Agenda item 4 (d) i. Water-energy-food systems

Progress of work
on the Water-Energy-Food Systems

Technology Executive Committee, 28th meeting and TEC-CTCN AB Joint session

16-18 and 19 April 2024, Copenhagen, Denmark

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Background and overview

❑ Rolling workplan of the TEC for 2023–2027: Transformative and innovative solutions - Water-Energy-Food Systems (C.1.1)
- Expected outcome in 2024: Knowledge product and COP event
- Collaborate with FAO to produce a knowledge product

❑ Guidance from TEC27 (Sep 2023)
- The updated annotated draft outline to be presented at TEC28
- Case studies to be identified based on the guidance provided at TEC27

❑ Actions taken to respond to the guidance
- Reached out to relevant stakeholders
- Identified country examples ensuring the balance among regions, technologies, sub-sectors
- Included gender and indigenous aspects
- Focused on both mitigation and adaptation

Proposed timeline

❑ Between TEC28 and TEC29 (May-September)
- Develop a first draft of the knowledge product for review
- Finalize the knowledge product and produce key messages and recommendations
- Draft the concept note for COP29 event

❑ TEC29 (September)
- Finalize document, key messages and recommendations
- Present the concept note for COP29 event

❑ Before COP29
- Finalize document for publication

❑ COP29
- Launch publication at COP29

Climate Action *and* Technologies *for* Agrifood systems:

Keeping food security and poverty reduction at the forefront

Taking climate action in agri-food systems forward

Inkar Kadyrzhanova, Senior Natural Resources Officer, FAO

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Foreword

Executive summary

1. Introduction

2. Climate change technologies for sustainable agrifood systems' transformation

3. Capacity needs and institutional requirements for climate technology deployment

4. Financing needs and requirements for climate change technology update within agrifood systems

5. Country specific case studies

6. Policy, gaps/opportunities

7. Conclusions

Annexes

Climate Action and Technologies for Agri-food systems: Introduction

- Agri-food systems are an important source of livelihoods, especially for the poor. In 2019, around 1.23 billion people were employed in agri-food systems (FAO 2023)

- An estimated 63% of the world's poor people work in agriculture, the overwhelming majority on small farms (IFAD 2023)

- Growth in agriculture is two to three times more effective at reducing poverty and food insecurity

- Agri-food systems will need to play an active part in climate action

Climate Change
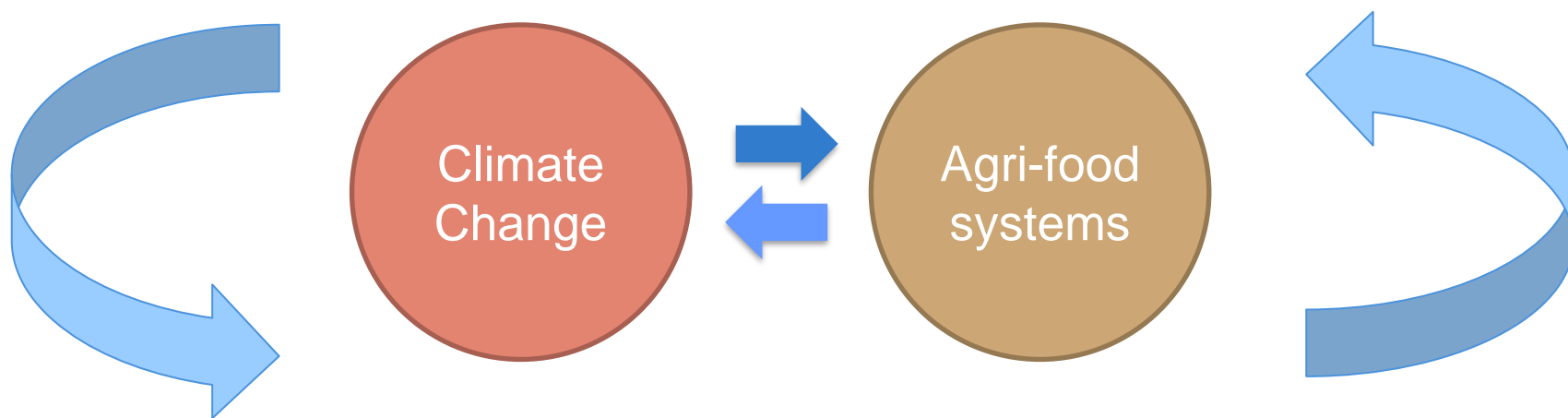
Agri-food systems

Climate Action and Technologies for Agri-food systems: Introduction

- Ensuring economic and social inclusion in transitioning toward climate resilient development pathway will be central to achieving the desired outcomes, through social inclusion and close tracking of vulnerability.

- As reported in AR6, 3.3 billion people globally live in countries classified as very highly or highly vulnerable (IPCC AR6).

- Climate technologies are a specific enabler of climate actions in agrifood systems

2. Climate change technologies for sustainable agrifood systems' transformation

This section aims to set out the context for the role of technologies in supporting agrifood systems' transformation and defining more sustainable solutions, including providing an overview of the key concepts and landscape in terms of agrifood value chains and technology interlinkages

- *Setting the context for agrifood systems, climate technology, definition and concept, and contextualization to agrifood systems*

- *Contextualizing the agrifood value chain and climate technology interlinkages by sub-sector*

- *Differences across country context and agrifood systems*

What are climate technologies?

Box 1. 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.
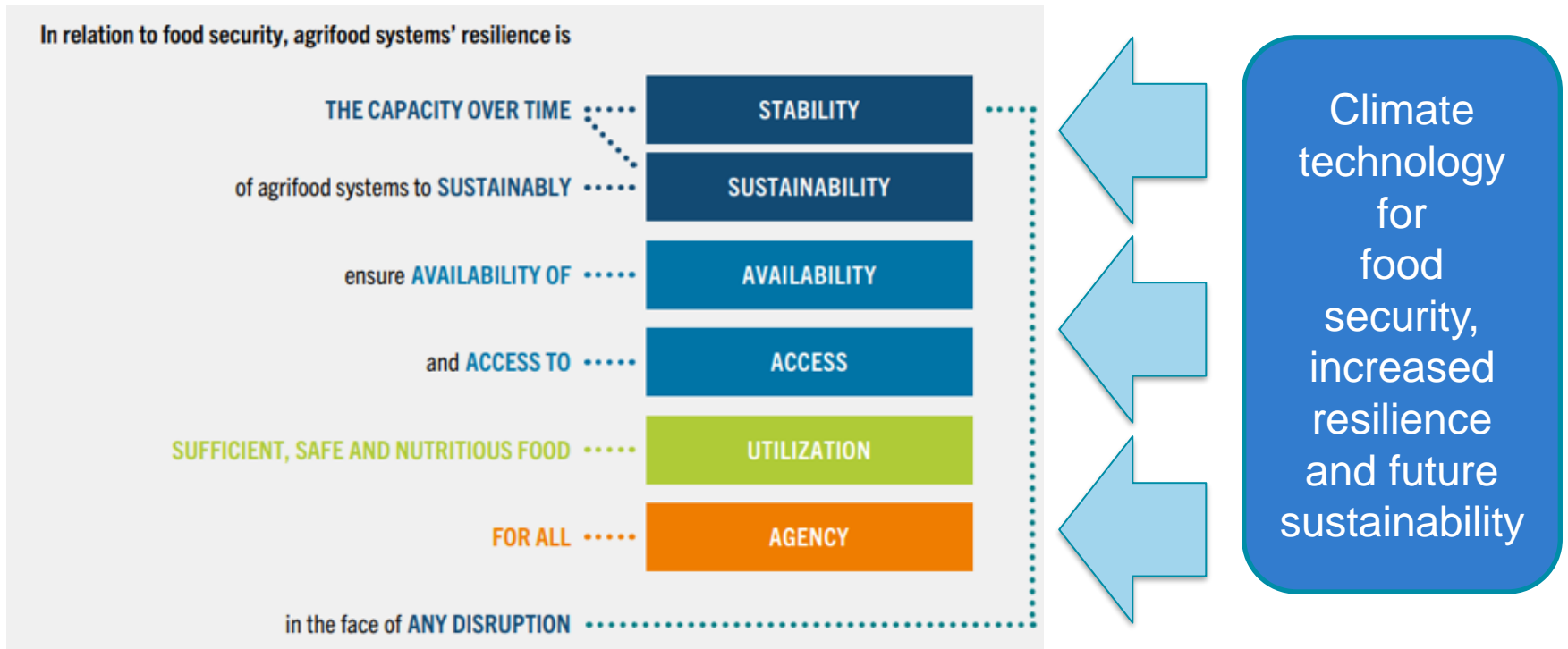
These three components are all part of a specific technology, but the relative importance of each component may vary from one technology to another.

Source: TEC TNA Guidelines.

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Food Security, resilience and climate technology

AGRIFOOD SYSTEMS' RESILIENCE AND THE SIX DIMENSIONS OF FOOD SECURITY

In relation to food security, agrifood systems' resilience is

THE CAPACITY OVER TIME	STABILITY
of agrifood systems to SUSTAINABLY	SUSTAINABILITY
ensure AVAILABILITY OF	AVAILABILITY
and ACCESS TO	ACCESS
SUFFICIENT, SAFE AND NUTRITIOUS FOOD	UTILIZATION
FOR ALL	AGENCY

in the face of ANY DISRUPTION

Climate technology for food security, increased resilience and future sustainability
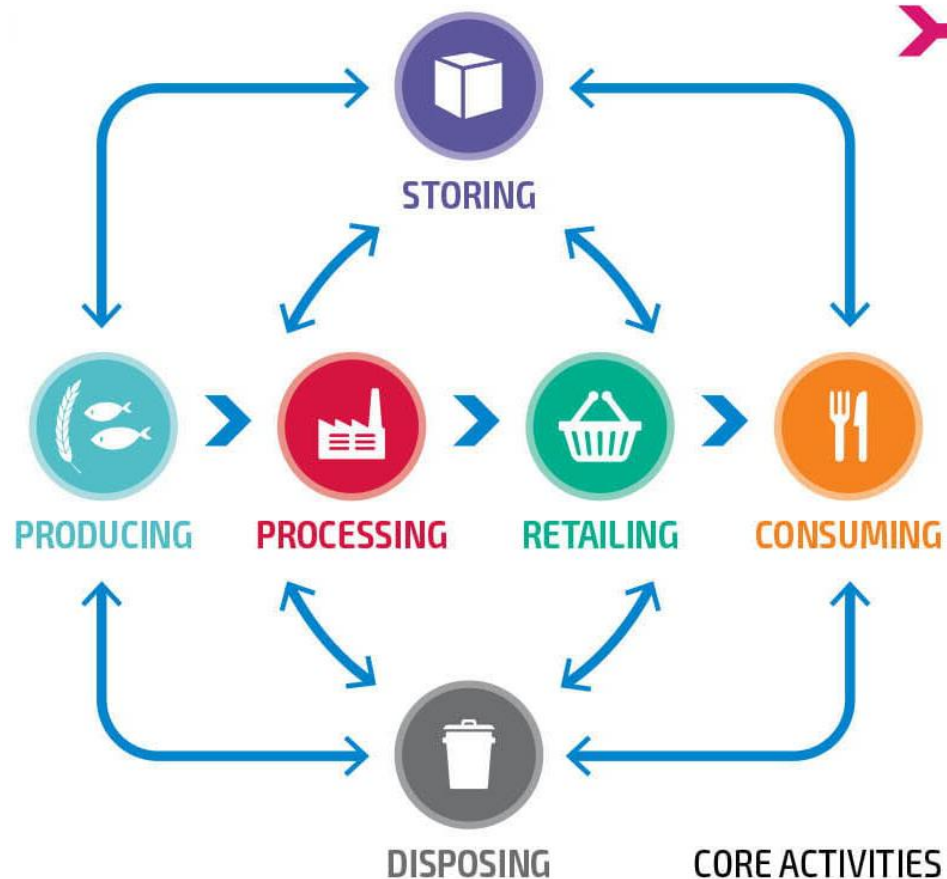
Source: FAO SOFA 2021

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Agrifood systems definitions

- 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**.

STORING

PRODUCING   PROCESSING   RETAILING   CONSUMING

DISPOSING   CORE ACTIVITIES

Source: FAO SOFA 2021

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Agrifood systems: key drivers, activities, outcomes and priority triggers for transformation

- If current trends of drivers affecting agrifood systems do not change, the sustainability and resilience of agrifood systems will be under threat and food crises are likely to increase in the future.
- Climate technologies affect both the drivers of change and the agrifood system itself.
- Climate technologies are needed to increase resilience and adaptability of agrifood system, to reduce agrifood systems contribution to ongoing climate change, and to transform agrifood systems to reduce undesirable environmental, social and nutritional outcomes.
- In this setting, climate technologies function as triggers, accelerators and enablers for sustainable agrifood systems' transformation

3. Capacity needs and institutions requirements for technology deployment

Set out the **capacity requirements** within the agri-food system setting **to enable technology uptake**, including capacity needs at the identified stages of value chains, institutional setting requirements, adoption issues, barriers and constraints both for producers (smallholders, etc.) and actors with the agri-food systems.

- Capacity needs for technology implementation

- Institutional needs for technology implementation

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3. Financing needs and requirements

Financing needs and requirements for climate change technology update within agrifood systems:

- Climate finance flows for agrifood systems
- Financing needs to support climate technology uptake in agrifood systems

5. Country specific examples

Country examples to illustrate climate technologies applications in agrifood systems

Selection criteria for the case studies:

- Sub-sectors (crops, livestock, fisheries, aquaculture, forestry) and
- Stage of the agrifood value chain (production, processing, consumption)
- Regional representation
- Covering gender, inclusion, indigenous, livelihoods

The country examples will be structured around:

- Country context, including agrifood system and climate change context
- Overview of the climate technology intervention
- How the intervention was structured, beneficiaries

6. Policy gaps/opportunities

This section will outline where climate action technologies sit in the **policy landscape**, including in relation to **agriculture and climate policy**, NDC and NAP implementation, and other relevant climate policy frameworks, gaps and opportunities.

- How well are NDC/NAP processes working to support climate technology adoption in the agrifood sector?
- What are the barriers and challenges?
- What are possible ways to improve upon them?

- Innovation and climate technologies for agrifood systems
- Coordination of climate and agrifood system policies

7. Conclusions

This section will draw on the content of all previous sections, especially sections 2 to 4

Conclusions on the climate technology and agrifood systems interlinkages and way forward.

Lead questions for discussion

- What would be needed from the international community to address how the **NDC and NAP processes** be used better to reflect **climate technology needs**?

- What are the key **policy bottlenecks for climate technology uptake** in the **agrifood systems**?

- How can **inclusion** of various stakeholders be catered for when addressing climate technologies?

COP29 High-level event – ideas for discussion

The report will be launched at COP29

- Ministerial level event with participation of senior officials from COP29 Presidency, FAO, UNFCCC and TEC

- Could be organised during a Thematic Day on Agriculture

- May consist of two panels representing best practice policies implemented at national level and examples of action by non-state actors, communities, international organisations

- Diverse examples representing different geographies, technologies, implementation perspectives

- Discussions should inform relevant negotiations relating to agriculture and technology implementation

- Alignment with the COP29 Presidency Thematic programme

Thank you!

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