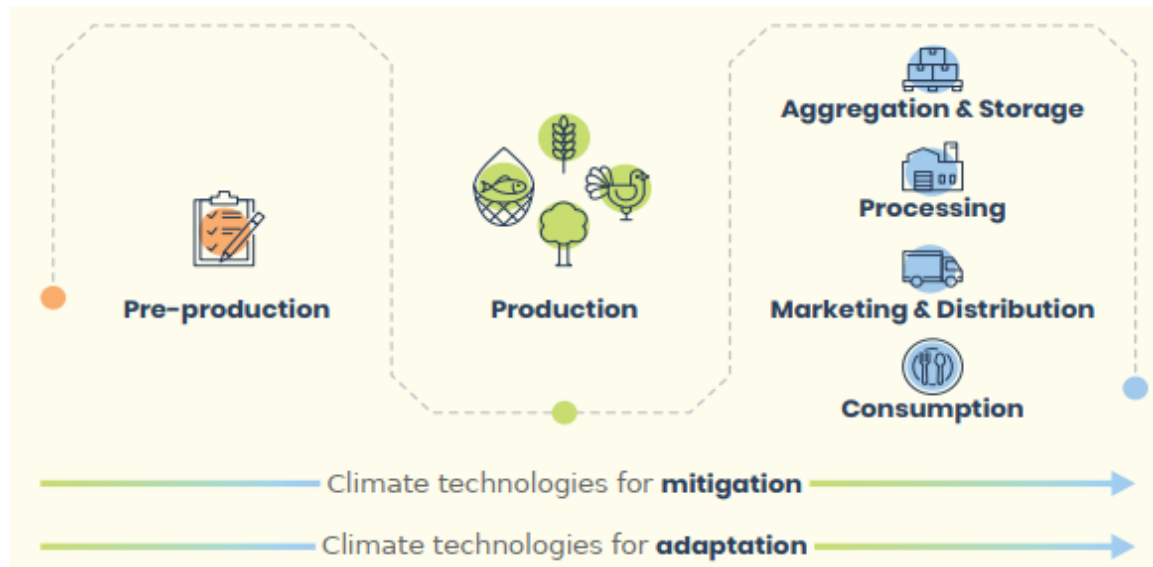
- **Value chain and geographic selection**

Select priority agrifood value chains and production geographies based on country context, climate risks, livelihood importance, and policy priorities.

- **Value chain mapping**

Map value chain actors, and flows, including climate vulnerabilities, existing practices, and technology use, to identify critical intervention points.

Identifying priority intervention areas



- **Market analysis**

Assess demand, pricing dynamics, output markets, and service availability.

- **Stakeholder analysis**

Categorise value chain actors (cooperatives, service providers, and institutions); assess adoption readiness and social and gender roles to support inclusive technology uptake.

- **Technology prioritisation**

Prioritise integrated packages of climate adaptation and mitigation interventions tailored to specific value chains, aligned with national strategies and capable of mobilising sustainable investment.

Financing climate technology interventions



- **Investment planning:** Map required investment volumes by technology type and specific value chain intervention points.
- **Funding sources:** Identify and match projects with appropriate financing sources, such as the GCF, GEF, and development banks.
- **Outcome:** Define investment envelopes, packages, financing pipelines

Main messages, annex and feedback



The annex section will include:

- Reference documentation and tools

For your input:

- Main messages to flag
- Tools, key references and documents

Guiding questions

- **Strategic framing and scope:** Are there relevant recent decisions or processes that should be more explicitly reflected?
- **Operational clarity and value added:** Are there steps that would benefit from further clarification, simplification or consolidation?
- **Financing and enabling conditions:** Does the investment-readiness framing adequately respond to barriers identified in prior TEC work?
- **Cross-cutting considerations:** Are gender, youth, Indigenous Peoples' knowledge and other equity considerations appropriately reflected at this stage?



Next Steps

Prepare 1st draft

Open-ended AG to consider
feedback

Revise the toolkit

Review of the toolkit

Identify two countries
Seek feedback on the practical
relevance and value added



Thank you



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