

Transformations within reach: Pathways to a sustainable and resilient world

RESILIENT FOOD SYSTEMS

The centrality of food systems to meeting the Sustainable Development Goals and the objectives of the Paris Agreement has long been recognized. COVID-19 is creating new realities for development, undermining longterm development gains toward poverty alleviation and universal food security, as well as revealing the vulnerabilities and interdependencies embedded in current food systems.

The report begins with an overview of food systems, the multiple social, economic, and environmental challenges with which they are confronted, and the case for transformation. It then discusses the impacts of the pandemic before exploring the opportunities and challenges for harnessing the recovery to build more resilient, equitable, and sustainable food systems, which will require ensuring that recovery from one crisis is not traded off against preparedness for another. A set of focal areas for action are identified centered on empowering a systemic shift toward greater resilience and equity; integrating human and planetary health concerns; and securing innovation, technology diffusion, and up-scaling of sustainable practices. The role of international cooperation and partnerships and the science–policy interface is explored in this context.

The report argues in particular that the emphasis on efficiency, which has been driving to a large part the evolution of food systems, needs to be complemented by a greater emphasis on resilience and equity concerns. As illustrated by the pandemic, this entails expanding the scope and reach of social safety nets and protection schemes. It also includes assessing and, where necessary, adjusting the capacity of supply chains and trade to absorb and adapt to a multitude of risks.

The integration of human and planetary health concerns represents an important aspect of building resilient food systems. Environmental degradation, habitat fragmentation, wildlife trade, and the homogenization of agricultural activities have facilitated the rise of zoonotic diseases. Alongside biodiversity loss and climate change, COVID-19 further highlights the entanglement of human and natural systems. In addition to meeting basic human needs and advancing human welfare, the food system needs to be recognized in its critical role of managing the risk of pandemics and protecting Earth's life support system.

The report presents arguments for the adoption of ambitious targets for biodiversity conservation and protection of critical natural resources alongside strengthened enforcement mechanisms and incentive structures for environmental stewardship. Dietary shifts can help address key health concerns like childhood stunting, obesity, and non-communicable diseases while also reducing pressure on natural resources. The affordability of healthy and environmentally sustainable diets, which remains a challenge for large parts of the world population, needs to be addressed.

To prepare food systems for the present and future challenges, it is imperative to ensure that innovation carries on during the recovery process. The pandemic has illustrated the potential of technology in buffering against some of the impacts on food systems, but there is concern that different fiscal capabilities will further widen the technology gap between countries. Ensuring the food security of a growing world population while addressing global environmental change, will require food productivity to be improved. The suitability of under-utilized crop varieties to improve food security in marginal environments needs to be considered, as do advances in livestock productivity. Technical and financial assistance to expand access to viable sustainable land and natural resource management practices need to be ensured. The IIASA–ISC consultations underline the importance of strengthening the endogenous research capacities in countries to enable more diverse and context-specific solutions, while taking into account global sustainability constraints. Science can also play a critical role in evaluating the impacts of innovations across food systems, helping to identify pathways for managing potential trade-offs and synergies between economic, social, and environmental goals; international collaboration and solidarity and partnerships working across disciplinary and political boundaries are also required to enable the collective knowledge and resource transfer for building resilient food systems.

The full report can be accessed on [covid19.iiasa.ac.at/isc/outcome](https://www.covid19.iiasa.ac.at/isc/outcome)

