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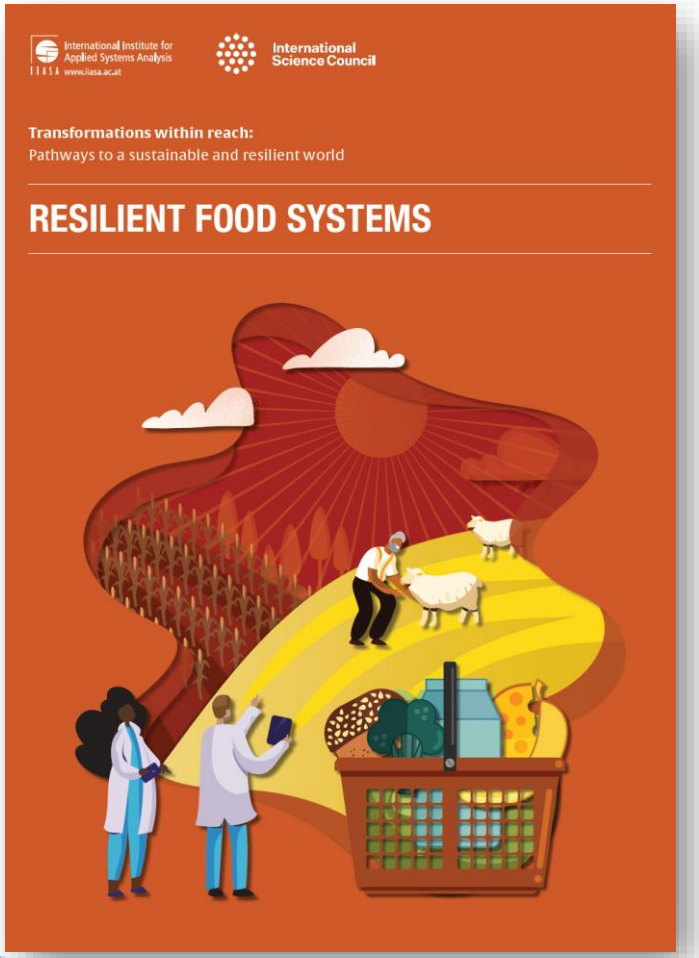
IIASA-ISC Consultative Science Platform

Resilient Food Systems

Frank Sperling (presenter)

Team: Petr Havlik, Mathieu Denis, Hugo Valin, Franziska Gaupp, Amanda Palazzo, Piero Visconti

Introduction to the Report



- Contribution to the IIASA-ISC Consultative Science Platform
- Informed by three international consultations with experts from academia, public and private sectors, NGOs, see www.covid19.iiasa.ac.at/covid
- Collection of emerging perspectives on the impacts of Covid-19 on food systems and a recovery towards greater resilience and sustainability
- Intended as basis for dialogue and follow-up research

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Structure of Presentation

1. Current Food Systems: Case for Transformation
2. Impacts of Covid-19: Vulnerabilities revealed
3. Focal Areas for Recovery: Strategic choices

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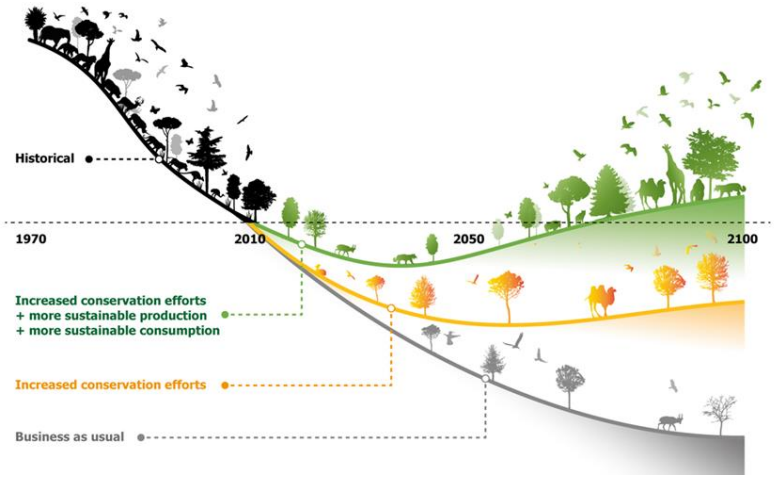
1. Current Food Systems: The case for transformation

- Global food supply outpaced population growth
- Over last 50+ years crop production tripled, largely due to yield increases
- Diversity of production systems (modern, mixed, traditional)
- Increasing integration of agricultural markets
- Trend towards net exporting and importing regions; several countries dependent on imports for food security

- Over 690 million people are undernourished while more than 2 billion adults are overweight
- 23% of net GHG emissions from agriculture, forestry and other land-use changes (AFOLU)
- Biodiversity loss
- Air and water pollution
- Vulnerability to climate variability and change, land degradation

Sustainability challenges require the transformation of food systems.

A combination of supply and demand-based measures are needed to attain sustainable development paths



Leclere et al 2020

Sources: HLPE 2017, FAO 2017, 2020, IPCC 2019, Willet et al. 2019, FOLU 2019

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2. Impacts of Covid-19: Vulnerabilities revealed

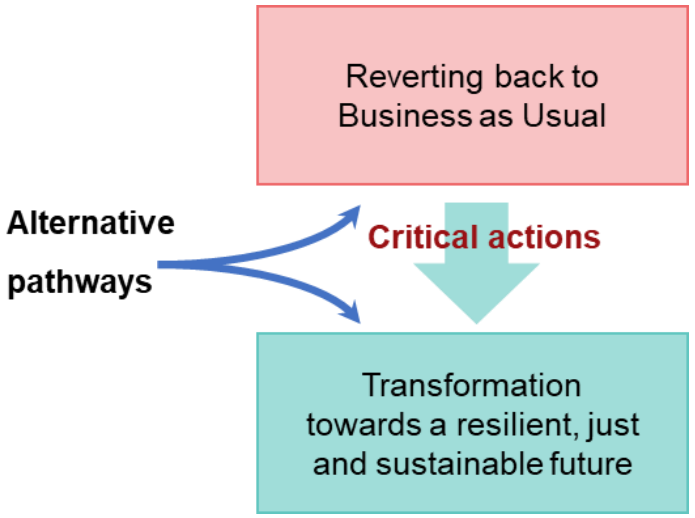
From local to global shock, from health to socioeconomic crisis, COVID-19 and lockdown measures reveal inter-dependencies of our societies:

- Impacts still unfolding, considerable uncertainty about duration of pandemic
- Worst economic crisis since the Great Depression
- Demand and supply shocks across sectors
- Unravelling of global development gains, rising levels of extreme poverty and food insecurity
- Covid-19 impacts compounded by other shocks, e.g. ongoing food crisis (W-Africa), locust outbreak (E-Africa)

Diverse impacts on food systems:

- Global food supply robust: Less an agricultural production, more an income crisis
- Heterogeneous impacts on supply chains
- Local food access challenges due to lockdown, travel restrictions
- Over 270 million people facing acute food insecurity
- Rising levels of food and nutritional insecurity in developed and developed countries
- With loss of income and local price spikes, shift to cheaper and less healthy diets
- Insufficient social safety nets, inequalities exacerbate impacts
- Precarious and informal employment situations in many food systems exposed
- Limited impact on trade, countries largely refrained from export restrictions
- Access to technology helpful in buffering against impacts

3. Focal Areas for Recovery: At the crossroads



Strategic choices made during the recovery will determine whether we move towards or away from sustainable development.

Issues:

Uncertainty of timing of recovery, uneven fiscal capacities, entrenched interests

- Need to shape narrative for recovery
- SDGs as guiding compass

3.1. Empowering a systemic shift towards resilience and equity

3.2. Integrating human and planetary health concerns

3.3. Securing innovation, technology diffusion, upscaling of sustainable practices

3.4 Strengthen collaboration and partnerships

3.5. Reform the science-policy interface for agile decision-making and strategic planning

3.1. Empowering a systemic shift towards resilience and equity

- Resilience and equity concerns need to counter-balance emphasis on efficiency in driving the evolution of food system architecture.
- Greater consideration needs to be placed on who benefits.
- Resilience should be understood as a dynamic concept.

Issues: Resilience across scales, building-in redundancy and flexibility, diverse role of trade

- Expand benefits and reach of safety nets
- Promote sustainable farm models adapted to local contexts
- Strengthen technical and financial support to smallholder farmers and/or facilitate transition away from vulnerable livelihoods
- Reconfigure supply chains and trade dependencies, based on likely capacity to absorb and adapt to shocks

3.2. Integrating human and planetary health concerns

- The pandemic illustrates the entanglement of human and environmental systems.
- Current protection for marine and terrestrial biodiversity is insufficient.
- Diets link human and planetary health concerns.

Issues: Pandemic risks: Intensification and homogenization of agricultural activities, habitat degradation, increasing concentration and number of livestock, wildlife trade and consumption;

Global change and compounding local environmental risks

- Adopt ambitious targets for biodiversity conservation and environmental regeneration, which operate across policy frameworks and accompanied by appropriate enforcement mechanisms
- Accelerate shift to *affordable* healthy and environmentally sustainable diets and associated production systems
- Account for natural capital in decision-making and incentivize environmental stewardship
- Integrate environmental provision in bi-and multilateral trade agreements, reflecting ecological footprints and environmental health risks

3.3. Securing innovation, technology diffusion and sustainable practices

- Ensuring food security of a growing population, require continuous innovation
- Greater emphasis on diversity of food production (livestock, crops)
- Agricultural research underfunded, constraining development of endogenous research capacity for more contextualized solutions in developed countries – risk of widening technology gap
- Innovation is multi-facetted and needs to be considered in its effects across a given food system.

Issues: High- and low-tech solutions, genetic and trait diversification, role of biotechnology, under-utilized crops; novel foods; digital technology; enabling environments

- Increase biological diversity of crops to suit diverse environmental conditions
- Scale-up sustainable land and integrated water resource management practices that can be readily adopted
- Improve access to extension services, technical and financial assistance
- Improve enabling environment for private sector engagement (e.g. goals, targets and regulatory environment)
- Facilitate the application of digital technologies across supply chains, e.g. precision agriculture, e-commerce, blockchains for tracing food stuffs

3.4. Collaboration and Partnerships

- ❖ The pandemic exemplifies the importance but also fragility of (international) collaboration.
- ❖ The proliferation of multi-stakeholder initiatives focused on food system transformation represents an opportunity to experiment and develop new collaborative mechanisms, breaking down silo-thinking.

- ➢ Strengthen institutional coordination capacities across scales to manage multiple hazards and risks associated with non-linear dynamics
- ➢ Promote mechanisms for knowledge sharing and collaboration across diverse stakeholder groups and regions

3.5. Science Policy Interface

- ❖ Need for agile, fact-based decision-making, integrating multi-sector perspectives
- ❖ Long-term strategic planning capacities for food systems should be expanded to assess of trade-offs and synergies btw. multiple trade-offs across scales need to be strengthened – opportunity to learn from emerging initiatives.

- ➢ Advance early warning and near real-time monitoring capacities for rapidly detecting shocks, potential risks and vulnerabilities
- ➢ Incentivize collaboration between natural and social sciences to advance integrated understanding of dynamics shaping food systems and levers for transformation
- ➢ Expand mechanisms for stakeholder engagement in framing narratives for scenarios analysis across scales

Concluding remarks

Food systems needed to be "fixed" before COVID-19. Under the current crisis, the need for transformations remains.

The recovery represents the chance to collectively reframe the vision and narrative for food systems.

Accounting for new realities, the report recommends that the future food system architecture should be guided by systemic shifts in emphasis towards resilience and equity, the protection of biodiversity and diversification of agricultural production, and securing innovation, which strengthens the capacity of countries to deliver contextualized solutions to global sustainability challenges.

Science and systems thinking can help chart the course, but it will be the value judgements, collective will and political leadership that enable the required transformation.

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