



INTERNATIONAL PANEL OF EXPERTS
ON SUSTAINABLE FOOD SYSTEMS

THE NEW SCIENCE OF SUSTAINABLE FOOD SYSTEMS

Overcoming
Barriers to Food
Systems Reform

EXECUTIVE SUMMARY

MAY 2015

Introduction

From persistent undernutrition to burgeoning obesity rates, from land evictions to agriculture's soaring environmental footprint, from dwindling fish stocks to mounting food waste, there has rarely been so much attention on the problems within food systems. However, there has been a tendency among scientists and policymakers to address the problems as individual pieces of the puzzle, and to overlook the power relations that play a major

role in shaping these systems. And crucially, the knowledge of those affected by food systems problems has not been fully harnessed in framing the problems and diagnosing the solutions. **The challenge is now to produce a joined-up picture of food systems and their political economy, and to do so in ways that reach across the scientific disciplines, and reach beyond the traditional bounds of the scientific community.**

01

A new analytical lens for sustainable food systems

We need an analytical lens that enables us to understand the various problems in food systems as the component parts of wider systemic problems. This type of analysis will allow us to identify leverage points for systemic change. What should be brought to light by this holistic food systems lens?

→ Complex interactions and feedback loops

The interactions between the diverse actors and processes in food systems are more complex than meets the eye. For example, the decision by a supermarket to stock corn-fed chicken would appear to be determined by consumer demand for this product line downstream, and relatively low commodity prices upstream. However, consumer demand is affected by price incentives, themselves often driven by production surpluses, as well as marketing campaigns by the firms moving to meet this demand. From this perspective, decisions cannot be neatly categorized as demand-driven or supply-driven, and actors at the center of the web may influence what occurs upstream and downstream.

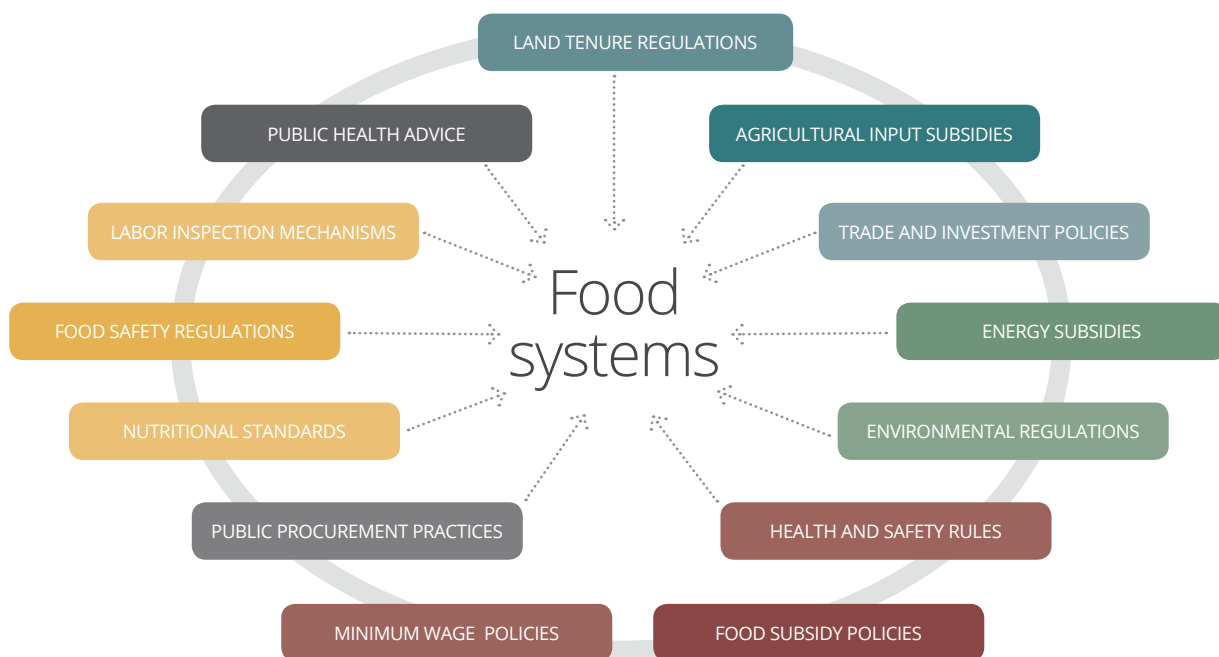
→ Broad constellations of policies with the capacity to affect food systems

Food systems also refer to the vast web of policies and regulatory frameworks that shape food systems as they interact with one another. If the corn-fed chicken above is sold as individual fillets, this may be because plastic packaging can be used plentifully due to fossil fuel subsidies, or because health advice about light and dark meat has influenced consumer habits.

The potential for policy incentives to fundamentally reorient production patterns is illustrated in the emergence of 'export commodity' sectors in response to trade openings and export-led agriculture policies.

Consumer concerns about food safety, and the political and regulatory responses to that persistent distrust, are also key factors in establishing dynamics within modern food systems.

Some of the potential policy influences on food systems



→ Power relations and the political economy of food systems

The increasing power of private corporations in shaping food systems should also be considered in such an analysis. Over recent decades, producers have often been encouraged to deliver large volumes of commodities for global supply chains, in parallel to policies favoring the expansion of trade flows. The multinational agribusiness firms that have thrived under these conditions also play a key role in maintaining them. This can take the shape of direct political lobbying, or more indirect influences, e.g. funding programs that encourage particular research and development pathways.

This results in 'lock-ins': different components of food systems have co-evolved so as to become mutually reinforcing. A detailed picture of the political economy of food systems is therefore needed. Food systems analysis must bring to light the differential influences of actors on decision-making, and the ensuing obstacles to reform.

→ A multi-scale and holistic understanding of sustainability as the benchmark of food systems reform.

Sustainability must serve as the benchmark for food systems reform, and to do so, it must be defined at the appropriate scales. The sustainability of food systems must partly be assessed in terms of effects at the global level, e.g.:

- The contribution of food systems to global warming
- The impacts of food systems on the crossing of planetary boundaries

However, some changes must be measured at sub-global levels such as:

- Regional 'foodsheds'
- Forest biomes
- River basins

Sustainability must also be defined in all of its dimensions, in line with the emerging definition of sustainable diets that are:

- ☞ protective and respectful of biodiversity and ecosystems, with optimal use of natural and human resources

- ☞ supportive of food and nutrition security
- ☞ culturally acceptable
- ☞ accessible, economically fair and affordable
- ☞ nutritionally adequate, safe and healthy, for present and future generations

02

The new transdisciplinary science of sustainable food systems

A one-way street of knowledge transmission, from scientists to policymakers, will not suffice in conducting this analysis of food systems.

What is needed is a multi-directional flow of knowledge between the worlds of science, policy and practice. This shift is urgently needed for five reasons:

→ **Food systems are complex 'social-ecological' systems that require different sources of knowledge to be combined.**

This means collaboration between the social and the natural sciences, and requires scientists to collaborate systematically with farmers, food workers, indigenous communities, consumer groups and a range of other practitioners whose actions and choices shape these social-ecological systems.

→ **Political and ethical choices cannot be made by scientists alone.**

Scientists can identify the human consequences of certain development pathways; they can compare scenarios; and they can identify ecological tipping-points. However, the normative valuation of these various development pathways will ultimately be grounded in political and ethical choices, and must be commonly reached with social actors.

→ **Scientific methodologies are not immune from biases and assumptions, and must be subject to deliberation.**

There is no universally agreed method for measuring hunger or agricultural outputs – let alone more complex metrics of sustainability such as resource footprints. The choice of scientific methodologies is subject to implicit assumptions, biases and knowledge politics; it must therefore be open to challenge and deliberation.

→ **The recommendations made by scientists must be context-specific and adaptive in order to succeed.**

Social actors must be able to influence the framing of scientific analysis, in order to ensure that the questions being asked are relevant to the contexts they know best. Strong feedback loops between the worlds of science, policy and practice must also be ensured, so that social actors can weigh in when the answers turn out to be ill-adapted to their context.

→ **Social actors hold unique knowledge that can catalyze change.**

Involving actors from outside the traditional bounds of the scientific community in devising food systems reform is essential, in order to bring in knowledge that scientists may not hold. Agroecology, with its focus on innovation in the field, is a striking illustration of why this matters, and how it can be a catalyst for change.

Knowledge revolutions and persistent paradigms: surveying the landscape of food systems initiatives

Significant progress has been made over recent years in accommodating different actors, framings and sources of knowledge in leading science-policy initiatives. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), completed in 2008, allowed the parameters of discussion and the proposed methodologies to be open to contestation, placing a wide range of stakeholders on equal footing in this deliberation.

The Intergovernmental Panel on Climate Change (IPCC) and the Millennium Ecosystem Assessment (MA) have also integrated different sources of knowledge, allowing dominant arguments, such as those based around market efficiencies, to be challenged in the process of framing the problems to be addressed. The recently-formed High Level Panel of Experts (HLPE) of Committee on World Food Security (CFS) has been equally open to diverse sources of knowledge and the diverse worldviews underpinning them.

However, initiatives at the science-policy interface have struggled to capture the totality of food systems. Assessments have been disproportionately centered on boosting food production, a focus which has found a new incarnation in ‘**sustainable intensification**’, now widely adopted as a means of squaring environmental concerns with the imperative to grow more food.

‘**Food security**’ is another framing that appears to cast the net wide, but too often becomes a byword for raising the global food supply. **This tendency to narrow the analytical lens risks perpetuating the agronomic knowledge bias and agro-industrial political bias of the ‘green revolution’.** It may also reflect a **tendency to prioritize technological innovations over social innovations.** Meanwhile, the impacts of agricultural subsidies and the biases implied in export-led agricultural policies have been insufficiently explored in nutrition-focused analyses.

Conclusion

The challenge, then, is for science-policy initiatives to resist the narrowing of the analytical lens, and to overcome the fragmentation of food governance spaces. The approach of such initiatives should be systemic, and it should include an analysis of power relations and the political economy of food systems. In order to contribute to food systems reform, a critical mass of evidence must be gathered and transposed

into policy recommendations. The voices of academic experts and social innovators will be all the more powerful for their ability to talk the same language, and to anchor themselves to common reference points and analytical toolkits. Furthermore, this emerging science of sustainable food systems must be informed by the knowledge of practitioners, and appropriated by those to whom it seeks to be useful.

Panel members



Olivier De Schutter is co-chair of IPES-Food. He served as UN Special Rapporteur on the right to food from May 2008 until May 2014 and was elected to the UN Committee on Economic, Social and Cultural Rights in 2014.



Olivia Yambi is co-chair of IPES-Food. She is a Senior Consultant on Nutrition and Sustainable Development who served as UNICEF Country Representative in Kenya (2007-2012) and has held other senior roles in the UN system.



Bina Agarwal is former president of the Int. Society for Ecological Economics, and an expert on land rights & food security who has published award-winning books on gender and land issues and received the Padma Shri prize from the President of India.



Molly Anderson is a specialist in hunger, food systems, and multi-actor collaborations for sustainability who has led inter-disciplinary academic programmes and participated in regional food system planning.



Claude Fischler has headed major French research institutions and served on national and European-level food safety committees, and has a long track-record of innovative inter-disciplinary research on food and nutrition.



Emile Frison is an expert on conservation and agricultural biodiversity who has headed global research-for-development organisation Bioversity International for ten years, after holding top positions at several global research institutes.



Steve Gliessman founded one of the first formal agroecology programs in the world, and has more than 40 years experience of teaching, research, publishing and production experience in the field of agroecology.



Corinna Hawkes is an expert on food systems nutrition and health who participates in the World Health Organization's Commission on Ending Childhood Obesity and regularly advises governments and international bodies.



Hans Herren is a World Food Prize (1995) and Right Livelihood Award (2013) Laureate, and has managed international agriculture and bio-science research organizations as well as playing a leading role in global scientific assessments.



Martin Khor is Executive Director of the South Centre, an inter-governmental organisation helping to assist developing countries in trade and climate negotiations, and a former director of the Third World Network.

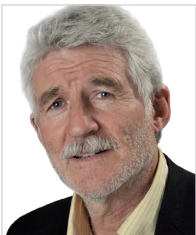
The full report, *The New Science of Sustainable Food Systems: Overcoming Barriers to Food Systems Reform*, can be found at www.ipes-food.org/reports. This is the first report of the International Panel of Experts on Sustainable Food Systems, IPES-Food, an independent panel supported by the Daniel and Nina Carasso Foundation. It was written by the IPES-Food panel, with the support of Nick Jacobs, IPES-Food Coordinator. Comprising environmental scientists, development economists, nutritionists, agronomists and sociologists, as well as experienced practitioners from civil society and social movements, IPES-Food seeks to inform the global policy debate on reforming food systems.



Melissa Leach is Director of the Institute of Development Studies (IDS) at the University of Sussex and founder of the ESRC STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre.



Lim Li Ching is a leading NGO researcher with expertise on sustainable agriculture, biotechnology and biosafety who served as regional lead author in the international IAASTD process and has contributed to several UN reports.



Desmond McNeill is a political economy and global governance expert who has led the Centre for Development and the Environment at the University of Oslo, and chairs the Independent Panel on Global Governance for Health.



Pat Mooney is the co-founder and executive director of the ETC Group, and is an expert on agricultural diversity, biotechnology, and global governance with decades of experience in international civil society.



Maryam Rahmanian is Vice Chair of the High Level Panel of Experts of the Committee on World Food Security, and a research associate at the Centre for Sustainable Development and Environment (CENESTA), an Iranian NGO.



Cécilia Rocha is Director of the School of Nutrition at Ryerson University (Toronto), and a leading authority on food and nutrition policies in Brazil, including the successful experiments in the municipality of Belo Horizonte.



Johan Rockstrom is a leading global expert on resilience, global sustainability and sustainable development who spearheaded development of the 'Planetary Boundaries' framework to identify key environmental thresholds.



Phrang Roy has served as Assistant President of IFAD and Assistant Secretary General of the UN, and has more than 30 years of international experience supporting rural development, small-scale and indigenous communities' agriculture.

