

Food for Nought: Feeding a net-zero world

Summary of the 44th Round Table on Sustainable Development¹
8 September 2023
OECD Headquarters, Paris

Connie Hedegaard

Chair, Round Table on Sustainable Development

The 44th Round Table on Sustainable Development focused on what is holding back progress on lowering greenhouse gas emissions from food systems, and what changes can accelerate it.

Food systems² are “broken”. Over 780 million people experience hunger, almost one third of all food produced is lost, and nearly three billion people cannot afford healthy diets. Food systems currently account for around one third of global greenhouse gas emissions, 70 per cent of the world’s freshwater usage and contribute to biodiversity loss. At the same time, estimates by the Intergovernmental Panel on Climate Change (IPCC) suggest that the agriculture, forestry and other land use (AFOLU) sector could contribute 20-30% of global mitigation efforts at relatively low cost.

Progress on reducing emissions from food systems has so far been slow. While the emissions intensity of food production has fallen, total emissions have increased by 16% over 1990 and, without action, are expected to increase further by about 30–40% by 2050. Yet, the OECD’s *Agricultural Policy Monitoring and Evaluation 2022* shows that agriculture is often carved out from national emissions reductions plans and only 16 of 54 countries included in the study have any form of specific mitigation target for the agricultural sector.

Food systems face an intertwined “triple challenge”: ensuring food security and nutrition for a growing global population; supporting livelihoods all along the food supply chain; and enhancing the environmental sustainability of the sector. The adoption of a food systems-wide approach is needed to reveal and leverage the synergies and address the trade-offs among these dimensions. This means taking into account the potential impacts of all policies affecting food systems on food security, livelihoods, and the environment, both to create synergies and avoid or reduce unintended consequences.

The Round Table discussion centred on three questions:

1. Which innovations hold the greatest promise for deep long-term emission reductions while also addressing the “triple challenge” faced by food systems?
2. What is preventing faster progress on greenhouse gas emissions related to agriculture? What policy reforms and actions could overcome these barriers?

¹ This Chair’s Summary reflects views heard at the RTSD discussion, which was held under the Chatham House rule. It does not necessarily reflect the views of the OECD Secretariat nor its member countries. The RTSD is chaired by Connie Hedegaard, former European Commissioner for Climate Action and former Danish environment minister, and is supported by a secretariat hosted at the OECD. The RTSD is grateful to the European Climate Foundation for financial support.

² Food systems can be defined as all activities linked to production and consumption of food.

3. What is the role of governments and industry in shifting behaviours and preferences, including on diets and on food wastage? What policies can contribute to this, and how can they be designed to gain social traction?

A background paper that supported the discussion, produced jointly by the OECD Environment Directorate and Trade and Agriculture Directorate, is available [here](#).

Main messages from the discussion

- **Food systems are “broken”.** Several participants used this word to describe food systems that are not delivering on their triple challenge. Food production has a massive environmental footprint, nearly three billion people cannot afford healthy diets around the world, and livelihoods are often ensured through poorly targeted and inefficient government subsidies.
- **Food prices will increase – policy makers must prepare for this.** Prices are likely to increase whether as a result of accelerated climate action or under a business-as-usual scenario. As the impacts of the climate crisis intensify, droughts, floods, and heatwaves will result in lower food availability and higher prices. Measures to mitigate greenhouse gas emissions (e.g. emissions pricing) are also likely to have an effect. Politically this is a difficult message to communicate, but failure to address the “elephant in the room” is hindering progress and could result in larger disruptions to the food system that will ultimately affect vulnerable groups.
- **As emissions near a plateau or begin to decrease in certain industries (e.g. energy) and countries, the spotlight will be on agriculture and other high emitting sectors.** So far, few governments have introduced ambitious reforms for food systems, while investors are increasingly scrutinising the emissions’ performance of large commercial producers. Some firms working to improve their environmental performance would welcome more ambitious environmental policies and regulations to bring others onboard and create a level playing field for climate mitigation obligations.
- **Numerous innovations for reducing agricultural emissions exist; greater investment in research and deployment is imperative to bring them to scale.** Methane inhibitors, anti-methane vaccines, new breeding techniques, genetically modified organisms (GMOs), digital technologies, vertical farming, and novel foods (e.g. plant-based proteins, cultured meat) hold significant potential to contribute to emission reductions while maintaining food production. Limited competition among producers of some already commercially available new technologies limits their affordability, even for large-scale meat and dairy producers. Collaboration mechanisms amongst the private, philanthropic and public sectors could help to lower costs, support research, and inform regulatory processes needed to enable uptake.
- **Monitoring, reporting, and verification (MRV) of GHG emissions from agriculture must be accurate, detailed and transparent.** The diffuse nature and array of GHG emission sources present substantial challenges for emissions measurement. Emissions are typically measured using coarse calculation methods that are not well-tailored to specific production contexts and suffer from inaccuracy and inconsistency, which limits comparability and suitability for trade-related policy solutions.
- **Subsidies and other forms of economic support that are not aligned with climate mitigation and adaptation objectives must be reformed.** According to the OECD’s *Agricultural Policy Monitoring and Evaluation 2022*, total positive transfers to agriculture provided by 54 OECD and other large economies were equivalent to a positive emissions subsidy of USD 115 per tonne of CO₂-eq for rice (which is emissions-intensive due to methane produced by flooded paddies), USD 31 for sheep and goat meat and USD 22 per tonne of CO₂-eq for beef. Significant reforms to remove such environmentally harmful support or repurpose it to reward the adoption of more sustainable lower-

emissions practices and technologies is urgently needed. This includes reforms to the way support is delivered as part of the European Common Agricultural Policy. Payments for ecosystem services (PES), an incentive-based mechanism under which farmers are rewarded for land use decisions with a positive impact on ecosystem service provision, could play an important role in transforming food systems.

- **There is no transition of food systems without addressing farmer livelihoods.** Farmers are open to innovations and technologies that can enhance their agriculture practices and yields, but they are often expensive with their adoption taking up to ten years to see returns. There is a need to ensure farmers' continued financial viability and support them in the rural communities that depend on their income. Policies must reward sustainable productivity rather than productivity alone.
- **A clear, shared, and positive vision for the future of food systems in the context of climate change is essential.** While such a vision for the low-carbon transition of the energy sector has developed over time (including co-benefits such as lower air pollution and better health outcomes, lower energy security risks, and less congested and liveable cities), a similar vision for low-carbon food systems and associated benefits has yet to emerge. Without this, there is a risk that a lack of trust between policy makers, the sector and other stakeholders could further hinder progress. As with energy, a "coalition of the willing" – i.e. a group of countries demonstrating leadership in implementing ambitious reforms – could be instrumental in driving change at the global level.
- **Economic modelling should more consistently reflect the nexus between climate change and human health.** A large share of the global population is malnourished (i.e. lacking or consuming excessive calories and protein). Some evidence suggests that aligning diets with World Health Organisation guidelines would improve food security, nutrition and environmental sustainability, but may negatively affect livelihoods along the food systems value chain. Importantly, trade-offs may also emerge within the environmental dimension of the food systems triple challenge. For instance, healthier diets typically involve higher consumption of fruits and vegetables, but fruit production tends to require relatively high pesticide use and may lead to higher water consumption. Making agricultural productivity more sustainable is one of the most promising avenues for addressing all dimensions of the triple challenge (including reducing deforestation and associated biodiversity loss) while raising farmer incomes and food availability, but more empirical evidence is needed.
- **Given the importance of weather and climate for agricultural production, mitigation and adaptation in food systems should be addressed simultaneously.** A wide range of actions can improve the resilience of agricultural production to climate shocks, including switching to more resilient crops and livestock, investing in irrigation, better insurance systems, and adoption of digital technology.
- **Public procurement and demand-side policies can help shift dietary preferences towards less emissions-intensive foods.** For example, public procurement in school cafeterias and institutional canteens, in addition to being a lever to support innovation, can help to shift consumer preferences towards more sustainable food options. Labelling can also drive change in consumers habits but needs to compete with powerful messages from advertising. Governments may consider whether the advertising and marketing of certain foods – e.g. those unhealthy for children – should be restricted.

Suggestions for next steps

A number of policy-relevant issues and priorities emerged from the discussion that could be taken forward to advance the reduction of greenhouse gas emissions in food systems:

- **Transparent and internationally agreed methods to measure greenhouse gas emissions are necessary to ensure efficient and effective policies.** Lack of an agreed methodology also risks

fragmenting international food markets. The OECD, possibly under the umbrella of its existing bodies and the Inclusive Forum on Carbon Mitigation the Approaches (IFCMA), could provide analytical support in this area.

- **Subsidies and other forms of economic support that hinder climate mitigation and adaptation must be reformed or phased out.** The OECD and other international organisations can contribute further analysis on the nature and reform of environmentally harmful subsidies, and help to promote the creation of coalition of countries aiming at accelerating action to meet the triple challenge in food systems.
- **Further research on policies acting on the demand side of food systems is needed, including public procurement, information and labelling schemes.** Such policies need to be carefully designed to gain public support, given political and consumer sensitivities. Further analysis, international dialogue and development of good practices would be welcome.