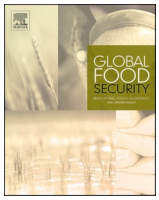
Global Food Security 30 (2021) 100554

Contents lists available at ScienceDirect

Global Food Security

journal homepage: www.elsevier.com/locate/gfs



Statement based on the 4 TH international conference on global food security – December 2020: Challenges for a disruptive research Agenda

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ARTICLE INFO

Keywords:
Food systems
Scientific challenges
Science-policy interface
Transformation
Innovation

ABSTRACT

The 4th Global Food Security conference highlighted four major developments: the shift from food security to food systems; a focus on diets and consumption patterns; the importance of unknown futures and inherent uncertainties and risks; and the central role of multi-level connections between local- and global-oriented research. These shifts highlight the importance for research to contribute to dialogue and collective intelligence through evidence-based brokerage, and to move beyond polarization of debates. These shifts also call for the involvement of scientists in multi-stakeholder arrangements to strengthen innovation and learning at different levels, and for their participation in foresight studies to help navigate plausible futures. Delegates discussed five scientific challenges to be addressed through both research investments and by improving science-policy interfaces.

The 4th International Conference on Global Food Security was held on-line December 4–9, 2020, organized by the Montpellier University of Excellence (MUSE), Wageningen University & Research and Elsevier, with 900 registered delegates from 78 countries. It aimed to strengthen the global research community engaged in food systems and food security research, to formulate messages that can contribute to the UN Food System Summit to take place in 2021 and to pave the road for future collaboration.

The conference endorsed the need for systems thinking, going beyond disciplinary approaches, to address the 2030 Agenda for

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https://doi.org/10.1016/j.gfs.2021.100554
Received 13 April 2021; Received in revised form 6 June 2021; Accepted 7 June 2021
Available online 28 June 2021

Sustainable Development. It encompassed 12 themes which included seven cross-cutting and integrative ones; the four dimensions of food security as derived from the 1996 FAO World Food Summit definition (availability, access, utilisation and stability); and one supplementary topic to discuss the impacts and transformations of food systems brought about by COVID-19.

Contributions to the conference, building on the previous three conferences, highlighted four major developments. These developments are reported here through this summary prepared by the Scientific Committee of the Conference. The first relates to the shift in focus from food security to food systems. This aligns well with the need to achieve the SDGs of the 2030 Agenda in an interconnected way, and not just SDG 2. It also notes the importance of food systems transformation as a powerful lever to enhance social justice, ecosystem restoration and protection, human health and well-being across the globe. This demonstrates the shift of paradigm away from a focus on production and food availability, which was typical of the 20th century to meet the demand of a growing population, towards a new 21st-century paradigm calling for intersectoral thinking and action. It calls for acknowledging the multifunctionality of agriculture and food systems and designing new ways and metrics to assess their performance.

The second shift is a much-increased attention to diet quality and consumption patterns, including food losses and waste. A substantial number of contributions to the conference focused simultaneously on production, consumption and circularity, as well as the environmental and health impacts of diets. This is clearly an area that still warrants more research and intellectual development.

The third shift is on the realization of the need to account for unknown futures, and inherent uncertainties and risks, something accentuated by climate change, the current pandemic and the crisis it has generated. This shift calls for researchers to work collaboratively for closing gaps in knowledge and capacities, and expanding the role of research in decision making beyond technology transfer. This could lead researchers to develop and strengthen appropriate participatory approaches and interfaces with decision-makers, including foresight methods to explore plausible and desirable futures.

Finally, the conference confirmed the importance of a fourth shift addressing multi-level connections between local- and global-oriented research, and including the often missing intermediate levels and 'the missing middle'. Global studies reveal global challenges and pathways but lack the required detail, context and governance specificity, rigour and relevance to generate transformation at local and intermediate levels. Local studies reflect a high diversity in methods, data availability and outcomes, and invite to celebrate context-specificity. Research should investigate connections, including the intermediate levels and the way production of knowledge at one particular level interacts with decision making at another level.

As a consequence of the present systemic crisis, caused by many drivers including the COVID-19 pandemic, the focus of the Conference moved beyond its initial question formulated in 2018, i.e. "Achieving local and global food security: at what costs?". The UN Food Systems Summit will question researchers about the world's capacity to build back from the crisis rather than just coping with it. Resilience thinking has thus become pivotal and reveals a number of options to consider for the future, including recovering, building back better and building forward differently. These options thus invite for marginal, incremental and transformational avenues to be explored and articulated. To meet the expectations, researchers need to address two challenges. The first one relates to food security and nutrition and to the pathways to ensure these for all, at all times in the new context of growing inequalities and multilateral fragmentation. The second relates to the capacity of food system transformation to act as a lever to design and realize sustainable and inclusive futures.

Acknowledging these challenges requires emphasizing the need for science to build collective intelligence to support transformation. It also questions the role of research, researchers and research approaches. Robust and solid evidence is required to inform issues that were not considered before and that are now looked upon as essential, e.g. climate footprint and risks of pandemics. This implies new approaches, methods, models and metrics. In addition, the role of researchers must move beyond the provision of evidence to now include more than ever three complementary tasks. First is to contribute to dialogue and collective intelligence through evidence-based brokerage, in order to move beyond polarization of opinions and debates, identifying levers for change and designing theories of change. Second is their involvement in multi-stakeholder arrangements to strengthen innovation and learning at different levels. Third is to participate in foresight studies to help navigate plausible futures and guide breakthroughs.

Delegates, including many young researchers and students, identified five scientific challenges to be addressed through both research investments and exploration and by improving science-policy interfaces:

1. Moving beyond the simplistic assumption that *technology* and *innovation* both *automatically* lead to sustainability, as these could be at the same time enablers and threats, depending on conditions. Technology may, for instance, be required to address societal and sustainability challenges, but alone is not enough. This is supported by historical evidence and by lessons learned from innovation studies and socio-technical transition studies. Development studies are critical to explore pathways and the institutional environment to direct innovation, including appropriate technology, in order to solve the pressing global challenges of our time.
2. Informing *counter-intuitive observations* regarding commonly accepted assumptions. Examples include: there is no positive relationship among production, productivity, income, nutritional status and livelihoods; 'local' food systems are not always more sustainable or less risky; there may be trade-offs between what is environmentally safe locally and what is beneficial at larger scales.
3. Developing and strengthening arrangements, interfaces and methods that connect the dots between knowledge and action, instead of living with a disconnect between researchers, decision-makers and their communities. Research has to characterize potentials and the conditions for knowledge to be actionable in different contexts.
4. Investing in research to analyze transformation, its political economy and the power relationships that shape or prevent transformation, the way transformation may take place and its consequences. This includes the behavioural change, the governance, and what complicates transformation, in particular coping with shocks and the management of risks and uncertainty. This requires delivering insight into trade-offs among sectors, human and planetary health, spatial levels and time frames. Special attention needs to be placed on the polarization and conflicts between micro and macro level and near-term and distant issues and interests. This also requires research capacity building, particularly in low and middle income countries, as well as identifying obstacles and resistance to change, with a specific focus on conflicts of interests among different actors and contexts, the enforcement of rights (in particular the right to food), lock-ins, and path dependencies.
5. Informing the *steering and governance* of food system transformation, including agency, food-related policies and market transformation, by providing specific evidence and assessments. In this context, researchers have a role as transformative space makers, which implies the ability to translate academic concepts and insights into the 'language' of non-academic stakeholders. It requires academic institutes to guide young scientists into this strategic foresight role.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.