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Submission by the Food and Agriculture Organization of the United Nations (FAO) to the United Nations Framework Convention on Climate Change (UNFCCC) in relation to the Sharm el-Sheikh mitigation ambition and implementation work programme

The Food and Agriculture Organization of the United Nations (FAO) welcomes the opportunity to share views on the eighth global dialogue and investment-focused event under the Sharm el-Sheikh mitigation ambition and implementation work programme. FAO notes that the eighth global dialogue continues the work programme's engagement on enabling mitigation ambition and implementation in industries, drawing on national and regional experience (Part 2), together with cross-cutting issues as mandated in decision 4/CMA.4, paragraph 4. FAO's submission accordingly addresses both areas of discussion: the industrial dimensions of agrifood systems under Area 1, and the cross-cutting synergies, co-benefits and trade-offs between agrifood systems and mitigation action under Area 2.

Agrifood system emissions have increased at an average annual rate of approximately 1 percent over the past two decades, significantly lower than the growth rate of emissions from the overall economy. As a result, their share of global anthropogenic greenhouse gas (GHG) emissions declined from around 40 percent to 32 percent in 2023. However, rising emissions from pre- and post-production activities are a growing concern. Emissions from input manufacturing, transport, packaging and retail, as well as household consumption, have increased by approximately 80 percent since 2001. In 2023, supply chain activities accounted for half or more of total agrifood system emissions in around 40 percent of countries and territories.[1] These trends indicate the growing importance of supply-chain and industrial mitigation. They need to ensure emission from food production continues to fall while the growing source of emissions from manufacturing, processing, distribution, consumption and disposal stages of agrifood systems are tackled at the same time. This underscores the need for mitigation across the entire agrifood system, combining reductions in primary production with action across manufacturing, processing, distribution, consumption and disposal. Agrifood systems can therefore contribute to industrial mitigation while simultaneously advancing food security, livelihoods, resilience and biodiversity. Effective solutions should be technically sound, economically viable, inclusive and adapted to national contexts, with smallholders, SMEs and other value-chain actors at the centre of implementation.

Area 1: Best practices, actionable solutions and enablers of mitigation in industries

Within agrifood systems, significant mitigation potential lies across industrial segments of the value chain, including agro-processing and food and beverage manufacturing, fertilizer production, cold storage and refrigeration, food loss and waste, and the conversion of agricultural residues into bioenergy. FAO highlights the following enablers for scaling these solutions:

1. Strengthening evidence-based approaches to identify and scale solutions viable mitigation solutions
Evidence should support the identification and prioritization of mitigation solutions that deliver meaningful emissions reductions while being viable for farmers, SMEs and other agrifood value chain actors. This requires consideration of technical performance, affordability, economic feasibility, scalability and broader impacts on food security, livelihoods and resilience. Effective mitigation must therefore be grounded in the realities of those implementing it and adapted to diverse production systems, market conditions and local contexts.

[1] FAO. 2025. Greenhouse gas emissions from agrifood systems – Global, regional and country trends, 2001–2023. FAOSTAT Analytical Brief Series, No. 115. Rome. https://doi.org/10.4060/cd7300en

2. Strengthening enabling environments and capacities for implementation at scale
Scaling mitigation solutions requires supportive policies, institutional coordination, partnerships and strengthen capacities across governments, research institutions, extension services, farmers, producers, SMEs and other agrifood value chain actors. Capacity development should enable stakeholders to assess, adopt, implement and sustain solutions, while supportive enabling environments help move proven approaches from demonstration to commercial scale. In the context of agriculture and food systems, this should include strengthening institutional and technical capacities across the agrifood value chain, improving access to knowledge, innovation and extension services, and fostering policy and investment environments that enable the uptake and scaling of context-specific mitigation solutions.

3. Advancing technology implementation and innovation across agrifood value chains
FAO recognizes the importance of the Technology Mechanism and the Belém Technology Implementation Programme (decision 18/CMA.7) in strengthening international cooperation and accelerating the deployment of climate solutions. For agrifood value chains, technology implementation should focus on moving proven innovations from development and demonstration to widespread adoption, while while ensuring that solutions are accessible, affordable and adapted to the needs of farmers, SMEs and other value-chain actors. This includes strengthening links between **research, technology providers, finance and value-chain actors** to overcome barriers to uptake and scale.

4. Improving access to climate finance and investment to accelerate implementation
Climate finance and investment are critical to scaling mitigation across agrifood value chains, yet current flows remain far below what is needed. Climate finance for agrifood systems is falling behind, with only a 1 percent increase in 2022–2023 and its share of total climate-related development finance nearly halving since 2009, despite an estimated USD 1.3 trillion annual investment gap needed for transformation.[2]

As the eighth global dialogue is paired with an investment-focused event, greater emphasis should be placed on turning mitigation opportunities across agrifood value chains into investable propositions. This includes strengthening investment readiness, developing aggregation mechanisms that can bring together smaller farmer- and SME-level investments, and using blended and concessional finance where appropriate to address investment barriers.

The FAST Partnership (Food and Agriculture for Sustainable Transformation)[3], hosted by FAO, provides a platform to catalyze greater and better-quality climate finance for agrifood systems. FAST Partnership is helping to facilitate access to climate finance and investment by connecting value-chain actors and governments with finance providers, supporting the development of investment-ready opportunities, and linking promising solutions with appropriate financing mechanisms and partners.

Area 2: Cross-cutting issues, synergies, co-benefits and trade-offs

Consistent with decision 4/CMA.4, para. 4, FAO underscores the cross-cutting nature of agrifood systems mitigation and the need for a systems-based approach that maximizes synergies and manages trade-offs across value chains. In particular, mitigation pathways should:

- *Safeguard food security and livelihoods*, ensuring that emissions reductions support rather than undermine food access, incomes and resilience.
- *Manage interactions across land, biomass and sectors*, including potential trade-offs between industrial bioenergy, food production and other land uses.
- *Support a just and inclusive transition*, ensuring that smallholders, SMEs, women and youth can participate in and benefit from the transition.

[2] 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. Available at: https://doi.org/10.4060/cd7500en
[3] FAO. 2026. Food and Agriculture for Sustainable Transformation (FAST) Partnership. Available at: https://www.fao.org/food-agriculture-sustainable-transformation-partnership/en

- *Strengthen international cooperation*, including through knowledge exchange, technology transfer, capacity development and access to finance.

This approach can help ensure that mitigation delivers emissions reductions while contributing to resilient, sustainable and inclusive agrifood value chains and broader sustainable development objectives, including poverty eradication.

Challenges and barriers

Despite significant progress, several challenges continue to limit the scaling up of mitigation action across agrifood value chains, including:

- *Insufficient access to climate finance*, particularly for smallholder farmers, SMEs and other value-chain actors;
- *Limited technical and institutional capacity* to identify, implement, operate and maintain mitigation solutions;
- *Gaps between available technologies and solutions suited to local conditions* and the realities and capacities of end users;
- *Fragmented data and weak enabling environments*, which limit evidence-based investment decisions, increase perceived investment risks and hinder the development of bankable mitigation opportunities for agrifood value chains.

Addressing these barriers requires integrated approaches that combine appropriate technologies, enabling policies, capacity development, improved data and investment mechanisms, supported by effective stakeholder engagement and inclusive implementation pathways.

Transparency, measurement and reporting

In line with the Enhanced Transparency Framework established under Article 13 of the Paris Agreement and the modalities, procedures and guidelines adopted through decision 18/CMA.1, robust transparency systems strengthen evidence-based decision-making and support the tracking of mitigation progress across agrifood value chains. This, in turn, can increase investor confidence and facilitate access to climate finance. For agrifood systems, effective transparency systems enable countries to assess emissions and identify the most suitable and effective mitigation options across the entire value chain – from production and input supply, to processing, transport, storage, distribution and consumption. At the same time, such systems should remain accessible and adapted to national circumstances, while reflecting the needs and capacities of farmers, SMEs and other value-chain actors.

FAO contribution to advancing mitigation implementation

FAO supports countries in advancing mitigation across agrifood value chains, from input supply and primary production to processing, storage, transport and distribution, through technical assistance, data and knowledge, capacity development and support to access climate finance. FAO works with governments, research institutions, financial partners, farmers, producers, SMEs and other value-chain actors to strengthen enabling conditions and scale context-specific, technically effective and economically viable mitigation solutions.

At the eighth global dialogue, FAO would welcome the opportunity to share country and programme experience, data and practical approaches on reducing emissions across agrifood value chains, including industrial activities such as fertilizer production, agro-processing, cold chains and bioenergy. FAO can contribute relevant country case studies, evidence and technical expertise, as well as facilitate connections between countries, value-chain actors and financial partners to help translate proven solutions into scalable and investment-ready opportunities.

Conclusion

FAO looks forward to collaborating with the UNFCCC and partners at all levels to accelerate mitigation solutions in agrifood systems. We stand ready to support the upcoming dialogue on enabling mitigation solutions in agriculture and food production industry, drawing on national and regional experience. FAO welcomes working with stakeholders to create an inclusive platform that translates evidence into actionable strategies, fostering interdisciplinary dialogue to address challenges and unlock opportunities to advance solutions for climate action, while safeguarding adaptive capacity and ensuring the resilience of agrifood systems to climate shocks.