Sustainable Livestock and Food Systems Transformation

Meeting the challenge – background note

23rd July 14.00 – 16.00 UK Time via Zoom

Human activities, especially by high consuming wealthy societies, are destabilising Earth systems that provide life-support for people and all of nature. Humans are now the largest driver of change impacting on the safe operating space for civilisation, to such an extent that safe planetary limits for climate change, biosphere integrity, biogeochemical flows, and land system change are being exceeded. This poses an existential risk to humans and other species.

And yet there continues to be an urgent need for human development, including meeting the UN Sustainable Development Goals for all by 2030, and for a world population of potentially 10 billion by 2050.

Global food systems are embedded within the biosphere, and their resilience is dependent on remaining within safe planetary boundaries. All of the world's ecosystems show features of human influence. Today, many ecosystems stand on the verge of collapse with serious consequences for sustainable development and human well-being. Food systems are simultaneously a leading cause of, and affected by, environmental degradation and depletion of natural resources, contributing to an interconnected global crisis, with increasing risks, social instability, and conflict.

Livestock production uses three-quarters of all global agricultural land. It is the main, or a major, driver of biodiversity loss, deforestation, climate change, soil degradation, and the overuse and pollution of water. It contributes to key non-communicable diseases and antimicrobial resistance, as well as increasing the risk of zoonotic diseases and future pandemics.

Both the IPCC and FAO have highlighted the pivotal role of livestock production systems and changes in meat and dairy consumption in meeting the inter-connected challenges of climate change, environment, health, food and nutrition security, animal welfare, and biodiversity.

However, at the same time, livestock production represents the main source of livelihoods for many, and especially for those in low-income countries. The FAO estimated globally that about half the people (650 million) living on less than $2.15/day in 2019, were directly dependent on livestock for their livelihoods.

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Over 700 million people still face hunger. In low-income countries animal-sourced foods are important source of nourishment for children, pregnant and breastfeeding women, and for many people living in low-income countries. Meanwhile, small-scale farmers are not adequately supported and have their livelihoods under threat from further unsustainable intensification by large-scale producers.

By contrast, in high-income countries the overconsumption of animal protein compromises human health. The IPCC has established a broad consensus, based on a strong evidence base, that "where calories and ruminant animal-sourced food are consumed in excess of health guidelines, reduction of excess meat (and dairy) consumption is among the most effective measures to mitigate greenhouse gas emissions, with a high potential for environment, health, food security, biodiversity, and animal welfare co-benefits".

Some livestock production systems prioritize economic output and do little to mitigate negative externalities. Other systems reduce negative externalities or have regenerative effects which can ensure more sustainable and long-term economic outputs, on a True Cost Accounting basis.

The goals of Agenda 2030 require widespread transformations to avoid endangering the biophysical state of the Earth. With the global population expected to rise to 10 billion by 2050, the demand for animal-sourced food is set to increase by at least 20%. Synergies and trade-offs will need to be considered so that the livestock sector can sustainably ensure balanced, nutritious, and healthy diets for this growing population.

It is clear that there is no one-size-fits-all solution. Context-specific solutions will be key in advancing towards just and sustainable livestock production systems that can ensure food and nutrition security and equitable livelihoods for all, based on internationally agreed environmental and health targets.

The livestock-based agricultural biome has the largest potential to help regulate the planet's essential nitrogen, phosphorus, water, and carbon cycles. Livestock production systems are central to pathways for net zero climate goals, a nature-positive future, and combatting the related and growing global inequalities in poverty and human health.

A key question is how biophysical safe limits can be maintained while also meeting goals for well-being and justice. This is a challenge of our time. It is a challenge that requires full integration of peoples' lives and the planet's stability - shared between people and with nature to protect humans, other species and the maintenance of life on Earth.

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